3.1 Alternatives to the Proposed Plan

This chapter documents the alternatives development and screening process and fully analyzes four additional alternatives to the proposed Plan Bay Area. Key features of each alternative are presented, and potential impacts are discussed and compared to the impacts of the proposed Plan Bay Area (also described as the proposed Plan alternative).

The CEQA Guidelines require EIRs to describe a reasonable range of potentially feasible alternatives to a proposed project or program. That is, the EIR needs to analyze those alternatives that will help decision-makers make reasoned choices. The range of alternatives shall include those 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" (CEQA Guidelines, Section 15126.6(a)). "Feasible" means that the alternatives "are capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors" (CEQA Guidelines, Section 15364). The proposed Plan's objectives are provided in *Chapter 1.2, Overview of the Proposed Plan Bay Area*. In addition, the EIR must evaluate the No Project alternative, which allows decision makers to compare the impacts of approving the project with the impacts of not approving the project.

If the alternatives themselves would have significant environmental impacts, the EIR must identify them. The alternatives may result in new impacts that do not result from the proposed Plan Bay Area. Quantified information on the alternatives is presented where available; however, in some cases only partial quantification can be provided because of data or analytical limitations. In such cases, a qualitative analysis is provided.

Finally, the CEQA Guidelines require each EIR to identify the environmentally superior alternative among the alternatives analyzed. The environmentally superior alternative is selected based on a comparative assessment of the overall environmental impacts of each alternative and identification of the alternative with the fewest or least severe environmental impacts overall. If the No Project alternative is the environmentally superior alternative, the EIR must select another alternative from among the alternatives analyzed.

Alternatives Screening

MTC and ABAG conducted an extensive screening process to identify potential Plan alternatives and to ultimately identify a reasonable range of alternatives for full evaluation in this EIR.

Multiple rounds of transportation and land use scenario analyses were conducted between 2010 and 2012 by MTC and ABAG to inform Plan Bay Area. The Current Regional Plans, analyzed in February 2011 and the Initial Vision Scenario, released in March 2011, provided a starting point for conversations with local governments and Bay Area residents about where new development should occur, and how new long-term transportation investments can serve this new growth. Input from local jurisdictions was gathered (see *Chapter 1.2, Overview of the Proposed Plan Bay Area* for detailed information on this process) to create a range of alternative land use development scenarios, primarily focused around various levels of projected growth in the urban, suburban, and rural areas. Two transportation networks were also developed by MTC in the initial round of scenario analyses: one that continued the investment strategy of the existing Regional Transportation Plan (Transportation 2035), with significant funding for operations and maintenance of the existing system and limited expansions of highway and transit networks; and one that significantly increased transit service frequencies along the core transit network, kept Transportation 2035 investment levels for maintenance and bike/pedestrian projects, and reduced Transportation 2035 roadway expansion investments. These scenarios and networks informed the development of the proposed Plan as well as the alternatives included for evaluation in this EIR.

Subsequently, as part of the investment tradeoffs and policy-making process that is described in *Chapter 1.2: Overview of the Proposed Plan Bay Area,* ABAG and MTC developed the Jobs-Housing Connection Strategy and the Transportation Investment Strategy respectively, which together comprise the proposed Plan.

In light of the alternative scenario analyses, MTC and ABAG generated a preliminary range of alternatives for consideration in the EIR, and included those in the Notice of Preparation (NOP) in June 2012 for public comments (see Appendix A). These preliminary alternatives—the No Project alternative, Jobs-Housing Connection Strategy (the preferred Plan), Lower Concentrations of PDA Growth, Eliminate Inter-Regional Commute, and Environment, Equity, and Jobs—were designed to achieve most of the Plan Bay Area performance targets, and thus the project objectives, particularly the GHG emissions reduction target through alternative land use patterns and by providing additional investment in transit service and implementing various road pricing strategies on the transportation network. Two of the alternatives were developed by stakeholder groups. The Eliminate Inter-Regional Commute, which became Alternative 4, was developed by representatives of the business community. The Equity, Environment and Jobs alternative, which became Alternative 5, was developed by a group of equity stakeholders including Public Advocates, Urban Habitat and Transform. MTC and ABAG discussed these preliminary alternatives with the MTC Planning Committee, Policy Advisory Committee, ABAG Administrative Committee, planning directors from the region's CMAs and major cities, and stakeholders from the equity and business communities. In addition, MTC and ABAG presented these alternatives at four public EIR scoping meetings across the region. Several comment letters and oral comments from members of the public and public agencies included recommendations regarding alternatives. These are included in Appendix D.

Approach to Assessing Alternatives

MITIGATION MEASURES

Mitigation measures, as identified for the proposed Plan in *Part Two: Settings, Impacts, and Mitigation Measures* of this EIR, would apply to all alternatives other than the No Project, since the No Project alternative would not include adoption of a new plan. The No Project alternative is assumed to implement existing regulations. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply the mitigation measures described in *Part Two*, as feasible, to address site-specific conditions. However, MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and it is ultimately the responsibility of a lead agency to determine and adopt mitigation. Therefore this EIR finds that it cannot be ensured that this mitigation measures would be implemented in all cases, and therefore, many impacts would remain significant. Where existing regulatory requirements (i.e., for hazards or water resources) or permitting requirements exist (i.e., for biological resources), it is assumed that since these regulations are law and binding on responsible agencies and project sponsors, it is reasonable to determine that they would be implemented, thereby reducing impacts to less than significant where relevant.

MODELING

See *Chapter 1.2: Overview of the Proposed Plan Bay Area* for a detailed overview of the modeling methodology.

Travel Demand Forecasting Model – Travel Model One

The MTC travel demand model, Travel Model One, is a regional activity-based travel model for the San Francisco Bay Area. This model produced all of the key outputs used in assessing the significance of transportation impacts for all alternatives, including outputs such as vehicle miles traveled, vehicle hours of delay, and accessibility, as well as other outputs such as volume to capacity ratios and level of service.

Land Use Forecasting Model – UrbanSim

ABAG developed regional control totals—forecasted numbers of households and employed residents—for the time period between 2010 and 2040, as described in *Chapter 1.2*. UrbanSim, the regional land use forecasting model, relied upon these regional control totals as model inputs. Based on the assumed levels of household and job growth in the region, UrbanSim analyzed the impact of specific policy inputs for each of the alternatives, such as zoning, fees, incentives, and growth boundaries, on the regional development pattern.

Subsequently, GIS raster data was developed by MTC using UrbanSim land use outputs, including the forecast location of new jobs and housing throughout the region for each alternative. Due to modeling constraints, adjustments were made to the proposed Plan model outputs to better reflect the land use pattern of the proposed Plan, which went through an extensive planning process involving refinements by local jurisdictions.

Adjustments were not made for the other alternatives given that they did not have the same degree of pre-defined land use outcome targets (alternatives are defined by policy inputs, as described above).

Using these data, urbanized land footprints were developed for each alternative1 and land use impacts were analyzed using the parcel dataset.

Detailed information on modeling processes, including adjustments and outputs, is included in the Summary of Predicted Land Use Responses supplemental document, released in March 2013. This data and other documents can be obtained from the MTC/ABAG Library, or from OneBayArea website at onebayarea.org.

Integration of Travel Model One and UrbanSim

In order to appropriately consider the symbiotic relationship of transportation and land use, Travel Model One and UrbanSim are unified in an integrated model framework. This allowed for analysis of how transportation projects affect the surrounding land use pattern, as well as how changes to household and employment locations affect transportation demand. See *Chapter 1.2: Overview of the Proposed Plan Bay Area* for more detail on this process.

For calculations relying on outputs from Travel Model One and population totals (i.e., per capita VMT or per capita energy use), model-simulated population levels were used to ensure consistency. Simulated population may be slightly different than overall population forecasts for the proposed Plan and alternatives due to slight variability in modeling tools. Further clarification on this issue is in the Plan Bay Area EIR technical appendices.

References

The Summary of Predicted Traveler Responses and Summary of Predicted Land Use Responses supplemental documents, released in March 2013, provide detail regarding the modeling assumptions and outputs for Plan Bay Area. Raster land use data development is outlined in an appendix to the Summary of Predicted Land Use Responses. MTC and ABAG also have a large body of detailed published documentation regarding the integrated travel demand and land use model. This data and other documents can be obtained from the OneBayArea website at onebayarea.org.

Alternatives Analyzed in this EIR

This EIR evaluates the No Project alternative as required by CEQA, as well as three other alternatives refined through the scoping process. The descriptions of the alternatives are provided below, followed by an analysis that compares the environmental impacts of each alternative to the proposed Plan. A complete listing of projects by alternative is provided in Appendix C.

Consistent with the Notice of Preparation (NOP) of this EIR, the alternatives are listed and referred to in the following order:

1. No Project alternative,

[1] Future urbanized footprints apply a density threshold of 4 households per acre and 10 jobs per acre to the 2040 growth areas.

2. Alternative 2: Proposed Plan,
3. Alternative 3: Transit Priority Focus,
4. Alternative 4: Enhanced Network of Communities, and
5. Alternative 5: Environment, Equity and Jobs.

Descriptions of the key policies of each alternative follow, emphasizing where they deviate from the proposed Plan.

ALTERNATIVE 1: NO PROJECT

The No Project alternative represents the potential scenario if Plan Bay Area is not implemented. Under this alternative, no new regional policies would be implemented in order to influence local land use patterns and no uncommitted transportation investments would be made. The key elements of the No Project alternative that vary from the proposed Plan include the following:

- **Land Use Policies:** No new regional land use plan would be developed and no new policies would be implemented to influence the locations of housing and employment centers in the region. No new fees, subsidies, or land development incentives would be provided on the regional level. Urban growth boundaries would be assumed to expand at historical rates, allowing for additional development potential in greenfield locations.
- **Transportation Investments:** Projects and programs that are identified as "committed" in MTC Resolution 4006 Committed Projects and Programs Policy are included in this alternative – this is similar but not identical to the list of projects in Transportation 2035. The transportation network in this alternative would therefore not be equivalent to existing conditions. The committed projects and programs include transportation projects/programs that were sufficiently through the environmental review process as of May 2011 and had full funding plans in place. In addition, regional programs with executed contracts or funding already secured are considered committed and included in the No Project alternative, through the existing contract period for each program. However, Express Lane projects in MTC's regional network are listed as committed but technically are uncommitted;[2] all of the MTC Network Express Lane projects are therefore excluded from the No Project alternative (VTA's Express Lane Network is a fully committed project and included in every alternative).
- **Transportation Policies:** Tolls would remain the same as measured in constant year dollars. Parking prices would remain the same as measured in constant year dollars, and localized parking minimums would remain the same for new development.

ALTERNATIVE 2: PROPOSED PLAN

Alternative 2, proposed as the Jobs-Housing Connection in the NOP, was selected by MTC and ABAG as the preferred plan option for Plan Bay Area, and is the proposed Plan evaluated throughout this EIR.

[2] The region's two Express Lane networks—MTC's regional network and VTA's network—are each viewed as a project made up of individual project segments. Unless the entire network is fully funded and committed, the entire network, or "project", is uncommitted. As a result, MTC's Express Lane Network is an uncommitted project; VTA's Express Lane Network is a fully committed project.

See the Project Description in *Chapter 1.2* for a detailed description of this alternative, which includes both the Jobs-Housing Connection and the Transportation Investment Strategy.

ALTERNATIVE 3: TRANSIT PRIORITY FOCUS

The Transit Priority Focus alternative seeks to develop a focused growth pattern primarily in the region's urban core by relying on Transit Priority Project eligible areas (TPPs), which are areas with high-frequency transit service that are eligible for higher-density development streamlining, as per SB 375. The TPP framework is meant to leverage the significant investment the region has made and continues to make in transit service. This alternative was referred to as "Lower Concentrations of PDA Growth" in the NOP. Key components of this alternative that vary from the proposed Plan include the following:

- **Land Use Policies:** Rather than the Priority Development Area (PDA)-based framework of the proposed Plan, this alternative would emphasize future development in TPPs. Defined by SB 375 as growth emphasis areas, local jurisdictions would be encouraged to up-zone these areas in order to encourage growth around high-frequency transit services (especially fixed-guideway assets). Additionally, a regional development fee based on vehicle miles traveled would be implemented to discourage low-density suburban and rural development, with proceeds used to subsidize urban infill development areas.
- **Transportation Investments:** The transportation network for Alternative 3 revises the Transportation Investment Strategy identified in the proposed Plan to place a greater emphasis on supporting the urban core. This alternative slightly scales back the Regional Express Lane Network by removing proposed express lanes at the fringe of the region. In addition, funding is shifted from other priorities (the Freeway Performance Initiative and OneBayArea grants) to support additional investment in BART service in the core of the region (the BART Metro project) and increased AC Transit bus service in the urban core.
- **Transportation Policies:** This alternative would increase the San Francisco-Oakland Bay Bridge toll to $8 at peak hours. The higher bridge toll is intended to reduce congestion and encourage transit ridership in the bridge corridor and support investment in transit service on the Bay Bridge corridor.

ALTERNATIVE 4: ENHANCED NETWORK OF COMMUNITIES

This alternative seeks to provide sufficient housing for all people employed in the San Francisco Bay Area and allows for more dispersed growth patterns than the proposed Plan. This alternative reflects input from the region's business community, which requested an alternative that mirrors the land use pattern previously identified in Current Regional Plans/Projections 2011 (CRP).[3] This alternative is based on the "Eliminate Inter-Regional Commuting" alternative presented in the NOP, based on feedback to incorporate a less-focused growth pattern with higher regional household projections. Key components of this alternative that vary from the proposed Plan include the following:

- **Demographics:** This is the only alternative that includes different and higher population and employment projections within the region, which reflect an elimination of in-commuting from neighboring regions. All other alternatives assume that the Bay Area will continue to import

[3] See Supplemental Report, *Current Regional Plans Technical Report,* on onebayarea.org.

workers from adjacent counties at the current rate of in-commuting. This higher regional population will lead to a higher number of jobs in the region, as more residents consume services which require employees. As a result, this alternative also has a higher number of jobs than the proposed Plan.

- **Land Use Policies:** The land use is based on CRP, which focuses growth around PDAs, but at a lower level than in the proposed Plan. The distribution of future housing and jobs is based on Projections 2009, adjusted to reflect local jurisdiction input and to extend the forecast from 2035 to 2040. When developing CRP, CMAs and local jurisdictions were asked to review and provide comments on Projections 2009 to improve the spatial distribution of housing and job growth. In some cases, local feedback included updates to forecasts at the census tract level, while in other cases local planners identified allocations of future growth at the neighborhood or city level. Responses were not comprehensive across all jurisdictions. Growth levels in CRP were adjusted proportionally to achieve consistency with the regional projections for housing and jobs assumed in this alternative. Subsidies were applied as necessary to achieve the growth distribution desired in this alternative. This alternative will include OBAG incentives for development in targeted locations, but unlike the proposed Plan would not include incentives for redevelopment.
- **Transportation Investments:** The transportation investments for both road and transit networks would remain consistent with the proposed Plan with the exception of shifting $70 million from the Climate Initiatives Policies to local road and state highway maintenance and dedicating revenues from the bridge toll increase (see below) to state highway maintenance.
- **Transportation Policies:** Like Alternatives 3 and 5, this alternative will increase the San Francisco-Oakland Bay Bridge toll to $8 at peak hours.

ALTERNATIVE 5: ENVIRONMENT, EQUITY, AND JOBS

This alternative reflects the development proposal presented by Public Advocates, Urban Habitat, and TransForm during the scoping period. This alternative seeks to maximize affordable housing in high-opportunity urban and suburban areas through incentives and housing subsidies. The suburban growth is supported by increased transit service to historically disadvantaged communities through a Vehicle Miles Traveled (VMT) tax and higher bridge tolls. Key components of this alternative that vary from the proposed Plan include the following:

- **Land Use Policies:** The intent of this alternative is to reduce residential displacement and support affordable housing in both PDAs and "high-opportunity" suburban locations. This alternative would encourage intensification of land use beyond PDAs to include jobs-rich, high-opportunity TPPs not currently identified as PDAs. Based on criteria specified by the equity stakeholders, these additional areas would include locations that are generally rich in employment and good schools but lack affordable housing. Select PDAs in rural or exurban areas would also be disqualified for upzoning or OBAG funding, as identified by equity stakeholders, in order to discourage growth far away from existing job centers.This alternative would also include a modified OneBayArea grant program focused on affordable housing and anti-displacement policies as pre-conditions for subsidies and incentives (due to modeling limitations, these incentives did not impact modeling outputs). The reinstatement of some form of redevelopment financing would help support infill development in this alternative, while subsidies would be used to support programs that minimize displacement. Unlike Alternatives 3 and 4, this alternative would discourage CEQA streamlining for TPP-eligible areas. While streamlining

would still be legal, as per SB 375, based on the input of the EEJ stakeholders, this alternative would not reference TPPs, thus making it impossible for project sponsors to streamline. The modeling analysis for this alternative therefore did not include any benefits from CEQA streamlining to encourage development.

- **Transportation Investments:** This alternative seeks to strengthen public transit by significantly boosting service frequencies in most suburban and urban areas, other than on Muni, BART or Caltrain, and providing free transit passes to youth throughout the region. This alternative includes a reduced scope highway network which excludes all uncommitted road projects, other than maintenance projects, from the Transportation Investment Strategy. As with Alternative 1, the No Project alternative, all of the MTC Network Express Lane projects are excluded as they are considered uncommitted (VTA's Express Lane Network is a fully committed project and included in every alternative). As such, this alternative does not include the Regional Express Lanes Network, with the exception of committed projects.
- **Transportation Policies:** Most notably, this alternative includes the implementation of a vehicle miles traveled (VMT) tax to fund the expanded investments in public transit. This tax, assumed at a rate of one cent per mile on annual vehicle miles traveled within the region, would provide a substantial revenue source, while also discouraging residents from driving; exemptions from the tax would be provided for low-income households. Furthermore, the San Francisco-Oakland Bay Bridge would have an increased peak-period toll of $8, consistent with Alternatives 3 and 4, providing additional revenue in the Transbay corridor.

ALTERNATIVES COMPARISONS

Table 3.1-1 provides an overview comparison of the land use policies, transportation investments, and transportation policies proposed in the five Plan Bay Area alternatives. The full list of which transportation projects are included in each alternative is provided in Appendix C.

TABLE 3.1-1: POLICY MEASURE COMPARISON

	Alt 1 No Project	*Alt 2 Proposed Plan*	*Alt 3 Transit Priority*	*Alt 4 Enhanced Net*	*Alt 5 Environment, Equity, and Jobs*
LAND USE POLICIES					
Zoning					
Existing General Plans	•				
PDA-Focused Growth		•		•	•
TPP-Focused Growth			•		•
Growth Boundaries					
Current Trends Continue	•				
Strict Boundaries		•	•	•	•
Fees and Subsidies					
No New Fees	•				
Subsidies for PDA Growth		•		•	

TABLE 3.1-1: POLICY MEASURE COMPARISON

	Alt 1 No Project	*Alt 2 Proposed Plan*	*Alt 3 Transit Priority*	*Alt 4 Enhanced Net*	*Alt 5 Environment, Equity, and Jobs*
Subsidies for Urban Core			•		
Subsidies for PDA/TPP Opportunity Areas					•
Fee on High VMT Area			•		
Incentives					
None	•				
OneBayArea Grants		•	•	•	•
CEQA Streamlining		•	•	•	(see table note 1)
TPP Redevelopment		•	•		•
TRANSPORTATION INVESTMENTS					
Road Network					
Committed Projects Only	•				
Preferred		•		•	
Preferred w/ Reduced Express Lanes			•		
Preferred w/o Highway Expansion or Operational Projects					•
Transit Network					
Committed Projects Only	•				
Preferred		•		•	
Increased Funding for BART, AC Transit			•		
Additional Service for All Major Transit Operators other than Muni, BART or Caltrain					•
Climate Initiates					
Regional Electric Vehicle Public Charger Network		•	•	•	•
Vehicle Buy-Back & Plug-In or Electric Vehicles Purchase Incentives		•	•	•	•
Car Sharing	•	•	•	•	•
Vanpool Incentives		•	•	•	•
Clean Vehicles Feebate		•	•	•	•

TABLE 3.1-1: POLICY MEASURE COMPARISON

	Alt 1 No Project	*Alt 2 Proposed Plan*	*Alt 3 Transit Priority*	*Alt 4 Enhanced Net*	*Alt 5 Environment, Equity, and Jobs*
Program					
Smart Driving Strategy		•	•		•
Commuter Benefits Ordinance	•	•	•	•	•
TRANSPORTATION POLICIES					
Road Pricing					
None	•	•			
Higher Peak Toll on Bay Bridge			•	•	•
VMT Tax					•
Parking Policies					
Status Quo	•				
Reduced Minimums		•	•	•	•

1. Unlike Alternatives 3 and 4, Alternative 5 would discourage CEQA streamlining for TPP-eligible areas. While streamlining would still be legal, as per SB 375, based on the input of the EEJ stakeholders, the Plan would not reference TPPs, thus making it impossible for project sponsors to streamline.

Comparative Demographic Forecasts

All of the alternatives, except for Alternative 4, are designed to accommodate the same population and employment in the year 2040 based on forecasts developed by ABAG, with varying locational distributions of growth.

Unlike all other alternatives, Alternative 4 has different levels of household and employment growth in the region. Compared to the proposed Plan, it includes four percent more households and one percent more jobs. This higher growth total reflects the Senate Bill 375 requirement to house the region's entire population (i.e., provide a house for every household employed in the region).

Table 3.1-2 displays the differences in demographics between the various alternatives. As a result of the lower levels of transit infrastructure investment and more dispersed land use pattern under the No Project alternative, the share of households with zero cars is slightly lower than the proposed Plan (nine percent versus 11 percent). Otherwise, the other three alternatives have similar car ownership rates as compared to the proposed Plan.

TABLE 3.1-2: BAY AREA DEMOGRAPHIC FORECASTS (2010-2040)

	2010	*2040 Plan (Alt 2)*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Total Population	7,091,000	9,196,000	9,196,000	0%	9,196,000	0%	9,535,000	+4%	9,196,000	0%
Total Employment	3,385,000	4,505,000	4,505,000	0%	4,505,000	0%	4,550,000	+1%	4,505,000	0%
Employed Residents	3,269,000	4,350,000	4,350,000	0%	4,350,000	0%	4,513,000	+4%	4,350,000	0%
Total Households	2,608,000	3,308,000	3,308,000	0%	3,308,000	0%	3,431,000	+4%	3,308,000	0%
% of Households with Zero Autos	9%	11%	9%	N/A	10%	N/A	11%	N/A	10%	N/A
% of Households with One Auto	33%	33%	33%	N/A	33%	N/A	33%	N/A	33%	N/A
% of Households with Multiple Autos	58%	56%	58%	N/A	57%	N/A	57%	N/A	57%	N/A
Average Vehicles per Household	1.78	1.75	1.81	+3%	1.76	+1%	1.77	+1%	1.77	+1%

Sources: Association of Bay Area Governments, 2012; Metropolitan Transportation Commission Travel Forecasts, 2012

Households

Table 3.1-3 compares the household distribution in the years 2010 and 2040 for each alternative, along with each county's proportion of the region's population, as modeled by UrbanSim after taking each scenario's land use and transportation policies and transportation projects into account. For the draft Plan and Alternative 4, the housing and job allocations in PDAs were made to match the Jobs-Housing Connection and Current Regional Plans adopted by ABAG. Growth in areas outside of PDAs and the distribution within PDAs were modeled by UrbanSim. Each county is projected to gain households between 2010 and 2040 in every alternative, although by varying degrees. A few outcomes of note:

- The distribution of the region's households by county generally stays the same across time.
- For most counties—particularly Marin and Napa—there is relatively little difference between the alternatives. The largest range of possible outcomes is seen in San Mateo and Santa Clara counties.
- Contra Costa, Marin, and Napa counties maintain or reduce their proportion of the region's households in all alternatives (that is, grow at or below the regionwide rate). San Francisco, San Mateo, and Solano counties maintain or increase their proportion of the region's households in all alternatives.
- The No Project alternative results in the most new households for the North Bay—Napa, Solano, and Sonoma counties (16 percent of the region's total population, compared to 14 percent in the proposed Plan and 13 percent in Alternatives 3, 4, and 5) due to the urban growth boundaries in that alternative expanding at historic rates and reflective of recent trends of strong growth in the North Bay.
- Alternative 2, the proposed Plan, is the alternative that is the closest to maintaining the existing county-level distribution of households.
- Alternatives 3 and 5 deviate the most from the existing distribution of households. Alternative 3, Transit Priority Focus, pushes growth away from the East Bay and North Bay and into San Francisco, San Mateo, and Santa Clara counties. Alternative 5, Environment, Equity, and Jobs, pushes growth into Alameda and San Mateo counties.
- Alternative 4, the Enhanced Network, would result in most future household growth going to three counties: Alameda, Contra Costa and Santa Clara.

Jobs

Similar to population and household growth, the alternatives all accommodate the same number of jobs in the year 2040, with Alternative 4 the exception (the additional regional population will lead to greater local demand for services, leading to more jobs). **Table 3.1-4** shows the projected job distribution by county for each alternative. As with households, each county gains jobs in every alternative and generally maintains its 2010 proportion of the region's jobs. Deviations from this pattern include:

- The distribution and growth of jobs does not necessarily match the location and growth in households in all areas, although ideally it would in order to reduce commuting distances and the related GHG emissions, as per the goals of SB 375.

- Contra Costa and San Mateo add jobs at or above the regionwide rate in all alternatives. Marin, Napa, and Solano grow at around the regional rate in all alternatives. San Francisco and Sonoma add jobs at or below the regional rate of growth in all alternatives. The rate of jobs growth varies more significantly in Alameda and Santa Clara.
- The No Project alternative results in the highest job growth scenarios for Napa, San Mateo, Solano, and Sonoma counties and the lowest growth scenario for Santa Clara.
- Alternative 2, the proposed Plan, is the only alternative that maintains the current distribution of jobs across counties.
- Alternative 3 pushes job growth away from Alameda and San Francisco and toward Contra Costa, Napa, and Santa Clara.
- Alternative 4 largely maintains the current distribution of jobs, although with proportional gains in Contra Costa offsetting slower growth in Alameda.
- Alternative 5 results in greater job growth in the East Bay (Alameda, Contra Costa) and slower job growth in San Francisco, Santa Clara, Solano, and Sonoma.

TABLE 3.1-3: YEAR 2040 HOUSEHOLDS BY COUNTY

County	*Year 2010*	*%*	*Alt 1 No Project*	*%*	*Alt 2 Proposed*	*%*	*Alt 3 Transit*	*%*	*Alt 4 Enhanced*	*%*	*Alt 5 EEJ*	*%*
Alameda	545,137	21%	667,351	20%	705,289	21%	676,693	20%	738,991	22%	719,958	22%
Contra Costa	375,364	14%	472,450	14%	463,062	14%	413,724	13%	490,651	14%	422,539	13%
Marin	103,210	4%	111,509	3%	112,021	3%	105,702	3%	111,224	3%	108,135	3%
Napa	48,876	2%	66,410	2%	56,285	2%	57,008	2%	53,240	2%	57,315	2%
San Francisco	345,813	13%	435,869	13%	447,248	14%	450,813	14%	439,163	13%	441,464	13%
San Mateo	257,837	10%	336,495	10%	315,735	10%	363,812	11%	332,967	10%	386,026	12%
Santa Clara	604,207	23%	739,151	22%	819,138	25%	868,528	26%	875,388	26%	795,303	24%
Solano	141,758	5%	211,897	6%	168,643	5%	166,336	5%	172,214	5%	167,793	5%
Sonoma	185,825	7%	266,989	8%	220,699	7%	205,505	6%	217,904	6%	209,588	6%
Bay Area	*2,608,027*	*100%*	*3,308,120*	*100%*	*3,308,120*	*100%*	*3,308,120*	*100%*	*3,431,742*	*100%*	*3,308,120*	*100%*

TABLE 3.1-4: YEAR 2040 JOBS BY COUNTY

County	*Year 2010*	*%*	*Alt 1 No Project*	*%*	*Alt 2 Proposed*	*%*	*Alt 3 Transit*	*%*	*Alt 4 Enhanced*	*%*	*Alt 5 EEJ*	*%*
Alameda	694,433	21%	921,759	20%	947,604	21%	871,452	19%	924,433	20%	987,579	22%
Contra Costa	344,914	10%	539,131	12%	465,471	10%	566,992	13%	501,219	11%	508,291	11%
Marin	110,741	3%	126,343	3%	129,110	3%	133,703	3%	156,472	3%	124,095	3%
Napa	70,651	2%	106,519	2%	89,572	2%	106,630	2%	82,413	2%	99,911	2%
San Francisco	568,728	17%	711,917	16%	760,237	17%	656,685	15%	763,323	17%	695,149	15%
San Mateo	345,201	10%	506,139	11%	445,472	10%	494,868	11%	462,121	10%	492,403	11%
Santa Clara	926,265	27%	1,135,257	25%	1,229,758	27%	1,248,658	28%	1,215,969	27%	1,188,672	26%
Solano	132,345	4%	190,133	4%	180,162	4%	186,790	4%	179,170	4%	175,861	4%
Sonoma	192,003	6%	268,021	6%	257,832	6%	239,441	5%	264,886	6%	233,257	5%
Bay Area	*3,385,281*	*100%*	*4,505,218*	*100%*	*4,505,218*	*100%*	*4,505,218*	*100%*	*4,550,006*	*100%*	*4,505,218*	*100%*

PDA Growth

A major strategy of the proposed Plan is the direction of future residential and employment growth into PDAs, locally-identified locations with existing or future transit service for infill development and redevelopment. Across the region, around 99,900 acres of land are designated as PDAs. Around 70 percent of land in PDAs is TPP-eligible.

The proposed Plan and the alternatives (except Alternative 4) all accommodate the same number of future households and jobs, but the distribution of this growth varies depending on the mix of land use and transportation policies and transportation investments in each scenario. **Table 3.1-5** shows the expected distribution of household growth for each alternative; **Table 3.1-6** shows the expected distribution of employment growth.

Currently, around 26 percent of households and 45 percent of jobs in the Bay Area are located within PDAs. Overall the proposed Plan would result in the largest share of development within PDAs, placing 77 percent of new household growth and 63 percent of new employment growth within PDAs. This would increase the regional share of housing in PDAs to 37 percent and of jobs to 49 percent. Comparatively, Alternative 3 places 53 percent of new households and 33 percent of new jobs into PDAs; Alternative 4 would locate 46 percent of new households and 38 percent of new jobs into PDAs; and Alternative 5 would locate 57 percent of new households and 33 percent of new jobs into PDAs. Meanwhile, the No Project alternative is projected to result in the most dispersed growth pattern as compared to existing conditions, with only 24 percent of new households and 20 percent of new jobs located in PDAs.

Overall, all alternatives would result in some increase in the share of households in PDAs, except for the No Project alternative, which would maintain the existing share. However, the share of jobs located in PDAs would drop below the existing share in all alternatives except for the proposed Plan.

TABLE 3.1-5: TOTAL HOUSEHOLDS AND HOUSEHOLD GROWTH BY SHARE IN PDAS

Alternative	*Total Households*	*Total Households in PDAs*	*% of Households in PDA*	*New Regional Household Growth*	*New Household Growth in PDAs*	*% of New Household Growth in PDAs*
Year 2010 Baseline	2,608,000	679,187	26%	n/a	n/a	n/a
1 - No Project 2040	3,308,000	849,787	26%	700,000	170,600	24%
2 –Proposed Plan 2040	3,308,000	1,217,155	37%	700,000	537,968	77%
3 - Transit Priority 2040	3,308,000	1,049,878	32%	700,000	370,691	53%
4 – Connected 2040	3,432,000	1,055,533	31%	824,000	376,346	46%
5 – EEJ 2040	3,308,000	1,079,635	33%	700,000	400,448	57%

Source: MTC, 2013.

TABLE 3.1-6: TOTAL JOBS AND JOB GROWTH BY SHARE IN PDAS

Alternative	*Total Jobs*	*Total Jobs in PDAs*	*% Jobs in PDAs*	*New Regional Job Growth*	*New Job Growth in PDAs*	*% of New Job Growth in PDAs*
Year 2010 Baseline	3,385,000	1,525,415	45%	n/a	n/a	n/a
1 - No Project 2040	4,505,000	1,749,774	39%	1,120,000	224,359	20%
2 –Proposed Plan 2040	4,505,000	2,227,918	49%	1,120,000	702,503	63%
3 - Transit Priority 2040	4,505,000	1,891,757	42%	1,120,000	366,342	33%
4 – Connected 2040	4,550,000	1,971,957	43%	1,165,000	446,542	38%
5 – EEJ 2040	4,505,000	1,889,874	42%	1,120,000	364,459	33%

Source: MTC, 2013.

Urbanized Footprint

As of 2010, the Bay Area had 786,000 acres of urbanized land, representing 17.75% of the region's land area of 4.4 million acres. The five alternatives are all projected to increase the region's urbanized footprint to varying degrees, though differences between the proposed Plan, Alternative 3, Alternative 4, and Alternative 5 are marginal. The No Project alternative is expected to convert the greatest number of acres to urbanized land as compared to the other alternatives.

- The No Project alternative would add a total of 20,702 new acres of urbanized land, which is more than twice the amount of any of the other alternatives, and would result in an urbanized footprint of 18.22% of the region's total area.
- The proposed Plan (Alternative 2) has the lowest projected increase, adding a total of 7,547 urbanized acres. This would result in an urbanized footprint of 17.92% of the region's total land area.
- Alternative 3 would add 8,113 new acres of urbanized land, increasing the urbanized footprint to 17.94% of the region's total area.
- Alternative 4 would have an impact similar to that of the proposed Plan. It would result in 7,586 new acres of urbanized land. The urbanized footprint resulting from Alternative 4 would cover 17.93% of the regions total area.
- Alternative 5 would result in an increase of 9,596 acres, increasing the urbanized footprint to 17.97% of the region's total area.

Transportation System Capacity Increases

Table 3.1-7 presents the differences in the supply of the transportation system among the alternatives. While all of the alternatives have a heavy emphasis on maintaining and operating the existing transportation system, several alternatives identify new funding sources to boost the region's state of good repair and/or increase public transit operations beyond what is included in the proposed Plan.

- **Alternative 1 – No Project:** As the No Project alternative only includes committed projects, it does not include some of the region's most significant capacity-increasing projects, such as the Regional Express Lanes Network, BART to San Jose, and Caltrain Electrification/Frequency

Improvements. This alternative represents a significantly lower level of road and transit capacity compared to the proposed Plan; road lane-miles are two percent less than the proposed Plan and transit seat-miles are 10 percent less than the proposed Plan. Commuter rail and express bus services are particularly affected, with service levels at least 20 percent lower than the proposed Plan.

- **Alternative 3 – Transit Priority Focus:** While this alternative's transportation investments are largely the same as the proposed Plan, Transit Priority Focus scales back the scope of the Regional Express Lane Network, boosts AC Transit service levels, and funds BART Metro beyond what is in the proposed Plan. As a result, this alternative has one percent fewer highway lane-miles and four percent more transit seat-miles. The AC Transit frequency improvements can be evidenced by the three percent increase in local bus seat-miles and the one percent increase in express bus seat-miles, while the frequency improvements associated with BART Metro boost heavy rail seat-miles by seven percent.
- **Alternative 4 – Enhanced Network of Communities:** The transportation capacity investments for this alternative are fully consistent with the proposed Plan; therefore, Alternative 4 has approximately the same number of road lane-miles and transit seat-miles as the proposed Plan.
- **Alternative 5 – Environment, Equity, and Jobs:** This alternative's transportation capacity levels differ most significantly from the proposed Plan. Since Alternative 5 cancels all uncommitted highway projects (both expansion and operational improvements), the alternative includes two percent fewer road lane-miles than the proposed Plan; this is relatively consistent with the No Project alternative. The alternative also leverages new funding sources, including a VMT tax and funding from canceled highway projects, to expand transit operations on urban and suburban transit operators in all counties of the region, except San Francisco. This service increase expands the region's transit seat-miles by eight percent, boosting local bus seat-miles by 11 percent, express bus seat-miles by 13 percent, and light rail seat-miles by 19 percent. Similar to Transit Priority Focus, this alternative funds BART Metro beyond what is in the proposed Plan, increasing heavy rail seat-miles by seven percent.

TABLE 3.1-7: TRANSPORTATION SYSTEM CAPACITY (2010-2040)

	2010	*2040 Plan (Alt 2)*	*2040 No Project (Alt 1)*	*Change from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*Change from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*Change from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*Change from Proposed Plan*
Freeway Lane-Miles	5,495	6,056	5,806	-4%	5,998	-1%	6,056	0%	5,806	-4%
Expressway Lane-Miles	1,019	1,132	1,032	-9%	1,132	0%	1,132	0%	1,032	-9%
Arterial Lane-Miles	8,710	8,749	8,715	0%	8,749	0%	8,749	0%	8,683	-1%
Collector Lane-Miles	5,528	5,502	5,514	0%	5,502	0%	5,502	0%	5,509	0%
Total Roadway Lane-Miles	**20,751**	**21,438**	**21,067**	**-2%**	**21,381**	**0%**	**21,438**	**0%**	**21,030**	**-2%**
Daily[1] Local Bus Seat-Miles	34,477,000	37,828,000	36,570,000	-3%	39,039,000	+3%	37,809,000	0%	41,887,000	+11%
Daily Express Bus Seat-Miles	7,560,000	9,050,000	6,753,000	-25%	9,136,000	+1%	9,045,000	0%	10,232,000	+13%
Daily Light Rail Seat-Miles	8,114,000	10,781,000	8,848,000	-18%	10,781,000	0%	10,781,000	0%	12,814,000	+19%
Daily Heavy Rail Seat-Miles	44,134,000	56,743,000	53,090,000	-6%	60,499,000	+7%	56,743,000	0%	60,499,000	+7%
Daily Commuter Rail Seat-Miles	14,463,000	22,842,000	18,277,000	-20%	22,842,000	0%	22,842,000	0%	22,842,000	0%
Daily Ferry Seat-Miles	4,612,000	7,099,000	5,821,000	-18%	7,099,000	0%	7,099,000	0%	7,099,000	0%
Total Daily Transit Seat-Miles	**113,361,000**	**144,344,000**	**129,359,000**	**-10%**	**149,397,000**	**+4%**	**144,321,000**	**0%**	**155,374,000**	**+8%**

1. Daily metrics are measured for a typical weekday.

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

Comparative Impact Analysis of Alternatives

This section identifies and compares the environmental impacts of each alternative to the proposed Plan, by resource issue area. Impact discussions in each issue area correspond to the impact categories assessed for the proposed Plan in *Part Two: Settings, Impacts, and Mitigation Measures*.

TRANSPORTATION

As shown in **Table 3.1-8**, Alternatives 3 and 5 have lower levels of total VMT compared to the proposed Plan, while Alternative 4 has significantly higher levels of total VMT when compared to the proposed Plan. Of the alternatives analyzed, Alternative 3 has the least vehicle delay (4 percent less than the proposed Plan), while Alternative 5 has the greatest transit ridership (5 percent more than the proposed Plan). These differences in travel behavior reflect the land use and transportation components of each alternative.

For all of the transportation impacts examined in *Part Two*, the effects of each alternative are summarized in data tables at the end of this section:

- **Table 3.1-9** shows relative differences in per-trip **travel time for commute purposes** between the various alternatives. Alternative 3's strong emphasis on focused growth in the urban core, combined with significant improvements to BART and AC Transit service levels, leads to its stronger performance in comparison to the proposed Plan and all other alternatives. All other alternatives to the proposed Plan are either on par with, or feature longer travel times, than the proposed Plan. All alternatives are expected to have less than significant impacts related to commute travel times.
- **Table 3.1-10** lists the impacts of the various alternatives on **non-commute travel times**. While the No Project alternative and Alternative 4 have slightly greater non-commute travel times than the proposed Plan, the impacts of the land use and transportation investments are less significant than for commute trips. This is likely due to the fact that non-commute travel tends to be at times of day where there is less traffic congestion, such as midday and evening time periods. All of the alternatives, except for Alternative 3, have slightly longer average per-trip non-commute travel times than the proposed Plan. All alternatives are expected to have less than significant impacts related to non-commute travel times.
- **Table 3.1-11** demonstrates how the proposed Plan has significantly lower levels of **per-capita congested VMT** (per-capita vehicle miles traveled at level of service F) when compared to the No Project alternative and Alternative 4. In contrast, Alternative 3 performs much better than the proposed Plan, reducing daily per-capita congested VMT by 14 percent more than the proposed Plan, as a result of its emphasis on growth in existing urban centers with existing robust street grids and transportation alternatives. While mitigation measures would commit MTC and ABAG to advance bridge toll and commuter benefit policies to reduce levels of severe traffic congestion, it is not known at this time if these strategies would reduce the impact below the significance threshold of a five percent increase to a less than significant level. Furthermore, MTC and ABAG cannot guarantee that local jurisdictions or employers would implement such policies in the most effective manner possible, given political or financial limitations. As a result,

all alternatives are expected to have significant and unavoidable impacts related to per-capita congested VMT.

- **Table 3.1-12** highlights the differences in **per-capita VMT** between the various alternatives. While all of the alternatives considered have a reduction in per capita VMT compared to baseline conditions, the proposed Plan and Alternative 4 perform the best, reducing per-capita VMT by nine percent as a result of their focused growth patterns and emphasis on locating jobs in close proximity to housing. All alternatives are expected to no adverse impact related to per-capita VMT.
- **Table 3.1-13** reflects the **levels of regional transit utilization** (ratio of transit seat-miles demanded and transit seat-miles supplied) for each of the alternatives. Compared to the proposed Plan, the No Project alternative, Alternative 3, and Alternative 5 all have lower levels of transit utilization (as a share of supplied transit capacity), meaning there would be fewer local transit vehicles with potential for crowding. No alternatives evaluated have issues with excessive regional transit demand—for all modes during all time periods, transit utilization levels remain well below the 80 percent exceedance threshold. All alternatives are expected to have no adverse impact related to transit utilization.

Alternative 1– No Project

Due to the lower-density development pattern and limited investments in new public transit services, the No Project alternative has significantly less transit ridership than the proposed Plan (21 percent less) and much greater vehicle delay than the proposed Plan (34 percent more). The No Project alternative provides the greatest contrast with the proposed Plan, demonstrating how the proposed Plan shifts regional development and travel trends away from their historical trajectories.

As this alternative features fewer expansion projects for highway and transit facilities, and distributes more growth in suburban and exurban locations in the region, it exhibits travel times that are three percent longer than the proposed Plan during commute periods and one percent longer during non-commute periods. Most significantly, the No Project alternative increases single-occupant automobile travel times during commute periods by seven percent above the proposed Plan and transit travel times by five percent above the proposed Plan.

Lack of expansion projects also leads to increased levels of chronic congestion on the region's highway corridors. As a result, the No Project alternative leads to per-capita congested VMT levels that are 168 percent higher than the proposed project during the AM peak, 94 percent higher during the PM peak, and 123 percent higher over the course of a typical weekday. Per-capita VMT is six percent greater than the proposed Plan, resulting in the typical Bay Area resident driving approximately 21 miles per day. When compared to the proposed Plan and other focused growth alternatives, the No Project alternative indicates how more growth at the region's periphery would lead to higher levels of congestion and more miles of driving each day.

Similar to the proposed Plan, the No Project alternative exhibits no regional transit capacity impacts, as transit demand remains significantly below the level of transit service supplied. Overall transit utilization is generally lower due to fewer transit expansion projects and a less transit-supportive land use pattern. The No Project alternative reflects transit demand levels that are only 36 percent of the transit service supplied over the course of a typical weekday, compared to 39 percent utilization in the proposed Plan.

Only one transit mode has greater utilization than the proposed Plan – express bus – likely as a result of the more suburban land use pattern and its need for long-distance modes of public transit.

Alternative 3– Transit Priority Focus

This alternative shifts regional growth to the Transit Priority Project eligible areas, with the greatest emphasis on growth in the urban core close to high-frequency transit. While overall ridership of the region's transit system does not differ much from the proposed Plan, the more efficient land use pattern leads to five percent less daily vehicle hours of delay and one percent less overall daily VMT.

By emphasizing focused growth around high-capacity transit hubs in the core of the region, Alternative 3 features commute travel times that are three percent less than the proposed Plan. Furthermore, it holds the region's commute travel times at 2010 levels. This alternative exhibits the greatest benefits for transit commute travel times, reducing commute times by five percent as compared to the proposed Plan. With regard to non-commute travel times, Alternative 3 performs similarly to the proposed Plan.

While increasing BART and AC Transit services and emphasizing growth in areas well-served by transit only reduces total regional VMT by one percent from the levels of the proposed Plan, slight decreases in total VMT can significantly improve highly congested highway segments. This shift leads to per-capita congested VMT levels that are less than the proposed Plan (20 percent less in the AM peak, 12 percent less in the PM peak, and 14 percent less over the course of a typical weekday as compared to the proposed Plan). Conversely, greater levels of residential and commercial growth in the urban core leads to slightly longer commute distances for existing suburban residents, leading to per-capita VMT levels being two percent greater than the proposed Plan.

Similar to the proposed Plan, Alternative 3 exhibits no regional transit capacity impacts; overall transit utilization (as a share of supplied transit capacity) is lower than the proposed Plan even though overall transit ridership is slightly higher as a result of significant increases in high-demand services including AC Transit and BART. On a typical weekday PM peak period, transit demand would reflect 35 percent of transit service supplied, compared to 39 percent for the proposed Plan; this utilization ratio is the lowest of all alternatives evaluated. One notable exception is light rail, as its daily utilization ratio rises from 59 percent to 67 percent as a result of Alternative 3's greater levels of high-density TPP development near VTA light rail stations.

Alternative 4– Enhanced Network of Communities

As a result of the higher population and job growth projections, Alternative 4 has greater growth in overall VMT (four percent more VMT than the proposed Plan), greater growth in trip-making (five percent more vehicle-trips than the proposed Plan), and more vehicle delay (nine percent more than the proposed Plan). As the alternative features a slightly more dispersed growth pattern, transit ridership is slightly less than the proposed Plan (three percent less). By eliminating the net in-commute pattern from the region, interregional trips are reduced by five percent from the levels in the proposed Plan.

With regard to commute travel times, Alternative 4 performs on par with the proposed Plan. While per-trip travel times are slightly longer (one to two percent longer) for all modes, this alternative has somewhat greater mode share for auto-based modes (with shorter commute travel times). This leads to the average commute travel time for all modes remaining constant between the proposed Plan and this

alternative. Non-commute travel times are expected to increase slightly more than the proposed Plan (one percent).

Higher population and job growth forecasts also impact per-capita congested VMT, as Alternative 4 does not proportionately increase transportation capacity (beyond what is in the proposed Plan) to accommodate such growth. As a result, per-capita congested VMT is significantly higher as more vehicles compete for the same amount of roadway space as in the proposed Plan; per-capita congested VMT levels are 36 percent higher in the AM peak, 54 percent higher in the PM peak, and 46 percent higher over the course of a typical weekday. As this alternative focuses growth in a relatively similar pattern to the proposed Plan (some growth in the region's core combined with additional growth in moderate-density suburban centers), per-capita VMT is reduced by the same amount as in the proposed Plan.

Alternative 4 exhibits no regional transit capacity impacts; transit utilization levels are relatively comparable to the proposed Plan. Heavy rail utilization levels are greatest in this alternative, with 50 percent of heavy rail seat-miles being filled by riders over the course of a typical weekday PM peak period.

Alternative 5– Environment, Equity, and Jobs

Due to the substantial investments in transit service frequency improvements, as well as a more focused growth pattern than forecasted No Project alternative conditions, Alternative 5 has the strongest transit ridership of all of the alternatives considered, five percent more than the proposed Plan. Additionally, its lack of highway expansion projects and implementation of a VMT tax causes the alternative to have the lowest level of VMT of all of the alternatives considered, two percent less than the proposed Plan. However, the lack of highway expansion projects causes this alternative to have more delay (seven percent more than the proposed Plan), even as total VMT and total trips are reduced.

While Alternative 5 invests substantially in the region's transit services and discourages auto travel by charging a VMT tax and not constructing roadway expansion projects, it also boosts growth in suburban locations, such as San Mateo County, at the expense of more centrally-located urban locations. These two elements of this alternative counteract one another and lead to commute travel times that are consistent with the proposed Plan. With regard to non-commute travel times, this alternative has slightly longer (one percent) travel times than the proposed Plan; this is most likely due to more congested roadway conditions and higher numbers of transit riders (who tend to have longer average travel times, regardless of trip purpose).

While this alternative has the lowest level of VMT of all alternatives (two percent less than the proposed Plan) as a result of a VMT tax and significant funding shifts towards transit services, its levels of per-capita congested VMT are higher than the proposed Plan. Alternative 5 exhibits congested VMT levels 18 percent higher in the AM peak, seven percent higher in the PM peak, and 11 percent higher over the course of a typical weekday. These higher levels of per-capita congested VMT are primarily the result of canceling all uncommitted highway projects (both expansion and operational improvements) for inclusion in the proposed Plan, many of which are designed to alleviate congested bottlenecks on the region's highway system. Per-capita VMT is approximately the same as the proposed Plan.

As mentioned above, Alternative 5 funds significant investments in frequency improvements for high-demand systems such as BART, AC Transit, and VTA, as well as for suburban operators such as SamTrans and County Connection. As such, Alternative 5 exhibits slightly lower ratios for transit utilization than the proposed Plan, even as it has much higher transit ridership than any other alternative evaluated. On a typical weekday PM peak period, transit demand would reflect 37 percent of transit service supplied, compared to 39 percent for the proposed Plan. Similar to the proposed Plan, Alternative 5 exhibits no regional transit capacity impacts.

TABLE 3.1-8: BAY AREA TRAVEL BEHAVIOR, 2010-2040

	2010	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Daily[1] Transit Boardings	1,581,000	3,054,000	2,426,000	-21%	3,055,000	0%	2,972,000	-3%	3,219,000	+5%
Daily Vehicle Miles of Travel (VMT)[2]	149,046,000	179,408,000	180,060,000	0%	178,264,000	-1%	185,839,000	+4%	175,948,000	-2%
Daily[z] Vehicle Miles of Travel[2] per Capita[3]	20.8	19.6	20.7	+6%	20.0	+2%	19.6	0%	19.7	+1%
Intraregional Daily Vehicle Trips[2]	14,830,000	17,858,000	17,598,000	-1%	17,713,000	-1%	18,843,000	+6%	17,538,000	-2%
Interregional Daily Vehicle Trips	631,000	854,000	854,000	0%	854,000	0%	814,000	-5%	854,000	0%
Airport Daily Vehicle Trips	102,000	169,000	169,000	0%	169,000	0%	169,000	0%	169,000	0%
Commercial Daily Vehicle Trips	1,349,000	1,796,000	1,772,000	-1%	1,785,000	-1%	1,822,000	+1%	1,779,000	-1%
Total Daily Vehicle Trips	**16,912,000**	**20,677,000**	**20,393,000**	**-1%**	**20,521,000**	**-1%**	**21,648,000**	**+5%**	**20,340,000**	**-2%**
Daily Vehicle Hours of Recurring Delay	266,000	409,000	534,000	+31%	392,000	-4%	471,000	+15%	439,000	+7%
Daily Vehicle Hours of Recurring Delay (Freeways)	141,000	208,000	268,000	+29%	194,000	-7%	238,000	+14%	214,000	+3%
Daily Vehicle Hours of Recurring Delay (Expressways and Arterials)	58,000	104,000	149,000	+43%	100,000	-4%	121,000	+16%	119,000	+14%
Daily Vehicle Hours of Recurring Delay (Other Facilities)	67,000	97,000	117,000	+21%	98,000	+1%	112,000	+15%	106,000	+9%
Daily Vehicle Hours of	108,000	147,000	203,000	+38%	138,000	-6%	169,000	+15%	156,000	+6%

TABLE 3.1-8: BAY AREA TRAVEL BEHAVIOR, 2010-2040

	2010	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Non-Recurrent Delay[3]										
Total Daily Vehicle Hours of Delay	**374,000**	**556,000**	**738,000**	**+33%**	**530,000**	**-5%**	**639,000**	**+15%**	**595,000**	**+7%**
Average Delay per Vehicle (Minutes)	**4.6**	**5.6**	**7.5**	**+34%**	**5.4**	**-4%**	**6.1**	**+9%**	**6.0**	**+7%**
Typical Weekday Intraregional Personal Trips	**23,592,000**	**29,426,000**	**28,383,000**	**-4%**	**29,024,000**	**-1%**	**30,615,000**	**+4%**	**28,957,000**	**-2%**

1. Daily metrics are measured for a typical weekday.
2. Only reflects interzonal trips (assigned directly to the highway network); includes intraregional, interregional, airport-bound, and commercial vehicle trips.
3. Total daily VMT is calculated using Travel Model One; therefore, to calculate per-capita VMT, it is essential to use simulated population levels to ensure consistency. Simulated population may be slightly different than overall population forecasts for Plan Bay Area EIR alternatives due to slight variability in modeling tools. Further clarification on this issue can be found in the Plan Bay Area EIR technical appendices.
4. Only includes non-recurrent delay on freeway facilities.

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

TABLE 3.1-9: PER-TRIP COMMUTE TRAVEL TIME, BY MODE

Mode	*2010*	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Drive Alone	18.7	18.0	19.3	+7%	17.7	-2%	18.3	+2%	18.0	0%
Carpool	14.2	13.7	14.5	+6%	13.6	-1%	13.9	+1%	13.7	0%
Transit	44.0	44.3	46.3	+5%	42.3	-5%	45.0	+2%	43.9	-1%
Walk	19.5	19.3	19.5	+1%	19.4	+1%	19.5	+1%	19.4	+1%
Bike	12.5	12.8	12.8	0%	12.9	+1%	12.9	+1%	12.8	0%
All Modes	**19.8**	**20.4**	**21.1**	**+3%**	**19.8**	**-3%**	**20.5**	**0%**	**20.5**	**0%**

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

TABLE 3.1-10: PER-TRIP NON-COMMUTE TRAVEL TIME, BY MODE

Mode	*2010*	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Drive Alone	11.6	11.4	11.6	+2%	11.5	+1%	11.6	+2%	11.5	+1%
Carpool	11.4	11.3	11.5	+2%	11.4	+1%	11.4	+1%	11.3	0%
Transit	36.2	35.5	36.3	+2%	35.1	-1%	35.8	+1%	35.3	-1%
Walk	18.3	18.1	18.2	+1%	18.1	0%	18.4	+2%	18.1	0%
Bike	11.0	11.1	11.1	0%	11.1	0%	11.3	+2%	11.1	0%
All Modes	**12.7**	**12.9**	**13.0**	**+1%**	**12.9**	**0%**	**13.0**	**+1%**	**13.0**	**+1%**

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

TABLE 3.1-11: PER-CAPITA DAILY VEHICLE MILES OF TRAVEL BY LEVEL OF SERVICE (2010-2040)

LOS[1] (V/C Ratio)	*2010*	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
AM Peak Period (6 AM to 10 AM)										
A-C (< 0.75)	4.19	3.70	3.65	-1%	3.84	+4%	3.66	-1%	3.67	-1%
D-E (0.75-1.00)	1.05	1.16	1.39	+20%	1.14	-2%	1.17	+1%	1.20	+4%
F (> 1.00)	**0.06**	**0.08**	**0.22**	**+168%**	**0.06**	**-20%**	**0.11**	**+36%**	**0.10**	**+18%**
Total	5.31	4.93	5.26	+7%	5.04	+2%	4.94	0%	4.97	+1%
PM Peak Period (3 PM to 7 PM)										
A-C (< 0.75)	4.68	4.11	3.98	-3%	4.19	+2%	4.01	-2%	3.99	-3%
D-E (0.75-1.00)	1.20	1.35	1.64	+21%	1.38	+2%	1.42	+5%	1.47	+9%
F (> 1.00)	**0.06**	**0.10**	**0.19**	**+94%**	**0.09**	**-12%**	**0.15**	**+54%**	**0.10**	**+7%**
Total	5.94	5.56	5.81	+5%	5.66	+2%	5.58	0%	5.56	0%
Daily										
A-C (< 0.75)	18.27	16.56	16.83	+2%	16.88	+2%	16.36	-1%	16.50	0%
D-E (0.75-1.00)	2.45	2.88	3.41	+18%	2.92	+1%	2.98	+3%	3.03	+5%
F (> 1.00)	**0.12**	**0.19**	**0.42**	**+123%**	**0.16**	**-14%**	**0.27**	**+46%**	**0.21**	**+11%**
Total	20.84	19.63	20.66	+5%	19.97	+2%	19.61	0%	19.75	+1%

1. LOS (level of service) measures traffic density with a range of A to F. LOS A-C reflect free-flow conditions with minimal delay. LOS D-E reflect somewhat congested conditions with some possible delays. LOS F reflects very congested conditions with significant volumes greater than roadway capacity, leading to significant delays.

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

TABLE 3.1-12: DAILY VEHICLE MILES OF TRAVEL PER CAPITA (2010-2040)

	2010	*2040 Plan*	*2040 No Project (Alt 1)*	*% Difference from Proposed Plan*	*2040 Transit Priority Focus (Alt 3)*	*% Difference from Proposed Plan*	*2040 Enhanced Network of Communities (Alt 4)*	*% Difference from Proposed Plan*	*2040 Environment, Equity, and Jobs (Alt 5)*	*% Difference from Proposed Plan*
Daily[1] Vehicle Miles of Travel (VMT)[2]	149,046,000	179,408,000	180,060,000	0%	178,264,000	-1%	185,839,000	+4%	175,948,000	-2%
Simulated Population[3]	7,151,000	9,137,000	8,715,000	-5%	8,927,000	-2%	9,476,000	+4%	8,910,000	-2%
Daily[a] Vehicle Miles of Travel[2] per Capita[3]	20.8	19.6	20.7	+6%	20.0	+2%	19.6	0%	19.7	+1%

1. Daily metrics are measured for a typical weekday.
2. Only reflects interzonal trips (assigned directly to the highway network); includes intraregional, interregional, airport-bound, and commercial vehicle trips.
3. Total daily VMT is calculated using Travel Model One; therefore, to calculate per-capita VMT, it is essential to use simulated population levels to ensure consistency. Simulated population may be slightly different than overall population forecasts for Plan Bay Area EIR alternatives due to slight variability in modeling tools. Further clarification on this issue can be found in the Plan Bay Area EIR technical appendices.

Source: Metropolitan Transportation Commission Travel Forecasts, 2012

TABLE 3.1-13: PERCENT UTILIZATION[1] OF PUBLIC TRANSIT SYSTEMS, BY TECHNOLOGY (2010-2040)

Mode	*2010*	*2040 Plan (Alt 2)*	*2040 No Project (Alt 1)*	*2040 Transit Priority Focus (Alt 3)*	*2040 Enhanced Network of Communities (Alt 4)*	*2040 Environment, Equity, and Jobs (Alt 5)*
AM Peak Period (6 AM to 10 AM)						
Local bus	24%	42%	37%	41%	41%	41%
Light rail[2]	35%	57%	54%	65%	52%	56%
Ferry	19%	23%	20%	15%	20%	19%
Express bus	30%	44%	49%	37%	38%	43%
Heavy rail[3]	40%	57%	52%	45%	62%	50%
Commuter rail[4]	7%	22%	11%	21%	22%	22%
All technologies	**28%**	**44%**	**39%**	**39%**	**44%**	**41%**
PM Peak Period (3 PM to 7 PM)						
Local bus	25%	42%	36%	41%	42%	40%
Light rail[2]	34%	59%	55%	67%	54%	57%
Ferry	9%	12%	11%	8%	10%	10%
Express bus	26%	37%	43%	32%	31%	36%
Heavy rail[3]	36%	46%	47%	37%	50%	41%
Commuter rail[4]	5%	20%	9%	19%	20%	20%
All technologies	**25%**	**39%**	**36%**	**35%**	**39%**	**37%**
Daily						
Local bus	19%	34%	29%	33%	33%	33%
Light rail[2]	27%	49%	45%	55%	44%	47%
Ferry	8%	13%	10%	8%	11%	11%
Express bus	25%	36%	40%	30%	31%	35%

TABLE 3.1-13: PERCENT UTILIZATION[1] OF PUBLIC TRANSIT SYSTEMS, BY TECHNOLOGY (2010-2040)

Mode	*2010*	*2040 Plan (Alt 2)*	*2040 No Project (Alt 1)*	*2040 Transit Priority Focus (Alt 3)*	*2040 Enhanced Network of Communities (Alt 4)*	*2040 Environment, Equity, and Jobs (Alt 5)*
Heavy rail[3]	27%	36%	36%	32%	39%	35%
Commuter rail[4]	6%	17%	9%	17%	17%	17%
All technologies	**21%**	**33%**	**30%**	**30%**	**33%**	**32%**

1. Percent utilization measures the passenger seat-miles required by forecasted transit patrons as a percentage of total passenger seat-miles provided by transit operators (i.e. the percentage of seats on transit vehicles filled with passengers). Utilization levels greater than 80 percent reflect conditions where passengers either would have difficulty finding a seat or would have to stand during all or part of their ride.
2. Reflects utilization of Muni Metro and VTA light rail systems.
3. Reflects utilization of BART heavy rail system.
4. Reflects utilization of Caltrain, SMART, Capitol Corridor, and ACE commuter rail systems.

Source: Metropolitan Transportation Commission Travel Demand Forecasts, 2012

AIR QUALITY

Future Conditions (2040): Travel Data

Table 3.1-14 displays the travel data used in this air quality analysis. All alternatives, except for Alternative 4, have the same population and employment totals as the proposed Plan. Alternative 4 assumes higher levels of household and employment growth in the region. Compared to the proposed Plan, Alternative 4 would result in the highest amount of vehicles in use, VMT, and engine starts; Alternative 3 would result in the lowest amount of vehicles in use, VMT, and engine starts.

Consistency with Air Quality Plans

As described in *Chapter 2.2*, the applicable air quality plan for purposes of this analysis is the Bay Area 2010 Clean Air Plan (CAP). In determining consistency with the CAP, the proposed Plan and alternatives must support the primary goals and transportation/land use objectives of the CAP, include any applicable control measures from the CAP, and not disrupt or hinder implementation of any of the control measures within the CAP. See *Chapter 2.2* for a detailed discussion of the goals and control measures in the CAP. Key goals and transportation/land use objectives of the 2010 CAP include:

Goals:

- Protect Air Quality
- Protect Public health
- Protect the Climate

Transportation/Land Use Objectives:

- Reduce motor vehicle emissions by driving cleaner, driving smarter, and driving less
- Reduce per capita VMT and promote policies that reduce motor vehicle ownership
- Design communities where people can walk, bike, or use transit on a convenient basis
- Ensure that focused growth in PDAs is planned and designed so as to protect people from both existing and new sources of emissions.

The Consistency with Air Quality Plans impact analysis in *Chapter 2.2* concludes that the proposed Plan would result in a less than significant impact. Similarly, all alternatives except the No Project alternative are expected to have less than significant (LS) impacts related to consistency with Air Quality Plans.

Construction-Related Emissions

Construction-related emissions due to the implementation of projects in the proposed Plan and alternatives would constitute a direct but short-term impact as projects advance into construction at different times through 2040. Alternative 3 and Alternative 4 include similar transportation investments as the proposed Plan; however, the varying land use distributions and higher regional growth in Alternative 4 would result in greater levels of construction-related emissions. Alternative 1 and Alternative 5 would not include the construction of all the transportation investments in the proposed Plan, and as a result, would have lower construction-related emissions. While implementation of the best

practice mitigation measures identified for the proposed Plan would reduce impacts to less than significant, this impact is considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Criteria Pollutant Emissions

Table 3.1-15 shows the emissions estimates from criteria pollutants for the proposed Plan and alternatives. The proposed Plan would generally have lower emissions of criteria pollutants than the No Project alternative and Alternative 4, but would have higher emissions than Alternative 3 and Alternative 5 due to the land use patterns focused around transit stations and differences in transportation investments. All alternatives are expected to have no adverse impacts (NI) related to emissions of criteria pollutants ROG, NOx, CO, and $PM_{2.5}$ compared to existing conditions. However, all alternatives are expected to have significant and unavoidable (SU) impacts related to emissions of PM_{10}.

Regional Toxic Air Contaminant (TAC) Emissions

Table 3.1-16 identifies the emission levels for toxic air contaminants pollutants. The levels of TAC emissions decrease under the proposed Plan and alternatives compared to existing conditions mostly because of state laws and regulations aimed at identifying and reducing TACs, such as standards for low emission vehicles, clean fuels, reformulated gasoline, diesel fuel specifications, and CARB's Heavy Duty Diesel Inspection Programs. The No Project alternative and Alternative 4 would have higher levels of TAC emissions than the proposed Plan, and Alternative 3 and Alternative 5 would have lower levels of TAC emissions than the proposed Plan. All alternatives would have no adverse impact (NI) related to TAC emissions.

Local Pollutant Analysis

The proposed Plan and all the alternatives that direct new development within TPPs and urban core areas will potentially increase the number of sensitive receptors exposed to unhealthy levels of TACs and $PM_{2.5}$. The No Project alternative would probably result in fewer new sensitive receptors being exposed to TACs and $PM_{2.5}$ due to the somewhat more dispersed land uses associated with this alternative. However, sensitive receptors are currently being located within existing areas with unhealthy levels of TACs and $PM_{2.5}$ without any measures to lessen their exposure, and would continue to be located in urbanized areas under all alternatives. Development consistent with the proposed Plan and Alternatives 3, 4, and 5 that implements the mitigation measures identified for the proposed Plan would result in fewer sensitive receptors being exposed to unhealthy levels of TACs when compared to the No Project alternative. All alternatives are expected to have significant and unavoidable (SU) impacts related to localized net increase in sensitive receptors located in TPP corridors where TACs or $PM_{2.5}$ concentrations result in a cancer risk greater than 100/million or a concentration of $PM_{2.5}$ greater than 0.8 ug/m3. In addition, all alternatives are expected to have significant and unavoidable (SU) impacts related to localized net increases in sensitive receptors located in TPP corridors within set distances to mobile or stationary sources of TAC or $PM_{2.5}$ emissions. However, all of the alternatives are expected to have a less than significant (LS) impact related to localized net increases in sensitive receptors located in TPP corridors where TACs or $PM_{2.5}$ concentrations result in noncompliance with an adopted Community Risk Reduction Plan.

Disproportionally Impacted Communities (CARE)

Tables 3.1-17 through **3.1-21** illustrate the percent change estimated in on-road mobile source TAC and $PM_{2.5}$ emissions anticipated within CARE communities between the years 2010 and 2040 for the proposed Plan and the alternatives. In general, while the overall trends of TAC and PM emissions appear to be decreasing, the slight changes of TAC and $PM_{2.5}$ emissions within CARE communities versus non-CARE communities is essentially the same between 2010 and 2040. However, when re-entrained road dust is included with exhaust emissions in the 2040 estimates, there is an increase in Total $PM_{2.5}$ emissions for the CARE communities in Alameda County (2.49 percent), and Santa Clara County (10.53 percent) for the proposed Plan. **Table 3.1-22** compares increase in VMT as related to CARE communities. This impact is considered significant and unavoidable (SU) for all alternatives.

Alternative 1– No Project

The No Project alternative would result in higher vehicle use, VMT, and engine starts than the proposed Plan due to a more dispersed land use pattern and lower levels of transit infrastructure investment. As this alternative assumes continuation of currently-adopted general plans through 2040, there is a potential for this alternative to be inconsistent with goals and objectives of the CAP. For example, the more dispersed pattern of growth does not promote communities where people can walk, bike, or conveniently use transit, which is a key objective of the CAP, and thus would result in higher VMT per capita than the proposed Plan in 2040.

The absence of uncommitted transportation investments would increase car use, VMT, and worsen congestion. However, as a result of fewer transportation projects, this alternative would have lower construction-related emissions than the proposed Plan. Construction-related emissions from land use developments would be more dispersed throughout the region due do the land use pattern. Emissions of NOx (summertime and wintertime), CO, PM_{10}, $PM_{2.5}$, and TACs would be higher. Emissions of ROG would be slightly lower (0.2 percent) than the proposed Plan; while overall VMT would be higher than the proposed Plan. The addition of the Express Lanes Network in the proposed Plan would increase speeds and VMT in these corridors, causing slightly higher ROG emissions compared to the No Project alternative.

There is a potential for the No Project alternative to expose fewer new sensitive receptors than the proposed Plan to TAC or fine particulate matter ($PM_{2.5}$) concentrations that exceed thresholds. This is primarily due to a more dispersed land use pattern that would not actively guide future residents to the TPPs. The TPPs are in the urban core areas, and tend to have higher concentrations of stationary sources and transportation facilities that release TACs and $PM_{2.5}$. However, the existing dispersed pattern of development has placed sensitive receptors within close proximity to sources of TACs and $PM_{2.5}$ and could continue to do so at levels expected with the proposed Plan.

In the No Project alternative, the region-wide estimates of TAC and/or $PM_{2.5}$ exhaust emissions in CARE Communities compared to the non-CARE Communities are within a few percentage points of each other, with the difference being insignificant. However, when $PM_{2.5}$ emissions from re-entrained road dust are included with all other emissions, the No Project alternative results in a much smaller increase (or slight decrease region-wide) in Total $PM_{2.5}$ emissions when compared to the effects of the proposed Plan in Alameda County and Santa Clara County. While the No Project alternative performs better than the proposed Plan in reducing TAC and or $PM_{2.5}$ emissions in general, it is estimated to result

in a smaller decrease in these emissions in Contra Costa County CARE community than the remainder of the County.

Alternative 3 – Transit Priority Focus

As a result of the more compact land use pattern and higher levels of transit infrastructure investment, Alternative 3 would have approximately 0.2 to 0.3 percent fewer vehicles in use, VMT, and engine starts compared to the proposed Plan. Higher densities around transit would be conducive to higher transit ridership and less automobile use. This alternative would focus residential and commercial growth in the region's urban core to a greater extent than the proposed Plan and would also include fees on development in regionally-inefficient locations. The fees generated would be used to further reduce mobile source emissions throughout the Planning Area. Therefore, this alternative is more consistent with the goals and transportation/land use objectives of the 2010 CAP.

Construction-related emissions would be comparable with the proposed Plan. Transportation investments would be identical to the proposed Plan, with the exception of two express lane expansion projects. Construction-related emissions from land use developments would be concentrated more around transit stations compared to the proposed Plan. Criteria pollutant and TAC emissions would all be slightly lower in Alternative 3 compared to the proposed Plan due to the emphasis on locating higher density development around transit stations and reducing vehicle use.

There is a potential for this alternative to expose even more new sensitive receptors than the proposed Plan to TAC or $PM_{2.5}$ concentrations that exceed thresholds, because the more concentrated land use pattern would place more sensitive receptors in the TPPs. The TPPs are in the urban core areas, and tend to have higher concentrations of stationary sources and transportation facilities that release TACs and $PM_{2.5}$.

In Alternative 3, the region-wide estimates of TAC and/or $PM_{2.5}$ exhaust emissions in CARE Communities compared to the non-CARE Communities are nearly identical. Within some counties however, there is a smaller decrease or larger increase in TAC and $PM_{2.5}$ emissions than in the remainder of the county (e.g., Santa Clara and Contra Costa).

Alternative 4– Enhanced Network of Communities

Because this alternative has higher levels of household and employment growth than the proposed Plan, Alternative 4 would have approximately four percent higher vehicles in use, VMT, and engine starts. Given the greater number of households and jobs in the region, combined with a more dispersed land use pattern than the proposed Plan, there would be a greater demand for travel and more vehicle use in this alternative. This alternative seeks to eliminate the net daily importing of workers to the region and includes a higher number of residents and housing units than the other alternatives. This increase in population is directed towards the urban core and near existing transit corridors. While overall region-wide VMT increases more under this alternative than the proposed Plan, per capita VMT is the same as that anticipated for the proposed Plan. Therefore, this alternative is consistent with the goals and transportation/land use objectives of the CAP and would not be inconsistent with the CAP.

Alternative 4 includes the same transportation investments as the proposed Plan, but includes higher regional growth. As a result, construction-related emissions from the increase in land use development would be higher than the proposed Plan to accommodate the additional growth. Emissions of criteria

pollutants and TACs would be the highest compared to the proposed Plan. Since this alternative would not include any additional roadway or transit capacity beyond what is funded in the proposed Plan to accommodate the higher amount of growth, there would also be more congestion and greater emissions of criteria pollutants (approximately 3.5 percent higher for all criteria pollutants than the proposed Plan) in Alternative 4.

Similar to the proposed Plan, this alternative focuses growth in the region's core, as well as moderate-density suburban centers across the region. As a result, there is a potential for this alternative to expose even more new sensitive receptors than the proposed Plan to TAC or $PM_{2.5}$ concentrations that exceed thresholds. This is primarily due to this alternative's concentrated land use pattern that would place more sensitive receptors in the TPPs, which are in the urban core areas, and tend to have higher concentrations of stationary sources and transportation facilities that release TACs and $PM_{2.5}$.

In Alternative 4, the region-wide estimates of TAC and/or $PM_{2.5}$ exhaust emissions in CARE Communities compared to non-CARE Communities indicate a slightly larger decrease in exhaust emission for some TACs (Benzene) and slightly smaller decreases in others (exhaust only $PM_{2.5}$). However, when re-entrained road dust is combined with $PM_{2.5}$ from exhaust, this alternative is estimated to result in more than a seven percent increase in Total $PM_{2.5}$ when compared to the proposed Plan. Therefore, this alternative will have slightly larger impacts when compared to the proposed Plan on TAC and $PM_{2.5}$ emissions in CARE Communities.

Alternative 5– Environment, Equity and Jobs

Alternative 5 would have approximately two percent lower vehicles in use, VMT, and engine starts than the proposed Plan due to the funding shifts in transportation investments and emphasis on transit operations. Alternative 5 includes a VMT tax and would not include any uncommitted highway projects (including expansions and operational improvements); the VMT tax and unused highway funding would instead be redirected to transit operations. The land use pattern includes focused growth in both urban and suburban areas, with suburban growth supported by increased transit service to Communities of Concern. This alternative results in about the same per capita VMT as the proposed Plan in 2040. Therefore, this alternative would also be consistent with the goals and objectives of the CAP.

Alternative 5 would have lower construction-related emissions than the proposed Plan as a result of fewer roadway projects. Construction-related emissions from land use developments would be more dispersed throughout the region due to the land use pattern. The emphasis on increased transit capacity, combined with a VMT tax and shift in funding from roadway improvements towards transit services, would reduce overall VMT which would result in the lowest level of criteria pollutant emissions and TACs.

This alternative also emphasizes focused growth with an emphasis in high-opportunity suburban areas. There is a potential for this alternative to expose even more new sensitive receptors than the proposed Plan to TAC or $PM_{2.5}$ concentrations that exceed thresholds. This is primarily due to this alternative's concentrated land use pattern that would place more sensitive receptors in the TPPs, which are primarily in the urban core areas and along transit corridors, and tend to have higher concentrations of stationary sources and transportation facilities that release TACs and $PM_{2.5}$.

In Alternative 5, the region-wide estimates of TAC and/or $PM_{2.5}$ exhaust emissions in CARE Communities compared to non-CARE Communities are nearly identical for all emissions (less than one percent difference in all cases). In addition, this alternative's Total $PM_{2.5}$ with Road Dust estimates are substantially less than those estimated for the proposed Plan. However, this alternative does have some instances where within a county there are larger reductions estimated for TACs and $PM_{2.5}$ in some non-CARE communities (e.g., Santa Clara) than CARE Communities for some pollutants. These differences are slightly smaller than those estimated for the proposed Plan.

TABLE 3.1-14: TRAVEL DATA

	2010	*2040*	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*
		Alternative 2: Proposed Plan	*Alternative 1: No Project*	*Percent*	*Alternative 3: Transit Priority*	*Percent*	*Alternative 4: Connected*	*Percent*	*Alternative 5: EEJ*	*Percent*
Vehicles in Use	4,608,722	5,463,760	5,493,962	0.5%	5,450,157	-0.2%	5,668,407	3.6%	5,380,224	-1.6%
Daily Vehicle Miles Traveled (VMT)	163,903,095	196,927,122	198,134,669	0.6%	196,371,589	-0.3%	204,179,341	3.6%	194,052,688	-1.5%
Engine Starts	30,834,375	36,362,648	36,478,594	0.3%	36,303,442	-0.2%	37,768,831	3.7%	35,771,643	-1.7%
Total Population	7,091,000	9,196,000	9,196,000	0.0%	9,196,000	0.0%	9,535,000	3.6%	9,196,000	0.0%
Total Employment	3,385,000	4,505,000	4,505,000	0.0%	4,505,000	0.0%	4,550,000	1.0%	4,505,000	0.0%

Source: Metropolitan Transportation Commission, 2012

TABLE 3.1-15: EMISSION ESTIMATES FOR CRITERIA POLLUTANTS USING EMFAC2011 EMISSION RATES (TONS PER DAY)

		2040	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*	*2040*	*Difference from Proposed Plan*
	2010	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*	*Percent*	*Alternative 3: Transit Priority*	*Percent*	*Alternative 4: Connected*	*Percent*	*Alternative 5: EEJ*	*Percent*
ROG	93.7	36.5	36.5	-0.2%	36.5	-0.2%	38.0	3.9%	35.8	-2.0%
NOx (Summertime)	164.3	48.5	48.7	0.4%	48.1	-0.8%	50.2	3.4%	47.6	-1.8%
CO	879.9	266.5	268.5	0.8%	265.9	-0.2%	277.0	3.8%	262.2	-1.6%
PM_{10}	36.4	41.0	41.3	0.9%	40.8	-0.3%	42.4	3.5%	40.3	-1.5%
$PM_{2.5}$	10.4	9.9	10.0	0.8%	9.9	-0.4%	10.3	3.5%	9.8	-1.6%
NOx (Wintertime)	185.3	53.7	53.9	0.4%	53.3	-0.8%	55.6	3.4%	52.8	-1.8%

Source: Metropolitan Transportation Commission, 2012

TABLE 3.1-16: EMISSION ESTIMATES FOR TOXIC AIR CONTAMINANTS POLLUTANTS (KILOGRAMS PER DAY)

	2010	2040 Alternative 2: Proposed Plan	2040 Alternative 1: No Project	Difference from Proposed Plan Percent	2040 Alternative 3: Transit Priority	Difference from Proposed Plan Percent	2040 Alternative 4: Connected	Difference from Proposed Plan Percent	2040 Alternative 5: EEJ	Difference from Proposed Plan Percent
Diesel PM	2,599.6	755.9	758.1	0.3%	746.9	-1.2%	779.6	3.0%	740.3	-2.1%
1,3 Butadiene	162.4	48.2	49.1	1.7%	48.0	-0.6%	49.8	3.0%	47.4	-1.8%
Benzene	731.2	219.3	224.2	2.2%	218.6	-0.3%	227.2	3.4%	216.2	-1.4%

Source: Metropolitan Transportation Commission, 2012

TABLE 3.1-17: EXHAUST ONLY $PM_{2.5}$ WITH ROAD-DUST PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	-57.38%	-56.11%	-57.65%	-55.52%	-57.61%
Remainder of County	-57.10%	-55.13%	-56.72%	-53.92%	-56.39%
Contra Costa: Care Community	-56.04%	-57.54%	-56.61%	-55.92%	-59.15%
Remainder of County	-57.52%	-57.69%	-59.51%	-56.57%	-60.17%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-60.66%	-61.29%	-62.33%	-60.39%	-63.36%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-51.34%	-57.56%	-54.37%	-58.41%	-56.23%
San Francisco: Care Community	-53.05%	-53.23%	-53.98%	-52.18%	-54.24%
Remainder of County	-46.45%	-46.22%	-43.78%	-43.77%	-44.19%
San Mateo: Care Community	-55.08%	-56.91%	-55.63%	-56.07%	-54.20%
Remainder of County	-56.09%	-57.67%	-54.90%	-55.30%	-54.99%
Santa Clara: Care Community	-55.04%	-50.86%	-50.65%	-47.67%	-53.77%
Remainder of County	-55.47%	-54.14%	-53.64%	-52.74%	-55.09%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-53.31%	-54.67%	-55.52%	-54.64%	-56.66%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-47.83%	-53.20%	-56.38%	-53.00%	-56.68%
Regionwide: Care Community	-55.80%	-54.49%	-54.79%	-52.87%	-56.04%
Remainder of County	-55.60%	-55.64%	-56.09%	-54.48%	-56.75%
Regionwide Average	**-55.66%**	**-55.25%**	**-55.65%**	**-53.94%**	**-56.51%**

Source: Bay Area Air Quality Management District, 2013.

TABLE 3.1-18: TOTAL $PM_{2.5}$ WITH ROAD DUST PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	-5.19%	-1.36%	-4.93%	0.16%	-4.97%
Remainder of County	-3.24%	2.49%	-1.55%	5.60%	0.13%
Contra Costa: Care Community	-0.34%	-3.64%	-1.32%	0.62%	-6.66%
Remainder of County	-3.25%	-3.70%	-8.04%	-0.43%	-8.86%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-11.66%	-13.37%	-15.70%	-11.82%	-17.71%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	8.33%	-5.55%	0.60%	-7.52%	-2.47%
San Francisco: Care Community	-3.13%	-3.62%	-4.88%	-1.54%	-5.08%
Remainder of County	-1.47%	-2.35%	1.73%	1.28%	1.04%
San Mateo: Care Community	2.02%	-1.53%	1.10%	-0.03%	4.28%
Remainder of County	-1.61%	-4.82%	1.72%	1.15%	1.19%
Santa Clara: Care Community	0.68%	10.53%	11.24%	17.94%	3.89%
Remainder of County	-1.48%	2.89%	3.84%	6.16%	0.25%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	8.27%	2.24%	1.39%	1.89%	0.41%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	12.33%	2.70%	-4.43%	2.95%	-4.78%
Regionwide: Care Community	-1.81%	1.65%	1.10%	5.49%	-1.81%
Remainder of County	-0.60%	-0.23%	-1.30%	2.58%	-2.43%
Regionwide Average	**-1.02%**	**0.42%**	**-0.47%**	**3.58%**	**-2.22%**

Source: Bay Area Air Quality Management District, 2013.

TABLE 3.1-19: EXHAUST DIESEL PM PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	-70.11%	-69.23%	-69.99%	-69.07%	-70.39%
Remainder of County	-69.15%	-67.24%	-68.18%	-67.03%	-69.05%
Contra Costa: Care Community	-69.18%	-69.35%	-68.85%	-68.64%	-70.81%
Remainder of County	-68.87%	-68.71%	-69.39%	-68.07%	-70.31%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-70.98%	-71.29%	-72.17%	-70.78%	-72.83%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-65.86%	-68.71%	-66.72%	-69.46%	-68.46%
San Francisco: Care Community	-70.23%	-70.01%	-70.78%	-69.47%	-70.84%
Remainder of County	-69.26%	-69.78%	-68.35%	-68.17%	-68.43%
San Mateo: Care Community	-68.33%	-69.90%	-69.60%	-69.47%	-68.16%
Remainder of County	-68.42%	-69.16%	-67.57%	-67.65%	-67.95%
Santa Clara: Care Community	-67.84%	-66.16%	-65.89%	-64.30%	-67.36%
Remainder of County	-67.93%	-67.23%	-66.90%	-66.42%	-67.77%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-64.87%	-64.68%	-65.37%	-64.79%	-66.56%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-63.71%	-67.13%	-68.52%	-66.67%	-68.77%
Regionwide: Care Community	-69.12%	-68.43%	-68.58%	-67.60%	-69.37%
Remainder of County	-67.94%	-67.66%	-67.87%	-67.08%	-68.68%
Regionwide Average	**-68.33%**	**-67.91%**	**-68.10%**	**-67.25%**	**-68.91%**

Source: Bay Area Air Quality Management District, 2013.

TABLE 3.1-20: EXHAUST BENZENE PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	-71.98%	-71.16%	-72.26%	-70.69%	-72.03%
Remainder of County	-70.56%	-69.27%	-70.41%	-68.14%	-69.80%
Contra Costa: Care Community	-70.61%	-71.82%	-71.12%	-70.57%	-72.81%
Remainder of County	-70.49%	-70.57%	-72.15%	-69.79%	-72.47%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-73.00%	-73.32%	-73.87%	-72.58%	-74.64%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-67.81%	-72.02%	-69.89%	-72.56%	-71.11%
San Francisco: Care Community	-73.81%	-74.02%	-74.33%	-73.42%	-74.51%
Remainder of County	-75.68%	-75.53%	-74.48%	-74.51%	-74.69%
San Mateo: Care Community	-69.62%	-70.68%	-69.49%	-70.07%	-68.77%
Remainder of County	-70.05%	-71.20%	-69.18%	-69.64%	-69.17%
Santa Clara: Care Community	-70.81%	-67.58%	-67.48%	-65.38%	-69.81%
Remainder of County	-70.61%	-69.55%	-69.21%	-68.60%	-70.21%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-65.88%	-66.41%	-67.31%	-66.33%	-68.34%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-67.17%	-70.39%	-72.64%	-70.39%	-72.84%
Regionwide: Care Community	-71.50%	-70.55%	-70.75%	-69.43%	-71.59%
Remainder of County	-70.03%	-69.97%	-70.36%	-69.13%	-70.73%
Regionwide Average	**-70.54%**	**-70.17%**	**-70.49%**	**-69.23%**	**-71.03%**

Source: Bay Area Air Quality Management District, 2013.

TABLE 3.1-21: EXHAUST 1, 3 BUTADIENE PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	-72.38%	-71.56%	-72.64%	-71.13%	-72.41%
Remainder of County	-70.93%	-69.58%	-70.70%	-68.47%	-70.15%
Contra Costa: Care Community	-71.01%	-72.15%	-71.41%	-70.91%	-73.12%
Remainder of County	-70.84%	-70.84%	-72.35%	-70.06%	-72.72%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-73.24%	-73.50%	-74.04%	-72.77%	-74.79%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-68.22%	-72.23%	-70.13%	-72.76%	-71.37%
San Francisco: Care Community	-74.23%	-74.47%	-74.74%	-73.88%	-74.92%
Remainder of County	-75.94%	-75.80%	-74.76%	-74.80%	-74.96%
San Mateo: Care Community	-70.13%	-71.19%	-70.01%	-70.61%	-69.27%
Remainder of County	-70.40%	-71.51%	-69.53%	-70.01%	-69.53%
Santa Clara: Care Community	-71.27%	-68.08%	-67.99%	-65.96%	-70.27%
Remainder of County	-70.96%	-69.92%	-69.59%	-69.00%	-70.56%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-66.26%	-66.55%	-67.50%	-66.47%	-68.58%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	-67.52%	-70.64%	-72.85%	-70.63%	-73.06%
Regionwide: Care Community	-71.93%	-70.99%	-71.17%	-69.91%	-72.00%
Remainder of County	-70.38%	-70.27%	-70.64%	-69.44%	-71.03%
Regionwide Average	**-70.92%**	**-70.52%**	**-70.82%**	**-69.60%**	**-71.36%**

Source: Bay Area Air Quality Management District, 2013.

TABLE 3.1-22: VMT PERCENT CHANGE 2010 - 2040

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority*	*Alternative 4: Connected*	*Alternative 5: EEJ*
Alameda: Care Community	13.84%	18.64%	14.30%	20.48%	14.28%
Remainder of County	17.46%	24.69%	19.69%	28.61%	21.97%
Contra Costa: Care Community	18.49%	14.56%	17.41%	19.78%	11.11%
Remainder of County	16.42%	15.92%	10.62%	20.00%	9.77%
Marin: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	7.20%	5.12%	2.33%	6.94%	-0.07%
Napa: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	27.69%	11.34%	18.44%	9.01%	14.99%
San Francisco: Care Community	12.17%	11.57%	10.20%	13.97%	10.01%
Remainder of County	9.00%	7.89%	12.33%	11.76%	11.57%
San Mateo: Care Community	23.14%	19.00%	22.19%	20.73%	25.99%
Remainder of County	19.36%	15.53%	23.54%	22.87%	22.86%
Santa Clara: Care Community	19.71%	31.63%	32.50%	40.50%	23.65%
Remainder of County	17.51%	23.00%	24.12%	26.94%	19.75%
Solano: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	34.60%	26.60%	25.74%	26.11%	24.82%
Sonoma: Care Community	N/A	N/A	N/A	N/A	N/A
Remainder of County	31.40%	20.51%	12.06%	20.74%	11.69%
Regionwide: Care Community	16.85%	21.12%	20.41%	25.67%	17.02%
Remainder of County	19.51%	20.21%	18.96%	23.67%	17.70%
Regionwide Average	**18.58%**	**20.53%**	**19.47%**	**24.37%**	**17.46%**

Source: Bay Area Air Quality Management District, 2013.

LAND USE, HOUSING, AGRICULTURE, AND PHYSICAL DEVELOPMENT

All alternatives focus the majority of new growth into urbanized areas, with the No Project resulting in the largest conversion of land to urbanized land by 2040. The general distribution of growth throughout the region would vary somewhat by alternative based on county-by-county household and job growth, as shown in **Tables 3.1-3** and **3.1-4**. Alternatives also vary by their share of development within PDAs; alternatives that focus more growth in PDAs generally represent more compact and targeted growth scenarios. Targeted growth also occurs in TPPs. For a comparison of PDA-focused growth, see **Tables 3.1-5** and **3.1-6**. It is noted that MTC and ABAG have no land use authority and, as a result, cannot enforce mitigation measures related to land use development (outlined in *Chapter 2.3*), ultimately resulting in significant impacts for all alternatives for land use criteria related to displacement and disruption, community separation, conversion of agricultural land and open space, and conversion of forest and timberland.

Community Disruption/Displacement

Construction activities related to land use and transportation projects under all alternatives could result in short term local community disruption. The significance of construction disruption will depend upon the size and extent of the development, the nature of the disruption, and the duration of construction, as described in *Chapter 2.3*. Since all alternatives would accommodate projected population and employment growth in the region, new development would provide additional space for housing and businesses within the Bay Area adequate to avoid displacement on a regional scale. Locally, however, businesses may be disrupted and residents displaced as some areas transition to denser urban settings. Impacts of displacement or disruption would be most likely felt as a result of new development where the overall density changes most significantly, since in these areas the building type may change (e.g. from low or midrise to high rise buildings or from single family to multifamily housing). Under all alternatives, the biggest density changes occur in existing urbanized areas, particularly in San Francisco, Oakland, and San Jose. Other land use changes that could cause localized disruption would include the location of land uses that are incompatible with adjacent uses (such as industrial uses adjacent to residential neighborhoods). Typically, local zoning prevents these types of incompatibilities, though not in all cases. Impacts related to displacement and disruption would ultimately be site specific and therefore variations between alternatives cannot be analyzed in detail at the regional scale. Given the variation in local land use controls and standards related to new development, impacts related to disruption and displacement would be expected for all alternatives in localized areas. Further, while transportation projects are not likely to displace residents over the long-term, localized impacts may occur. This impact is considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Community Separation

Potential impacts related to community separation would also be localized. Each alternative includes new household and employment development, focused in varying degrees within PDAs. Development within PDAs and TPPs would largely consist of urban infill sites that may be underutilized or vacant and currently act as physical barriers in individual communities; development of these sites could actually remove or decrease divisions and barriers between neighboring communities and amenities. However, some large projects could reduce connectivity—both inside and outside of PDAs—if they fail to include

pedestrian amenities, close off existing roads, or otherwise result in development that restricts access within the community. Impacts related to community separation would ultimately be site specific and therefore variations between alternatives cannot be analyzed in detail at the regional scale. Given the uncertainty around local implementation of standards related to connectivity, each alternative may result in localized community separation impacts. Transportation projects are expected to increase connectivity rather than result in separation, so would likely have beneficial or have no adverse impacts on community separation. This impact is considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Consistency with Local Plans

Development and transportation projects in each alternative have the potential to conflict with the land use portion of adopted local general plans or other applicable land use plans, including specific plans, existing zoning, or regional plans such as coastal plans or the Bay Plan. The No Project alternative land use scenario is based on existing general plans, and therefore is the closest of the alternatives to the existing general plans; as described in the *Alternatives Analyzed in this EIR* section above, all of the other alternatives, including the proposed Plan, vary from the No Project alternative land use scenario and may include land use patterns or densities and intensities that differ from existing general plans. However, any alternative adopted as the Plan Bay Area will not supersede existing general plans. In cases where there may be a conflict with local general plans, zoning or specific plans, the local jurisdictions and relevant permitting authorities (such as BCDC) would still retain ultimate land use authority. Land use patterns included in the adopted Plan Bay Area would only be implemented insofar as local jurisdictions adopt the policies and recommendations included in the proposed Plan. This impact is considered less than significant (LS) for all alternatives since local jurisdictions and relevant permitting authorities would still retain ultimate land use authority under all alternatives.

Conversion of Farmland, Open Space, and Timberland or Forestland

Development and transportation projects in each alternative would result in the conversion of important agricultural lands to non-agricultural use. As indicated in **Table 3.1-23**, the number of farmland acres potentially affected by modeled development would be similar across all five alternatives. At the regional level, Alternative 4 would have the least impact as a result of land use development and the No Project alternative would have the greatest impact due to land use development. It is noted that if only important farmlands (excluding grazing land) are considered, the proposed Plan has the fewest acres converted. At the local level, converted acres vary to a somewhat greater degree than at the regional level. In most cases, the greatest impact is on grazing lands.

Transportation projects would also convert agricultural land to urbanized use.[4] At the regional level, the No Project alternative would have the least impact since it includes only committed projects and excludes

[4] The acreage calculation is based on a 100 foot buffer on either side of the centerline of a linear project and a 100 foot radius around the center of a point project, such as an intersection improvement resulting in a new configuration.

many projects that would result in physical impacts.[5] The proposed Plan and Alternative 4 would have the greatest impact since they include the largest number of total projects as well as projects that are likely to result in physical impacts. In most cases, the greatest impact is on grazing lands.

With the exception of the No Project alternative, which impacts nearly twice the amount of land as the other alternatives, total regional acres of conversion are similar across the alternatives. This assumes that there are no overlapping acres of development between transportation and land use projects. This holds true even when grazing land—which bears the greatest impacts from conversion—is excluded from the calculation. When focusing only on farmland that is prime or unique, or of local or statewide importance, the No Project alternative results in the largest number of acres converted, and the proposed Plan results in the least. In all cases, the number of acres converted represents a negligible proportion of the 2,329,000 acres of agricultural land in the Bay Area (less than one percent in all cases). Regionally, 1,750,000 acres of all agricultural lands are classified as grazing land. However, since any amount of conversion is considered significant, this impact is considered potentially significant (PS) for all alternatives. Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels this impact remains significant and unavoidable for all alternatives (SU).

[5] Projects likely to result in physical impacts include projects which are listed as expansion projects costing $10 million or more that include new roadway construction, road widening, or other ground-disturbing construction and exclude transit route improvements, road operations and maintenance, and pedestrian and bicycle improvements which all involve minimal construction, if any.

TABLE 3.1-23: POTENTIAL FARMLAND CONVERSION IN ACRES, BY TYPE AND ALTERNATIVE

Farmland Type	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment Equity and Jobs*
Land Use Projects					
Farmland of Local Importance	1,455	573	497	622	740
Farmland of Statewide Importance	280	165	81	89	134
Grazing Land	11,464	2,992	3,758	2,257	4,502
Prime Farmland	2,671	395	510	620	583
Unique Farmland	497	260	378	222	455
Land Use Subtotal	***16,367***	***4,385***	***5,224***	***3,810***	***6,414***
Transportation Projects					
Farmland of Local Importance	227	421	421	421	331
Farmland of Statewide Importance	19	54	54	54	45
Grazing Land	298	742	625	742	302
Prime Farmland	50	228	211	228	180
Unique Farmland	1	83	82	83	71
Transportation Projects Subtotal	***595***	***1,528***	***1,393***	***1,528***	***929***
Regional Total[1]	**16,962**	**5,913**	**6,617**	**5,338**	**7,343**
Regional Excluding Grazing Land	**5,200**	**2,179**	**2,234**	**2,339**	**2,539**

Note:

- Figures may not sum due to independent rounding.
- Modeling outputs reflect an approximate number of acres potentially converted. Modeling limitations result in a more conservative analysis for the proposed Plan than for the other alternatives.

1. Assuming no overlapping acreage between land use and transportation projects.

Sources: MTC 2013; Census TIGER/Line Shapefiles, 2010; Farmland Mapping and Monitoring Program, Department of Conservation, 2008- 2010.

As indicated in **Table 3.1-24**, Williamson Act lands comprise a relatively small amount of all farmland impacted by potential development across all alternatives. At the regional level, the proposed Plan and Alternative 4 would have the least impact related to land use development. The No Project alternative would result in the least number of impacted acres related to transportation projects.

Overall, Alternative 4 would impact the least amount of Williamson Act land, followed by the proposed Plan. The No Project alternative would result in the greatest overall impact. Under all alternatives, the number of acres converted represents a negligible proportion of all Williamson Act lands in the Bay Area,

which cover 1,252,500 acres regionally. However, since any amount of converted land is considered significant, this impact is considered potentially significant (PS) for all alternatives. Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-24: WILLIAMSON ACT ACRES POTENTIALLY AFFECTED IN ACRES, BY ALTERNATIVE

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Land Use Development Subtotal	4,548	470	1,375	424	1,563
Transportation Projects Subtotal	118	252	238	252	192
Regional Total[1]	**4,666**	**724**	**1,615**	**678**	**1,755**

Note:

- Figures may not sum due to independent rounding.
- Modeling outputs reflect an approximate number of acres potentially converted. Modeling limitations result in a more conservative analysis for the proposed Plan than for the other alternatives.

1. Assuming no overlapping acreage between land use and transportation projects

Source: MTC 2013; Census TIGER/Line Shapefiles, 2010; Department of Conservation, Division of Land Resource Protection, Williamson Act Program, 2004-6006.

Land use development and transportation projects in each alternative would result in the conversion of protected open space[6] to urbanized use. As indicated below in **Table 3.1-25**, the number of protected open space acres potentially affected by proposed land use development would be relatively small across all alternatives. Alternative 4 would have the least impact related to land use development based on modeling outputs, while the proposed Plan would have the greatest impact, though in all cases the impact would be negligible as compared to total land acreage or total open space resources. The amount of protected open space land potentially affected by proposed transportation projects would also be relatively small across all five alternatives. The No Project alternative would have the least impact, while the proposed Plan and Alternative 4 would have the largest impacts.

The aggregate effect of land use and transportation development on open space lands would be the lowest under Alternative 4 and the greatest under the proposed Plan, based on conservative modeling outputs. In all cases, however, the number of acres converted represents a negligible proportion of all protected open space in the Bay Area, which covers 1,015,000 acres regionally. However, since any amount of converted land is considered significant, this impact is considered potentially significant (PS) for all alternatives. Because MTC/ABAG cannot require local implementing agencies to adopt relevant

[6] Protected open space includes lands protected primarily as open space by an ownership interest of a governmental agency or non-profit organization (fee or easement). These lands may or may not offer public access.

mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-25: POTENTIAL OPEN SPACE CONVERSION IN ACRES, BY ALTERNATIVE

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Land Use Development Subtotal	1,786	2,115	1,572	1,163	1,667
Transportation Projects Subtotal	124	280	277	280	141
Regional Total[1]	**1,910**	**2,395**	**1,849**	**1,443**	**1,808**

Note:

- Figures may not sum due to independent rounding.
- Modeling outputs reflect an approximate number of acres potentially converted. Modeling limitations result in a more conservative analysis for the proposed Plan than for the other alternatives.

1. Assuming no overlapping acreage between land use and transportation projects

Sources: MTC, 2013; Farmland Mapping and Monitoring Program, Department of Conservation, 2008- 2010; California Protected Areas Database, 2012; USDA, National Agricultural Statistics Service, California Cropland Data Layer, 2011.

Based on model outputs, development and transportation projects in each alternative could result in the loss of forest land, conversion of forest land to non-forest use, or conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production. As shown in **Table 3.1-26**, the amount of forest land and timberland potentially affected by proposed development would be similar across all alternatives. At the regional level, Alternative 4 would have the least impact on forest land as a result of land use development, while the No Project alternative would have the largest impact.

Similarly, the amount of forest land and timberland potentially affected by proposed transportation projects would be relatively small across all alternatives. At the regional level, the No Project alternative would have the least impact since it includes the fewest transportation projects, while the proposed Plan, Alternative 3, and Alternative 4 would have the largest impacts since they include the largest number of transportation projects.

The aggregate impact of land use and transportation development on forest and timberland would be the least under Alternative 4, while the No Project alternative would have the potential to impact the most forest land and timberland, based on model outputs. In all cases, however, the number of acres converted represents a negligible proportion of all forest land in the Bay Area, which covers 1,233,000 acres regionally. However, since any amount of converted land is considered significant, this impact is considered potentially significant (PS) for all alternatives. Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-26: POTENTIAL FOREST AND TIMBERLAND CONVERSION IN ACRES, BY ALTERNATIVE

	Alternative 1: No Project	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Land Use Development Subtotal	2,548	1,337	1,708	212	1,941
Transportation Projects Subtotal	29	58	58	58	40
Regional Total[1]	**2,577**	**1,395**	**1,766**	**270**	**1,981**

Note:

- Figures may not sum due to independent rounding.
- Modeling outputs reflect an approximate number of acres potentially converted. Modeling limitations result in a more conservative analysis for the proposed Plan than for the other alternatives.

1. Assuming no overlapping acreage

Source: MTC, 2013; USDA, National Agricultural Statistics Service, California Cropland Data Layer, 2011.

Alternative 1: No Project

Because overall population and job growth is the same under the No Project alternative as under the proposed Plan, regional impacts as a result of land use changes related to residential or business disruption, displacement of existing population and housing, or permanent alterations to an existing neighborhood or permanent separation of communities would be similar to the proposed Plan. Impacts as a result of transportation projects under the No Project alternative would be the least of all the alternatives since it only includes a total of 220 projects as compared to approximately 700 projects under Alternatives 2, 3, and 4. Alternative 5 includes approximately 460 transportation projects.

The No Project alternative does not propose any changes in land use, and therefore it would have the least potential for conflict with current local plans. This impact is considered less than significant for all alternatives.

Based on modeling outputs, the No Project alternative would result in the potential conversion of important agricultural lands, open space, and lands under Williamson Act contract to urbanized use. Out of all of the alternatives, the No Project alternative generally results in the largest amounts of total conversion of these lands, as indicated in **Tables 3.1-23** through **3.1-25**. The single exception is in the case of open space lands, in which the No Project alternative results in the second-largest amount of potential conversion.

The No Project alternative would also result in the highest conversion of forest and timberland to non-forest use.

Alternative 3: Transit Priority Focus

Because overall population and job growth is the same under Alternative 3 as under the proposed Plan, regional impacts as a result of land use changes related to residential or business disruption, displacement of existing population and housing, or permanent separation of communities would be similar to the

proposed Plan. Impacts as a result of transportation projects under Alternative 3 would be slightly less than the proposed Plan and Alternative 4 since there are fewer projects with physical impacts, but greater than the No Project alternative and Alternative 5 which include fewer projects than Alternative 3.

The potential to conflict with the land use portion of adopted local general plans or other applicable land use plans, including specific plans, existing zoning, or regional plans such as coastal plans or the Bay Plan is considered less than significant for all alternatives since local jurisdictions and relevant permitting authorities would still retain ultimate land use authority under all alternatives.

As shown in **Tables 3.1-23** through **3.1-25**, Alternative 3 results in greater impacts on agricultural land overall as compared to the proposed Plan. However, total conversion of Williamson Act and open space land under Alternative 3 would be less than or equal to that of the proposed Plan.

Similarly, it would result in more acres of forest and timberland conversion as compared to the proposed Plan.

Alternative 4: Enhanced Network of Communities

With higher forecasts for population and employment growth, Alternative 4 has the potential to introduce more development overall. Therefore, it could result in greater impacts due to residential or business disruption, displacement of existing population and housing, or permanent separation or division of communities. Under Alternative 4, potential impacts resulting from transportation projects are similar to those resulting from the proposed Plan and likely to be greater than those resulting from the remaining alternatives.

The potential to conflict with the land use portion of adopted local general plans or other applicable land use plans, including specific plans, existing zoning, or regional plans such as coastal plans or the Bay Plan is considered less than significant for all alternatives since local jurisdictions and relevant permitting authorities would still retain ultimate land use authority under all alternatives.

As shown in **Tables 3.1-23** through **3.1-25**, Alternative 4 would result in the conversion of the fewest acres of agricultural land, Williamson Act land, and open space land. However, it would convert more prime and unique farmland, and farmland of state or local importance than the proposed Plan.

Alternative 4 would result in the lowest conversion of forest land and timberland to non-forest use, based on modeling outputs.

Alternative 5: Environment, Equity, and Jobs

Because overall population and job growth is the same under Alternative 5 as under the proposed Plan, regional impacts as a result of land use changes related to residential or business disruption, displacement of existing population and housing, or permanent separation of communities are expected to be similar to those of the proposed Plan. Impacts as a result of transportation projects under Alternative 5 would be less than the proposed Plan, and would be second-lowest of all alternatives after the No Project alternative.

The potential to conflict with the land use portion of adopted local general plans or other applicable land use plans, including specific plans, existing zoning, or regional plans such as coastal plans or the Bay Plan

is considered less than significant for all alternatives since local jurisdictions and relevant permitting authorities would still retain ultimate land use authority under all alternatives.

Based on modeling outputs, land use impacts resulting from Alternative 5 are greater than those from the proposed Plan for agricultural and Williamson Act land. However, Alternative 5 has fewer impacts on open space lands than the proposed Plan.

Alternative 5 would also result in more acres of forest and timberland conversion as compared to the proposed Plan.

ENERGY

Land Use

As presented in **Table 3.1-27**, the land use energy consumption rate per capita, both direct and indirect, is largely the same as the proposed Plan across all alternatives. Alternative 4 would accommodate both larger population and employment growth than the other alternatives, and thus would use more electricity and natural gas overall; however, given the larger population, it would also result in the lowest per capita energy use. The No Project alternative would use more land use energy per capita than the proposed Plan and the other alternatives, as it would accommodate more single family homes, which use more energy than multifamily homes. Similarly, the construction energy use for single family homes is more than for multifamily, so indirect energy use is higher under Alternative 4.

Transportation

Direct transportation energy use per capita, which includes fuel consumption for on-road vehicles, is largely the same as the proposed Plan under all the alternatives with the exception of the No Project alternative. The on-road energy use per capita would be higher under the No Project alternative since the No Project alternative results in higher VMT due to a more dispersed land use pattern. Alternative 4 would use the most on-road transportation energy since it includes higher population and employment growth and thus more VMT, though VMT per capita would be similar to the proposed Plan.

Indirect energy use, which includes construction, manufacturing and maintenance of transportation infrastructure, is largely the same across all the alternatives, with the exception of the No Project alternative. The No Project alternative would include only committed transportation projects, and therefore less new construction, and thus would have lower construction energy use. Alternative 5 would invest more in existing transit service improvements than the other alternatives, and thus would not require as much energy for construction of new projects. Therefore, after the No Project alternative, Alternative 5 would have the lowest per capita indirect energy use.

Combined Effects

Across all alternatives, land use and direct transportation energy use have similar per capita outcomes, all of which are reduced as compared to existing conditions. Overall, Alternative 4 would result in the lowest per capita energy use, followed by Alternative 5. Only Alterative 3 would result in higher per capita energy use than the proposed Plan. For all alternatives, the impact is expected to be less than significant (LS).

TABLE 3.1-27: TOTAL ENERGY USE PER CAPITA IN THE BAY AREA BY ALTERNATIVE

Per Capita Daily Energy (BTU)	*2010*	*Alt. 1: No Project*	*Alt. 2: Proposed Plan*	*Alt. 3: Transit Priority Focus*	*Alt. 4: Enhanced Network of Communities*	*Alt. 5: Environment, Equity & Jobs*
Direct Energy Use						
Land Use	106,448	105,935	105,387	104,180	94,086	104,247
Transportation[1]	131,781	100,105	95,213	96,624	94,986	95,610
Subtotal: Direct	**238,229**	**206,040**	**200,600**	**200,804**	**189,072**	**199,857**
Indirect Energy Use						
Land Use	47	45	45	44	48	44
Transportation[1]	30,439	34,078	40,653	41,059	44,270	39,878
Subtotal: Indirect	**30,487**	**34,123**	**40,698**	**41,103**	**44,318**	**39,922**
Total (BTU)	**268,716**	**240,163**	**241,254**	**241,907**	**233,390**	**239,778**

Note: Btu –British thermal units

1. Total daily VMT for transportation energy was calculated using Travel Model One; therefore, to calculate per-capita VMT, it is essential to use simulated population levels to ensure consistency. Simulated population may be slightly different than overall population forecasts for Plan Bay Area EIR due to slight variability in modeling tools. Further clarification on this issue can be found in the Plan Bay Area EIR technical appendices.

Source: Environmental Science Associates, 2013; Metropolitan Transportation Commission Model Outputs, 2012

Alternative 1: No Project

Per capita energy consumption for land use under the No Project alternative would be slightly more than the proposed Plan. Although the overall growth in jobs and housing would be the same, the No Project alternative would have three percent more single family homes than the proposed Plan. A single family home uses nearly 3,000 Kilowatts (kW) more electricity in a year than a multi-family home, as they tend to be larger. Natural gas usage would also be greater, for the same reason. Indirect land use energy consumption would be the same as under the proposed Plan.

Although overall indirect transportation energy would be less than the proposed Plan as a result of less construction under the No Project alternative, the direct transportation energy would be higher as the No Project alternative has higher VMT due to dispersed land use patterns.

The overall combined energy use per capita would be less under the No Project alternative than the proposed Plan.

Alternative 3: Transit Priority Focus

Per capita energy land use consumption under Alternative 3 would be slightly less than the proposed Plan. Although the overall growth in jobs and housing would be the same, Alternative 3 would have six percent fewer single family homes than the proposed Plan, resulting in more efficient energy use. Indirect land use energy consumption would be slightly less than under the proposed Plan.

Alternative 3 would have similar direct transportation energy consumption per capita as the proposed Plan. Indirect energy consumption per capita would be more than the proposed Plan, as Alternative 3 would invest slightly more in transit infrastructure than the proposed Plan, resulting in more transit construction.

The overall combined energy use per capita would be slightly more under Alternative 3 than the proposed Plan.

Alternative 4: Enhanced Network of Communities

Per capita land use energy consumption under Alternative 4 would be six percent less than the proposed Plan. The overall growth in jobs and housing would be more across the board; including 16 percent more single family homes than the proposed Plan, which use more energy per household than a multifamily unit. However, because of higher population accommodation, the per capita energy consumption would be less than the proposed Plan. Indirect land use energy consumption would also be slightly higher than under the proposed Plan.

As a result of the higher population and job growth, Alternative 4 would result in greater transportation energy consumption overall, compared to the proposed Plan. However, per capita direct transportation energy use would be less. The indirect transportation energy would be more the proposed Plan, as maintenance energy would increase as the overall vehicle miles traveled increase would increase the need for roadway repair.

The overall combined energy use per capita would be three percent less under Alternative 4 than the proposed Plan and all other alternatives.

Alternative 5: Environment, Equity, and Jobs

Per capita energy land use consumption under Alternative 5 would be slightly less than the proposed Plan. Although the overall growth in jobs and housing would be the same, Alternative 5 would have six percent fewer single family homes than the proposed Plan, resulting in more efficient energy use. Indirect land use energy consumption would be slightly less than under the proposed Plan.

Alternative 5 would have similar direct transportation use per capita as compared to the proposed Plan, but less indirect transportation energy consumption per capita than the proposed Plan because it would invest in transit service (rather than infrastructure) improvements, thus reducing indirect energy use, since construction is more energy intensive than maintenance.

The overall combined energy use per capita would be slightly less under Alternative 5 than the proposed Plan.

CLIMATE CHANGE AND GREENHOUSE GASES

GHG Emissions

Table 3.1-28 shows total daily and per capita car and light duty truck GHG emissions, by alternative. It is emphasized that per SB 375 legislative requirements, this analysis does not include implementation of Pavley or Low Carbon Fuel Standards (LCFS). While total GHG emissions increase for all alternatives due to regional growth, per capita GHG emissions decline under all alternatives from 2005 to 2040. The

year 2005 is used as the baseline for this criteria for consistency with SB 375 targets. This per capita decline is attributable to numerous factors, most importantly to the relatively compact growth anticipated under all the alternatives. Further, under the proposed Plan and Alterntives 3, 4, and 5, the per capita decline is attributable to an integrated land use and transporation plan in which the land use pattern focuses growth in higher-density locations near transit services further reduces per capita GHG emissions. The land use development pattern by alternative is described in greater detail in the *Alternatives Analyzed in this EIR* section, above.

The proposed Plan, Alternative 3, and Alterantive 5 all meet and/or surpass SB 375 targets for 2020 and 2035 (seven and 15 percent per capita below 2005, respectively). However, Alternative 4 fails to meet the target in 2035 since it does not include the full Climate Policy Initiatives program (as shown in **Table 3.1-1**, it does not include the Smart Driving Strategy). The No Project alternative fails to meet the target in both 2020 and 2035, since it does not include the full Climate Policy Initiatives program[7] and as a result of the relatively less compact growth and less focus on high density development near transit services. Therefore, for the proposed Plan, Alternative 3, and Alterantive 5, no adverse impact (NI) would occur, while Alternative 4 and the No Project would have significant and unavoidable impacts (SU).

[7] The No Project alternative only includes three of the seven initiatives: Car Sharing, Vanpool Incentives/Employer Shuttles, and the Commuter Benefits Ordinance.

TABLE 3.1-28: TOTAL AND PER CAPITA PASSENGER VEHICLE AND LIGHT DUTY TRUCK CO_2 EMISSIONS, BY ALTERNATIVE

Year	*Simulated Population*[1]	*Modeled GHG Emissions (daily tons of CO_2)*	*Climate Policy Initiatives Reduction (daily tons of CO_2)*[2]	*CO_2 Emissions Per Capita (lbs)*	*Per Capita CO_2 Emissions Relative to 2005*[3]
Alternative 1 - No Project					
2005	7,008,000	72,000	-	20.5	0.0%
2020	7,697,000	75,000	-1,600	19.2	**-6.2%**
2035	8,489,000	83,000	-2,000	19.0	**-7.0%**
2040	8,715,000	84,000	-2,000	18.9	-7.7%
Alternative 2 - Proposed Plan					
2005	7,008,000	72,000	-	20.5	0.0%
2020	7,694,000	75,000	-4,000	18.3	-10.3%
2035	8,749,000	81,000	-5,900	17.1	-16.4%
2040	9,137,000	83,000	-5,900	16.8	-18.0%
Alternative 3 - Transit Priority					
2005	7,008,000	72,000	-	20.5	0.0%
2020	7,710,000	74,000	-3,800	18.3	-10.5%
2035	8,613,000	80,000	-5,800	17.3	-15.4%
2040	8,927,000	82,000	-5,800	17.1	-16.2%
Alternative 4 - Network of Communities					
2005	7,008,000	72,000	-	20.5	0.0%
2020	7,799,000	75,000	-2,500	18.7	-8.5%
2035	9,028,000	83,000	-4,500	17.4	**-14.8%**
2040	9,476,000	86,000	-4,500	17.1	-16.3%
Alternative 5 - Environment, Equity, and Jobs					
2005	7,008,000	72,000	-	20.5	0.0%
2020	7,698,000	74,000	-3,800	18.2	-11.1%
2035	8,607,000	79,000	-5,800	17.1	-16.4%
2040	8,910,000	81,000	-5,800	17.0	-17.0%

1. CO_2 emissions are calculated using Travel Model One outputs; therefore, to calculate per-capita VMT, it is essential to use simulated population levels to ensure consistency. Simulated population may be slightly different than overall population forecasts for Plan Bay Area EIR alternatives due to slight variability in modeling tools. Further clarification on this issue is provided in the Supplemental Report, *Summary of Predicted Traveler Responses*.
2. MTC's Climate Policy Initiatives, which are part of the proposed Plan, include Regional Electric Vehicle Public Charger Network, Vehicle Buy-Back and Plug-In/ Electric Vehicles Purchase Incentives, Car Sharing, Vanpool Incentives, Clean Vehicles Feebate Program, Smart Driving Strategy, and Commuter Benefits Ordinance.
3. **Bold** numbers fail to meet SB 375 targets.

Source: MTC, 2013.

Total annual forecast GHG emissions (reported in metric tons of CO_2 equivalents or $MTCO_2e$) are expected to decline from 2010 to 2040 under all alternatives when considering ARB's scoping plan reductions for electricity and natural gas, recycling and waste, and implementation of Pavley and LCFS regulations, as shown in **Table 3.1-29**. The year 2010 is used as the baseline for this criterion as it is the most recent modeled year. These reductions, as well as methodology for calculating annual $MTCO_2e$, are described in detail in *Chapter 2.5*. Alternatives 3 and 5 are expected to result in the greatest reduction in land use GHG emissions from 2010 to 2040. The relatively lower increase in residential GHG emissions under these two alternatives is tied to an increase in the share of multifamily units, which require less electricity and natural gas to operate. Alternative 5 is expected to have the greatest reduction in on-road transportation GHG emissions from 2010 to 2040. A portion of this reduction is attributable to the substantial investments in transit service frequency improvements, as well as a focused growth pattern, resulting in the strongest transit ridership of all of the alternatives considered. Additionally, its lack of highway expansion projects and implementation of a VMT tax causes Alternative 5 to have the lowest level of VMT of all of the alternatives considered – one percent less than the proposed Plan.

Alternatives 3 and 5 are expected to result in the greatest overall combined reduction in GHG emissions from 2010 to 2040. Since all alternatives are expected to result in a decline in overall emissions as compared to 2010, there is no adverse impact (NI) for all alternatives.

TABLE 3.1-29: COMPARATIVE ANNUAL LAND USE GHG EMISSIONS ($MTCO_2E$)

GHG Source	*Existing Condition 2010*	*Alternative 1 - No Project*	*Alternative 2 - Proposed Plan*	*Alternative 3 - Transit Priority*	*Alternative 4 - Enhanced Network*	*Alternative 5 - EJJ*
Single Family Residential	8,473,000	9,833,000	9,570,000	9,021,000	11,050,000	9,052,000
Multifamily Residential	2,488,000	3,619,000	3,751,000	4,028,000	3,324,000	4,013,000
Residential Subtotal	***10,961,000***	***13,452,000***	***13,321,000***	***13,049,000***	***14,374,000***	***13,065,000***
Commercial	757,000	867,000	867,000	867,000	867,000	867,000
Office	6,568,000	9,360,000	9,360,000	9,360,000	9,454,000	9,360,000
Industrial	1,037,000	1,077,000	1,077,000	1,077,000	1,087,000	1,077,000
Non-Residential Subtotal	***8,362,000***	***11,304,000***	***11,304,000***	***11,304,000***	***11,408,000***	***11,304,000***
Waste	***4,943,000***	***6,410,000***	***6,410,000***	***6,410,000***	***6,646,000***	***6,410,000***
Scoping Plan Reductions	n/a	-9,633,000	-9,633,000	-9,633,000	-9,633,000	-9,633,000
Total Land Use GHG Emissions	**24,266,000**	**21,533,000**	**21,402,000**	**21,130,000**	**22,795,000**	**21,146,000**
Land Use GHG Emissions #Change 2010 to 2040	n/a	-2,733,000	-2,864,000	-3,136,000	-1,471,000	-3,120,000
Land Use GHG Emissions % Change 2010 to 2040	n/a	-11%	-12%	-13%	-6%	-13%
Passenger Vehicles	19,383,000	14,927,000	14,631,000	14,579,000	15,182,000	14,427,000
Trucks	4,447,000	6,250,000	6,217,000	6,148,000	6,411,000	6,091,000
Buses	615,000	578,000	571,000	568,000	588,000	565,000
Other Vehicles	136,000	161,000	159,000	159,000	165,000	156,000
MTC Climate Policy Initiative	n/a	-554,000	-1,636,000	-1,612,000	-1,257,000	-1,609,000
Total Vehicle GHG Emissions (Pavley I + LCFS)	**24,580,000**	**21,362,000**	**19,942,000**	**19,842,000**	**21,089,000**	**19,630,000**
On-Road GHG Emissions # Change 2010 to 2040	n/a	-3,218,000	-4,638,000	-4,738,000	-3,491,000	-4,950,000
On-Road GHG Emissions % Change 2010 to 2040	n/a	-13%	-19%	-19%	-14%	-20%
Total Regional GHG Emissions	**48,846,000**	**42,895,000**	**41,344,000**	**40,972,000**	**43,884,000**	**40,776,000**
Change from 2010 to 2040		**-5,951,000**	**-7,502,000**	**-7,874,000**	**-4,962,000**	**-8,070,000**
Percent Change from 2010 to 2040		**-12%**	**-15%**	**-16%**	**-10%**	**-17%**

Source: MTC, 2013; Dyett & Bhatia, 2013.

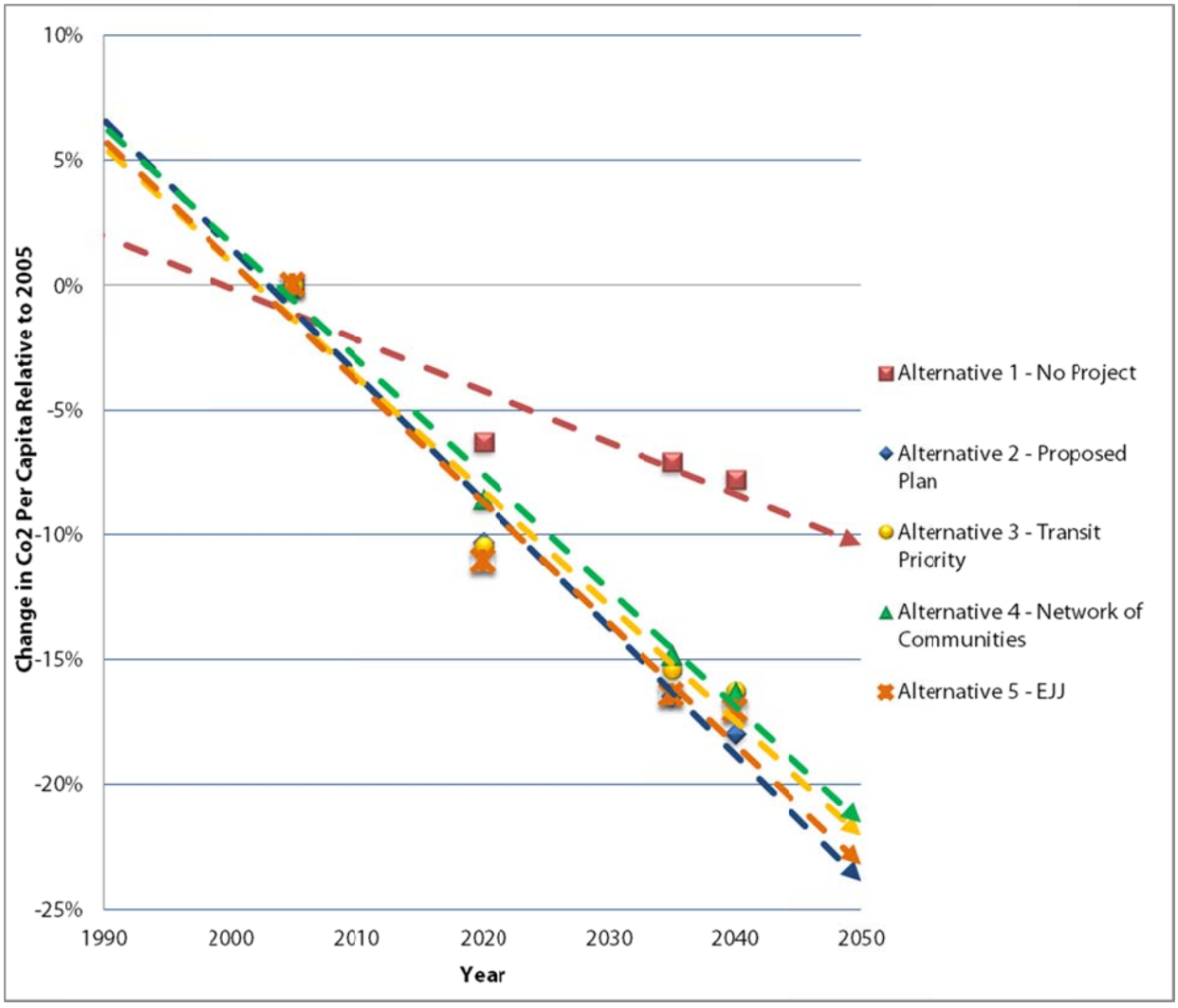
This assessment evaluates each alternative's likelihood to impede implementation of executive orders S-3-05 and B-16-2012, which both identify GHG reduction targets for 2050 (80 percent reduction as compared to 1990 levels for overall GHG emissions and transportation sector GHG emissions, respectively). Because these orders target a year beyond the life of each alternative, this assessment evaluates consistency by identifying whether or not implementation of each alternative is likely to impede attainment of the identified orders. The assessment considers the following factors:

- Per capita car and light duty truck GHG emissions decline from 2005 through 2040, and are expected to continue to decline farther into the future for all alternatives; however, GHG emissions for the No Project alternative and Alternative 4 are not expected to decline sufficiently to meet SB 375 targets.
- Total GHG emissions from land use and transportation are expected to decline from 2010 through 2040, and are expected to continue to decline farther into the future for all alternatives. This decline would be the steepest for Alternative 5, and the least for Alternative 4 and the No Project alternative.
- New innovations in technology and science are expected, along with continued market shift towards green building and zero emission vehicles.
- EMFAC does not account for some regulations that are already approved, such as the National Fuel Efficiency standards for manufacturer's year 2017-2025. This regulation would increase the emissions reductions in the out years.
- The RTP and SCS must be updated every four years, providing frequent opportunities to reevaluate progress towards executive order achievement.

Under all the alternatives GHG emissions are expected to decline, indicating that the Bay Area is expected to be heading in the direction of achieving the executive order goals, and does not impede achievement of these identified goals. The proposed Plan, Alternatives 3, and Alternative 5 have the steepest decline of total GHG emissions over time, as shown in **Figures 3.1-1** and **3.1-2**. Since all alternatives show a downward trajectory in emissions to 2050, the impact is considered less than significant (LS) for all alternatives.

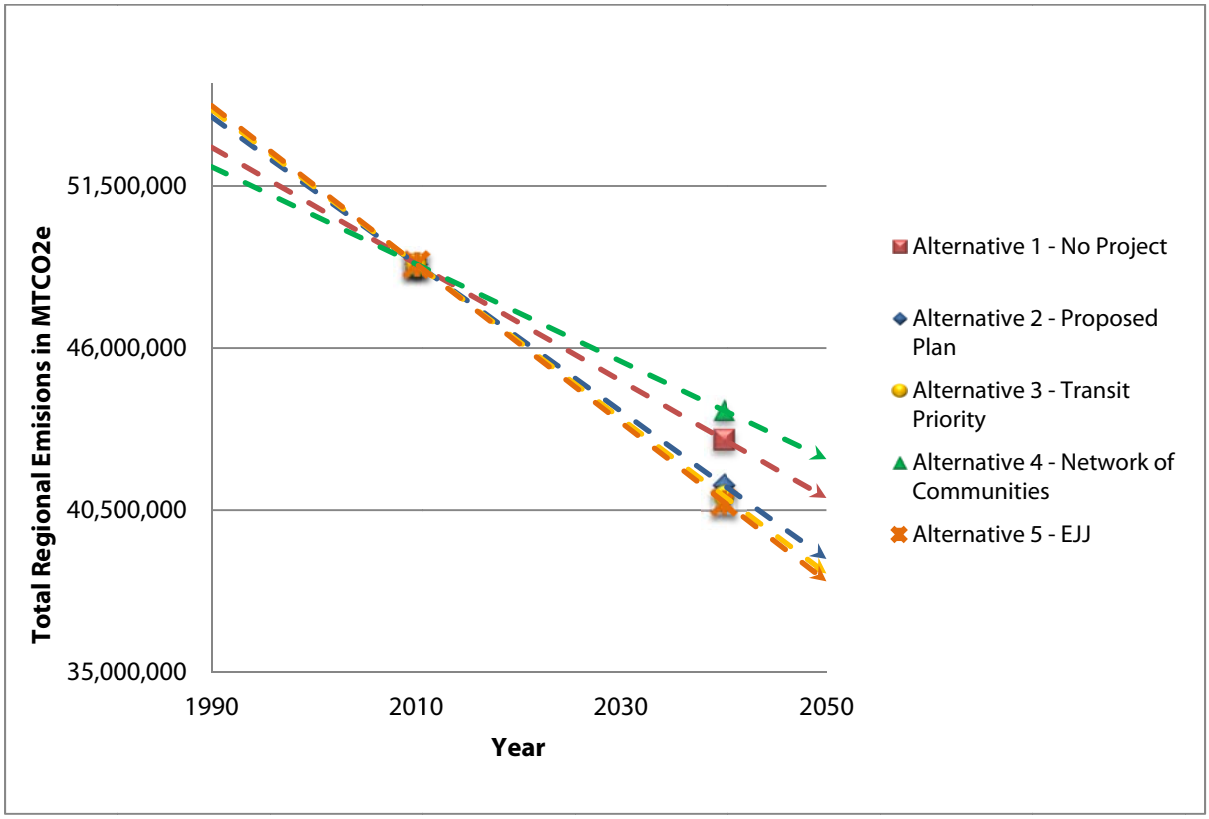
While some variations may exist between the proposed Plan and specific local Climate Action Plans, these variations would need to be assessed at the local level. On a whole, it is expected that local climate action plans would be complementary efforts with all of the alternatives towards the reduction of GHG emissions in line with State goals and mandates. The proposed Plan, Alternative 3, and Alternative 5 would be expected to be consistent with any other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs, resulting in no adverse impact (NI) for this threshold. However, since the No Project and Alternative 4 are inconsistent with SB 375, meaning they do not achieve the GHG emissions reduction target, they are expected to have a significant and unavoidable impact related to achieving state goals and mandates.

Figure 3.1-1: Change in Per Capita Car and Light Duty Truck CO_2 Emissions, by Alternative



Source: MTC, 2013; D&B, 2013.

Figure 3.1-2: Total Annual Regional GHG Emissions ($MTCO_2e$), by Alternative



Source: MTC, 2013; D&B, 2013.

Sea Level Rise

All alternatives include new transportation projects and land-use development in areas that are projected to be inundated by mid-century sea level rise, although the number of transportation projects and the number of impacted people and land-use development projects varies by alternative. As described in *Chapter 2.5*, the assessments were conducted using GIS data. Land-use development is based on GIS raster data developed by MTC using UrbanSim land use outputs, as described in *Approach to Assessing Alternatives* section above. **Table 3.1-30** shows the transportation projects that fall within (partially or entirely) the areas projected to be inundated by future mid-century sea level rise, by alternative. Additional details, such as the percentage of each transportation project that is projected to be inundated, are included in *Chapter 2.5*. The proposed Plan, Alternative 3 and Alternative 4 each have 32 transportation projects that are anticipated to fall within the sea level rise inundation zone. Alternative 5 and the No Project alternative each contain a subset of these projects. Alternative 5 has 21 transportation projects that fall within the sea level rise inundation zone, while the No Project alternative has 15.

Table 3.1-31 shows the transportation projects that fall within (partially or entirely) the mid-century low-lying, hydraulically disconnected areas (areas that are currently protected from existing and/or future inundation from Bay waters by levees and/or other topographic features or structures that act to inhibit the conveyance of floodwaters inland). Although these projects are not projected to be within the sea level rise inundation zone, based on the existing level of protection, they are still at risk of inundation in

the event that an existing structure (e.g., levee, roadway embankment) fails or is not properly maintained into the future, or the topographic feature that is providing protection erodes or is modified in a way that reduces is protective value. The proposed Plan, Alternative 3, and Alternative 4 have 21 transportation projects that are anticipated to fall within the mid-century low-lying, hydraulically disconnected zone, while Alternative 5 has 15, and the No Project alternative has 10.

The proposed Plan, Alternative 3, and Alternative 4 all perform the same with respect to the level of transportation investments made within areas projected to be inundated regularly with sea level rise by mid-century. Although the No Project alternative and Alternative 5 have fewer potentially impacted transportation projects, both alternatives also have a lower overall level of projected investments in transportation improvements, enhancements, and expansions of existing levels of services. *Chapter 2.5* presents mitigation measures and adaptation strategies that may reduce the impact associated with sea level rise to less than significant on a project-by-project basis. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

TABLE 3.1-30: PROPOSED TRANSPORTATION PROJECTS[1] WITHIN MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

RTP Project ID	*County*	*Alt 1: No Project*	*Alt 2: Proposed Plan*	*Alt 3: Transit Priority*	*Alt 4: Network of Communities*	*Alt 5: Environment, Equity, Jobs*
21013	Bay Area Region / Multi-County	X	X	X	X	X
22001	Bay Area Region / Multi-County	X	X	X	X	X
230221	Bay Area Region / Multi-County	X	X	X	X	X
240736	Bay Area Region / Multi-County		X	X	X	X
230668	Bay Area Region / Multi-County		X	X	X	
230685	Bay Area Region / Multi-County		X	X	X	
230686	Bay Area Region / Multi-County		X	X	X	
240587	Bay Area Region / Multi-County		X	X	X	
240581	Bay Area Region / Multi-County		X	X	X	
22009	Alameda		X	X	X	X
22780	Alameda		X	X	X	X
98207	Alameda		X	X	X	X
230054	Alameda	X	X	X	X	X
240018	Alameda		X	X	X	X
98154	Marin	X	X	X	X	X
240552	Marin		X	X	X	X
240691	Marin		X	X	X	
21325	Marin		X	X	X	
21613	San Mateo		X	X	X	

TABLE 3.1-30: PROPOSED TRANSPORTATION PROJECTS[1] WITHIN MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

RTP Project ID	*County*	*Alt 1: No Project*	*Alt 2: Proposed Plan*	*Alt 3: Transit Priority*	*Alt 4: Network of Communities*	*Alt 5: Environment, Equity, Jobs*
230428	San Mateo	X	X	X	X	X
240060	San Mateo		X	X	X	
240143	San Mateo	X	X	X	X	X
240176	San Mateo	X	X	X	X	X
230704	San Mateo	X	X	X	X	X
230267	Santa Clara	X	X	X	X	X
230531	Santa Clara	X	X	X	X	X
230532	Santa Clara	X	X	X	X	X
240436	Santa Clara		X	X	X	
240441	Santa Clara		X	X	X	
240463	Santa Clara	X	X	X	X	X
240466	Santa Clara	X	X	X	X	X
240481	Santa Clara	X	X	X	X	X
TOTAL		**15**	**32**	**32**	**32**	**21**

[1] Project Descriptions can be found in the Project Notebook supplemental report

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-31: PROPOSED TRANSPORTATION PROJECTS[1] WITHIN MID-CENTURY LOW-LYING ZONE

RTP Project ID	*County*	*Alt 1: No Project*	*Alt 2: Proposed Plan*	*Alt 3: Transit Priority*	*Alt 4: Network of Communities*	*Alt 5: Environment, Equity, Jobs*
21627	Bay Area Region / Multi-County		X	X	X	X
22001	Bay Area Region / Multi-County	X	X	X	X	X
240588	Bay Area Region / Multi-County		X	X	X	
21131	Alameda	X	X	X	X	X
22009	Alameda		X	X	X	X
98207	Alameda		X	X	X	X
240018	Alameda		X	X	X	X
240147	San Francisco		X	X	X	X
240358	San Francisco		X	X	X	
240163	San Francisco		X	X	X	
240400	San Francisco	X	X	X	X	X

TABLE 3.1-31: PROPOSED TRANSPORTATION PROJECTS[1] WITHIN MID-CENTURY LOW-LYING ZONE

RTP Project ID	*County*	*Alt 1: No Project*	*Alt 2: Proposed Plan*	*Alt 3: Transit Priority*	*Alt 4: Network of Communities*	*Alt 5: Environment, Equity, Jobs*
21608	San Mateo	X	X	X	X	X
21612	San Mateo		X	X	X	
21613	San Mateo		X	X	X	
230592	San Mateo	X	X	X	X	X
240060	San Mateo		X	X	X	
240133	San Mateo	X	X	X	X	X
240143	San Mateo	X	X	X	X	X
240374	Santa Clara	X	X	X	X	X
240466	Santa Clara	X	X	X	X	X
240481	Santa Clara	X	X	X	X	X
TOTAL		**10**	**21**	**21**	**21**	**15**

[1] Project descriptions can be found in the Project Notebook supplemental report

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

All Alternatives are projected to have an increase in the number of residents within the future sea level rise inundation zone compared to year 2010 baseline conditions. **Tables 3.1-32** through **3.1-34** show the number of residents projected to be within the mid-century sea level rise inundation zone within the PDAs, TPPs, and within the counties as a whole, respectively. Each Alternative is also compared to the proposed Plan, presented as the relative percent increase or decrease in residents projected to be within this zone. The increase in population under the proposed Plan (relative to baseline conditions) is presented in *Chapter 2.5*; an overview of population growth by alternative is included in the *Alternatives Analyzed in this EIR* section above. A positive percentage in **Tables 3.1-32** through **3.1-34** indicates that the alternative places more residents within the PDA, TPP, or within the county as a whole and within the sea level rise inundation zone than projected under the proposed Plan, while a negative percentage indicates that the alternative places fewer residents within the inundation area than projected under the proposed Plan. It should be noted that the PDAs and TPPs within each county may overlap, and the population calculated within the county as a whole contains the population within and outside of the PDAs and TPPs (within the sea level rise inundation zone).

Within the TPPs, Alternative 3 is projected to have the largest increase in residents within the sea level rise inundation zone (11 percent more than the proposed Plan, **Table 3.1-33**), while the proposed Plan has the largest increase in the number of residents within the future sea level rise inundation zone within the PDAs and the nine Bay Area counties as a whole (**Tables 3.1-32** and **3.1-34**). Alternative 5 has the smallest projected increase in residents within the future sea level rise inundation zone (12 percent fewer than projected under the proposed Plan).

While mitigation measures and adaptation strategies are identified in *Chapter 2.5*, because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-32: RESIDENTS WITHIN PDAS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]
Alameda	< 10	100	70	-24%	100	10%	70	-23%	80	-16%
Contra Costa	300	490	400	-19%	250	-50%	520	6%	310	-36%
Marin	120	430	280	-34%	650	51%	850	99%	410	-4%
Napa	< 10	10	< 10	-51%	< 10	-44%	10	0%	10	2%
San Francisco	30	970	540	-45%	1,480	52%	1,060	9%	620	-36%
San Mateo	210	710	460	-36%	660	-9%	1,000	40%	1,160	63%
Santa Clara	2,240	9,880	5,470	-45%	10,320	104 %	5,510	-44%	9,990	1%
Solano	1,680	3,240	2,620	-19%	1,750	-46%	2,890	-11%	2,210	-32%
Sonoma	< 10	20	10	-35%	< 10	-57%	30	41%	10	-29%
Bay Area	**4,600**	**15,850**	**9,850**	**-38%**	**15,220**	**-4%**	**11,940**	**-25%**	**14,800**	**-7%**

[1] % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-33: RESIDENTS WITHIN TPPS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]	*Within SLR Zone*	*% Diff.*[1]
Alameda	1,350	1,540	1,470	-4%	1,200	-22%	1,360	-12%	1,200	-22%
Contra Costa	10	80	80	-7%	20	-72%	< 10	-90%	30	-70%
Marin	7,920	9,000	8,440	-6%	7,520	-16%	9,530	6%	7,170	-20%
Napa	< 10	< 10	< 10	-51%	< 10	37%	< 10	-18%	< 10	27%
San Francisco	330	2,030	1,650	-19%	1,120	-45%	1,070	-47%	580	-72%
San Mateo	12,900	15,580	15,380	-1%	18,320	18%	17,650	13%	17,910	15%
Santa Clara	3,920	12,960	10,520	-19%	17,540	35%	5,820	-55%	7,210	-44%
Solano	0	0	0	0%	0	0%	0	0%	0	0%
Sonoma	< 10	10	< 10	-27%	< 10	-24%	10	17%	< 10	-26%
Bay Area	**26,450**	**41,220**	**37,550**	**-9%**	**45,740**	**11%**	**35,460**	**-14%**	**34,110**	**-17%**

[1] % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-34: RESIDENTS WITHIN COUNTIES[1] AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1 No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*
Alameda	1,450	1,630	1,590	-2%	1,320	-19%	1,520	-7%	1,540	-6%
Contra Costa	750	1,360	1,260	-7%	330	-76%	620	-54%	370	-73%
Marin	11,170	12,380	11,780	-5%	10,540	-15%	12,500	1%	10,250	-17%
Napa	100	120	110	-6%	140	15%	120	-3%	130	12%
San Francisco	340	1,930	1,580	-18%	1,060	-45%	950	-51%	570	-70%
San Mateo	50,680	56,320	54,820	-3%	57,440	2%	58,270	3%	57,820	3%
Santa Clara	11,930	26,820	21,690	-19%	30,420	13%	22,080	-18%	18,690	-30%
Solano	1,790	3,360	2,740	-19%	1,860	-45%	2,990	-11%	2,320	-31%
Sonoma	130	170	150	-6%	190	16%	180	10%	190	13%
Bay Area	**78,340**	**104,090**	**95,720**	**-8%**	**103,280**	**-1%**	**99,220**	**-5%**	**91,870**	**-12%**

[1] Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs.

[2] % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Tables 3.1-35 through **3.1-37** show the projected number of residents within the future low-lying, hydraulically disconnected areas within the PDAs, TPPs, and within the counties as a whole, respectively. The proposed Plan has the largest increase in population in the low-lying areas within the PDA's, TPPs and the counties as whole. Alternative 4 has the smallest increase in the projected population residing within the low-lying zone TPPs and the counties as a whole relative to the proposed Plan (51 percent and 43 percent fewer than projected under the proposed Plan, respectively).

TABLE 3.1-35: RESIDENTS WITHIN PDAS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1 No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	20	3,450	2,690	-22%	430	-87%	280	-92%	390	-89%
Contra Costa	0	30	30	-2%	0	-100%	30	-9%	20	-38%
Marin	< 10	< 10	< 10	-39%	40	4491%	50	5961%	< 10	473%
Napa	0	0	0	0%	0	0%	0	0%	0	0%
San Francisco	10	4,200	3,010	-28%	3,120	-26%	1,060	-75%	2,930	-30%
San Mateo	2,250	10.330	3,790	-63%	7,110	-31%	7,080	-31%	10,070	-3%
Santa Clara	2,140	2,210	1,330	-40%	3490	58%	2910	32%	3,200	45%
Solano	0	40	40	-15%	0	-100%	60	41%	< 10	-97%
Sonoma	0	0	0	0%	0	0%	0	0%	0	0%
Bay Area	**4,420**	**20,270**	**10,890**	**-46%**	**19,340**	**-30%**	**11,480**	**-43%**	**16,630**	**-18%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-36: RESIDENTS WITHIN TPPS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	1,130	2,210	1,860	-16%	1,650	-25%	1,480	-33%	1,460	-34%
Contra Costa	< 10	10	10	0%	< 10	-92%	< 10	-33%	< 10	-65%
Marin	1,470	1,480	1,410	-5%	1,060	-28%	1,500	1%	960	-35%
Napa	0	0	0	0%	0	0%	0	0%	0	0%
San Francisco	10	2,240	1,320	-41%	1,980	-11%	660	-71%	1,900	-15%
San Mateo	11,750	25,050	20,830	-17%	11,060	-56%	9,200	-63%	12,130	-52%
Santa Clara	2,610	2,890	1,990	-31%	8,270	186%	3,650	26%	4,320	49%
Solano	220	270	270	-15%	230	-26%	310	0%	240	-24%
Sonoma	0	0	0	0%	0	0%	0	0%	0	0%
Bay Area	**17,180**	**34,150**	**27,690**	**-19%**	**24,260**	**-29%**	**16,800**	**-51%**	**21,000**	**-39%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-37: RESIDENTS WITHIN COUNTIES[1] AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[2]*	*Within Low Zone*	*% Diff.[2]*	*Within Low Zone*	*% Diff.[2]*	*Within Low Zone*	*% Diff.[2]*
Alameda	2,050	6,110	5,190	-15%	2,530	-59%	2,610	-57%	2,510	-59%
Contra Costa	< 10	50	50	-2%	10	-75%	50	-13%	30	-53%
Marin	3,060	3,180	3,030	-5%	2,450	-23%	3,300	4%	2,360	-26%
Napa	20	30	30	10%	30	11%	30	0%	30	-7%
San Francisco	10	3,910	2,800	-28%	3,120	-20%	920	-77%	2,930	-25%
San Mateo	23,790	41,950	34,320	-18%	23,980	-43%	22,500	-46%	27,580	-34%
Santa Clara	2,690	3,030	2,090	-31%	9,340	208%	3,680	22%	4,930	63%
Solano	280	340	330	-2%	310	-9%	390	14%	310	-7%
Sonoma	30	30	30	-1%	50	70%	30	11%	50	76%
Bay Area	**31,940**	**58,630**	**47,870**	**-18%**	**41,820**	**-29%**	**33,500**	**-43%**	**40,730**	**-31%**

1. Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs.
2. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Tables 3.1-38 through **3.1-40** show the projected number of employees within the future sea level rise inundation zone and the PDAs, TPPs, and the counties as a whole, respectively. The number of employees within a region is used as a surrogate for the increase in commercial and industrial land use density. The proposed Plan is projected to have the largest increase in commercial and industrial land use density within the future inundated areas within the PDAs and the counties as a whole. Alternative 3 is projected to have the largest increase in commercial and industrial land use density within the TPPs and the future sea level rise inundation zone (2 percent more than the proposed Plan). Within the counties as a whole, Alternative 4 has the smallest increase in commercial and industrial land use density within the sea level rise inundation zone (22 percent fewer than projected under the proposed Plan).

While mitigation measures and adaptation strategies are identified in *Chapter 2.5*, because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-38: EMPLOYMENT WITHIN PDAS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*
Alameda	120	370	270	-27%	190	-49%	90	-74%	190	-49%
Contra Costa	20	30	20	-40%	30	-17%	30	-8%	30	-16%
Marin	900	1,050	790	-24%	1,070	2%	1,070	2%	1,050	1%
Napa	< 10	< 10	< 10	-12%	< 10	-11%	< 10	12%	< 10	42%
San Francisco	160	690	520	-26%	210	-70%	330	-52%	210	-70%
San Mateo	1,250	1,940	1,400	-28%	1,770	-8%	1,150	-40%	1,480	-24%
Santa Clara	5,690	8,460	6,690	-21%	6,680	35%	8,890	6%	6,440	-24%
Solano	230	410	370	-10%	410	0%	340	-17%	390	-5%
Sonoma	10	30	20	-20%	10	-66%	10	-63%	10	-60%
Bay Area	**8,380**	**12,980**	**10,080**	**-22%**	**10,360**	**-20%**	**11,920**	**-8%**	**9,800**	**-24%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-39: EMPLOYMENT WITHIN TPPS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*
Alameda	1,090	1,430	1,380	-4%	1,630	14%	1,440	1%	1,530	7%
Contra Costa	340	520	520	0%	100	-82%	170	-67%	90	-82%
Marin	9,510	11,330	11,000	-3%	9,570	-15%	9,140	-19%	9,420	-17%
Napa	0	0	0	0%	0	0%	0	0%	0	0%
San Francisco	170	670	510	-23%	240	-64%	320	-53%	260	-61%
San Mateo	24,090	29,880	29,710	-1%	29,510	-1%	25,140	-16%	28,280	-5%
Santa Clara	5,090	6,770	5,160	-24%	10,380	53%	7,000	3%	10,350	53%
Solano	-1	10	< 10	0%	< 10	0%	< 10	0%	< 10	0%
Sonoma	10	30	20	-19%	< 10	-66%	10	-64%	10	-60%
Bay Area	**40,310**	**50,640**	**48,320**	**-5%**	**51,440**	**2%**	**43,220**	**-15%**	**49,960**	**-1%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-40: EMPLOYMENT WITHIN COUNTIES[1] AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*	*Within SLR Zone*	*% Diff.[2]*
Alameda	1,500	1,890	1,770	-6%	3,320	76%	1,860	-2%	3,220	70%
Contra Costa	1,390	2,020	1,980	-2%	400	-80%	790	-61%	410	-80%
Marin	11,510	13,720	13,380	-2%	11,840	-14%	10,980	-20%	11,420	-17%
Napa	30	30	30	-2%	50	41%	40	1%	40	13%
San Francisco	130	520	390	-25%	200	-62%	260	-51%	200	-61%
San Mateo	48,750	65,070	64,290	-1%	56,650	-13%	48,290	-26%	56,110	-14%
Santa Clara	16,890	24,500	21,990	-10%	23,500	-4%	21,730	-11%	23,110	-6%
Solano	450	680	640	-6%	560	-17%	420	-38%	530	-23%
Sonoma	280	350	340	-3%	390	11%	250	-28%	380	7%
Bay Area	**80,920**	**108,790**	**104,820**	**-4%**	**96,920**	**-11%**	**84,620**	**-22%**	**95,430**	**-12%**

1. Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs.
2. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Tables 3.1-41 through **3.1-43** show the projected number of employees within the low-lying, hydraulically disconnected areas and the PDAs, TPPs, and the counties as a whole, respectively. Within the low-lying areas, the proposed Plan has the largest increase in employment, and therefore the largest projected increase in commercial and industrial land use density within the PDAs, TPPs, and within the nine Bay Area counties. Alternatives 3, 4, and 5 all have similar increases in projected commercial and industrial land use densities within the low-lying areas compared to baseline (e.g., 2010) conditions.

TABLE 3.1-41: EMPLOYMENT WITHIN PDAS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	260	800	620	-22%	460	-43%	530	-33%	370	-53%
Contra Costa	0	0	0	0%	0	0%	0	0%	0	0%
Marin	40	40	30	-23%	40	4%	40	10%	40	12%
Napa	260	0	0	0%	0	0%	0	0%	0	0%
San Francisco	780	2,670	2,070	-23%	1,080	-60%	1,220	-54%	950	-65%
San Mateo	6,130	11,500	6,750	-41%	6,490	-44%	5,950	-48%	6,410	-44%
Santa Clara	70	100	60	-37%	90	-14%	200	91%	90	-10%
Solano	60	90	80	-9%	110	26%	130	49%	80	-12%
Sonoma	0	0	0	0%	0	0%	0	0%	0	0%
Bay Area	**7,340**	**15,200**	**9,610**	**-37%**	**8,260**	**-46%**	**8,060**	**-47%**	**7,940**	**-48%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-42: EMPLOYMENT WITHIN TPPS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	1,470	2,030	1,900	-7%	1,960	-3%	2,110	4%	1,740	-14%
Contra Costa	50	70	50	-26%	40	-41%	30	-60%	40	-36%
Marin	210	220	210	-5%	270	23%	290	28%	280	28%
Napa	0	0	0	0%	0	0%	0	0%	0	0%
San Francisco	900	2,660	2,060	-22%	1,130	-58%	1,300	-51%	1,000	-62%
San Mateo	6,280	9,490	8,060	-15%	5,570	-41%	4,430	-53%	5,750	-39%
Santa Clara	2,660	3,550	3,360	-5%	3,980	12%	5,360	51%	4,250	20%
Solano	870	1,020	1,010	-1%	1,090	7%	1,030	1%	980	-4%
Sonoma	0	0	0	0%	0	0%	0	0%	0	0%
Bay Area	**12,440**	**19,040**	**16,660**	**-12%**	**14,040**	**-26%**	**14,540**	**-24%**	**14,050**	**-26%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-43: EMPLOYMENT WITHIN COUNTIES[1] AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	5,370	7,580	7,390	-3%	6,290	-17%	7,460	-2%	5,680	-25%
Contra Costa	410	420	370	-13%	100	-76%	130	-69%	110	-75%
Marin	1,000	1,100	1,090	-2%	1,560	41%	1,700	54%	1,310	19%
Napa	520	570	570	0%	190	-66%	580	2%	180	-68%
San Francisco	900	2,790	2,190	-22%	1,180	-58%	1,390	-50%	1,040	-63%
San Mateo	20,090	30,960	25,830	-17%	18,050	-42%	14,520	-53%	18,410	-41%
Santa Clara	2,830	3,850	3,630	-6%	4,560	19%	5,970	55%	4,920	28%
Solano	940	1,110	1,100	-1%	1,180	6%	1,150	4%	1,070	-3%
Sonoma	10	10	10	-2%	30	172%	10	6%	20	36%
Bay Area	**32,060**	**48,400**	**42,180**	**-13%**	**33,150**	**-32%**	**32,920**	**-32%**	**32,740**	**-32%**

1. Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs.
2. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Tables 3.1-44 through **3.1-46** show the number of households projected to be located within the areas inundated by mid-century sea level rise in the PDAs, TPPs, and the counties as a whole, respectively. The number of households is used a surrogate for an increase in residential land use density, or an increase in residential development. Alternative 3 is projected to have the largest increase in residential development within the future sea level rise inundation zone across the TPPs and the counties as a whole (15 percent and 2 percent more than projected under the proposed Plan, respectively). The proposed Plan has the largest increase in residential development across the PDAs, and the second largest increase within the TPPs and the nine Bay Area counties within the future sea level rise inundation zone when compared to baseline (e.g., 2010) conditions. Alternative 5 is projected to have the smallest increase in residential development within the future sea level rise inundation zone across the Bay Area as a whole (10 percent fewer than projected under the proposed Plan).

While mitigation measures and adaptation strategies are identified in *Chapter 2.5*, because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

TABLE 3.1-44: HOUSEHOLDS WITHIN PDAS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*
Alameda	< 10	30	20	-25%	40	16%	30	-14%	30	-12%
Contra Costa	90	140	110	-21%	80	-40%	160	20%	110	-22%
Marin	50	180	120	-33%	270	48%	320	80%	180	2%
Napa	< 10	< 10	< 10	-52%	< 10	-37%	< 10	-4%	< 10	8%
San Francisco	20	350	190	-45%	640	84%	370	6%	290	-17%
San Mateo	40	210	130	-38%	230	8%	270	25%	420	100%
Santa Clara	900	4,060	2,240	-45%	3,990	-2%	2,350	-42%	3,630	-11%
Solano	580	1,100	880	-20%	590	-47%	960	-13%	740	-33%
Sonoma	< 10	< 10	< 10	-37%	< 10	-53%	10	40%	< 10	-20%
Bay Area	**1,690**	**6,080**	**3,700**	**-39%**	**5,840**	**-4%**	**4,480**	**-26%**	**5,410**	**-11%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-45: HOUSEHOLDS WITHIN TPPS AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*
Alameda	510	570	540	-5%	470	-17%	510	-11%	470	-18%
Contra Costa	< 10	30	20	-10%	< 10	-66%	< 10	-84%	10	-60%
Marin	2,430	2,750	2,580	-6%	2,660	-3%	2,970	8%	2,500	-9%
Napa	< 10	< 10	< 10	0%	< 10	0%	< 10	0%	< 10	0%
San Francisco	160	800	660	-17%	480	-40%	370	-54%	260	-67%
San Mateo	5,570	6,400	6,320	-1%	7,270	13%	7,330	14%	7,100	11%
Santa Clara	1,460	4,760	3,750	-21%	6,780	43%	2,340	-51%	2,660	-44%
Solano	0	0	0	0%	0	0%	0	0%	0	0%
Sonoma	< 10	< 10	< 10	-30%	< 10	-11%	< 10	4%	< 10	-17%
Bay Area	**10,130**	**15,310**	**13,890**	**-9%**	**17,680**	**15%**	**13,530**	**-12%**	**13,010**	**-15%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-46: HOUSEHOLDS WITHIN COUNTIES[1] AND MID-CENTURY SEA LEVEL RISE INUNDATION ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within SLR Zone	*Within SLR Zone*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*	*Within SLR Zone*	*% Diff.[1]*
Alameda	540	580	570	-2%	510	-11%	560	-3%	580	-1%
Contra Costa	230	440	410	-7%	110	-75%	200	-54%	130	-71%
Marin	3,760	4,110	3,930	-4%	3,900	-5%	4,180	2%	3,760	-9%
Napa	40	40	40	-6%	50	13%	50	4%	50	6%
San Francisco	160	760	630	-16%	460	-40%	330	-57%	260	-65%
San Mateo	19,620	21,290	20,670	-3%	21,810	2%	22,460	5%	22,110	4%
Santa Clara	4,300	9,890	7,780	-21%	11,550	17%	8,300	-16%	6,790	-31%
Solano	630	1,150	920	-20%	630	-45%	1,010	-13%	780	-32%
Sonoma	40	60	50	-10%	60	5%	60	12%	60	10%
Bay Area	**29,320**	**38,320**	**35,010**	**-9%**	**39,070**	**2%**	**37,140**	**-3%**	**34,510**	**-10%**

1. Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs**.**

2. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Tables 3.5-47 through **3.5-49** show the number of households projected to be located within the low-lying, hydraulically disconnected areas and the PDAs, TPPs, and the counties as a whole, respectively. The proposed Plan is projected to have the largest increase in the number of households, and thus residential development, within the low-lying areas of the PDAs, TPPs and the nine counties. Alternative 4 is projected to have the smallest increase in residential development within the low-lying, hydraulically disconnected areas across the Bay Area as a whole (44 percent fewer than projected under the proposed Plan).

TABLE 3.1-47: HOUSEHOLDS WITHIN PDAS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]
Alameda	< 10	910	710	-22%	160	-82%	100	-89%	140	-84%
Contra Costa	0	10	10	-2%	0	-100%	10	18%	< 10	-21%
Marin	< 10	< 10	< 10	-37%	20	4051%	20	4874%	< 10	312%
Napa	0	0	0	0	0	0	0	0	0	0
San Francisco	< 10	1,400	970	-31%	1,360	-3%	430	-69%	1,300	-7%
San Mateo	850	3,990	1,400	-65%	2,870	-28%	2,630	-34%	4,050	2%
Santa Clara	890	910	550	-40%	1,370	270%	1,180	30%	1,270	40%
Solano	0	10	10	-14%	0	-100%	20	73%	< 10	-98%
Sonoma	0	0	0	0	0	0	0	0	0	0
Bay Area	**1,750**	**7,240**	**3,640**	**-50%**	**5,780**	**-20%**	**4,400**	**-39%**	**6,780**	**-6%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-48: HOUSEHOLDS WITHIN TPPS AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]	*Within Low Zone*	*% Diff.*[1]
Alameda	390	740	620	-17%	580	-22%	500	-33%	500	-33%
Contra Costa	< 10	< 10	< 10	0%	< 10	-94%	< 10	-20%	< 10	-54%
Marin	600	580	540	-6%	450	-22%	610	6%	410	-29%
Napa	0	0	0	0%	0	0%	0	0%	0	0%
San Francisco	< 10	790	440	-44%	850	8%	280	-64%	820	5%
San Mateo	4,380	9,760	8,020	-18%	4,330	-56%	3,370	-65%	4,740	-51%
Santa Clara	1,100	1,270	910	-29%	3,200	151%	1,430	12%	1,680	32%
Solano	90	120	110	-2%	80	-27%	130	14%	80	-27%
Sonoma	0	0	0	0%	0	0%	0	0%	0	0%
Bay Area	**6,570**	**13,260**	**10,650**	**-20%**	**9,500**	**-28%**	**6,330**	**-52%**	**8,240**	**-38%**

1. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

TABLE 3.1-49: HOUSEHOLDS WITHIN COUNTIES[1] AND MID-CENTURY LOW-LYING ZONE

County	*Year 2010*	*Alternative 2: Proposed Plan*	*Alternative 1: No Project*		*Alternative 3: Transit Priority Focus*		*Alternative 4: Enhanced Network of Communities*		*Alternative 5: Environment, Equity and Jobs*	
	Within Low Zone	*Within Low Zone*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*	*Within Low Zone*	*% Diff.[1]*
Alameda	710	1,820	1,540	-15%	900	-51%	880	-52%	870	-52%
Contra Costa	< 10	10	10	-2%	< 10	-69%	20	28%	< 10	-33%
Marin	1,240	1,260	1,180	-6%	1,030	-18%	1,330	5%	980	-22%
Napa	< 10	10	10	-2%	10	12%	10	-10%	10	0%
San Francisco	< 10	1,270	870	-31%	1,360	7%	360	-72%	1,300	3%
San Mateo	8,580	15,640	12,560	-20%	9,000	-42%	7,840	-50%	10,480	-33%
Santa Clara	1,120	1,330	950	-28%	3,600	170%	1,440	8%	1,910	43%
Solano	120	140	140	-2%	110	-17%	160	15%	120	-15%
Sonoma	10	10	10	-2%	20	70%	10	14%	20	60%
Bay Area	**11,800**	**21,490**	**17,290**	**-20%**	**16,030**	**-25%**	**12,040**	**-44%**	**15,700**	**-27%**

1. Includes all population within each county that are within the sea level rise inundation zone, including population within and outside of the PDAs and TPPs.
2. % Difference is calculated relative to Alternative 2: Proposed Plan.

Source: MTC, 2012; NOAA, 2012; AECOM 2013.

Alternative 1 – No Project

Alternative 4 is not consistent with SB 375, as modeled CO_2 emissions do not meet the SB 375 targeted reductions for per capita car and light duty truck GHG emissions in 2020 or in 2035. Reductions are nine percent less than under the proposed Plan. This is in part due to the less focused land use scenario which is not as closely tied to the transportation improvements, and in part due to the fact that the No Project alternative includes the lowest GHG emissions reductions from MTC's Climate Policy Initiatives since discretionary funds are not dedicated to these programs.

Total annual regional forecast GHG emissions from land use and on-road transportation are expected to decline by 12 percent from 2010 to 2040 under the No Project alternative. This is a three percent lower reduction than under than proposed Plan, and less than under Alternative 3, or Alternative 5, but two percent greater than under Alternative 4.

Per capita car and light duty truck CO_2 emissions decline from 2005 through 2040 under the No Project and total GHG emissions from land use and transportation are expected to decline from 2010 through 2040; both of these trends are expected to continue into the future. Therefore, the No Project is found to move the Bay Area in the direction of achieving the executive order goals, and does not impede achievement of these identified goals.

Because the No Project alternative fails to meet SB 375 goals, it is found to be inconsistent with State goals and mandates, resulting in a significant impact for this criterion. However, the No Project is not expected to conflict with local CAPs or GHG reduction plans as they are complimentary efforts towards the reduction of GHG emissions in line with State goals and mandates.

The No Project alternative has the smallest increase in the number of residents projected to be within the PDAs that are in the future sea level rise zone and the low-lying areas (38 percent and 46 percent fewer than the proposed Plan, respectively, as seen in **Table 3.1-32** and **Table 3.1-35**) . Within the TPPs, the No Project alternative is projected to have more residents within the sea level rise inundation zone than Alternatives 4 and 5, but fewer than Alternative 3, and nine percent fewer than the proposed Plan (**Table 3.1-33**). Within the Bay Area as a whole, the No Project alternative has eight percent fewer residents within the future sea level rise inundation zone than the proposed Plan, fewer residents than projected Alternatives 3 and 4, and more residents than projected under Alternative 5 (**Table 3.1-34**). The No Project alternative has 18 percent fewer projected residents within low-lying, hydraulically disconnected areas than the proposed Plan, but more than Alternatives 3, 4, and 5 (**Table 3.1-37**).

The No Project alternative is projected to have the second smallest increase in commercial and industrial development within the PDAs in the sea level rise inundation zone (**Table 3.1-38**), but within the nine Bay Area counties, the No Project alternative is projected to have the largest increase in commercial and industrial development with the exception of the proposed Plan (**Table 3.1-40**). The No Project alternative is projected to have 4 percent fewer employees located within the sea level rise inundation zone than the proposed Plan.

The No Project alternative is projected to have the smallest increase in residential development within the PDAs and the sea level rise inundation zone (39 percent fewer than projected under the proposed Plan, **Table 3.1-45**). Within the nine Bay Area counties, the No Project alternative is projected to have the second smallest increase in residential development (the smallest increase is associated with Alternative 5, see **Table 3.1-46**).

In general, because the No Project alternative results in increases (compared to existing conditions) in transportation investments, the number of residents, and land-use development within the future sea level rise inundation zone, this alternative results in significant impacts for all criteria related to sea level rise. In general, the impacts associated with the No Project alternative are less than those projected for the proposed Plan, due to reductions in transportation investments, and reductions in the number of residents and land use development when compared to the proposed Plan.

Alternative 3 – Transit Priority Focus

Alternative 3 is consistent with SB 375, as modeled CO_2 emissions meet the SB 375 targeted reductions for per capita car and light duty truck GHG emissions. Reductions are one percent less than under the proposed Plan.

Total annual regional forecast GHG emissions from land use and on-road transportation are expected to decline by 16 percent from 2010 to 2040 under Alternative 3. This is a one percent greater decline than under the proposed Plan, and one percent less than under Alternative 5.

Per capita car and light duty truck CO_2 emissions decline from 2005 through 2040 under Alternative 3 and total GHG emissions from land use and transportation are expected to decline from 2010 through

2040; both of these trends are expected to continue into the future. Therefore, Alternative 3 is found to move the Bay Area in the direction of achieving the executive order goals, and does not impede achievement of these identified goals.

Alternative 3 is also found to be consistent with State goals and mandates, comparable to the proposed Plan and Alternative 5. Further, it is not expected to conflict with local CAPs or GHG reduction plans as they are complimentary efforts towards the reduction of GHG emissions in line with State goals and mandates.

Alternative 3 has 32 transportation projects projected to be within the sea level rise inundation zone and 21 projected to be within the low-lying, hydraulically disconnected areas. The impacts associated with Alternative 3 are identical to those of the proposed Plan, which has the same impacted transportation projects as included under Alternative 3.

Alternative 3 also has impacts similar to the proposed Plan with respect to population, although the distribution of impacts does vary within the nine counties, as is shown in **Tables 3.1-32** through **3.1-37**. Alternative 3 has the largest increase in the number of residents projected to be within the TPPs and within the future sea level rise inundation zone (11 percent more than projected under the proposed Plan, see **Table 3.1-33**). Only the proposed Plan has a larger increase within the PDAs and Bay Area-wide within the future sea level rise inundated areas (**Tables 3.1-32** and **3.1-34**, respectively). Within the low-lying, hydraulically disconnected areas, Alternative 3 has 30 percent fewer residents projected to be within the PDAs and 29 percent fewer project to be within the TPPs and the Bay Area as a whole compared to the proposed Plan (**Tables 3.1-35**, **3.1-36**, **and 3.1-37**, respectively**).**

Alternative 3 is projected to have 20 percent fewer employees within the PDAs and within the sea level rise inundation zone than projected under the proposed Plan (**Table 3.1-38**), 2 percent more employees located within the TPPs and the sea level rise inundation zone (**Table 3.1-39**), and 11 percent fewer employees Bay Area-wide compared to the proposed Plan (**Table 3.1-40**). Within the low-lying, hydraulically disconnected areas, the increase in employment under Alternative 3 is comparable to that of Alternatives 4 and 5, and less than that projected within the proposed Plan and the No Project alternative (**Tables 3.1-41** through **3.1-43**).

Alternative 3 is projected to have the second largest increase in residential development within the sea level rise inundation zone in the PDAs (four percent fewer than the proposed Plan, **Table 3.1-44**), and the largest increase within the TPPs and the nine Bay Area counties as a whole (15 percent and two percent more than the proposed Plan, respectively, see **Tables 3.1-45** and **3.1-46**). Within the low-lying, hydraulically disconnected areas, the projected increase in residential development in Alternative 3 is 20 percent smaller within the PDAs (**Table 3.1-47**), 28 percent smaller within the TPPs (**Table 3.1-48**), and 25 percent smaller Bay Area-wide (**Table 3.1-49**) than projected under the proposed Plan.

In general, because Alternative 3 results in increases (compared to existing conditions) in transportation investment, the number of residents, and land-use development within the future sea level rise inundation zone, this alternative results in significant impacts for all criteria related to sea level rise. Overall, the impacts are similar to those reported for the proposed Plan in *Chapter 2.5*.

Alternative 4 – Enhanced Network of Communities

Alternative 4 is not consistent with SB 375, as modeled CO_2 emissions do not meet the SB 375 targeted reductions for per capita car and light duty truck GHG emissions in 2035. While SB 375 requires a 15% reduction in emissions by 2035, Alternative 4 would achieve a 14.8% reduction. This reduction is two percent less than under the proposed Plan. This is due mostly to a decrease in funding for the Climate Policy Initiatives when compared to the other alternatives. The business community stakeholders that developed Alternative 4 elected to alter the proposed Plan's investment strategy by shifting all funds from the Climate Policy Initiative's Smart Driving Program to local streets and roads, and state highway maintenance. This tradeoff increased the 2020 per capita GHG emissions by approximately 1.8% and the 2035 emissions by 1.6%. Had this funding not been redirected, the Alternative would have exceeded both the 2020 and 2035 GHG emissions reduction target. If the funds were returned the Climate Policy Initiative Smart Driving program then this finding would be changed to less than significant. However, it would still perform worse than the proposed Plan in terms of meeting the SB 375 goals.

Total annual regional forecast GHG emissions from land use and on-road transportation are expected to decline by 10 percent from 2010 to 2040 under Alternative 4. This is the least reduction of all the alternatives, five percent less than under the proposed Plan.

Per capita car and light duty truck CO_2 emissions decline from 2005 through 2040 under Alternative 4 and total GHG emissions from land use and transportation are expected to decline from 2010 through 2040; both of these trends are expected to continue into the future. Therefore, Alternative 4 is found to move the Bay Area in the direction of achieving the executive order goals, and does not impede achievement of these identified goals.

Because Alternative 4 fails to meet SB 375 goals, it is found to be inconsistent with State goals and mandates, resulting in a significant impact for this criterion. However, it is not expected to conflict with local CAPs or GHG reduction plans as they are complimentary efforts towards the reduction of GHG emissions in line with State goals and mandates.

Alternative 4 has 32 transportation projects projected to be within the sea level rise inundation zone and 21 projected to be within the low-lying, hydraulically disconnected areas. The impacts associated with Alternative 4 with respect to transportation investments are identical to those of the proposed Plan.

Alternative 4 has 25 percent fewer residents projected to be within the PDAs and within the sea level rise inundation zone than the proposed Plan, and fewer residents than projected in Alternatives 3 and 5 (**Table 3.1-32**). Alternative 4 also has 14 percent fewer residents projected to be within the TPPs and within the sea level rise inundation zone than the proposed Plan, and fewer residents than projected in the No Project alternative, and Alternative 3 (**Table 3.1-33**). Within the nine Bay Area counties as a whole, Alternative 4 has 5 percent fewer residents projected to be within the future sea level rise inundation zone than the proposed Plan, fewer than projected in Alternative 3, and a larger increase than the No Project alternative and Alternative 5 (**Table 3.1-34**).

Within the low-lying, hydraulically disconnected areas, Alternative 4 has the smallest increase in the number of residents projected to be within the PDAs (43 percent fewer than the proposed Plan), with the exception of the No Project alternative (**Table 3.1-35**). Alternative 4 has the smallest increase in the number of residents projected to be within the low-lying, hydraulically disconnected areas and TPPs and

the counties as a whole (53 percent and 43 percent fewer than the proposed plan, respectively, see **Tables 3.1-36** and **3.1-37**).

Alternative 4 is projected to have 20 percent fewer employees within the PDAs and within the sea level rise inundation zone than the proposed Plan (**Table 3.1-38**). Alternative 4 has the smallest increase in the number of employees in the sea level rise inundation zone within the TPPs and the counties as a whole (15 percent and 22 percent fewer than the proposed Plan, see **Tables 3.1-39** and **3.1-40**, respectively). Based on modeled outputs, within the low-lying, hydraulically disconnected areas, the increase in employment under Alternative 4 is comparable to that of Alternatives 3 and 5, and less than that projected within the proposed Plan and the No Project alternative (see **Tables 3.1-41**, **3.1-42**, and **3.1-43**).

Alternative 4 is projected to have the second smallest increase in residential development within the sea level rise inundation zone and within the PDAs and TPPs (26 percent and 12 percent fewer than projected under the proposed Plan, **Tables 3.1-44** and **3.1-45**). Within the counties as a whole, Alternative 4 has a smaller increase than projected under the proposed Plan and Alternative 3, and a larger increase than projected under the No Project alternative and Alternative 5 (**Table 3.1-46**). Within the low-lying, hydraulically disconnected areas, Alternative 4 has the second smallest increase in residential development within the PDAs (39 percent fewer than the proposed Plan, **Table 3.1-47**) and the smallest increase within the TPPs and the counties as a whole (52 percent and 44 percent fewer than the proposed Plan, respectively, see **Tables 3.1-48 and 3.1-49**).

In general, because Alternative 4 results in increases (compared to existing conditions) in transportation investment, the number of residents, and land-use development within the future sea level rise inundation zone, this alternative results in significant impacts for all criteria related to sea level rise. The impacts associated with Alternative 4 are identical to the proposed Plan for transportation investments, but based on modeled outputs, the impacts are slightly less than projected under the proposed Plan with respect to population and land-use development because the number of impacted residents and the increases in land use development are smaller than projected under the proposed Plan.

Alternative 5 – Environment, Equity and Jobs

Alternative 5 is consistent with SB 375, as modeled CO_2 emissions meet the SB 375 targeted reductions for per capita car and light duty truck GHG emissions. Reductions are the same as under the proposed Plan (a reduction of 16.4 percent).

Total annual regional forecast GHG emissions from land use and on-road transportation are expected to decline by 17 percent from 2010 to 2040 under Alternative 5. This is a two percent greater decline than under the proposed Plan, and one percent greater than under Alternative 3.

Per capita car and light duty truck GHG emissions decline from 2005 through 2040 under Alternative 5 and total GHG emissions from land use and transportation are expected to decline from 2010 through 2040; both of these trends are expected to continue into the future. Therefore, Alternative 5 is found to move the Bay Area in the direction of achieving the executive order goals, and does not impede achievement of these identified goals. Alternative 5 is also found to be consistent with State goals and mandates, comparable to the proposed Plan and Alternative 3. Further, it is not expected that Alternative 5 would conflict with local CAPs or GHG reduction plans as they are complimentary efforts towards the reduction of GHG emissions in line with State goals and mandates.

Alternative 5 has 21 transportation projects projected to be within the sea level rise inundation zone (compared to 32 under the proposed Plan) and 15 projected to be within the low-lying, hydraulically disconnected areas (compared to 21 under the proposed Plan). These projects represent a subset of the transportation projects included within the proposed Plan; therefore, the transportation-related impacts are slightly lower under Alternative 5 than under the proposed Plan.

Alternative 5 has the smallest increase in the number of residents projected to be within the sea level rise inundation zone within the TPPs and counties as a whole (17 percent and 12 percent fewer than the proposed Plan, see **Tables 3.5-33** and **3.5-34**). Within the low-lying, hydraulically disconnected areas, Alternative 5 has 18 percent fewer residents projected to be within the PDAs, 39 percent fewer within the TPPs, and 31 percent fewer within the nine Bay Area counties as a whole, as compared to the proposed Plan (see Tables **3.5-35**, **3.5-36**, and **3.5-37**).

Alternative 5 is projected to have the smallest increase in the number of employees within the PDAs in the sea level rise inundation zone (24 percent fewer than the proposed Plan, see **Table 3.5-38**). Within the TPPs, the increase in the number of employees (and thus commercial and industrial development) within the sea level rise inundation zone under Alternative 5 is one percent less than projected under the proposed Plan. Within the counties as a whole, Alternative 5 has 12 percent fewer employees within the sea level rise inundation zone than the proposed Plan (**Table 3.5-40**). Within the low-lying, hydraulically disconnected areas, the increase in employment under Alternative 5 is comparable to that of Alternatives 3 and 4, and less than that projected within the proposed Plan and the No Project alternative (see **Tables 3.5-41**, **3.5-42**, and **3.5-43**).

Alternative 5 is projected to have the smallest increase in residential development within the sea level rise inundation zone in the TPPs and counties as a whole (15 percent and 10 percent fewer than the proposed Plan, **Tables 3.5-45** and **3.5-46**). Within the PDAs, Alternative 5 has a smaller increase than projected under the proposed Plan and Alternative 3 and a larger increase than projected under the No Project alternative and Alternative 4 (**Table 3.5-44**). Within the low-lying, hydraulically disconnected areas, Alternative 5 has 6 percent less residential development within the PDAs than the proposed Plan (**Table 3.5-47**), 38 percent less within the TPPs (**Table 3.5-48**), and 27 percent less residential development within the counties as a whole when compared to the proposed Plan (**Table 3.5-49**).

In general, Alternative 5 results in increases (compared to existing conditions) in transportation investments, the number of residents, and land-use development within the future sea level rise inundation zone; therefore, this alternative has significant impacts for all criteria related to sea level rise. The impacts associated with Alternative 5 are less than projected under the proposed Plan for transportation investments due to the reduced number of transportation projects within the sea level rise inundation zone (21 projects under Alternative 5, compared to 32 under Alternative 2).

The impacts are also slightly less than projected under the proposed Plan with respect to population and land-use development because the number of impacted residents and the increases in land use development are smaller than projected under the proposed Plan (12 percent fewer residents, 12 percent fewer employees, and 10 percent fewer households are projected to be within the sea level rise inundation zone than projected within the proposed Plan).

NOISE

As shown in **Table 3.1-50**, some the of the alternatives would result in an increase in the overall percentage of regional roadway miles exposed to noise levels at or above 66 dBA, compared to baseline (2010) conditions. The increase in regional roadway miles exposed to noise levels at or above 66 dBA for all future alternatives is to be expected due to planned regional population growth. The variation in these increases between the alternatives would be relatively marginal from a regional perspective, particularly for Alternatives 2, 3 and 5. The least increase in roadway miles exposed to 66 dBA or greater noise levels would occur under the No Project alternative condition (8.1 percent), while the proposed Plan would result in an 11.9 percent increase, Alternative 3 would result in an increase of 11.4 percent, Alternative 4 would result in an increase of 13.6 percent, and Alternative 5 would result in an increase of 11.1 percent. Thus, on a regional basis, the No Project alternative would result in the least severe increase in 66 dBA or greater noise levels. Of the action alternatives, Alternative 5 would result in the least severe increase in 66 dBA or greater noise levels.

Similar relationships between alternatives would prevail at the county level, although there would be some exceptions: for example, the No Project alternative and Alternative 5 would result in more miles exposed to 66 dBA or greater on San Mateo, Alameda and Solano County expressways than the proposed Plan, while Napa County arterials would fare best with Alternative 5 and worst with Alternative 3 (though it is noted that the differences are marginal from a regional perspective). Across all alternatives, impacts related to increased noise exposure from roadway noise are considered potentially significant. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Across all alternatives, impacts related to exposure of persons to or generation of temporary construction noise levels and/or groundborne vibration levels and increased traffic volumes that could result in roadside noise levels that approach or exceed the FHWA Noise Abatement Criteria are potentially significant. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Across all alternatives, impacts related to increased noise exposure from transit sources and increased vibration exposure from transit sources are considered potentially significant. Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

Impacts related to increased noise exposure from aircraft or airports would be considered less than significant for all alternatives.

TABLE 3.1-50: ROADWAY DIRECTIONAL MILES > 66 DBA NAC LEVEL, AND TOTAL DIRECTIONAL MILES, BY ROADWAY TYPE AND COUNTY

		Year 2010, Base Year			*Year 2040, Project*			*Alt 1: No Project*			*Diff. from Project*		*Alt. 3: Transit Priority Focus*			*Diff. from Project*	
County	*Roadway Type*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*
San Francisco	Freeways	43	43	99.7%	43	43	100.0%	43	43	99.7%	0	0.0%	43	43	100.0%	0	0.0%
	Expressways	2	2	100.0%	2	2	100.0%	2	2	100.0%	0	0.0%	2	2	100.0%	0	0.0%
	Arterials	140	315	44.3%	183	315	58.3%	178	315	56.5%	-6	-2.0%	183	315	58.1%	0	-0.2%
San Mateo	Freeways	158	165	95.8%	157	165	95.1%	165	165	99.6%	8	4.5%	157	165	95.1%	0	0.0%
	Expressways	31	33	95.8%	30	32	95.7%	31	31	98.4%	1	2.7%	31	31	98.4%	1	2.7%
	Arterials	125	441	28.3%	203	443	45.9%	168	441	38.1%	-35	-7.8%	208	443	47.1%	5	1.2%
Santa Clara	Freeways	436	478	91.3%	574	575	99.8%	570	571	99.7%	-5	-0.1%	556	560	99.3%	-18	-0.5%
	Expressways	224	277	80.7%	226	270	83.8%	233	272	85.7%	7	1.9%	233	270	86.3%	7	2.5%
	Arterials	402	1,160	34.7%	527	1,166	45.2%	466	1,161	40.1%	-61	-5.1%	557	1,166	47.7%	30	2.5%
Alameda	Freeways	356	369	96.5%	440	441	99.9%	384	384	100.0%	-56	0.1%	423	423	99.9%	-17	0.0%
	Expressways	37	40	92.5%	49	56	86.9%	36	39	92.4%	-13	5.5%	49	56	86.9%	0	0.0%
	Arterials	364	904	40.3%	507	903	56.2%	445	906	49.1%	-62	-7.1%	489	903	54.2%	-18	-2.0%
Contra Costa	Freeways	250	264	94.7%	291	292	99.7%	278	279	99.8%	-14	0.1%	291	292	99.7%	0	0.0%
	Expressways	39	44	89.8%	58	64	90.5%	35	37	92.6%	-23	2.1%	58	64	90.5%	0	0.0%
	Arterials	219	805	27.2%	295	798	37.0%	286	805	35.5%	-9	-1.5%	283	798	35.4%	-12	-1.6%
Solano	Freeways	176	182	96.3%	282	282	100.0%	184	184	100.0%	-98	0.0%	250	250	100.0%	-32	0.0%
	Expressways	55	65	85.5%	64	76	83.3%	31	32	98.4%	-33	15.1%	64	76	83.9%	0	0.6%
	Arterials	64	457	14.0%	118	463	25.6%	117	461	25.5%	-1	-0.1%	114	463	24.7%	-4	-0.9%
Napa	Freeways	24	24	100.0%	24	24	100.0%	24	24	100.0%	0	0.0%	24	24	100.0%	0	0.0%
	Expressways	34	37	91.3%	37	37	100.0%	37	37	100.0%	0	0.0%	37	37	100.0%	0	0.0%
	Arterials	38	114	33.6%	66	114	57.8%	60	114	52.7%	-6	-0.1%	66	114	58.4%	0	0.6%
Sonoma	Freeways	114	159	90.4%	188	188	99.7%	171	171	99.7%	-17	0.0%	188	188	99.7%	0	0.0%
	Expressways	20	20	100.0%	20	20	100.0%	20	20	100.0%	0	0.0%	20	20	100.0%	0	0.0%
	Arterials	146	591	24.8%	199	593	33.6%	203	595	34.3%	4	0.7%	186	593	31.2%	-13	-2.4%
Marin	Freeways	101	105	96.2%	121	121	99.9%	110	110	99.9%	-11	0.0%	121	121	99.9%	0	0.0%
	Arterials	40	143	27.7%	67	146	45.5%	43	146	29.3%	-24	-16.2%	67	146	45.5%	0	0.0%
Bay Area	Freeways	1,687	1,789	94.3%	2,119	2,131	99.5%	1,927	1,931	99.8%	-192	0.3%	2,051	2,065	99.3%	-68	-0.2%

TABLE 3.1-50: ROADWAY DIRECTIONAL MILES > 66 DBA NAC LEVEL, AND TOTAL DIRECTIONAL MILES, BY ROADWAY TYPE AND COUNTY

		Year 2010, Base Year			*Year 2040, Project*			*Alt 1: No Project*			*Diff. from Project*		*Alt. 3: Transit Priority Focus*			*Diff. from Project*	
County	*Roadway Type*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*
	Expressways	442	517	85.5%	486	557	87.2%	425	471	90.3%	-61	3.1%	493	557	88.7%	7	0.5%
	Arterials	1,538	4,930	31.2%	2,165	4,939	43.8%	1,966	4,944	39.8%	-199	-4.0%	2,152	4,939	43.6%	-13	-0.2%
	Combined	**3,667**	**7,236**	**50.7%**	**4,770**	**7,626**	**62.6%**	**4,319**	**7,345**	**58.8%**	-451	-3.8%	4,697	7,561	62.1%	-73	-0.5%

TABLE 3.1-50 (CONT'D.): ROADWAY DIRECTIONAL MILES > 66 DBA NAC LEVEL, AND TOTAL DIRECTIONAL MILES, BY ROADWAY TYPE AND COUNTY

		Alt. 4:Enhanced Network of Communities			*Diff. from Project*		*Alt. 5: Environment, Equity, and Jobs*			*Diff. from Project*	
County	*Roadway Type*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*
San Francisco	Freeways	43	43	100.0%	0	0.0%	43	43	100.0%	0	0.0%
	Expressways	2	2	100.0%	0	0.0%	2	2	100.0%	0	0.0%
	Arterials	181	315	57.6%	-2	-0.7%	182	315	57.8%	-1	-0.5%
San Mateo	Freeways	157	165	95.1%	0	0.0%	165	165	99.7%	8	4.6%
	Expressways	31	32	98.4%	1	2.7%	31	31	98.4%	1	2.7%
	Arterials	202	443	45.7%	-1	-0.2%	205	441	46.4%	2	0.5%
Santa Clara	Freeways	575	575	100.0%	1	0.2%	570	572	99.7%	-4	-0.1%
	Expressways	241	270	89.5%	15	5.7%	236	272	86.8%	10	3.0%
	Arterials	607	1,166	52.1%	80	6.9%	525	1,161	45.2%	2	0.0%
Alameda	Freeways	441	441	100.0%	1	0.1%	384	384	100.0%	44	0
	Expressways	49	56	86.9%	0	0.0%	36	39	92.4%	13	5.5%
	Arterials	537	903	59.5%	30	3.3%	518	906	57.3%	11	1.1%
Contra Costa	Freeways	291	292	99.7%	0	0.0%	278	279	99.5%	-13	-0.2%
	Expressways	58	64	90.5%	0	0.0%	34	37	90.8%	24	0.3%
	Arterials	329	798	41.3%	34	4.3%	317	805	39.3%	22	2.3%
Solano	Freeways	282	282	100.0%	0	0.0%	184	184	100.0%	-98	0.0%
	Expressways	68	76	89.0%	4	5.7%	31	31	98.4%	-33	15.1%

TABLE 3.1-50 (CONT'D.): ROADWAY DIRECTIONAL MILES > 66 DBA NAC LEVEL, AND TOTAL DIRECTIONAL MILES, BY ROADWAY TYPE AND COUNTY

		Alt. 4:Enhanced Network of Communities			*Diff. from Project*		*Alt. 5: Environment, Equity, and Jobs*			*Diff. from Project*	
County	*Roadway Type*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*Total*	*% ≥ 66 dBA*	*# ≥ 66 dBA*	*% ≥ 66 dBA*
	Arterials	118	463	25.6%	0	0.0%	117	461	25.4%	-1	-0.2%
Napa	Freeways	24	24	100.0%	0	0.0%	24	24	100.0%	0	0.0%
	Expressways	37	37	100.0%	0	0.0%	37	37	100.0%	0	0.0%
	Arterials	43	114	37.7%	-23	-20.1%	63	114	55.8%	-3	-2.0%
Sonoma	Freeways	188	188	99.7%	0	0.0%	171	171	99.7%	17	0.0%
	Expressways	20	20	100.0%	0	0.0%	20	20	100.0%	0	0.0%
	Arterials	188	593	31.6%	-11	-2.0%	189	595	31.7%	-10	-1.9%
Marin	Freeways	121	121	99.9%	0	0.0%	110	110	100.0%	-11	0.1%
	Arterials	73	146	50.3%	6	4.8%	67	146	45.5%	0	0.0%
Bay Area	Freeways	2,121	2,131	99.5%	2	0.0%	1,927	1,931	99.8%	-192	0.3%
	Expressways	506	557	90.9%	20	3.7%	427	471	90.8%	-59	3.6%
	Arterials	2,278	4,939	46.1%	113	2.3%	2,181	4,943	44.1%	16	0.3%
	Combined	4,905	7,626	64.3%	135	1.7%	4,535	7,345	61.8%	-235	-0.8%

Source: Environmental Science Associates 2012; Metropolitan Transportation Commission Model Outputs 2012

Alternative 1: No Project

Traffic distribution under the No Project alternative would differ from the proposed Plan because expansions to expressway and arterial roadways that would accommodate larger traffic volumes would not occur, primarily in Alameda, Marin, San Mateo and Santa Clara Counties. These reduced future traffic volumes would result in fewer miles of increased roadway noise compared to the proposed Plan.

The No Project alternative would only implement "committed" transportation improvement projects. Consequently, there would be a lesser extent of construction noise compared to the proposed Plan. However, due to the lack of new regional land use polices, the No Project alternative would result in new development occurring in a more dispersed pattern resulting in construction noise from development projects affecting a larger number of people. This impact could also likely occur in more quiet semi-rural areas where construction noise would be more noticeable.

Transit noise under the No Project alternative would be reduced compared to the proposed Plan because the proposed Plan envisions extension of numerous transit lines in the region that would not occur under the No Project alternative. By not extending transit lines in San Francisco, San Jose and Redwood City for example, this alternative would not result in transit noise occurring in new areas.

Environmental review determined that the Third Street Rail transit extension project in San Francisco which is listed as part of the proposed Plan would result in significant vibration impacts. If this project were not to go forward under the No Project alternative, this and potentially other vibration impacts of other rail extensions would not occur.

Alternative 3: Transit Priority Focus

Alternative 3 would result in fewer freeway miles travelled in Alameda, Santa Clara and Solano counties. As a result, a marginal reduction in region-wide roadway noise (0.5 percent) would occur under Alternative 3 compared to the proposed Plan. Alternative 3 would implement slightly fewer transportation investments than the proposed Plan (reduced number of express lanes) and construction noise would be similar to, but less extensive than, with the proposed Plan. Future development under Alternative 3 would result in greater land use development in Transit Priority Project (TPP) areas which cover a broader area than PDA's, consequently resulting in potential construction noise from development projects affecting a larger number of people than under the proposed Plan.

Transit noise under Alternative 3 would potentially be greater compared to the proposed Plan because the proposed Plan envisions funding for arterial signal coordination and express lanes projects that, under Alternative 3, would be used for investments in AC Transit and BART. By transferring funding mechanisms away from roadway improvements and channeling them to transit agencies, the potential exists for transit noise to increase under this alternative due to increased operations or extended service times or routes.

Vibration impacts associated with transit extension under Alternative 3 would also occur as under the proposed Plan.

Alternative 4: Enhanced Network of Communities

Traffic distribution under Alternative 4 would differ from the proposed Plan because of expansions to arterial roadways that would accommodate larger traffic volumes than would occur under the proposed Plan, primarily in Alameda, Contra Costa and Santa Clara Counties, due to larger regional population growth. Alternative 4 would result in greater arterial roadway miles travelled region-wide and hence, a marginal increase in region-wide roadway noise (1.7 percent) would occur as compared to the proposed Plan.

Alternative 4 includes the same transportation improvement investments as the proposed Plan. However, this alternative would accommodate a larger total population and larger proportion of single family dwelling units than the proposed Plan. Consequently, development under Alternative 4 would result in construction noise from development projects affecting a larger number of people.

Transit noise under the Alternative 4 would be similar to that of the proposed Plan because it would implement the same transportation improvement investments as the proposed Plan. Train horn noise impacts of the Sonoma-Marin Area Rail Transit District (SMART) Commuter Rail project, which would be significant under the proposed Plan, would still occur under this Alternative.

Vibration impacts associated with transit extension under Alternative 4 would also occur as under the proposed Plan.

Alternative 5: Environment, Equity, and Jobs

Alternative 5 would result in fewer freeway miles travelled region-wide and hence a marginal reduction in region-wide roadway noise (0.8 percent) would occur under Alternative 5 compared to the proposed Plan.

Alternative 5 would only implement "committed" transportation improvement projects. Consequently, there would be a lesser extent of construction noise associated with transportation projects compared to the proposed Plan. Alternative 5 envisions growth not only within PDAs but also within high-opportunity suburban locations, which would have the potential to result in construction noise from development projects affecting a larger number of people.

Transit noise under Alternative 5 would potentially be greater compared to the proposed Plan because the proposed Plan envisions funding for arterial signal coordination and express lanes that, under Alternative 5, would be used for investments to increase transit service in Communities of Concern. By transferring funding mechanisms away from roadway improvements and channeling them to transit agencies, the potential exists for transit noise to increase under this alternative due to increased operations or extended service times or routes.

Alternative 5 would extend additional transit service in communities of concern. If this were to include extension of rail corridors, additional significant vibration impacts beyond those that would result from implementation of the proposed Plan could occur.

GEOLOGY AND SEISMICITY

In general, while the entire Plan region is located in an area considered to have relatively high seismic activity, many of the geologic hazards such as liquefaction, landslides, and expansive soils can vary and depend on site specific conditions such that, ultimately, the risks would be determined on a project by project basis. However, development under all of the alternatives would be constructed to the same building code requirements as under the proposed Plan which would minimize the potential risks of damage and injury to less than significant levels, with regulations implemented as mitigation. For comparison purposes, the following analysis of the alternatives focuses on the distribution of new development and makes the assumption that the amount of development would be relatively correlated with projected population and employment growth. In addition, the assumption is made that most of the projects under all of the alternatives would meet the minimum threshold for requiring construction to adhere to the NPDES General Construction permit which minimizes the potential for erosion during construction to less than significant levels, with regulations implemented as mitigation.

All geology and seismicity impacts are considered less than significant with mitigation (LS-M) based on regulatory requirements for all alternatives. For the purposes of this analysis, less than significant means consistent with federal, state, and local regulations and laws related to building construction.

Alternative 1: No Project

Impacts associated with geology and soils under the No Project alterative could be greater than under the proposed Plan because this alternative assumes the same level of growth and development, but less focused in PDAs and therefore more dispersed over a greater area. Therefore, the potential for exposure to a greater proportion of existing hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence, liquefaction, lateral spreading, etc.) could increase under this alternative. The No Project alternative would also disperse construction over a wider area which would increase the potential for impacts related to erosion compared to the proposed Plan. However, as stated above, construction projects that meet the minimum ground disturbance threshold would be required to adhere to the NPDES General Construction Permit requirements.

Fewer transportation projects would occur under this alternative and as a result there would be less construction that would occur in identified areas at risk for hazards such as liquefaction, landslides, and unstable soils. According to the GIS data, there would be a reduction in the linear mileage of projects located in high liquefaction hazard areas and high landslide areas. However, to the extent that the No Project alternative would include fewer transportation improvements involving seismic upgrades than the proposed Plan, it could result in incrementally greater impacts. Fewer transportation projects would also result in fewer disturbances to soils and thus a reduction in erosion potential during construction.

Overall, the No Project alternative would result in the same population growth and, considering the entire planning area is considered at risk for ground shaking hazards from an earthquake on any of the active faults in the region, the potential risks would be similar, and are addressed by adherence to building code requirements.

Alternative 3: Transit Priority Focus

Impacts associated with geology and soils under this alterative would be generally similar to the proposed Plan because this alternative assumes the same population growth, but would focus development in TPPs

rather than PDAs. Therefore, the potential for exposure to existing hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence, liquefaction, lateral spreading, etc.) would likely be similar to the proposed Plan since these hazards are present throughout the region. The amount of construction would be generally similar to the proposed Plan and therefore the potential impacts related to erosion would be considered the same.

Most of the transportation projects under the proposed Plan would occur under this alternative with a few exceptions and, as a result, there would be slightly less construction that would occur in identified areas at risk for hazards such as liquefaction and landslides. According to the GIS data, there would be a slight reduction in the linear mileage of projects located in high liquefaction hazard areas and high landslide areas as compared to the proposed Plan. The reduction in construction would reduce the potential for erosion impacts, though only a handful of transportation projects would not occur under this alternative compared to the proposed Plan.

Overall, this alternative would result in the same project population growth and, considering the entire planning area is considered at risk for ground shaking hazards from an earthquake on any of the active faults in the region, the potential risks would be considered the same, and are addressed by adherence to building code requirements.

Alternative 4: Enhanced Network of Communities

In general, impacts associated with geology and soils under this alterative would be greater than the proposed Plan because this alternative has a higher projected population growth and development would occur across a greater area (with a smaller share of new household growth located in PDAs). A larger population would then be located in the seismically active region which is anticipated to experience a significant earthquake sometime in the future. The potential for exposure to a greater proportion of existing hazards associated with a specific geologic unit or soil type (e.g. expansive or otherwise unstable soils, subsidence, liquefaction, lateral spreading, etc.) could increase under this alternative as more development would occur over a greater area as compared to the proposed Plan. The amount of construction would also be greater than under the proposed Plan to accommodate the higher population; however, potential risks would be addressed by adherence to building code requirements.

All of the transportation projects under the proposed Plan would occur under this alternative and would therefore have the same potential impacts related to exposure of geologic and seismic hazards as well as erosion from transportation projects.

Alternative 5: Environment, Equity, and Jobs

Development under this alternative would focus both on PDAs and TPPs with the same overall projected population growth as the proposed Plan. Impacts associated with geology and soils under this alterative would be generally similar to the proposed Plan but would, again, ultimately depend on site specific conditions determined on a project by project basis. The amount of construction would be generally similar to the proposed Plan and therefore the potential impacts related to erosion would be considered the same.

Fewer transportation projects would occur under this alternative and, as a result, there would be fewer projects located in identified hazard areas such as liquefaction, landslides, and expansive soils. According to the GIS data, there would be a reduction in the linear mileage of projects located in high liquefaction

hazard areas and high landslide areas. However, to the extent that this alternative would include fewer transportation improvements involving seismic upgrades than the proposed Plan, it could result in incrementally greater impacts.

Overall, this alternative would result in the same project population growth and, considering the entire planning area is considered at risk for ground shaking hazards from an earthquake on any of the active faults in the region, the potential risks would be considered the same, and are addressed by adherence to building code requirements.

WATER RESOURCES

Under all alternatives, potential construction impacts related to erosion and offsite sedimentation would be addressed through compliance with the NPDES General Construction Permit, implemented as mitigation. Erosion control measures required under this permit would minimize the potential for offsite sedimentation that could affect receiving waters. Therefore, while the number and location of development and other ground disturbing projects would change between alternatives, all projects that meet the minimum threshold for the NPDES General Construction Permit would be required to implement erosion control measures that are protective of water quality during construction and are considered to be effectively the same for all alternatives. As a result, water resources impacts related to water quality and the placement of structures within a 100-year flood hazard area, are considered less than significant with mitigation (LS-M) based on regulatory requirements for all alternatives. Impacts related to groundwater recharge and exposure people to a significant risk of loss, injury, or death involving flooding, seiche, tsunami, or mudflow would be less than significant (LS) across all alternatives.

Alternative 1: No Project

Impacts associated with water resources under the No Project alterative could be slightly greater than the proposed Plan because this alternative assumes the same level of growth, but dispersed over a greater area (less growth focused in PDAs). Therefore, the potential for increasing impervious surfaces that could potentially affect stormwater quality, increase pollution in stormwater runoff, and decrease the amount of pervious surfaces that currently allow for groundwater recharge is potentially greater than under the proposed Plan. In addition, more widely dispersed development could potentially result in more structures built within the 100-year floodplain. The No Project alternative would also disperse construction over a wider area, which would increase the potential for impacts related to erosion during construction compared to the proposed Plan. Susceptibility to other hazards such as flooding from dam inundation, seiche, tsunami and mudflows would be determined on a site by site basis but could potentially increase with a more dispersed development scenario.

Fewer transportation projects would occur under this alternative and as a result there would be less construction that exposes soils to erosion that can lead to offsite sedimentation affecting water quality of receiving waters. This reduction in transportation projects would also likely result in a reduction in the amount of new impervious surfaces compared to the proposed Plan. A reduction in impervious surfaces would likely result in fewer sources of stormwater pollution and less reduction in groundwater recharge, compared to the proposed Plan. In addition, with fewer transportation projects there would also be fewer constructed within any flood hazard areas.

Alternative 3: Transit Priority Focus

Impacts associated with water resources under this alterative would be generally similar to the proposed Plan because this alternative projects the same population growth but would focus development in TPPs rather than PDAs. Therefore, it is assumed that the amount of new impervious surfaces would be relatively similar and present a comparable source of potential impacts to water quality, groundwater recharge, and increased runoff. Placement of structures within the 100-year floodplain would ultimately depend on site specific conditions determined on a project by project basis. Regardless, development that would occur under this alternative would still be constructed to the same drainage control requirements as under the proposed Plan, which would minimize the potential risks of pollution and sedimentation in runoff. The amount of construction would be generally similar to the proposed Plan and therefore the potential impacts related to groundwater recharge would be considered the same. Other flooding risks associated with dam failure, seiche, tsunami, and mudflows would also depend on site specific characteristics but would likely be relatively similar to the proposed Plan overall due to dam failure incident rates and generally low coastal location of development.

Most of the transportation projects under the proposed Plan would occur under this alternative as well with a few exceptions and, as a result, there would be slightly less impact related to water quality, groundwater recharge, and flooding hazards. Overall, the drainage patterns would be relatively similar to the proposed Plan. The slight reduction in construction would reduce the potential for water quality impacts, though only a handful of transportation projects would be excluded in this alternative.

Alternative 4: Enhanced Network of Communities

In general, impacts associated with water resources under this alterative would be greater than the proposed Plan because this alternative has higher projected population and employment growth which is assumed to require an increase in impervious surfaces. Therefore, the potential for increasing impacts on stormwater quality including pollution in stormwater runoff, and a decrease in groundwater recharge would occur compared to the proposed Plan. In addition, development under this alternative could potentially result in more structures built within the 100-year floodplain, though that would depend on individual project locations. This alternative would also require more construction, which would increase the potential for water quality impacts during construction compared to the proposed Plan. Susceptibility to other hazards such as flooding from dam inundation, seiche, tsunami and mudflows would be determined on a site by site basis but could potentially increase with increased development.

All of the transportation projects under the proposed Plan would occur under this alternative and would therefore have the same potential impacts related to water quality, groundwater recharge, erosion, increased pollution, increased runoff, flooding and dam inundation/seiche/tsunami/mudflow hazards.

Alternative 5: Environment, Equity, and Jobs

Development under this alternative would focus both on PDAs and TPPs with the same overall projected population growth as the proposed Plan. Impacts associated with water resources would be generally similar to the proposed Plan but would, again, ultimately depend on site specific conditions determined on a project by project basis. Identical growth projections would result in relatively similar new development and new impervious surfaces which are sources of potential water quality stressors. Regardless, development that would occur under this alternative would still be constructed to the same drainage control requirements as under the proposed Plan, which would minimize the potential risks of

affecting water quality, groundwater recharge, increased runoff, and sedimentation in runoff. The amount of construction would be generally similar to the proposed Plan and therefore the potential impacts related to water quality during construction would be considered the same.

Fewer transportation projects would occur under this alternative and as a result there would be reduced impacts related to water quality, groundwater recharge, stormwater runoff pollution, sedimentation in runoff, flooding and dam failure/seiche/tsunami/mudflow hazards. According to the GIS data, there would be a reduction in the linear mileage of projects located in flood zone hazard areas.

BIOLOGICAL RESOURCES

The urban footprint remains comparable in all alternatives in 2040, with the exception of the No Project alternative, which has a slightly larger urban footprint. However, the focus for development changes, as does the number of transportation projects which would be funded, across alternatives. As noted in *Chapter 2.9*, the potential for project-specific impacts on biological resources will be greater in lightly developed and rural areas, since sensitive biological resources are less abundant in highly urbanized portions of the Bay Area. Therefore, alternatives that allow for expansion of existing urban growth boundaries and/or that allow for more dispersed patterns of growth have a greater potential to result in impacts on sensitive biological resources than those that focus on development in PDAs or TPPs and have strict growth boundaries.

Across all alternatives, impacts on species identified as candidate, sensitive, or special-status; critical habitat for federally listed plant and wildlife species; riparian habitats; or the movement of native or migratory fish or wildlife species are considered potentially significant (PS). Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

Across all alternatives, impacts on non-listed special-status raptor species are considered potentially significant for all alternatives (PS). While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Impacts related to conflict with adopted local conservation policies are considered than significant with mitigation (LS-M) based on regulatory requirements for all alternatives.

Alternative 1: No Project

Impacts on special-status species (including plants, wildlife, and fish) and designated critical habitat due to land use changes under the No Project alternative would be greater than under the proposed Plan because this alternative forecasts the same amount of growth, but more development would occur outside already heavily urbanized areas. While such development would be consistent with adopted existing general plans, which often have policies protective of biological resources, it would be more likely to impact special-status species and their habitat since the distribution of most sensitive biological resources is greater outside the urban Bay Area. In addition, the regional proportion of single family to multifamily dwellings is greater and more development would occur in the North Bay counties than under the proposed Plan, which would have a proportionally greater impact on biological resources as

more development in rural areas would be expected when compared to the proposed Plan. Construction impacts on nesting birds and raptors can occur in both urban and rural areas but would be expected to be proportionally greater under the No Project alternative because of the greater amount of development that would occur outside heavily developed areas. The potential for urban growth boundaries to expand under the No Project alternative, where expansion would lead to conversion of previously undeveloped lands, would also lead to greater impacts on biological resources than under the proposed Plan.

The potential for impacts on jurisdictional waters and other special-status natural communities, as well as impacts to migratory wildlife corridors and native wildlife nursery sites would also be greater under the No Project alternative because more development would occur in less urbanized areas. However, fewer transportation projects are assumed for this alternative compared to the proposed Plan (see Table H-6A in Appendix H), which would reduce highway and transit related impacts on biological resources, such as temporary or permanent fill of streams and wetlands and fragmentation of wildlife habitat and corridors, compared to those expected under the proposed Plan.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, is likely to be greater under the No Project alternative, due to the greater amount of development in areas where protected resources are more abundant.

Relative to all alternatives, the No Project alternative has the greatest potential for impacts on biological resources due to development and the least potential for impacts due to transportation projects. Overall, this analysis assumes that, because land use impacts are potentially much wider ranging, geographically, than impacts related to transportation projects, the No Project alternative would result in more severe impacts on biological resources than all other alternatives, including the proposed Plan.

Alternative 3: Transit Priority Focus

Impacts on special-status species (including plants, wildlife, and fish) and designated critical habitat under Alternative 3 would be comparable to those under the proposed Plan because this alternative concentrates development in transit rich portions of what are primarily already highly urbanized areas. Similarly, construction impacts on nesting birds and raptors, and impacts on jurisdictional waters and other special-status natural communities, as well as impacts on migratory wildlife corridors and native wildlife nursery sites would also be comparable because most development would be concentrated in urbanized areas. While such development would be more dispersed than under the proposed Plan, it would still be concentrated in the urban core, where fewer biological resources are present. In addition, more multifamily dwelling units than single-family dwellings are forecast under this alternative, which also serves to concentrate growth.

Transportation project impacts on biological resources would also be comparable to those under the proposed Plan because this alternative would rely on the same basic transportation investment strategy.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, under Alternative 3 is also comparable to that under the proposed Plan, due to the similar focus of development in primarily already urbanized areas and implementation of the same transportation investment strategy.

Overall, under Alternative 3 the potential for impacts on biological resources would be comparable to the proposed Plan.

Alternative 4: Enhanced Network of Communities

Impacts on special-status species (including plants, wildlife, and fish) and designated critical habitat under Alternative 4 could be somewhat greater than those under the proposed Plan because this alternative increases regional population and jobs. While this alternative focuses development in PDAs, it does so at lower levels than under the proposed Plan. Therefore, more development could also occur outside PDAs and would be encouraged close to employment centers at the region's edges, which are generally less urbanized. For the same reasons, construction impacts on nesting birds and raptors, impacts on jurisdictional waters and other special-status natural communities, as well as impacts on migratory wildlife corridors and native wildlife nursery sites could also be greater. In addition, more single-family than multifamily dwelling units are forecast under this alternative, which results in a larger development footprint and greater overall impacts on biological resources. However, unlike the No Project alternative, strict urban growth boundaries would limit development in more rural areas and could thus reduce the potential for biological resources impacts in areas where they are likely to be proportionally greater than in highly urbanized areas.

Transportation project impacts on biological resources would be comparable to those under the proposed Plan because this alternative would rely on the same transportation investment strategy.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, under Alternative 4 is somewhat greater than that under proposed Plan, due to the reduced focus of development in PDAs combined with an increase in housing needed to accommodate higher population numbers.

Under Alternative 4, the overall potential for impacts on biological resources would be greater than those under the proposed Plan but less than those under the No Project alternative.

Alternative 5: Environment, Equity and Jobs

Impacts on special-status species (including plants, wildlife, and fish) and designated critical habitat under Alternative 5 would be comparable to those under the proposed Plan because this alternative concentrates development in transit rich portions of what are primarily already highly urbanized areas. Similarly, construction impacts on nesting birds and raptors, and impacts on jurisdictional waters and other special-status natural communities, as well as impacts on migratory wildlife corridors and native wildlife nursery sites would also be comparable because most development would be concentrated in already urbanized areas. While such development would be more dispersed throughout urban areas than under the proposed Plan, it would still be concentrated in PDAs, as well as "high opportunity" suburban locations that are considered TPP eligible areas, where fewer sensitive biological resources are present. More multifamily dwelling units than single-family dwellings are forecast under this alternative, which also serves to concentrate growth and, similar to the proposed Plan, Alternative 5 assumes strict compliance with existing urban growth boundaries.

Transportation project impacts on all biological resources would be less than those under proposed Plan because Alternative 5 relies more heavily on transit service improvements and would exclude uncommitted roadway projects from the transportation investment strategy. Therefore, direct and

indirect impacts of highway improvements would be reduced compared to those under the proposed Plan.

The potential for conflict with local policies and ordinances that protect biological resources, and/or an adopted conservation plan, under Alternative 5 is comparable to that under the proposed Plan, due to the similar focus of development in primarily already urbanized areas.

Relative to all alternatives, Alternative 5 has the least overall potential for impacts on biological resources because, similar to the proposed Plan, development would be focused primarily in PDAs and TPPs and there would be strict urban growth boundaries, which would constrain most land use changes to already urban areas. In addition, there would be substantially fewer transportation projects implemented than the other alternatives, with the exception of the No Project alternative. Therefore, Alternative 5 is the environmentally preferred alternative for biological resources.

VISUAL RESOURCES

Across all alternatives, the majority of all new development would take place within already-urbanized areas, thereby minimizing new development in rural and open space areas. Nevertheless, there will be some conversion of undeveloped land by new development and transportation projects under all alternatives, which could impact visual resources, although the comparative difference between the alternatives is small. The general distribution of growth throughout the region would vary somewhat by alternative as shown in **Tables 3.1-3 and 3.1-4**. However, the precise location and appearance of new land development is not known at this time.

Impacts on scenic views will be greatest where existing suburban (low-rise), rural, or undeveloped areas with visual sensitivity (possessing appealing visual characteristics) are converted to higher density or urbanized land as a result of new development. Consequently, development within PDAs is expected to have less impact on visual resources than development outside of PDAs. Generally, the proposed Plan, Alternative 3, and Alternative 5 are expected to be more compact, with growth focused in PDAs and/or TPPs, while Alternative 4 is expected to be more dispersed with growth generally located within the urbanized footprint but outside of PDAs. The No Project alternative is expected to have the most dispersed growth, and the most development outside the existing urbanized footprint. For a comparison of PDA-focused growth, see **Tables 3.1-5 and 3.1-6**.

The location of transportation projects is known, however, and those located in rural or open space areas may particularly impact public views. The number and distribution of transportation projects with potential to impact visual resources varies by alternative. While the proposed Plan and Alternative 4 include the greatest number of total projects, a large number of proposed projects under each alternative would not result in significant physical impacts, as they involve transit route improvements, road operations and maintenance, and pedestrian and bicycle improvements which all involve minimal construction, if any. The number of total projects and "major projects" is listed in **Table 3.1-51**. Major projects have the greatest potential to impact public views because they introduce new or expanded facilities into the environment. The proposed Plan and Alternative 4 include the greatest number of major projects, while the No Project alternative has the fewest major projects.

TABLE 3.1-51: TRANSPORTATION PROJECTS, BY ALTERNATIVE

	Alternative 1: No Project	*Alternative 2: Proposed Plan (Jobs-Housing Connection)*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Major Projects*	60	160	158	160	71
Regional Total	220	700	698	700	459

*"Major projects" defined as those which are listed as expansion projects costing $10 million or more that include new roadway construction, road widening, or other ground-disturbing construction

Sources: MTC 2012; Dyett & Bhatia, 2013.

Overall, impacts related to blocking panoramic views or views of significant landscape features or landforms as a result of land use development or transportation investment projects are considered potentially significant (PS) for all alternatives. The No Project alternative and Alternative 4 are likely to have the greatest impact resulting from land development since they anticipate the most dispersed development patterns, while all other alternatives would likely have similar land development impacts relative to each other. On the transportation side, the proposed Plan, Alternative 3, and Alternative 4 are expected to have the greatest impact since they include the greatest number of overall and major projects. The No Project alternative would have the smallest transportation impact. In most cases, transportation projects would not have a substantial adverse impact due to the nature of the work or because most proposed projects will take place in existing rights-of-way. However, across all alternatives, transportation projects that expand or extend existing rights-of-way have the potential to block views. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Land development adjacent to or visible from scenic highways may create impacts on views from scenic highways. Scenic highways tend to run through open land outside of urbanized areas, although numerous designated and eligible scenic highways are adjacent to PDAs, where the majority of new development in the proposed Plan will be concentrated, and as a result, could be impacted. The No Project alternative and Alternative 4 are likely to have the greatest impact resulting from land development since they anticipate the most dispersed development patterns, while all other alternatives would likely have similar land development impacts relative to the proposed Plan. Transportation projects could also have a negative impact on scenic highways. There are 52 miles of eligible or designated scenic highway potentially impacted under the proposed Plan and Alternative 4, 41 miles potentially impacted under Alternative 3, and 21 miles potentially impacted by the No Project alternative and Alternative 5. However, it is not possible to determine whether these projects will have a negative impact, positive impact, or no effect on the visual resources of scenic highways. Transportation projects could enhance a scenic highway, or they could damage visual resources such as by impacting trees and views. Overall, impacts related to scenic highways are considered potentially significant (PS) for all alternatives Because MTC/ABAG cannot require local implementing agencies to adopt relevant mitigation measures, and because there may be instances in which site-specific or project-specific conditions preclude the reduction of all project impacts to less than significant levels, this impact remains significant and unavoidable for all alternatives (SU).

Development resulting from all of the alternatives could cause significant visual impacts by creating or increasing contrasts with the visual character of an existing community. At the regional scale, the greatest impacts will result from high density housing and high intensity commercial projects located within existing communities where the visual contrast between the project and existing conditions will be the most apparent. Because effects would be highly localized, variations between alternatives are not identifiable at the regional scale. Across all alternatives, given the variation in local context and development standards, impacts are expected to be potentially significant (PS). While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Development resulting from all of the alternatives could cause significant visual impacts by adding a visual element of urban character to an existing rural or open space area or adding a modern element to a historic area. The greatest land development impacts at the regional scale will result from high density housing and high intensity commercial projects located in low density, rural, or historic areas, where the visual contrast between the project and existing conditions will be the most apparent. The proposed Plan, Alternative 3, and Alternative 5 are expected to be more compact and therefore have fewer impacts on rural or open space areas, while Alternative 4 is expected to be more dispersed with growth generally located within the urbanized footprint but outside of PDAs, with potentially greater impacts on low density areas. The No Project is expected to have the greatest impact on rural and open space areas since it has the most dispersed land use pattern. Regarding transportation investments, the proposed Plan, Alternative 3, and Alternative 4 are expected to have the greatest impact on rural and historic areas since they include the greatest number of projects. The No Project alternative would have the smallest impact. In most cases, transportation projects would not have a substantial adverse impact due to the nature of the work or because most proposed projects will take place in existing rights-of-way, though projects that expand or extend existing rights-of-way could impact visual resources. Visual impacts on rural, open space or historic areas resulting from land development are potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Land development and transportation investments resulting from all of the alternatives could create new substantial sources of light and glare in rural areas. The No Project alternative and Alternative 4 are likely to have the greatest impact resulting from land development since they anticipate the most dispersed development, while all other alternatives would likely have similar impacts relative to each other. Visual impacts related to light and glare resulting from land development are potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Land development and transportation investments resulting from all of the alternatives could cast shadows that degrade the existing visual character of a public space. Shadow impacts on public spaces would primarily result from high density development consisting of tall or bulky buildings, most of which will be focused in existing urban locations where shadow impacts are typically already substantial.

Generally, the proposed Plan, Alternative 3, and Alternative 5 would be expected to result in the greatest shadow-related impacts on public space due to land development since they are expected to be more compact and include denser and taller development. Development resulting from the No Project alternative and Alternative 4 are expected to be more dispersed and in lower density areas where low rise development will be predominant. Across alternatives, shadow-related impacts are anticipated to be less than significant (LS) for transportation projects. Overall, impacts related to the casting of shadows are considered potentially significant (PS) for all alternatives where development occurs in close proximity to public spaces (such as public parks), but less than significant (LS) in all other areas. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Alternative 1: No Project

The No Project alternative would have the least amount of new household and job growth focused in PDAs of all the alternatives, meaning that development under the No Project alternative would generally be more dispersed than the other alternatives and would be more likely to impact public views; scenic highways; rural, open space, and historic areas; and result in new sources of light and glare. However, the dispersed nature of development under the No Project alternative would lead to the least impacts related to shadows compared to other alternatives.

This alternative would have the least impact related to transportation projects for all visual resource criteria, since it has the least number of major projects. This would result in the least impacts on rural areas and the fewest new sources of light and glare from transportation projects.

With land use and transportation effects combined, the development resulting from the No Project alternative would overall have a similar level of impact as under the proposed Plan, with more impacts from land development but fewer impacts from transportation projects.

Alternative 3: Transit Priority Focus

Alternative 3 is designed to focus growth in PDAs and TPPs. As such, it is considered a compact development scenario, and is expected to have similar land use impacts as the proposed Plan and Alternative 5 related to all of the visual resource criteria outlined above. Alternative 3 includes almost the same number of major transportation projects as the proposed Plan and Alternative 4, and so will have impacts comparable to the proposed Plan from these projects.

Alternative 4: Enhanced Network of Communities

Alternative 4 would result in a larger total number of new jobs and households throughout the region and a smaller percent of new households located within PDAs than any alternative besides the No Project alternative. Based on this higher total growth and more dispersed household land use scenario, this alternative would have more development outside of compact urban centers and more in low density urban areas such as suburbs and the urban fringe than under the proposed Plan, locations on which new development has a larger visual impact. As a result, Alternative 4 would have a larger impact on visual resources from land development than the other alternatives, with the exception of shadow- and community character-related impacts, for which it would have a lesser or comparable impact. Alternative

4 includes the same transportation projects as the proposed Plan and so will have the same impacts on visual resources from transportation projects.

Alternative 5: Environment, Equity, and Jobs

Alternative 5 is designed to focus growth in PDAs and TPPs. As such, it is considered a compact development scenario, and is expected to have similar land use impacts as the proposed Plan and Alternative 3 related to all of the visual resource criteria outlined above. Alternative 5 includes fewer major transportation projects than the proposed Plan and so would have fewer impacts on rural areas and fewer new sources of light and glare.

Given the compact development scenario and low number of transportation projects, Alternative 5 is expected to have the least impact on visual resources of all the alternatives.

CULTURAL RESOURCES

Across all alternatives, the majority of new development will take place in already-urbanized areas. Nevertheless, there will be some conversion of undeveloped land by new development and transportation projects, which could impact cultural resources, although the difference between the alternatives is small. Potential impacts on cultural resources include disturbance or destruction of historical resources and ground-disturbing activities and/or the introduction or alteration of visual elements with the potential to disturb, destroy, or significantly affect archaeological, paleontological and/or geological resources or human remains.

Projects may impact historic resources if buildings or landmark structures are disturbed. Projects that include the introduction of new visual elements, such as new structures or highway segments, or that involve visual alterations have the potential to indirectly impact historic architectural resources by creating visual incompatibility in the surrounding environment. If these projects involve ground-disturbance, impacts on archaeological sites may also occur.

In general, projects that include ground-disturbing activities, such as grading, road widening, and excavation, have the greatest potential to impact archaeological, paleontological, and geological resources and human remains. Impacts on these resources are generally more likely in undeveloped areas. The amount of new urbanized land is not substantial under any of the alternatives, and is relatively consistent across alternatives, with the greatest amount of newly urbanized land under the No Project. In general, impacts from ground disturbance are essentially the same across all the alternatives except the No Project, which would have greater potential impacts from land use. The number and distribution of transportation projects with potential to impact cultural resources vary by alternative. As shown in **Table 3.1-51** (above), the proposed Plan and Alternative 4 include the most projects, as well as the most major projects, which have the greatest potential to impact cultural resources because they introduce new or expanded facilities into the environment.[8] The No Project alternative has the fewest total projects, as well as the fewest major projects.

[8] "Major projects" are defined as those that are listed in the RTP as expansion projects costing $10 million or more that include new roadway construction, road widening, or other ground-disturbing construction. Major projects exclude transit route improvements, road operations and maintenance, and pedestrian and bicycle improvements.

Since growth is focused in urbanized areas where historic resources are likely to exist, regional impacts on historic resources from land use development are expected to be similar across all alternatives, with variations in localized effects that cannot be determined at the regional scale. The number and distribution of transportation projects with potential to impact cultural resources vary by alternative, as outlined above.

Overall, impacts related to the disturbance or destruction of significant historical resources, archeological resources, and paleontological and/or geologic resources are considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Impacts on human remains are expected to be reduced to less than significant with mitigation (LS-M) based on regulatory requirements for all alternatives.

Alternative 1: No Project

The No Project may include the introduction of new visual elements, such as new structures or highway segments, or that involve visual alterations with the potential to indirectly impact historic architectural resources by creating visual incompatibility in the surrounding environment and thus impacts on cultural resources.

Of all of the alternatives, the No Project alternative would result in the highest amount of urbanization of undeveloped land. As impacts on archeological resources, unique paleontological resources, or geologic features are more generally more likely to affect undeveloped areas, the No Project alternative is expected to result in more land use-related impacts than the other alternatives, including the proposed Plan. It should be noted however, that the variations in undeveloped land converted to urbanized land is relatively small across all alternatives.

Transportation projects could also impact cultural resources. At the regional level, the No Project alternative would have the least impact for all cultural resource criteria, since it has the fewest number of major projects, while the proposed Plan, Alternative 3, and Alternative 4 would have the largest impact.

Alternative 3: Transit Priority Focus

Since growth is focused in urbanized areas where historic resources are likely to exist, regional impacts on historic resources from this alternative are expected to be similar to the proposed Plan, with variations in localized effects that cannot be determined at the regional scale. Alternative 3 would result in a similar amount of newly urbanized land as compared to the proposed Plan, Alternative 4, and Alternative 5. Because impacts on archeological resources, unique paleontological resources, or geologic features are generally more likely in undeveloped areas, Alternative 3 is likely to result in similar impacts from land use development as the other alternatives (except the No Project) related to these resource areas.

Alternative 3 includes almost the same number of major transportation projects as the proposed Plan and Alternative 4. At the regional level, impacts on cultural resources as a result of transportation projects would be greater than under the No Project alternative and Alternative 5, but slightly less than under the proposed Plan or Alternative 4, for all cultural resource criteria.

Alternative 4: Enhanced Network of Communities

Since growth is focused in urbanized areas where historic resources are likely to exist, regional impacts on historic resources from this alternative are expected to be similar to the proposed Plan, with variations in localized effects that cannot be determined at the regional scale. Alternative 4 would result in a similar amount of newly urbanized land as compared to the proposed Plan, Alternative 3, and Alternative 5. Because impacts on archeological resources, unique paleontological resources, or geologic features are generally more likely in undeveloped areas, Alternative 4 is likely to result in similar impacts from land use development as the other alternatives (except the No Project) related to these resource areas.

Along with the proposed Plan, Alternative 4 includes the greatest number of major transportation projects. At the regional level, impacts on cultural resources as a result of transportation projects under Alternative 4 would be the same as under the proposed Plan for all cultural resource criteria.

Alternative 5: Environment, Equity, and Jobs

Since growth is focused in urbanized areas where historic resources are likely to exist, regional impacts on historic resources from land use development are expected to be similar to the proposed Plan and all other alternatives, with variations in localized effects that cannot be determined at the regional scale. Alternative 5 would result in a similar amount of newly urbanized land as compared to the proposed Plan, Alternative 3, and Alternative 4. Because impacts on archeological resources, unique paleontological resources, or geologic features are generally more likely in undeveloped areas, Alternative 5 is likely to result in similar impacts from land use development as the other alternatives (except the No Project alternative) related to these resource areas.

Alternative 5 includes the fewest major transportation projects except for the No Project alternative. At the regional level, impacts on cultural resources as a result of transportation projects under Alternative 5 would be larger than under the No Project alternative, but smaller than under the proposed Plan, Alternative 3, or Alternative 4 for all cultural resource criteria.

Given the compact development scenario and low number of transportation projects, Alternative 5 is expected to have the least impact on visual resources of all the alternatives.

PUBLIC UTILITIES

Population and job growth forecasted for the region, along with the corresponding land use development, could result in significant impacts on public utilities. The distribution of growth varies among the alternatives and this variation would likely affect the amount of impact each alternative has on the public utilities available in each county and in localized areas. Impacts may also occur in local settings if development is not sited in locations with adequate public utilities, even if adequate wastewater treatment capacity, for example, may be available elsewhere nearby. In general, most of the alternatives will impact public utilities to the same extent as the proposed Plan, with the greater population growth of Alternative 4 resulting in greater potential impacts.

Overall, land development and transportation investment impacts related to water supplies, wastewater treatment capacity, stormwater drainage facilities, water and wastewater treatment facilities, and landfill capacity are considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to

less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Impacts related to exceedance of wastewater treatment requirements of the RWQCBs is considered less than significant for all alternatives.

Alternative 1: No Project

Impacts on existing water supplies would be comparable to those under the proposed Plan, since this alternative would experience the same amount of population and job growth. Although the No Project alternative would see more residential development in single family homes, which tend to consume more water than multi-family dwellings, the difference is slight; the No Project alternative would result in around 1,913,000 single family housing units in the region, only 2.7 percent more than the proposed Plan's 1,862,000 single family housing units. That difference is unlikely to increase the overall impact. The smaller number of transportation projects under the No Project alternative may lead to slightly lower water consumption from that category of projects, but the impact from transportation projects on water supplies is expected to be minor overall.

Impacts on the capacity of wastewater treatment systems will be greater than under the proposed Plan, because this alternative would experience the same amount of growth but would distribute it more in areas that are expected to have less treatment capacity. Growth distributions under the No Project alternative at the county level are very different than in the proposed Plan, with higher growth in Napa, Solano, and Sonoma counties and lower growth in Santa Clara County. **Table 3.1-52** shows how existing wastewater treatment capacity for those counties compares to future average daily flows, assuming that existing wastewater flows grow by the same percentage as the projected county population. As the table shows, the distribution of growth under the No Project alternative would likely exceed wastewater treatment capacity in Napa, San Francisco, Solano, and Sonoma counties; the proposed Plan would only exceed capacity in San Francisco. As with the proposed Plan, it is also likely that some individual wastewater treatment facilities around the region, even in counties with adequate overall capacity, will need to expand their capacity to meet actual population growth, or to respond to RWQCB requirements to provide capacity to receive their NDPES permit. For example, facilities may need to expand capacity during the timeframe of the proposed Plan in order to meet additional future growth beyond the Plan's time horizon. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on wastewater treatment capacity, except in circumstances where an area has a combined stormwater and wastewater conveyance system. In those instances, extra stormwater runoff caused by additional impervious surface from roadway and some transit projects may require additional wastewater treatment capacity in localized locations.

TABLE 3.1-52: ALTERNATIVE 1 AGGREGATE PROJECTED FLOW VS. EXISTING CAPACITY OF WASTEWATER TREATMENT (DRY WEATHER, MGD)

County	*Current Flow*	*Existing Treatment Capacity*	*Alt 1 – Projected Population Growth*	*Alt 1– Aggregate Projected Future Flow*	*Alt 1 – Projected Countywide Excess Capacity*	*Proposed Plan – Projected Excess Capacity*
Alameda	152.71	424.6	27%	194.02	230.58	224.55
Contra Costa	81.30	111.31	28%	104.45	6.86	8.06
Marin	22.92	53.82	16%	26.51	27.31	28.38
Napa	15.85	19.86	35%	21.36	-1.50	1.00
San Francisco	79.10	106.4	35%	106.80	-0.40	-0.38
San Mateo	51.60	76.6	31%	67.73	8.87	11.58
Santa Clara	155.50	244	22%	189.96	54.04	32.52
Solano	39.95	56.15	48%	59.18	-3.03	7.02
Sonoma	26.87	33.6	47%	39.56	-5.96	0.55
	625.80	**1,126.34**		**809.56**	**316.78**	**313.28**

Note: parenthesis indicate a negative number

Source: Dyett & Bhatia, 2013.

Impacts on stormwater drainage facilities, specifically regarding the need for new or expanded facilities, would be slightly more than under the proposed Plan because this alternative will place more future new development outside of the region's urbanized footprint. As a result, the No Project alternative would result in more impervious surface than the proposed Plan and therefore more stormwater runoff; however, it is expected that new growth would still be able to largely rely on existing stormwater drainage facilities. The No Project alternative, however, will add fewer lane miles of roadways to the region (316 lane miles vs. 687 in the proposed Plan), for a slightly smaller conversion of permeable surface to impervious surface. However, this difference is too minor to affect the overall impact, considering the entire region currently has 20,750 roadway lane miles.

Impacts related to the construction of new or expanded water and wastewater treatment facilities would be potentially greater than those under the proposed Plan because this alternative will place slightly more future new development outside the region's urbanized footprint. As a result, the No Project alternative will have less future growth that can be served by existing systems and more development that needs new or expanded systems. As with the proposed Plan, many locations in the region may need to expand or add water or wastewater treatment capacity in localized places based on future growth. Similar environmental impacts would occur under the No Project alternative as under the proposed Plan from both the construction process and the conversion of undeveloped land to accommodate expanded facilities. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on water treatment demand and therefore would not require new or expanded facilities.

The impact of exceeding wastewater treatment requirements under the No Project alternative is expected to be less than significant, for the same reasons as described under the proposed Plan; this is the same across all alternatives.

The impact of insufficient landfill capacity to serve new development will be comparable to impacts under the proposed Plan because this impact is caused by regional population and job growth, which is the same under both the alternative and the proposed Plan. Roadway and transit construction and maintenance projects have the potential to generate a substantial amount of solid waste during construction, and the No Project alternative will have fewer of these projects than the proposed Plan, but the difference is not expected to change the scale of the impact.

Under the No Project alternative, the potential for impacts on public utilities would be somewhat greater than those under the proposed Plan due to the greater expected impact on wastewater treatment capacity.

Alternative 3: Transit Priority Focus

Impacts on existing water supplies would be comparable to those under the proposed Plan since this alternative would experience the same regional population and job growth. Although Alternative 3 would see less residential development than the proposed Plan in single family homes, which tend to consume more water than multi-family dwellings, the difference is modest—Alternative 3 would result in around 1,755,000 single family housing units in the region, about 5.7 percent below the proposed Plan's 1,862,000 single family housing units. That difference is not enough to reduce this impact to less than significant, as many of the impacts will be localized. The number of transportation projects under Alternative 3 will be similar to the proposed Plan, resulting in comparable impacts on water supplies.

Impacts on the capacity of wastewater treatment systems will be comparable to those under the proposed Plan, since this alternative would experience the same amount of growth and distribute growth in a similar way that matches existing treatment capacities. Growth distributions under Alternative 3 at the county level are different than in the proposed Plan, especially lower in Contra Costa and Sonoma counties and higher in San Mateo County. **Table 3.1-53** shows how existing wastewater treatment capacity for those counties compares to future average daily flows, assuming that existing wastewater flows grow by the same percentage as the projected county population. As the table shows, the distribution of growth under Alternative 3 would likely exceed wastewater treatment capacity in just San Francisco, same as the proposed Plan, albeit to a greater extent. As with the proposed Plan, it is also likely that some individual wastewater treatment facilities around the region, even in counties with adequate overall capacity, will need to expand their capacity to meet actual population growth. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on wastewater treatment capacity, except in circumstances where an area has a combined stormwater and wastewater conveyance system. In those instances, extra stormwater runoff caused by additional impervious surface from roadway and some transit projects may require additional wastewater treatment capacity in localized locations.

TABLE 3.1-53: ALTERNATIVE 3 AGGREGATE PROJECTED FLOW VS. EXISTING CAPACITY OF WASTEWATER TREATMENT (DRY WEATHER, MGD)

County	*Current Flow*	*Existing Treatment Capacity*	*Alt 3 – Projected Population Growth*	*Alt 3– Aggregate Projected Future Flow*	*Alt 3 – Projected Countywide Excess Capacity*	*Proposed Plan – Projected Excess Capacity*
Alameda	152.71	424.6	29%	196.76	227.84	224.55
Contra Costa	81.30	111.31	14%	93.05	18.26	8.06
Marin	22.92	53.82	11%	25.33	28.49	28.38
Napa	15.85	19.86	21%	19.11	0.75	1.00
San Francisco	79.10	106.4	40%	110.41	-4.01	-0.38
San Mateo	51.60	76.6	41%	72.85	3.75	11.58
Santa Clara	155.50	244	40%	217.99	26.01	32.52
Solano	39.95	56.15	18%	47.09	9.06	7.02
Sonoma	26.87	33.6	15%	30.95	2.65	0.55
	625.80	**1,126.34**		**813.54**	**312.80**	**313.28**

Note: parenthesis indicate a negative number

Source: Dyett & Bhatia, 2013.

Impacts on stormwater drainage facilities, specifically regarding the need for new or expanded facilities, will be comparable to those under the proposed Plan because this alternative will place approximately the same amount of new development within the region's urbanized footprint. As a result, Alternative 3 will have around the same amount of impervious surface as the proposed Plan and the same amount of stormwater runoff; it will also be able to largely rely on existing stormwater drainage facilities. Alternative 3, however, will add slightly fewer lane miles of roadways to the region (630 vs. 687 in the proposed Plan), for a slightly smaller conversion of permeable surface to impervious surface. However, this difference is too minor to affect the overall impact.

Impacts related to the construction of new or expanded water and wastewater treatment facilities will be the same under Alternative 3 as under the proposed Plan because this alternative will place approximately the same amount of future new development within the region's urbanized footprint. As a result, Alternative 3 will have around the same amount of future growth that can be served by existing systems versus development that needs new or expanded systems. As with the proposed Plan, however, many locations in the region may need to expand or add water or wastewater treatment capacity in localized places based on future growth. The same environmental impacts would occur under Alternative 3 as under the proposed Plan from both the construction process and the conversion of undeveloped land to accommodate expanded facilities. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on water treatment demand and therefore would not require new or expanded facilities.

The impact of exceeding wastewater treatment requirements under Alternative 3 is expected to be less than significant, for the same reasons as described under the proposed Plan.

The impact of insufficient landfill capacity to serve new development will be the same under Alternative 3 as under the proposed Plan because this impact is caused by regional population and job growth, which is the same for both this alternative and the proposed Plan. Roadway and transit construction and maintenance projects have the potential to generate a substantial amount of solid waste during construction, and Alternative 3 will have fewer of these projects than the proposed Plan, but the difference is not expected to change the scale of the impact.

Under Alternative 3, the potential for impacts on public utilities would be comparable to those under the proposed Plan. Mitigation measures identified for the proposed Plan would be applicable to Alternative 3.

Alternative 4: Enhanced Network of Communities

Impacts on existing water supplies would be greater than those under the proposed Plan since this alternative would experience more population and job growth. This alternative will see population growth within the region that is four percent higher and job growth that is one percent higher than the proposed Plan, leading to a greater demand on water supplies across the region. The result could be that water supplies reach capacity sooner during normal and dry years due to the higher regional population. Alternative 4 would also see more residential development than the proposed Plan in single family homes, which tend to consume more water than multi-family dwellings; Alternative 4 would result in around 2,150,000 single family housing units in the region, about 15.5 percent more than the proposed Plan's 1,862,000 single family housing units. The number of transportation projects under Alternative 4 is the same as under the proposed Plan, and so those projects will have comparable impacts on water supplies.

Impacts on the capacity of wastewater treatment systems may be slightly lower than under the proposed Plan, because, while this alternative would experience more growth, it would be distributed in a way that better matches the available wastewater treatment capacities in the region. In particular, Alternative 4 would add more growth to Santa Clara, Contra Costa, and Alameda counties, and less growth to Napa, San Francisco, and Sonoma counties—all of which have more limited remaining wastewater treatment capacity in aggregate. **Table 3.1-54** shows how existing wastewater treatment capacity for all counties compare to future average daily flows, assuming that existing wastewater flows grow by the same percentage as the projected county population. As the table shows, the distribution of growth under Alternative 4 would likely result in no need for additional wastewater treatment capacity, if growth is distributed within each county to locations with adequate capacity. As with the proposed Plan, it is also likely that some individual wastewater treatment facilities around the region, even in counties with adequate overall capacity, will need to expand their capacity to meet actual population growth. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on wastewater treatment capacity, except in circumstances where an area has a combined stormwater and wastewater conveyance system. In those instances, extra stormwater runoff caused by additional impervious surface from roadway and some transit projects may require additional wastewater treatment capacity in localized locations.

TABLE 3.1-54: ALTERNATIVE 4 AGGREGATE PROJECTED FLOW VS. EXISTING CAPACITY OF WASTEWATER TREATMENT (DRY WEATHER, MGD)

County	*Current Flow*	*Existing Treatment Capacity*	*Alt 4 – Projected Population Growth*	*Alt 4– Aggregate Projected Future Flow*	*Alt 4 – Projected Countywide Excess Capacity*	*Proposed Plan – Projected Excess Capacity*
Alameda	152.71	424.6	37%	209.21	215.39	224.55
Contra Costa	81.30	111.31	34%	108.85	2.46	8.06
Marin	22.92	53.82	10%	25.10	28.72	28.38
Napa	15.85	19.86	11%	17.54	2.32	1.00
San Francisco	79.10	106.4	32%	104.32	2.08	-0.38
San Mateo	51.60	76.6	31%	67.79	8.81	11.58
Santa Clara	155.50	244	47%	228.47	15.53	32.52
Solano	39.95	56.15	23%	49.24	6.91	7.02
Sonoma	26.87	33.6	19%	32.11	1.49	0.55
	625.80	**1,126.34**		**842.63**	**283.71**	**313.28**

Source: Dyett & Bhatia, 2013.

Impacts on stormwater drainage facilities, specifically regarding the need for new or expanded facilities, will be comparable to those under the proposed Plan because this alternative will place approximately the same proportion of new development within the region's urbanized footprint. As a result, Alternative 4 will have about the same amount of impervious surface as the proposed Plan and the same amount of stormwater runoff; it will also be able to largely rely on existing stormwater drainage facilities. Alternative 4 will also add the same number of roadway lane miles to the region, resulting in a comparable impact to the proposed Plan from transportation projects.

Impacts related to the construction of new or expanded water and wastewater treatment facilities will be comparable to those under the proposed Plan because, while this alternative includes more growth overall, it will locate most of new development within the region's urbanized footprint. As a result, Alternative 4 will have around the same amount of future growth that can be served by existing systems versus development that needs new or expanded systems. As noted above, this alternative may place more pressure on water supplies and less pressure on wastewater treatment capacity than the proposed Plan. As with the proposed Plan, however, many locations in the region may need to expand or add water or wastewater treatment capacity in localized places based on future growth. The same environmental impacts would occur under Alternative 4 as under the proposed Plan from both the construction process and the conversion of undeveloped land to accommodate expanded facilities. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on water treatment demand and therefore would not require new or expanded facilities.

The impact of exceeding wastewater treatment requirements under Alternative 4 is expected to be less than significant, for the same reasons as described under the proposed Plan.

The impact of insufficient landfill capacity to serve new development will be greater under Alternative 4 compared to the proposed Plan because this impact is caused by regional population and job growth,

which will be four and one percent higher, respectively, under this alternative. As a result, landfill capacities will be met sooner under this alternative than under the proposed Plan. Roadway and transit construction and maintenance projects have the potential to generate a substantial amount of solid waste during construction; Alternative 4 has the same transportation projects as the proposed Plan so this component of the alternative will have impacts comparable to the proposed Plan.

Relative to all alternatives, Alternative 4 has the greatest potential for impacts on public utilities, due to its greater population and job growth. It will have comparable impacts on stormwater drainage, wastewater treatment requirements, and the need to expand water and wastewater treatment facilities, and a lesser impact on wastewater treatment capacity, but greater impacts on water supplies and landfill capacity.

Alternative 5: Environment, Equity, and Jobs

Impacts on existing water supplies would be comparable to those under the proposed Plan since this alternative would experience the same amount of population and job growth. Although Alternative 5 would see less residential development in single family homes, as compared to the proposed Plan, the difference is modest—Alternative 5 would result in around 1,761,000 single family housing units in the region, about 5.4 percent below the proposed Plan's 1,862,000 single family housing units. That difference is not expected to be enough to reduce this impact to less than significant, as many water resource impacts will be localized in nature. The number of transportation projects under Alternative 5 will be similar to those under the proposed Plan, and so those projects will have comparable impacts on water supplies.

Growth distributions under Alternative 5 would be lower in Contra Costa County and higher in San Mateo County as compared to the proposed Plan. **Table 3.1-55** shows how existing wastewater treatment capacity for those counties compares to future average daily flows, assuming that existing wastewater flows grow by the same percentage as the projected county population. As the table shows, the distribution of growth under Alternative 5 would likely exceed wastewater treatment capacity in San Francisco, same as the proposed Plan, as well as in San Mateo County, resulting in greater impacts on the capacity of wastewater treatment systems than under the proposed Plan. As with the proposed Plan, it is also likely that some individual wastewater treatment facilities around the region, even in counties with adequate overall capacity, will need to expand their capacity to meet actual population growth. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on wastewater treatment capacity, except in circumstances where an area has a combined stormwater and wastewater conveyance system. In those instances, extra stormwater runoff caused by additional impervious surface from roadway and some transit projects may require additional wastewater treatment capacity in localized locations.

TABLE 3.1-55: ALTERNATIVE 5 AGGREGATE PROJECTED FLOW VS. EXISTING CAPACITY OF WASTEWATER TREATMENT (DRY WEATHER, MGD)

County	*Current Flow*	*Existing Treatment Capacity*	*Alt 5 - Projected Population Growth*	*Alt 5- Aggregate Projected Future Flow*	*Alt 5 - Projected Countywide Excess Capacity*	*Proposed Plan – Projected Excess Capacity*
Alameda	152.71	424.6	35%	206.84	217.76	224.55
Contra Costa	81.30	111.31	17%	95.27	16.04	8.06
Marin	22.92	53.82	13%	25.92	27.90	28.38
Napa	15.85	19.86	20%	19.09	0.77	1.00
San Francisco	79.10	106.4	35%	107.08	-0.68	-0.38
San Mateo	51.60	76.6	49%	76.82	-0.22	11.58
Santa Clara	155.50	244	31%	203.05	40.95	32.52
Solano	39.95	56.15	20%	47.84	8.31	7.02
Sonoma	26.87	33.6	17%	31.39	2.21	0.55
	625.80	**1,126.34**		**813.54**	**312.80**	**313.28**

Note: parenthesis indicate a negative number

Source: Dyett & Bhatia, 2013.

Impacts on stormwater drainage facilities, specifically regarding the need for new or expanded facilities, will be comparable to those under the proposed Plan because this alternative will place approximately the same amount of future new development within the region's urbanized footprint. As a result, Alternative 5 will have about the same amount of impervious surface as the proposed Plan and the same amount of stormwater runoff; it will also be able to largely rely on existing stormwater drainage facilities. Alternative 5, however, will add fewer lane miles of roadways to the region (279 vs. 687 in the proposed Plan), for a smaller conversion of permeable surface to impervious surface.

Impacts related to the construction of new or expanded water and wastewater treatment facilities will be comparable to the proposed Plan because this alternative will place approximately the same amount of future new development within the region's urbanized footprint. As a result, Alternative 5 will have around the same amount of future growth that can be served by existing systems versus development that needs new or expanded systems. As with the proposed Plan, however, many locations in the region may need to expand or add water or wastewater treatment capacity in localized places based on future growth. The same environmental impacts would occur under Alternative 5 as under the proposed Plan from both the construction process and the conversion of undeveloped land to accommodate expanded facilities. As with the proposed Plan, it is not anticipated that transportation projects would have an effect on water treatment demand and therefore would not require new or expanded facilities.

The impact of exceeding wastewater treatment requirements under Alternative 5 is expected to be less than significant, for the same reasons as described under the proposed Plan.

The impact of insufficient landfill capacity to serve new development will be comparable to the proposed Plan because this impact is caused by overall regional population and job growth, which is the same under this alternative and the proposed Plan. Roadway and transit construction and maintenance projects

have the potential to generate a substantial amount of solid waste during construction, and Alternative 5 will have fewer of these projects than the proposed Plan, but the difference is not expected to change the scale of the impact.

Under Alternative 5 the potential for impacts on public utilities would be greater than those under the proposed Plan, with comparable impacts for every significance criterion except wastewater treatment capacity, which has a greater impact.

HAZARDS

Impacts related to hazards include the transport, use or disposal of hazardous materials; the release of hazardous materials into the environment; the handling of hazardous materials within one-quarter mile of a school; living and working within two miles of a public airport or private airstrip; and the risk of loss or injury due to wildland fires. These impacts are all highly regulated at the state and federal level, and as a result, are less than significant with mitigation (LS-M) through existing regulation for all alternatives.

Impacts related to the development of land use or transportation projects on sites listed as hazardous materials sites are considered potentially significant (PS) for all alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

The potential to impair implementation of an adopted emergency response plan is less than significant (LS) for all alternatives.

Alternative 1: No Project

The No Project alternative projects the same population growth as the proposed Plan but would not concentrate development in PDAs to the same extent. Despite having development dispersed over a wider area, the amount of hazardous materials would generally be similar to that required under the proposed Plan due to the same population growth estimates. The need to transport hazardous materials over a wider area could result in a slight increase in risks of upset and accident conditions compared to the proposed Plan. Covering a wider area could also result in development that is closer to existing schools, airports, and wildfire hazard areas. Emissions of hazardous materials would be relatively limited due to development consisting of primarily residential land uses as opposed to industrial uses where emissions are generally higher. However, all hazardous materials use, storage, transport, and disposal would be required to adhere to local, state, and federal requirements as stated in the mitigation measures that limit exposure from hazardous materials.

Hazards that occur due to proximity to schools, historical releases of hazardous materials, airports, airstrips, and wildfire areas would be dependent on the physical location of individual projects but would likely be relatively similar to the proposed Plan since existing regulatory requirements would still apply to reduce potential impacts. There would be no substantive change that would interfere with emergency plans or evacuation plans due to the existing regulatory standards and adaptive management measures that can accommodate future growth. However, the No Project alternative would lack the regional and community emergency plan coordination of the proposed Plan, and would also have fewer transportation investments and programs that would reduce congestion which, as a result, could potentially interfere

with emergency response and evacuation. As a result, the No Project alternative would have a greater impact than the proposed Plan on emergency response and emergency evacuation plans.

Fewer transportation projects would occur under this alternative and, as a result, there would be less need for hazardous materials during construction and a reduced potential to encounter contaminated soils or groundwater during construction. Otherwise, there would be little difference when compared to the proposed Plan related to hazardous materials.

Alternative 3: Transit Priority Focus

Impacts associated with hazards materials under this alterative would be generally similar to the proposed Plan because this alternative projects the same population growth but would focus development in TPPs rather than PDAs. Therefore, it is assumed that the amount of hazardous materials that would be used, stored, transported, and disposed would be relatively similar and present a comparable risk of exposure even under accident and upset conditions.

Hazards that occur due to proximity to schools, historical releases of hazardous materials, airports, airstrips, and wildfire areas would be dependent on the physical location of individual projects but would likely be relatively similar to the proposed Plan since existing regulatory standards, as required by the mitigation measures, would still apply to reduce potential impacts. There would be no substantive change regarding potential impacts that would interfere with emergency plans or evacuation plans due to the existing regulatory requirements and adaptive management measures that can accommodate future growth.

Most of the transportation projects under the proposed Plan would occur under this alternative with a few exceptions and, as a result, there would be slightly less impact related to use of hazardous materials during construction and encountering historical releases. Overall, hazardous materials impacts would be relatively similar to the proposed Plan.

Alternative 4: Enhanced Network of Communities

Impacts associated with hazardous materials under this alternative would be greater than the proposed Plan because this alternative has a higher projected population growth, which is assumed to require an increase in hazardous materials use, storage, transport, and disposal. Therefore, the potential for increasing impacts to exposure or accidental release would occur compared to the proposed Plan, although adherence to regulatory standards, as required by the mitigation measures, would nonetheless minimize the risks. Increased development would also increase the potential to encounter historical releases of contamination during construction.

Hazards that occur due to proximity to historical releases of hazardous materials, schools, airports, airstrips, and wildfire areas would be dependent on physical location but could increase compared to the proposed Plan since more development may end up in the proximity to these areas. Potential impacts related to interference with emergency plans or evacuation plans could be slightly greater with the higher projected population and employment growth with this alternative.

All of the transportation projects in the proposed Plan would occur under this alternative and would therefore have the same potential impacts related to hazardous materials use, storage, transport, and

disposal as well as upset conditions and encountering historical releases. Potential impacts related to proximity to schools, airports, airstrips, and wildfire areas would also be similar to the proposed Plan.

Alternative 5: Environment, Equity, and Jobs

Development under this alternative would focus both on PDAs and transit priority areas with the same overall projected population growth. Impacts associated with hazardous materials under this alternative would be generally similar to the proposed Plan with an assumed comparable level of hazardous materials use, storage, transport, and disposal. As a result there would be comparable risks of exposure from hazardous materials including from accident and upset conditions.

Hazards that occur due to proximity to schools, historical releases of hazardous materials, airports, airstrips, and wildfire areas would be dependent on physical location but would likely be relatively similar to the proposed Plan since existing regulatory standards, as required by the mitigation measures, would similarly apply to reduce potential impacts.

Fewer transportation projects would occur under this alternative and as a result there would be reduced impacts related to hazardous materials use, storage, transport, and disposal as well as upset conditions, and encountering historical releases. However, fewer transportation investments and programs would mean less reduction in congestion, which would interfere with emergency response and evacuation. As a result, this alternative would have a greater impact than the proposed Plan on emergency response or emergency evacuation plans. Potential impacts related to proximity to schools, airports, airstrips, and wildfire areas would be reduced compared to the proposed Plan because of the fewer number of transportation projects.

PUBLIC SERVICES AND RECREATION

Across all alternatives, the number of Bay Area residents and jobs is anticipated to grow by 2040, as indicated in **Tables 3.1-3 and 3.1-4**. Development and transportation projects could result in the need for additional service or recreational facilities that would require expanded facilities, the construction of which may cause significant environmental impacts, in order to maintain adequate schools, emergency services, police, fire, and park and recreation services. Potential environmental impacts from construction of new facilities are addressed for each environmental resource issue area.

The distribution of impacts throughout the region would vary somewhat by alternative based on county-by-county household and job growth. In general, however, new development will take place in already-urbanized areas, which will reduce the need for expanded service, since more residents and employees would have access to services within existing service areas, though this would vary at the local level. Alternative 4 is anticipated to result in a higher number of households (800,000) and jobs (45,000), requiring a greater number of new residences and employees that may place greater demand on public services, resulting in a potentially greater impact on public services. In all cases, infrastructure and services must be funded and maintained to support new development.

Public service and recreation standards, performance measures, and policies are set at the local level. There is currently no regional standard by which to analyze these topics, and a detailed quantitative assessment of local needs is not possible at the regional scale; therefore the analysis presented in the EIR is qualitative in nature, addressing generally the types of impacts that could be expected for each service. Impacts related to public services and recreation are considered potentially significant (PS) for all

alternatives. While projects taking advantage of CEQA Streamlining provisions of SB 375 that implement all mitigation measures would be mitigated to less than significant with mitigation (LS-M), MTC/ABAG cannot require local implementing agencies to adopt mitigation measures, and therefore this impact remains significant and unavoidable (SU) for all alternatives.

Alternative 1: No Project

The No Project alternative includes the same number of Health, Educational, and Recreational Services jobs and "Other" category jobs that would fill service roles as the proposed Plan. However, overall growth would be the least focused in PDAs as compared to the proposed Plan and other alternatives, indicating that service needs may be more dispersed and therefore greater.

An increase in roadway capacity may heighten the demand for police, fire, and emergency services, but most of this increase will occur in areas that are already covered by existing services. Since roadway lane capacity will increase two percent over existing conditions (two percent less than the proposed Plan), the increase in demand is expected to be small and may not require additional services beyond what is currently provided. Out of approximately 700 total transportation projects in the proposed Plan, only 220 are included in the No Project alternative. Because the No Project alternative proposes the fewest transportation projects, it lacks many projects that improve the capacity and performance of the transportation network, resulting in the largest total vehicle hours of delay (both recurring and non-recurrent) of all alternatives. Increases in congestion could impact service levels for fire and police services, thereby requiring additional facilities or staffing in order to meet service standards on congested roadways. Further, the No Project alternative would do the least to improve travel by transit, on foot, and by bike, indicating that it would be the least efficient at connecting residents to services. In sum, however, transportation effects are expected to be less than significant, similar to under the proposed Plan.

Impacts on neighborhood and regional parks or other recreational facilities would be tied to regional population growth. While variations in the distribution of population growth may result in localized impacts, since regional population growth is consistent with the proposed Plan, this alternative would be expected to have similar impacts as the proposed Plan and Alternatives 3 and 5. Transportation improvements may improve access to recreational resources, but are not expected to have any adverse impact.

Alternative 3: Transit Priority

Alternative 3 also includes the same number of Health, Educational, and Recreational Services jobs and "Other" category jobs that would fill service roles as the proposed Plan. Alternative 3 focuses growth in urbanized areas (TPPs), indicating that overall service needs would be similar to the proposed Plan, and likely less than under the No Project alternative or Alternative 4.

An increase in roadway capacity may heighten the demand for police, fire, and emergency services, but most of this increase will occur in areas that are already covered by existing services. Since roadway lane capacity will increase three percent over existing conditions (the same as the proposed Plan), the increase in demand is expected to be small and may not require additional services beyond what is currently provided. The transportation program proposed under Alternative 3 is nearly identical to the proposed Plan except that it excludes two major expressway expansion projects in primarily rural areas along I-80 and I-580 and provides additional funding to transit services. Alternative 3 would result in the fewest total vehicle hours of delay (both recurring and non-recurrent) of all the alternatives. Increases in

congestion could impact service levels for fire and police services, thereby requiring additional facilities or staffing in order to meet service standards on congested roadways; Alternative 3 would result in the least impact to congestion. Finally, additional transit access as well as pedestrian and bicycle projects throughout the region will help connect residents to local services. In sum, transportation effects are expected to be less than significant, similar to under the proposed Plan.

Impacts on neighborhood and regional parks or other recreational facilities would be tied to regional population growth. While variations in the distribution of population growth may result in localized impacts, since regional population growth is consistent with the proposed Plan, this alternative would be expected to have similar impacts as the proposed Plan, the No Project alternative, and Alternative 5. Impacts would be expected to be less than Alternative 4. Transportation improvements may improve access to recreational resources, but are not expected to have any adverse impact.

Alternative 4: Enhanced Network of Communities

With its higher anticipated population and employment growth, Alternative 4 would have the potential to introduce more development and result in greater public service and recreation demand. However, Alternative 4 also includes more Health, Educational, and Recreational Services jobs and "Other" category jobs that would fill service roles needed as a result of the larger population. Further, growth would be less focused in PDAs as compared to the proposed Plan and therefore more dispersed, indicating that service needs may also be more dispersed and therefore greater than under the proposed Plan since fewer services would be able to make use of facilities within existing service areas.

An increase in roadway capacity may heighten the demand for police, fire, and emergency services, but most of this increase will occur in areas that are already covered by existing services. Since roadway lane capacity will increase three percent over existing conditions (the same as the proposed Plan), the increase in demand is expected to be small and may not require additional services beyond what is currently provided. Alternative 4 includes the same transportation network as the proposed Plan, which would improve multimodal access to public facilities and services. However, as a result of the larger population making use of the network, total vehicle hours of delay (both recurring and non-recurrent) would be the second highest of all the alternatives, following the No Project alternative. Increases in congestion could impact service levels for fire and police services, thereby requiring additional facilities or staffing in order to meet service standards on congested roadways; Alternative 4 would result in the second highest impact to congestion as compared to all the alternatives. Finally, additional transit access as well as pedestrian and bicycle projects throughout the region will help connect residents to local services. In sum, transportation effects are expected to be less than significant, similar to under the proposed Plan.

Impacts on neighborhood and regional parks or other recreational facilities would be tied to regional population growth. While variations in the distribution of population growth may result in localized impacts, this alternative would be potentially greater than the proposed Plan, the No Project alternative, and Alternatives 3 and 5, due to the larger total population. Transportation improvements may improve access to recreational resources, but are not expected to have any adverse impact.

Alternative 5: Environment, Equity and Jobs

Alternative 3 includes the same number of Health, Educational, and Recreational Services jobs and "Other" category jobs that would fill service roles as the proposed Plan. Alternative 3 focuses growth in

urbanized areas (PDAs and TPPs), indicating that overall service needs would be similar to the proposed Plan, and likely less than under the No Project alternative or Alternative 4.

An increase in roadway capacity may heighten the demand for police, fire, and emergency services, but most of this increase will occur in areas that are already covered by existing services. Since roadway lane capacity will increase only one percent over existing conditions (two percent less than the proposed Plan), the increase in demand is expected to be small and may not require additional services beyond what is currently provided. Alternative 5 proposes approximately 459 transportations projects, which is fewer than the proposed Plan or Alternatives 3 or 4, but more than the No Project alternative. Alternative 5 would result in more total vehicle hours of delay (both recurring and non-recurrent) than proposed Plan but less than the No Project alternative and Alternative 4. Increases in congestion could impact service levels for fire and police services, thereby requiring additional facilities or staffing in order to meet service standards on congested roadways; Alternative 5 would result in potentially greater impacts than the proposed Plan to congestion. Finally, additional transit access as well as pedestrian and bicycle projects throughout the region will help connect residents to local services. In sum, transportation effects are expected to be less than significant, similar to under the proposed Plan.

Impacts on neighborhood and regional parks or other recreational facilities would be tied to regional population growth. While variations in the distribution of population growth may result in localized impacts, since regional population growth is consistent with the proposed Plan, this alternative would be expected to have similar impacts as the proposed Plan, the No Project alternative, and Alternative 3. Impacts would be expected to be less than Alternative 4. Transportation improvements may improve access to recreational resources, but are not expected to have any adverse impact.

Summary of All Alternatives

The following table (**Table 3.1-56**) includes a summary of impacts related to the proposed Plan and each alternative by issue area. **Bold** cells indicate the alternative(s) that perform the best environmentally for each impact.

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Transportation					
Impact 2.1-1: Commute travel times	Travel times substantially greater than the proposed Plan due to the inclusion of fewer expansion projects and a more dispersed land use pattern. (LS)	Travel times expected to be less than significant. (LS)	**Travel times substantially less than the proposed Plan, especially for users of public transit. (LS)**	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)
Impact 2.1-2: Non-commute travel times	Travel times slightly longer than the proposed Plan due to the inclusion of fewer expansion projects. (LS)	**Travel times expected to be less than significant. (LS)**	**Same as proposed Plan. (LS)**	Travel times slightly longer than the proposed Plan due to higher levels of population and job growth. (LS)	Travel times slightly longer than the proposed Plan due to greater utilization of public transit and higher levels of traffic congestion. (LS)
Impact 2.1-3: Per-capita congested vehicle miles traveled	Congestion substantially greater than the proposed Plan as a result of fewer road and transit expansion projects. (SU)	Congestion would increase substantially. (SU)	**Congestion substantially less than the proposed Plan, as a result of increased transit services focused on alleviating highly congested corridors. (SU)**	Highly congested conditions due to higher levels of population and job growth, albeit less congestion than the No Project alternative. (SU)	Slightly greater congestion compared to the proposed Plan, but less than No Project and Alternative 4 due to exclusion of all highway projects. (SU)
Impact 2.1-4: Per-capita vehicle miles traveled (VMT)	Significantly greater VMT per capita compared to all other alternatives due to more dispersed land use	**Decline in VMT per capita. (NI)**	Greater VMT per capita, particularly for non-commute trips, compared to the proposed Plan due to	Same as proposed Plan. (NI)	Slightly greater VMT per capita than the proposed Plan, but less than No Project and Alternative 3 due to

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	development pattern. (NI)		greater levels of growth in transit-served locations in the suburbs. (NI)		additional growth in suburban locations with less-frequent transit services. (NI)
Impact 2.1-5: Transit capacity exceedance	Transit utilization slightly lower than the proposed Plan due to a more dispersed land use pattern. (NI)	**Transit utilization below transit capacity supplied by operators. (NI)**	Transit utilization below the proposed Plan due to improved transit service frequencies. (NI)	Same as proposed Plan. (NI)	Transit utilization slightly less than the proposed Plan, while slightly greater than the No Project and Alternative 3 due to greater transit service levels, combined with significantly greater ridership. (NI)
Air Quality					
Impact 2.2-1: Consistency with Air Quality Plans	**Inconsistent with the goals and objectives of the 2010 Clean Air Plan (CAP) as a result of the dispersed land use pattern and higher VMT. (SU)**	**Consistent with the goals and objectives of the 2010 CAP due to emphasis on focused growth and reducing VMT. (LS)**	**Same as proposed Plan. (LS)**	**Same as proposed Plan. (LS)**	**Same as proposed Plan. (LS)**
Impact 2.2-2: Construction-Related Emissions	Lower than proposed Plan due to fewer transportation investments. (SU)	Construction-related emissions would increase due to transportation and land use projects in the proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Highest emissions compared to all other alternatives due to increase in land use development to accommodate additional growth. (SU,	**Lower than proposed Plan as a result of fewer roadway projects. (SU, SB 375 Streamlining LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
				SB 375 Streamlining LS-M)	
Impact 2.2-3a: Criteria Pollutant Emissions (ROG, NO_x, CO, and $PM_{2.5)}$	Higher emissions for NOx, CO, and $PM_{2.5}$ due to dispersed land use pattern and absence of uncommitted transportation projects. Emissions of ROG slightly lower than the proposed Plan due to more VMT in the Express Lane Network corridors. (NI)	Decreased emissions of ROG, NOx, CO, and $PM_{2.5}$ due to stringent emission controls and focused growth. (NI)	All criteria emissions would be slightly lower than the proposed Plan due to the emphasis on locating higher density development around transit stations. (NI)	Highest emissions compared to all other alternatives. Greater congestion resulting from no additional roadway or transit capacity beyond what is funded in the proposed Plan to accommodate the higher amount of growth. (NI)	**Lowest emissions compared to all other alternatives due to emphasis on increased transit capacity. (NI)**
Impact 2.2-3b: Increased emissions of PM_{10}	Slightly higher PM_{10} emissions than the proposed Plan. (SU)	Increased PM_{10} emissions due to increased VMT from existing conditions. (SU)	Slightly lower PM_{10} emissions than the proposed Plan, but still higher than existing conditions. (SU)	Slightly higher PM_{10} emissions than the proposed Plan. (SU)	Slightly lower PM_{10} emissions than the proposed Plan, but still higher than existing conditions. (SU)
Impact 2.2-4: Regional toxic air contaminant emissions	Emissions higher than the proposed Plan due to fewer transportation investments and increased VMT. (NI)	Decreased emissions due to stringent emission controls and focused growth. (NI)	Lower emissions compared to proposed Plan due to higher densities around transit stations, which would reduce vehicle use and VMT. (NI)	Highest emissions compared to all other alternatives due to higher employment and population growth, more vehicles in use, and higher VMT. (NI)	**Lowest emissions compared to all other alternatives due to highest investments in transit capacity. (NI)**
Impact 2.2-5(a): Local pollutant analysis:	**Exposure of potentially fewer new sensitive receptors as**	There would be a net increase in sensitive receptors as a result of	Same as proposed Plan. (SU)	Same as proposed Plan (SU)	Same as proposed Plan. (SU)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
sensitive receptors located in TPP areas where the increased cancer risk is above the threshold	**compared to all other alternatives due to the dispersed land use pattern. (SU)**	the focused land use pattern. (SU)			
Impact 2.2-5(b): Local pollutant analysis: sensitive receptors located in TPP corridors within set distances to mobile or stationary sources of TAC or $PM_{2.5}$ emissions	**Exposure of potentially fewer new sensitive receptors as compared to all other alternatives due to the dispersed land use pattern. (SU)**	There would be a net increase in sensitive receptors as a result of the focused land use pattern. (SU)	Same as proposed Plan. (SU)	Same as proposed Plan. (SU)	Same as proposed Plan. (SU)
Impact 2.2-5(c): Local pollutant analysis: consistency with CRRPs	Same as proposed Plan. (LS)	Where a proposed project is consistent with an adopted CRRP, the impact would be less than significant. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)
Impact 2.2-7: Disproportionally impacted communities (CARE)	Same as proposed Plan. (SU)	TAC and/or PM2.5 exhaust emissions in CARE Communities would have a slightly larger increase or	Same as proposed Plan. (SU)	Slightly larger impact in CARE communities than the proposed Plan. (SU)	Same as proposed Plan. (SU)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
		smaller decrease as compared to non-CARE Communities. (SU)			
Land Use, Housing, Agriculture, and Physical Development					
Impact 2.3-1: Residential or business disruption or displacement	Long-term land use effects similar to proposed Plan. Least potential transportation impacts at localized level compared to all other alternatives. (SU)	Potential long-term localized impacts in areas where substantial land use changes are identified. Potential transportation impacts at localized level. (SU, SB 375 Streamlining LS-M)	Long term land use effects similar to the proposed Plan. Potential transportation impacts at localized level would be slightly less compared to the proposed Plan and Alternative 4, but greater than the No Project and Alternatives 5. (SU, SB 375 Streamlining LS-M)	Long term land use effects greater than the proposed Plan as a result of the larger number of land use development projects. Potential transportation impacts at localized level would be the same as the proposed Plan and greater than remaining alternatives. (SU, SB 375 Streamlining LS-M)	Long term land use effects similar to the proposed Plan. Potential transportation impacts at localized level less compared to the proposed Plan and greater than the No Project alternative. (SU, SB 375 Streamlining LS-M)
Impact 2.3-2: Community alteration or separation	Land use impacts same as the proposed Plan. Least impacts from transportation projects compared to all other alternatives. (SU)	Potential community separation impacts from land use development due to variation in local land use controls and standards results. No long term impacts due to transportation projects. (SU, SB 375 Streamlining LS-M)	Land use impacts same as proposed Plan. Impacts due to transportation projects slightly less than the proposed Plan and Alternative 4, but greater than the No Project alternative and Alternative 5. (SU, SB	Land use impacts greater than proposed Plan due to larger number of land use development projects. Impacts due to transportation projects similar to proposed Plan, and greater than the remaining	Land use impacts same as proposed Plan. Impacts due to transportation projects less than proposed Plan and greater than the No Project alternative. (SU, SB 375 Streamlining LS-M)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
			375 Streamlining LS-M)	alternatives. (SU, SB 375 Streamlining LS-M)	
Impact 2.3-3: Conflict with adopted land use plans	**Does not include a land use plan, so would not conflict with any local plans. (LS)**	Land use authority remains with relevant local jurisdictions and permitting agencies. (LS)	Same as the proposed Plan. (LS)	Same as the proposed Plan. (LS)	Same as the proposed Plan. (LS)
Impact 2.3-4: Conversion of agricultural land and open space to urbanized land	Greatest conversion of farmland compared to all alternatives. Conversion of 16,962 acres of total farmland, 5,2002 acres of important farmland, 4,666 acres of Williamson Act lands, and 1,910 acres of open space. (SU)	Conversion of 5,912 acres of total farmland, 2,179 acres of important farmland, 724 acres of Williamson Act lands, and 2,396 acres of open space. (SU)	Generally slightly more farmland conversion than under proposed Plan but slightly less open space conversion. Conversion of 6,617 acres of total farmland, 2,234 acres of important farmland, 1,615 acres of Williamson Act lands, and 1,849 acres of open space. (SU)	**Generally slightly less conversion than under the proposed Plan. Conversion of 5,338 acres of total farmland, 2,339 acres of important farmland, 1,615 acres of Williamson Act lands, and 1,443 acres of open space. (SU)**	Generally slightly more farmland conversion than under the proposed Plan but slightly less open space conversion. Conversion of 7,343 acres of total farmland, 2,539 acres of important farmland, 1,755 acres of Williamson Act lands, and 1,808 acres of open space. (SU)
Impact 2.3-5: Conversion of forest land to urbanized land	Conversion of 2,577 acres, the most compared to all other alternatives. (SU)	Conversion of 1,395 acres. (SU)	Conversion of 1,766 acres, slightly more than under the proposed Plan. (SU)	**Conversion of 270 acres, the fewest of all alternatives (SU)**	Conversion of 1,981 acres, slightly more than under the proposed Plan. (SU)
Energy					
Impact 2.4-1: Per capita energy consumption	Less per capita energy use than the proposed Plan, but more than	Decrease in per capita energy use compared to existing conditions. (LS)	Slightly higher per capita energy use compared to proposed	**Lowest per capita energy use of all the alternatives (3.3 less**	Less than the proposed Plan, but more than Alternative 4. (LS)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	Alternative 4. (LS)		Plan. (LS)	**than the proposed Plan). (LS)**	
Impact 2.4-2: Inconsistency with adopted plans or policies related to energy conservation	Conflicts with California energy policy as it would not promote compact, mixed used land uses. (SU)	**Consistent with California energy policy as it promotes compact land uses and transit use. (NI)**	**Same as proposed Plan. (NI)**	**Same as proposed Plan. (NI)**	**Same as proposed Plan. (NI)**
Climate Change and Greenhouse Gases					
Impact 2.5-1: Failure to reduce passenger vehicle or light duty truck emissions	Inconsistent with SB 375, as modeled CO2 emissions do not meet the SB 375 targeted reductions in 2020 or 2035. Reductions are less than all other alternatives. (SU)	**Consistent with SB 375, as modeled CO2 emissions meet the SB 375 targeted reductions for per capita car and light duty truck emissions. Proposed Plan would result in greater emission reductions than the SB 375 targets. (NI)**	Consistent with SB 375, as modeled CO2 emissions meet the SB 375 targeted. Reductions slightly less than under proposed Plan, and similar to reductions under Alternative 5. (NI)	Inconsistent with SB 375, as modeled CO2 emissions do not meet the SB 375 targeted reductions in 2035. Reductions are less than proposed Plan, Alternative 3, and Alternative 5. Reductions are greater than under No Project alternative. (SU)	**Consistent with SB 375, as modeled CO2 emissions meet the SB 375 targeted reductions. Reductions are the same as the proposed Plan, and similar to reductions under Alternative 3. (NI)**
Impact 2.5-2: Increase in GHG emissions	Forecast GHG emissions are expected to decline by 12 percent from 2010 to 2040. This is a lower reduction than under proposed Plan, Alternative 3, or Alternative 5, but	Forecast GHG emissions are expected to decline by 15 percent from 2010 to 2040. (NI)	Forecast GHG emissions are expected to decline by 16 percent from 2010 to 2040. This is a greater decline than under proposed Plan. (NI)	Forecast GHG emissions are expected to decline by 10 percent from 2010 to 2040. This is the lowest reduction of all alternatives. (NI)	**Forecast GHG emissions are expected to decline by 17 percent from 2010 to 2040. This is the greatest decline of all alternatives. (NI)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	greater than under Alternative 4. (NI)				
Impact 2.5-3: Impede attainment of Executive Orders S-3-05 and B-16-2012	Same as proposed Plan. (LS)	Declining per capita car and light duty truck emissions and declining total land use and on-road emissions moves the Bay Area in the direction of achieving the executive order goals, and does not impede achievement of identified goals. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)
Impact 2.5-4: Conflict with other plans, policies, or regulations for reducing GHGs	Fails to meet SB 375 targets and is found to be inconsistent with State goals and mandates, resulting in a significant impact. (SU)	**Consistent with other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs, including local CAPs or GHG reduction plans or State goals and mandates, comparable with Alternatives 3 and 5. (NI)**	**Same as the proposed Plan. (NI)**	Fails to meet SB 375 targets and is found to be inconsistent with State goals and mandates, resulting in a significant impact. (SU)	**Same as the proposed Plan. (NI)**
Impact 2.5-5: Increase transportation	17 fewer transportation investments and projects in SLR zone	High level of investments in transportation projects	Transportation projects and related impacts comparable to	Transportation projects and related impacts comparable to	**Nine fewer transportation projects than**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
investments in areas regularly affected by sea level rise (SLR) by midcentury	compared to the proposed Plan. Lowest potential for inclusion of SLR adaptation strategies. (SU)	and potential for transportation project-related impacts (32 projects within the SLR zone). High potential for inclusion of SLR adaptation strategies to mitigate impacts. (SU, SB 375 Streamlining LS-M)	proposed Plan (32 projects within the SLR zone). Same potential for inclusion of SLR adaptation strategies as proposed Plan. (SU, SB 375 Streamlining LS-M)	proposed Plan (32 projects within the SLR zone). Same potential for inclusion of SLR adaptation strategies as proposed Plan. (SU, SB 375 Streamlining LS-M)	**proposed Plan and less potential for transportation project-related impacts. Same potential for inclusion of SLR adaptation strategies as proposed Plan. (SU, SB 375 Streamlining LS-M)**
Impact 2.5-6: Increase the population in areas regularly affected by sea level rise by midcentury	Eight percent fewer residents in SLR inundation zone than proposed Plan. (SU)	Increase of 25,750 residents in SLR inundation zone. (SU)	One percent fewer residents in SLR inundation zone than proposed Plan. (SU)	Five percent fewer residents in SLR inundation zone than proposed Plan. (SU)	**Twelve percent fewer residents in SLR inundation zone compared to proposed Plan. (SU)**
Impact 2.5-7: Increase land use development in areas regularly affected by sea level rise by midcentury	Four percent less commercial and industrial land use development in SLR inundation zone than proposed Plan. Nine percent smaller increase in residential land use development within the SLR inundation zone	Increase in commercial and industrial land use development in SLR inundation zone (27,870 jobs). Large increase in residential land use development in SLR inundation zone (4,400 households). (SU)	Eleven percent less commercial and industrial land use development in SLR inundation zone than proposed Plan. Two percent more residential land use development in SLR zone than proposed Plan. (SU)	**22 percent less commercial and industrial land use development in SLR inundation zone compared to proposed Plan.** Three percent less residential land use development in SLR inundation zone than proposed Plan. (SU)	Twelve percent less commercial and industrial land use development in SLR inundation zone than proposed Plan. **Ten percent less residential land use development in SLR inundation zone compared to proposed Plan.** (SU)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	compared to Proposed Plan. (SU)				
Noise					
Impact 2.6-1: Temporary construction noise or vibration in excess of local standards	Fewer transportation projects results in lower extent of construction-related noise than proposed Plan. Expanded land use development areas results in construction-related noise affecting more people than proposed Plan. (SU)	**Temporary construction-related noise impacts from construction of transportation investment projects and land use development. (SU, SB 375 Streamlining LS-M)**	Fewer transportation projects results in lower extent of construction-related noise than the proposed Plan. Expanded land use development areas results in construction-related noise affecting more people than the proposed Plan. (SU, SB 375 Streamlining LS-M)	Same transportation project construction-related noise as the proposed Plan. Greater total growth results in construction-related noise affecting more people than the proposed Plan and all other alternatives. (SU, SB 375 Streamlining LS-M)	Fewer transportation projects results in lower extent of construction-related noise than the proposed Plan. Expanded land use development areas results in construction-related noise affecting more people than the proposed Plan. (SU, SB 375 Streamlining LS-M)
Impact 2.6-2: Highway noise levels that approach or exceed FHWA Noise Abatement Criteria	**4,319 roadway miles exposed to noise levels at or above 66 dBA, the lowest of all alternatives. (SU)**	4,770 roadway miles exposed to noise levels at or above 66 dBA. (SU, SB 375 Streamlining LS-M)	4,697 roadway miles exposed to noise levels at or above 66 dBA. (SU, SB 375 Streamlining LS-M)	4,905 roadway miles exposed to noise levels at or above 66 dBA, resulting in the most severe impacts of all the alternatives. (SU, SB 375 Streamlining LS-M)	4,535 roadway miles exposed to noise levels at or above 66 dBA, resulting in the least severe impacts of action alternatives. (SU, SB 375 Streamlining LS-M)
Impact 2.6-3: Transit noise exceeding FTA criteria	**Some transit extension projects included in the proposed Plan would not occur. Smaller increase in transit vibration compared to**	Transit extension projects would occur. Potential increase in transit vibration when transit lines are extended to new areas. (SU)	Funding transferred away from roadway improvements to transit agencies. Potential transit vibration increase compared to the proposed Plan due	Transit vibration would be the same as the proposed Plan because it would implement the same Preferred Transportation Investment Strategy.	Funding transferred away from roadway improvements to transit agencies. Potential transit vibration increase compared to the proposed Plan due

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	all other Alternatives. (SU)		to extended service times or routes of service. (SU)	(SU)	to extended service times or routes of service. (SU)
Impact 2.6-4: Transit vibration exceeding FTA criteria	**Some transit extension projects included in the proposed Plan would not occur. Smaller increase in transit vibration compared to proposed Plan or other Alternatives. (SU)**	Transit extension projects would occur. Potential increase in transit vibration when transit lines are extended to new areas. (SU)	Funding transferred away from roadway improvements to transit agencies. Potential transit vibration increase compared to the proposed Plan due to extended service times or routes of service. (SU)	Transit vibration would be the same as the proposed Plan because it would implement the same Preferred Transportation Investment Strategy. (SU)	Funding transferred away from roadway improvements to transit agencies. Potential transit vibration increase compared to the proposed Plan due to extended service times or routes of service. (SU)
Impact 2.6-5: Excessive noise near airport planning areas	Same as proposed Plan. (LS)	Noise exposure to aircraft or airports could occur, particularly in PDAs close to existing airports. Regulatory framework will reduce noise exposure impacts resulting from incompatible land uses. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)
Geology and Seismicity					
Impact 2.7-1: Risk from fault rupture	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by existing regulations. (LS-M)**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to issue, although risk	**Same as proposed Plan. (LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
				mitigated by existing regulations. (LS-M)	
Impact 2.7-2: Risk from ground shaking	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by existing regulations. (LS-M)**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to issue, although risk mitigated by existing regulations. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.7-3: Risk from ground failure, including liquefaction	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by building code requirements. (LS-M)**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to issue, although risk mitigated by existing regulations. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.7-4: Landslide risk	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by building code requirements. (LS-M)**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to issue, although risk mitigated by existing regulations. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.7-5: Soil erosion or loss of topsoil	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by building code requirements. (LS-M)**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to issue, although risk mitigated by existing regulations. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.7-6: Development on	**Same as proposed Plan. (LS-M)**	**Possible risk mitigated by building code**	**Same as proposed Plan. (LS-M)**	Higher projected growth would increase population exposed to	**Same as proposed Plan. (LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
unstable soils		**requirements. (LS-M)**		issue, although risk mitigated by existing regulations. (LS-M)	
Water Resources					
Impact 2.8-1: Violation of water quality standards or waste or storm water discharge requirements	Slight increase in potential for adverse impacts on water quality associated with dispersed construction compared to proposed Plan, but mitigated through implementation of NPDES permit requirements. (LS-M)	**Construction and operation (drainage) related impacts mitigated through implementation of NPDES permit requirements. (LS-M)**	**Same as proposed Plan. (LS-M)**	Generally greater impacts related to higher growth and associated development compared to the proposed Plan, but mitigated through implementation of NPDES permit requirements. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.8-2: Interference with groundwater recharge	Increased impervious surface area due to dispersed development results in increased adverse impacts compared to proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Increased impervious surface area as a result of new development; impacts mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Similar land use impacts compared to proposed Plan but smaller increases in impervious surface area from transportation projects, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Potentially greater increase in impervious surface tied to land use development compared to the proposed Plan but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	**Similar land use impacts but smaller increases in impervious surface area from transportation projects compared to the proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.8-3: Increase in erosion that affects water quality	Same as proposed Plan. (LS-M)	Possible risk mitigated by existing regulations. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)
Impact 2.8-4: Increase in non-point pollution of stormwater runoff from litter, airborne emissions, or vehicle discharge	Increased impervious surface area due to dispersed development results in increased adverse impacts compared to proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Increased impervious surface area as a result of new development; impacts mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Similar land use impacts compared to proposed Plan but smaller increases in impervious surface area from transportation projects, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Potentially greater increase in impervious surface tied to land use development compared to the proposed Plan but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	**Similar land use impacts but smaller increases in impervious surface area from transportation projects compared to the proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)**
Impact 2.8-5: Increase in non-point pollution of stormwater runoff from construction sites	Increased impervious surface area due to dispersed development results in increased adverse impacts compared to proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Increased impervious surface area as a result of new development; impacts mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Similar land use impacts compared to proposed Plan but smaller increases in impervious surface area and stormwater pollution potential from transportation projects, but mitigated by adherence to drainage control requirements on	Potentially greater increase in impervious surface tied to land use development compared to the proposed Plan but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	**Similar land use impacts but much smaller increases in impervious surface area and stormwater pollution potential from transportation projects compared to the proposed Plan, but mitigated by adherence to drainage**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
			local and state level. (LS-M)		**control requirements on local and state level. (LS-M)**
Impact 2.8-6: Increase in runoff due to impervious surfaces, cut and fill slopes, alterations to drainage	Increased impervious surface area due to dispersed development results in increased adverse impacts compared to proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Increased impervious surface area as a result of new development; impacts mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Similar land use impacts compared to proposed Plan but smaller increases in impervious surface area and stormwater pollution potential from transportation projects, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	Potentially greater increase in impervious surface tied to land use development compared to the proposed Plan but mitigated by adherence to drainage control requirements on local and state level. (LS-M)	**Similar land use impacts but much smaller increases in impervious surface area and stormwater pollution potential from transportation projects compared to the proposed Plan, but mitigated by adherence to drainage control requirements on local and state level. (LS-M)**
Impact 2.8-7: Structures that would impede or redirect floodwaters	**Impacts would be the same for land use changes but reduced for transportation projects compared to proposed Plan. (LS-M)**	Impacts may occur with new development, depending on specific project locations. (LS-M)	Same as proposed Plan. (LS-M)	Impacts would increase for land use changes but be the same for transportation projects compared to the proposed Plan. (LS-M)	**Impacts would be the same for land use changes but reduced for transportation projects compared to proposed Plan. (LS-M)**
Impact 2.8-8: Exposure of people to risk from flooding, seiche, tsunami,	**Impacts would be the same for land use changes but reduced for transportation projects compared to**	Impacts may occur with new development, depending on project specific locations. (LS)	Same as proposed Plan. (LS)	Impacts would increase for land use changes but be the same for transportation projects compared to the	**Impacts would be the same for land use changes but reduced for transportation projects compared to**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
mudflows	**proposed Plan. (LS)**			proposed Plan. (LS)	**proposed Plan. (LS)**
Biological Resources					
Impact 2.9-1a: Adverse effects on species identified as candidate, sensitive, or special-status	Greatest overall adverse effect relative to all alternatives. (SU)	May have substantial adverse effects. (SU)	Adverse effects comparable to proposed Plan. (SU)	Greater overall adverse effect on than proposed Plan. (SU)	**Least overall adverse effect relative to all alternatives. (SU)**
Impact 2.9-1b: Adverse effects on critical habitat	Greatest adverse effect relative to all alternatives. (SU)	May have adverse impacts. (SU)	Adverse effects comparable to proposed Plan. (SU)	Greater overall adverse effect compared to proposed Plan. (SU)	**Least overall adverse effect relative to all alternatives. (SU)**
Impact 2.9-1c: Adverse effects on non-listed special-status raptor and nesting bird species	Greatest adverse effect relative to all alternatives. (SU)	Construction activities could have adverse effects. (SU, SB 375 Streamlining LS-M)	Adverse effects comparable to proposed Plan. (SU, SB 375 Streamlining LS-M)	Greater overall adverse effect compared to proposed Plan. (SU, SB 375 Streamlining LS-M)	**Least overall adverse effect relative to all alternatives. (SU, SB 375 Streamlining LS-M)**
Impact 2.9-2: Adverse effect son riparian habitat, federally protected, or other sensitive natural communities	Greatest adverse effect relative to all alternatives. (SU)	May have adverse effects. (SU)	Adverse effects comparable to proposed Plan. (SU)	Greater overall adverse effect compared to proposed Plan. (SU)	**Least overall adverse effect relative to all alternatives. (SU)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.9-3: Interference with the movement of fish or wildlife species or use of native wildlife nursery sites	Greatest overall impact from development relative to all alternatives. (SU)	May have substantial effects. (SU)	Interference comparable to proposed Plan. (SU)	Greater overall interference compared to Proposed Plan. (SU)	**Least overall adverse effect relative to all alternatives. (SU)**
Impact 2.9-4: Conflict with adopted local conservation policies	Greatest overall level of conflict relative to all alternatives. (LS-M)	May conflict compared to existing conditions. (LS-M)	Level of conflict comparable to proposed Plan. (LS-M)	Greater overall level of conflict compared to proposed Plan. (LS-M)	**Least potential for conflict relative to all alternatives. (LS-M)**
Visual Resources					
Impact 2.10-1: Block panoramic views or significant landscapes	Greater impacts from more dispersed pattern of land development, but fewer impacts from less transportation projects; generally comparable level of impacts to proposed Plan. (SU)	Possible impacts from infill development, but greater risk from development at urban fringe, as well as from transportation projects in rural areas. (SU, SB 375 Streamlining LS-M)	Same as proposed plan. (SU, SB 375 Streamlining LS-M)	Greater growth overall with more dispersed household growth is expected to result in more new development in suburban and undeveloped areas and more significant impacts compared to proposed Plan. (SU, SB 375 Streamlining LS-M)	**Same growth and comparable dispersion of development as proposed Plan, but less of an impact due to fewer transportation projects. (SU, SB 375 Streamlining LS-M)**
Impact 2.10-2: Alter appearance of scenic highways	Potential for greater land use impacts compared to proposed Plan due to more dispersed development,	Potential for impacts due to land use and transportation projects. (SU)	Same as proposed Plan. (SU)	Potential for greater land use impacts compared to proposed Plan due to greater population growth and	**Similar land use impacts compared to proposed Plan but fewer transportation impacts due to smaller**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	but the fewest transportation impacts of all alternatives. (SU)			more dispersed development, but the same transportation impacts. (SU)	**transportation network. (SU)**
Impact 2.10-3: Create significant contrasts with existing community	Same as proposed Plan. (SU)	Potential for localized impacts due to land use and transportation projects. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)
Impact 2.10-4: Add urban character to rural area or modern element to historic area	Potential for greater land use impacts compared to proposed Plan due to more dispersed development, but the fewest transportation impacts of all alternatives. (SU)	Potential for impacts due to land use and transportation projects. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Potential for greater land use impacts compared to proposed Plan due to greater population growth and more dispersed development, but the same transportation impacts. (SU, SB 375 Streamlining LS-M)	**Similar land use impacts compared to proposed Plan but fewer transportation impacts due to smaller transportation network. (SU, SB 375 Streamlining LS-M)**
Impact 2.10-5: Substantial sources of light and glare	More dispersed development results in greater impacts than proposed Plan. Fewer transportation projects results in fewer impacts than proposed Plan. (SU)	New substantial impacts from land development and transportation projects. (SU, SB 375 Streamlining LS-M)	Same as proposed plan. (SU, SB 375 Streamlining LS-M)	More dispersed development results in greater impacts than proposed Plan. Same impacts as the proposed Plan from transportation projects. (SU, SB 375 Streamlining LS-M)	Less than proposed Plan due to similar land use development and fewer transportation projects. (SU, SB 375 Streamlining LS-M)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.10-6: Cast shadows	**Less land use-related impacts compared to proposed Plan due to more dispersed/lower density development. Fewest transportation projects results in fewer impacts than proposed Plan. (SU)**	Potential for significant land use-related impacts, particularly in dense urban areas due to compact growth. Few transportation-related impacts expected. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Less land use-related impacts due to more dispersed/lower density development. Same transportation-related impacts as proposed Plan. (SU, SB 375 Streamlining LS-M)	Similar land use-related impacts but fewer transportation-related impacts compared to proposed Plan. (SU, SB 375 Streamlining LS-M)
Cultural Resources					
Impact 2.11-1: Disturb or destroy historical resources	Greater land use impact than proposed Plan due to more dispersed development but the least transportation-related impacts due to a smaller transportation network expansion. (SU)	**Potential impacts from physical damage, infill development that is visually incompatible with a designated historic district, or roadway improvements that substantially alter the character of a designated historic structure or district. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.11-2: Disturb or destroy archaeological resources	Potential for greater land use impacts compared to proposed Plan due to more dispersed development, but the fewest transportation impacts of all alternatives. (SU)	Potential for impacts due to land use and transportation projects. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Potential for greater land use impacts compared to proposed Plan due to greater population growth and more dispersed development, but the same transportation impacts. (SU, SB 375 Streamlining LS-M)	**Similar land use impacts compared to proposed Plan but fewer transportation impacts due to smaller transportation network. (SU, SB 375 Streamlining LS-M)**
Impact 2.11-3: Disturb or destroy paleontological and/or geological	Potential for greater land use impacts compared to proposed Plan due to more dispersed development, but the fewest transportation impacts of all alternatives. (SU)	Potential for impacts due to land use and transportation projects. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Potential for greater land use impacts compared to proposed Plan due to greater population growth and more dispersed development, but the same transportation impacts. (SU, SB 375 Streamlining LS-M)	**Similar land use impacts compared to proposed Plan but fewer transportation impacts due to smaller transportation network. (SU, SB 375 Streamlining LS-M)**
Impact 2.11-4: Disturb or destroy human remains	Potential for greater land use impacts compared to proposed Plan due to more dispersed development, but the fewest transportation impacts of all alternatives. (LS-M)	Potential for impacts due to land use and transportation projects. (LS-M)	Same as proposed Plan. (LS-M)	Potential for greater land use impacts compared to proposed Plan due to greater population growth and more dispersed development, but the same transportation impacts. (LS-M)	**Similar land use impacts compared to proposed Plan but fewer transportation impacts due to smaller transportation network. (LS-M)**

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Public Utilities					
Impact 2.12-1: Insufficient water supplies	**Same as proposed Plan. (SU)**	**May exacerbate water supply shortage during dry years and result in localized water supply impacts. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**	Greatest impact compared to all other alternatives due to larger population and employment. (SU, SB 375 Streamlining LS-M)	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**
Impact 2.12-2: Inadequate wastewater treatment capacity	Localized impacts with likely inadequate capacity in Napa, San Francisco, Solano, and Sonoma counties. (SU)	Localized impacts, with likely inadequate capacity in San Francisco. (SU, SB 375 Streamlining LS-M)	Localized impacts, with likely inadequate capacity in San Francisco although to a greater degree than in proposed Plan. (SU, SB 375 Streamlining LS-M)	**Localized impacts only, with no exceedance of aggregate county treatment capacity. However, localized impacts may occur. (SU, SB 375 Streamlining LS-M)**	Localized impacts with likely inadequate capacity in San Francisco and San Mateo counties. (SU, SB 375 Streamlining LS-M)
Impact 2.12-3: New/expanded stormwater drainage facilities	Same as proposed Plan. (SU)	Increase in impervious surface would result in localized impacts. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)
Impact 2.12-4: New/expanded water and wastewater treatment facilities	Same as proposed Plan. (SU)	Increase in population would result in localized impacts. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)	Same as proposed Plan. (SU, SB 375 Streamlining LS-M)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.12-5: Exceed wastewater treatment requirements	Same as proposed Plan. (LS)	Not anticipated, as existing regulations would mitigate potential impacts. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)	Same as proposed Plan. (LS)
Impact 2.12-6: Insufficient landfill capacity	**Same as proposed Plan. (SU)**	**The expected closure of most of the region's landfills before 2040, the Plan's time horizon. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**	Greater impact due to larger population and job growth. (SU, SB 375 Streamlining LS-M)	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**
Hazardous Materials					
Impact 2.13-1: Hazard through the routine transport, use, or disposal of hazardous materials	**Same as proposed Plan. (LS-M)**	**Projected growth would likely result in an overall increase. (LS-M)**	**Same as proposed Plan. (LS-M)**	Generally greater impacts compared to the proposed Plan due to larger population growth. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.13-2: Hazard through reasonably foreseeable upset and accident conditions	**Operationally the same as the proposed Plan though with the fewest transportation projects of all alternatives there would be a reduction during the construction phase.**	Possible risk mitigated by existing regulations. (LS-M)	Operationally the same as the proposed Plan though with fewer transportation projects there would be a reduction during the construction phase. Possible risk mitigated by existing regulations. (LS-M)	Greater accident and upset conditions compared to the proposed Plan due to higher growth and employment. Possible risk mitigated by existing regulations. (LS-M)	Operationally the same as the proposed Plan though with fewer transportation projects there would be a reduction during the construction phase. Possible risk mitigated by existing regulations. (LS-M)

TABLE 3.1-56: SUMMARY OF ALTERNATIVES COMPARISON TO THE PROPOSED PLAN

Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
	Possible risk mitigated by existing regulations. (LS-M)				
Impact 2.13-3: Hazardous emissions within one-quarter mile of a school	Greater potential than under proposed Plan due to wider dispersed area of new development. Possible risk mitigated by existing regulations. (LS-M)	**Potential depending on specific development location. Possible risk mitigated by existing regulations. (LS-M)**	**Same as proposed Plan. (LS-M)**	Greater potential than under proposed Plan due to greater amount of new development. Possible risk mitigated by existing regulations. (LS-M)	**Same as proposed Plan. (LS-M)**
Impact 2.13-4: Projects on a hazardous materials site	Greater potential than under proposed Plan for encountering historical releases of contamination with a wider dispersed area of new development. (SU)	**Potential depending on specific development location. (SU, SB 375 Streamlining LS-M)**	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**	Greater potential than under proposed Plan for encountering historical releases of contamination with increased new development. (SU, SB 375 Streamlining LS-M)	**Same as proposed Plan. (SU, SB 375 Streamlining LS-M)**
Impact 2.13-5: Safety hazard from a public airport	Same as proposed Plan. (LS-M)	Possible risk mitigated by existing regulations. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)
Impact 2.13-6: Safety hazard from a private airstrip	Same as proposed Plan. (LS-M)	Possible risk mitigated by existing regulations. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)

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Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.13-7: Interfere with an emergency response or evacuation plan	Greater impact than under proposed Plan due to lack of coordination strategy and fewer transportation projects to reduce congestion which could interfere with emergency response and evacuation. (SU)	**The proposed Plan is not expected to interfere with emergency response or evacuation plans. (LS)**	**Same as proposed Plan. (LS)**	Similar to proposed Plan, but higher growth could result in greater impacts on emergency response / evacuation. (SU)	Similar to proposed Plan, but fewer transportation projects to reduce congestion which could interfere with emergency response and evacuation. (SU)
Impact 2.13-8: Risk involving wildland fires	Same as proposed Plan. (LS-M)	Possible risk mitigated by existing regulations and existing fire response services. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)	Same as proposed Plan. (LS-M)
Public Services and Recreation					
Impact 2.14-1: Need for new or expanded facilities	More dispersed growth may result in a greater impact compared to proposed Plan. Impacts related to transportation may be greater than the proposed Plan. (SU)	**Population growth could require additional facilities, but compact land uses would help to minimize impact. (SU, SB 375 Streamlining LS-M)**	**Impacts would be similar to the proposed Plan. (SU, SB 375 Streamlining LS-M)**	Greater total population coupled with more dispersed growth may result in the greatest impact compared to all other alternatives. Transportation improvement effects would be potentially worse than the proposed Plan. (SU, SB 375 Streamlining LS-M)	**Impacts would be similar to the proposed Plan. (SU, SB 375 Streamlining LS-M)**

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Impact	*Alternative 1: No Project*	*Alternative 2: Proposed Plan*	*Alternative 3: Transit Priority Focus*	*Alternative 4: Enhanced Network of Communities*	*Alternative 5: Environment, Equity and Jobs*
Impact 2.14-2: Physical deterioration of recreational facilities	**Impacts would be similar to the proposed Plan. (SU)**	**The distribution of population growth may result in localized impacts. (SU, SB 375 Streamlining LS-M)**	**Impacts would be similar to the proposed Plan. (SU, SB 375 Streamlining LS-M)**	Higher total population growth would result in a greater impact than all other alternatives. (SU, SB 375 Streamlining LS-M)	**Impacts would be similar to the proposed Plan. (SU, SB 375 Streamlining LS-M)**

Note: Bold cells indicate the environmentally preferred alternative(s) for each impact.

Environmentally Superior Alternative

CEQA Guidelines require each EIR to identify the environmentally superior alternative among the alternatives analyzed. If the No Project alternative is identified as the environmentally superior alternative, then the EIR must identify another alternative from among the alternatives analyzed.

There are numerous tradeoffs in impacts associated with the various alternatives, as summarized below.

PLAN GOALS AND OBJECTIVES

The adopted goals of the proposed Plan are:

- Climate Protection
- Adequate Housing
- Healthy and Safe Communities
- Open Space and Agricultural Preservation
- Equitable Access
- Economic Vitality
- Transportation System Effectiveness

The proposed Plan objectives are reflected in the following performance targets that measure the region's progress towards meeting these goals and are consistent with the requirements of SB 375:

- Reduce per-capita CO_2 emissions from cars and light-duty trucks by 15%.
- House 100% of the region's projected 25-year growth by income level without displacing current low-income residents.

An alternative that performs substantially worse than the proposed Plan with respect to meeting the plan goals would not achieve even the basic objectives of the proposed Plan. The alternatives also would result in varying degrees of success at achieving the Plan Bay Area goals and objectives. While all alternatives are expected to house 100% of the region's housing, the No Project alternative and Alternative 4 are not expected to meet the CO_2 emissions targets for cars and light-duty trucks.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE DETERMINATION

Alternative 5 would result in the lowest level of environmental impacts, but only marginally lower, as compared to all alternatives (including the proposed Plan), and therefore is identified as the environmentally superior alternative. Alternative 3 results in similar impacts to the proposed Plan, and Alternative 4 and the No Project alternative have mixed environmental outcomes. Overall, variations in environmental impacts among alternatives are minor. This determination does not factor in other benefits of the Plan outside of environmental effects. More specifically:

- In **Transportation**, Alternative 3 has the least environmental impact as it features shorter commute travel times (three percent shorter than the proposed Plan) and a lesser amount of

congested VMT (14 percent fewer VMT at LOS F as compared to the proposed Plan) and the least potential for transit vehicle crowding (30 percent utilization of public transit systems, the same as the No Project alternative, and three percent less than the proposed Plan). These results are due to shifting regional growth to the Transit Priority Project eligible areas, with the greatest emphasis on growth in the urban core close to high-frequency transit.

- In **Air Quality,** Alternative 5 has the least environmental impact as it results in the lowest criteria pollutant emissions (1.7 percent fewer criteria pollutant emissions as compared to the proposed Plan) as well as lowest TAC emissions of all of the alternatives (1.9 percent fewer TAC emissions as compared to the proposed Plan). This is a result of placing a greater emphasis than the other alternatives on aligning compact land use development with transit service and increasing transit capacity.
- In **Energy,** Alternative 4 would result in the lowest per capita energy use (3.3 percent less than the proposed Plan and 2.7 percent less than Alternative 5), and would therefore have the least environmental impact.
- In **Greenhouse Gas Emissions,** the proposed Plan and Alternative 5 perform equally in regard to meeting SB 375 emission reduction targets in 2035 (both achieving a 16.4 percent reduction, one percent better than Alternative 3, 1.6 percent better than Alternative 4, and 9.6 percent better than the No Project alternative). Alternative 5 performs slightly better in terms of total emissions reductions (achieving a 17 percent reduction from 2010 to 2040, one percent better than Alternative 3 and two percent better than the proposed Plan).
- In **Sea Level Rise**, the No Project alternative includes the fewest transportation projects exposed to midcentury sea level rise inundation (the No Project alternative includes 15 projects, Alternative 5 includes 21 projects, and the proposed Plan, Alternative 3, and Alternative 4 include 32 projects exposed to midcentury sea level rise inundation). Alternative 5 includes the fewest residents (12 percent less than the proposed Plan), and new residential development (10 percent less than under the proposed Plan) exposed to midcentury sea level rise inundation because it distributes growth to areas farther from the Bay.
- In **Land Use (conversion of agricultural and forest land),** Alternative 4 results in the fewest acres of important agricultural and open space land converted to urbanized use, as well as the fewest acres of forest and timberland converted to urbanized use.
- In **Noise** the No Project alternative has the fewest environmental impacts since it results in the lowest number of roadway miles exposed to noise levels at or above 66 dBA. It also includes the fewest transit extension projects, resulting in the smallest increase in transit noise and vibration compared to other alternatives.
- In **Biological Resources, Water Resources, Cultural Resources, and Visual Resources,** Alternative 5 combines compact development with low transportation infrastructure development, resulting in fewer physical impacts tied to these resources. It is noted that in terms of land use development-related impacts alone (excluding transportation projects), the proposed Plan is the most compact and would have the least impact on these resources.
- In **Geology, Public Utilities, Public Services, and Hazardous Materials,** Alternatives 1, 2 (proposed Plan), 3 and 5 are comparable and have fewer impacts than Alternative 4. Alternative 4 includes the most growth, thereby inherently exposing the most people to geologic and hazards risks, and resulting in the greatest impacts on existing public service, recreation, and utility

systems. One exception to this is in regard to wastewater treatment, where Alternative 4 has the least impact because of limited growth proposed in San Francisco, which has likely inadequate wastewater treatment capacity under all other alternatives.

- For **Historic Resources and Land Use (community disruption or displacement, alteration and separation)**, all alternatives perform similarly. Since all alternatives include growth in urbanized areas where historic resources are likely to exist, impacts on historic resources would be similar. For land use, impacts related to community disruption or displacement and alteration and separation would be highly localized and similar across the alternatives.

While Alternative 5 is the environmentally preferred alternative due to its overall GHG emissions reductions and estimated reduction in criteria and TAC emissions, the proposed Plan does include some benefits over Alternative 5. For instance, the proposed Plan results in the lowest VMT per capita, with one percent fewer daily VMT per capita than Alternative 5. Alternative 5 also exhibits congested VMT levels 18 percent higher in the AM peak, seven percent higher in the PM peak, and 11 percent higher over the course of a typical weekday as compared to the proposed Plan. Finally, the proposed Plan results in fewer acres of agricultural and open space conversion as compared to Alternative 5 (though more than Alternative 4), and the fewest acres of important farmland (excluding grazing land) of all alternatives.

Another important consideration is that the proposed Plan was developed through extensive coordination with local jurisdictions. Alternative 5 assumes residential growth at levels that some local jurisdictions may be unlikely to implement, since it includes growth in areas that local jurisdictions have not planned for or do not currently anticipate.

In addition, there are some important unanswered questions about the feasibility of Alternative 5 that the ABAG Board and the MTC Commissioners will address during deliberations on this EIR. Specifically, implementation of the VMT tax, which is a key component of Alternative 5, may prove to be infeasible because it would require legislative approval and, in light of Proposition 26 (the "Stop Hidden Taxes" initiative), may require approval by a two-thirds supermajority vote of the Legislature. While there is currently a large majority of Democrats in the Legislature, and authorizing legislation may therefore be easier to achieve at this time, the difficulty of predicting whether new legislation will actually be enacted may make Alternative 5 infeasible.

Policy makers will be required to judge the relative importance of the various issue areas in making their final decision.