Chapter 16—Transportation

16.1 Introduction

This chapter describes the existing conditions (environmental and regulatory) and assesses the potential transportation impacts of the 2020 Metropolitan Transportation Plan/Sustainable Communities Strategy (proposed MTP/SCS). Where necessary and feasible, mitigation measures are identified to reduce these impacts.

The information presented in this chapter is based on review of existing information and is regional in scope. Data, analysis, and findings provided in this chapter were considered and prepared at a programmatic level.

In response to the Notice of Preparation (NOP), SACOG received several comments related to transportation from Sierra Club (Placer County), Sacramento Metropolitan Air Quality Management District (SMAQMD), ECOS, Sierra Club (Placer County), and Delta Protection Commission. The commenters expressed that the Draft EIR should consider the following:

- Different transportation improvements for Placer County,
- Relationship between planned transportation improvements and the goals of the MTP/SCS,
- Increased transit service,
- Induced vehicle miles traveled,
- Multiple lanes as a part of consideration of managed lanes,
- Increased funding for active transportation projects,
- Shared modeling with member jurisdictions,
- Relationship between vehicle miles traveled (VMT) and greenhouse gases (GHG),
- Equity and environmental justice concerns related to transit access,
- VMT impacts, and
- Delta Trail Master Plan.

The CEQA Guidelines note that comments received during the NOP scoping process can be helpful in “identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important.” (CEQA Guidelines Section 15083.) Neither the CEQA Guidelines nor Statutes require a lead agency to respond directly to comments received in response to the NOP, but they do require they be considered. Consistent with these requirements, this comment has been carefully reviewed and considered by SACOG and is reflected in the analysis of impacts in this chapter. Appendix PD-1 includes all NOP comments received.
16.2 Environmental Setting

The plan area of the proposed MTP/SCS consists of transportation routes, including highways, rail alignments, bicycle/multi-use trails, state routes, roads, and other transportation right-of-way in the SACOG region. The major components of the existing transportation system within the plan area of the proposed MTP/SCS include three interstate highways, several state highways, numerous local arterial roadways, a deep water shipping port, a major international airport, numerous general aviation airports, freight and passenger rail service, and a public transit system that includes approximately 40 miles of light rail transit service and several thousand miles of regional and local bus routes. The components of the existing and proposed transportation system in the plan area of the proposed MTP/SCS are defined below.

16.2.1 Roadway System

For purposes of this EIR, the roadway network within the plan area of the proposed MTP/SCS is categorized into several functional classifications as follows:

Freeways

A freeway is a divided highway with full control of access and two or more lanes for the exclusive use of high volumes of traffic in each direction. Intersections with other streets and roads are grade-separated and provide through ramps and connectors. Because of the grade-separations and access control, these facilities do not provide direct access to land. These types of facilities serve primarily regional through-trips and connect to other regional and interregional facilities. Within the “Freeway” classification, several sub-classifications are of interest and importance to the proposed MTP/SCS, since the prevalence of freeway projects and improvements varies widely by the following sub-classifications:

High-Occupancy Vehicle Lanes

High-Occupancy Vehicle (HOV) Lanes are restricted to private vehicles with two-or-more persons (exceptions are allowed for select partial or zero emission vehicles), motorcycles, and public transit vehicles during commute hours, but allow all private vehicles to use the lanes during non-commute hours. HOV lanes are intended to provide an incentive to commuters to carpool by providing faster travel speeds than the parallel general-purpose lanes during peak periods.

Freeway Ramps and Connectors

Ramps and connectors link the region’s surface street system to the freeway system or connect one designated freeway to another.

Freeway Auxiliary Lanes

Auxiliary lanes are added at an on-ramp and then drop at the next downstream off-ramp to help facilitate merging and diverging traffic. In cases where parallel local streets do not exist, longer auxiliary lanes may extend beyond the next downstream interchange.
General Purpose Freeway Lanes

Freeway lanes that do not fall into one of the three categories above are characterized as general purpose freeway lanes. These lanes allow all types and occupancy classes of vehicles at all times of the day.

Surface Streets

Any street type that predominantly intersects with other streets at-grade are surface streets. There is a wide range of sub-classifications of surface streets. For many practical and historical reasons, surface streets often do not fall neatly into one sub-classification or another, and some surface streets may have characteristics of more than one sub-classification.

Expressways

An expressway facility intersects other roadways at-grade, but direct land access to the facility is very limited. Where allowed, driveways are usually consolidated (i.e., one driveway serves several fronting properties), or mediated through frontage roadways. Spacing of signalized intersections is usually very wide, generally greater than one-half mile. Medians are raised, and midblock turns are disallowed.

Arterial Roadways

Arterial facilities also limit direct land access, but are less restrictive than expressways. Intersection spacing is generally about one quarter mile and may be less. Arterials are usually multi-lane (i.e., two-or-more lanes per travel direction). Most arterial roadways have raised medians, but mid-block turns and two-way-left turn lanes are also common. Intersections usually include separate turning lanes.

Collector Streets

Collector facilities generally do not limit direct land access. Intersection spacing is less than one-quarter mile, and unsignalized, stop-sign-controlled intersections are common. Collectors include a mix of two- and four-lane facilities. If provided, medians are usually striped and rarely raised.

Local Streets

Local facilities are intended to provide land access. The majority of local streets are provided in residential areas, although local streets are provided in mixed and employment-oriented areas, too. Local streets are two lanes, one lane per travel direction. Most local streets do not have medians or center strips.

Table 16-1 provides a tabulation of roadway classes by route miles and lane miles for the SACOG region for the baseline year of 2016. The two overall classifications are minor roadways (collectors/local streets) and major roadways (arterials/expressways, auxiliary lanes/ramps, HOV lanes, and general-purpose freeways). Because the major roadways (arterial and above roadway classes) carry more traffic and transit trips, they have the greater effect on the transportation performance measures. “Route miles” are the centerline mileage of roads. “Lane miles” are route miles multiplied by the number of lanes on the roadway.
Table 16-1
Roadway Route and Lane Mileage by Class Year 2016 and 2040 MTP/SCS

<table>
<thead>
<tr>
<th>Roadway Class</th>
<th>2016</th>
<th>2040 MTP/SCS</th>
<th>Change from 2016</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route Miles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Purpose Freeway</td>
<td>319</td>
<td>320</td>
<td>+1</td>
<td>+%</td>
</tr>
<tr>
<td>HOV Lane(^2)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Auxiliary Lanes/Ramps(^2)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Expressways/Arterials</td>
<td>1,536</td>
<td>1,796</td>
<td>+260</td>
<td>+17%</td>
</tr>
<tr>
<td>Collectors/Local Streets(^3)</td>
<td>10,594</td>
<td>12,589</td>
<td>+1,995</td>
<td>+19%</td>
</tr>
<tr>
<td>All Roadway Classes</td>
<td>12,449</td>
<td>14,704</td>
<td>+2,255</td>
<td>+18%</td>
</tr>
<tr>
<td>Arterial &amp; Above</td>
<td>1,855</td>
<td>2,115</td>
<td>+260</td>
<td>+14%</td>
</tr>
<tr>
<td>Lane Miles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Purpose Freeway</td>
<td>1,661</td>
<td>1,688</td>
<td>+26</td>
<td>2%</td>
</tr>
<tr>
<td>HOV Lane(^2)</td>
<td>124</td>
<td>242</td>
<td>+118</td>
<td>96%</td>
</tr>
<tr>
<td>Auxiliary Lanes/Ramps(^2)</td>
<td>232</td>
<td>299</td>
<td>+67</td>
<td>29%</td>
</tr>
<tr>
<td>Arterials/Expressways</td>
<td>4,447</td>
<td>5,494</td>
<td>+1,046</td>
<td>24%</td>
</tr>
<tr>
<td>Collectors/Local Streets(^3)</td>
<td>21,320</td>
<td>25,414</td>
<td>+4,093</td>
<td>19%</td>
</tr>
<tr>
<td>All Roadway Classes</td>
<td>27,785</td>
<td>33,136</td>
<td>+5,351</td>
<td>19%</td>
</tr>
<tr>
<td>Arterial &amp; Above</td>
<td>6,465</td>
<td>7,722</td>
<td>+1,258</td>
<td>19%</td>
</tr>
<tr>
<td>Population</td>
<td>2,376,300</td>
<td>2,996,800</td>
<td>+620,520</td>
<td>26%</td>
</tr>
<tr>
<td>Lane Miles Per Thousand People</td>
<td>11.69</td>
<td>11.06</td>
<td>-0.64</td>
<td>-5%</td>
</tr>
</tbody>
</table>

\(^1\)From “California Public Road Data Reports,” and Highway Performance Monitoring Data provided by Caltrans.

Data assembled by and modified SACOG to include HOV and auxiliary lane mileage.

\(^2\)Since HOV lanes, auxiliary lanes and ramps are located within other freeway routes, they do not generate route mileage, only lane mileage.

\(^3\)MTP/SCS quantity of local streets based on applying a per capita rate to population growth.

Sources: Data compiled by SACOG in July 2019; Caltrans 2016.

Several freeways and state highways are included in the plan area of the proposed MTP/SCS and are depicted in Figure 16-1.

The freeway and highway systems are under the jurisdiction of the California Department of Transportation (Caltrans). Below is a description of the major freeways and highways within the plan area.

- Interstate 5 (I-5) is a 4 to 10-lane freeway that runs from north to south through the western portion of the plan area of the proposed MTP/SCS and is the largest of the major regional facilities in the area. I-5 is a major federal interstate freeway and travels from the Canadian border to Mexico.
- Interstate 80 (I-80) is a 6 to 14-lane freeway that runs from west to east from the San Francisco Bay Area to the California/Nevada state line, passing through Yolo, Sacramento, and Placer counties in the plan area of the proposed MTP/SCS. I-80 is also part of the federal interstate system, connecting the East Coast of the United States with the Pacific Rim.
• Interstate 505 (I-505) is a 4-lane freeway extending 22 miles from I-5 near Dunnigan south to Yolo County near Winters. After leaving Yolo County and the SACOG region, I-505 merges with I-80 in Vacaville. I-505 connects areas north of Sacramento to areas east of Sacramento while bypassing traffic in the urbanized region of Sacramento and its suburbs.

• United States Highway 50 (US 50) is a 4 to 10-lane east-west route that is part of the California state Highway system, which predates the federal interstate system. US 50 traverses the plan area of the proposed MTP/SCS from the eastern portion of Yolo County through Sacramento and El Dorado counties.

• State Route 20 (SR 20) is a state highway that runs east and west north of Sacramento from the North Coast to the Sierra Nevada. In the SACOG region, this 2 to 4-lane facility runs through Yuba and Sutter counties and through the cities of Marysville and Yuba City where it serves as a local street.

• State Route 49 (SR 49) is part of the state highway system while also serving as Main Street in several foothill communities. In the SACOG region, SR 49 is a 2 to 6-lane, north-south highway that traverses the central portion of the plan area through El Dorado, Placer, and Yuba counties.

• State Route 65 (SR 65) is a 2 to 5-lane, north-south highway that traverses the east side of the plan area of the proposed MTP/SCS through Sacramento, Placer and Sutter counties. The route connects automobile and truck traffic originating in the I-80 corridor (in the Roseville/Rocklin area) to the SR 70/99 corridor (in the Marysville/Yuba City area).

• State Route 70 (SR 70) is a 2 to 4-lane, north-south highway that travels the western side of the plan area of the proposed MTP/SCS through Sutter and Yuba counties. SR 70 currently travels through downtown Marysville as a local street.

• State Route 99 (SR 99) is the second largest regional facility in the plan area of the proposed MTP/SCS. SR 99 is a 2 to 8-lane north-south highway and freeway that traverses the central portion of the plan area of the proposed MTP/SCS through Sacramento and Sutter counties. SR 99 serves ten of the state’s urbanized areas, making it an important corridor in the Central Valley. The route also serves as a main access between several small cities and urban areas in Sacramento County.

16.2.2 Transit System

Local transit service in the region is currently provided by 12 public transit operators and two private non-profit Consolidated Transportation Services agencies of varied size and type of service, as shown in Figure 16-2, 43 miles of track, to very small systems. For example, the City of Auburn provides service with a fleet of only six vehicles.

For purposes of this report, transit services in the plan area of the proposed MTP/SCS were categorized by “service type.” Service type is defined according to unique combinations of right-of-way (e.g., exclusive vs. mixed with traffic), traction (rail/steel wheel vs. rubber tire), vehicle technology, and operational features like station or stop spacing and running speeds. As with roadway classifications, in some cases, actual transit service may include characteristics of more than one service type, and some “gray areas” between service types exist (e.g., between “light rail transit” and “streetcar”). Table 16-2 lists each service type and the 2016 levels of vehicle service hours (VSH) provided. The table is followed by more detailed descriptions of each service type.
Figure 16-1
Regional Major Highways

Source: Data compiled by SACOG in 2019
Table 16-2
Weekday Transit Revenue Service Hours by Service Type 2016 and 2040 Proposed MTP/SCS

<table>
<thead>
<tr>
<th>Service Types</th>
<th>2016</th>
<th>2040 MTP/SCS</th>
<th>Change from 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>#</td>
</tr>
<tr>
<td>Light Rail</td>
<td>301</td>
<td>385</td>
<td>+84</td>
</tr>
<tr>
<td>Tram/Streetcar</td>
<td>0</td>
<td>86</td>
<td>+86</td>
</tr>
<tr>
<td>Express Bus</td>
<td>336</td>
<td>826</td>
<td>+490</td>
</tr>
<tr>
<td>BRT/Fixed Route Bus</td>
<td>2,962</td>
<td>5,948</td>
<td>+2,986</td>
</tr>
<tr>
<td>Shuttle</td>
<td>369</td>
<td>907</td>
<td>+538</td>
</tr>
<tr>
<td>Regional Rail</td>
<td>26</td>
<td>57</td>
<td>+31</td>
</tr>
<tr>
<td>Regional Total</td>
<td>3,994</td>
<td>8,209</td>
<td>+4,215</td>
</tr>
</tbody>
</table>

Source: Data compiled by SACOG in July 2019

REGIONAL (INTERCITY) RAIL AND BUS SERVICE

Intercity rail service is an electric or diesel propelled railway for passenger train operated on a regular basis by Amtrak or under contract with a transit operator for transporting passengers between and within urbanized and outlying areas. Such rail service is generally characterized by multi-trip tickets, specific station-to-station fares, railroad employment practices, and considerable distance between stations. Intercity bus service is similar to intercity rail service except that it uses the highways system to transport passengers.

Within the plan area of the proposed MTP/SCS, Amtrak operates two intercity rail services – the Capitol Corridor and the San Joaquins routes. The Capitol Corridor has stations in Auburn, Rocklin, Roseville, Sacramento, and Davis, connecting Placer, Sacramento, and Yolo counties to stations in the San Francisco Bay Area. It operates 30 trains daily on weekdays, and 22 on weekends, and carried over 1.7 million passengers between Auburn and San Jose in 2018 (Capitol Corridor Joint Powers Authority 2019). The Capital Corridor service is supplemented by bus connections to Lake Tahoe, Reno, Redding, Eureka, and Santa Barbara. The Capitol Corridor was the fourth busiest Amtrak-operated route in the nation in 2018 (Amtrak 2019a).

The Amtrak San Joaquins route provides intercity rail service between the Bay Area and Sacramento and Bakersfield, with bus connections to Los Angeles, Redding, and Yosemite National Park. The Sacramento-to-Bakersfield segment has two daily round trips. Five daily round trips between Oakland/San Francisco and Bakersfield are also accessible by Sacramento and Elk Grove riders through Amtrak connecting buses. Amtrak buses also serve the Davis station to allow riders to connect to all San Joaquins trains. The San Joaquins route shares rail equipment, train crews, and maintenance facilities in Oakland with the Capitol Corridor. A planned Valley Rail improvement in the MTP/SCS will enable two San Joaquins round trips and up to five Altamont Corridor Express (ACE) round trips between Sacramento and the San Joaquin Valley. In addition, the Coast Starlight and California Zephyr trains pass though the region stopping in Davis, Sacramento, Roseville, and Colfax on their way from Seattle to Los Angeles and from Chicago to San Francisco, respectively.
Figure 16-2
2016 Transit Network
Greyhound Bus operates intercity bus services in the region to connect to a variety of local and national destinations. There are station stops in Colfax, Marysville, and Roseville with a major regional station in Sacramento at Richards Boulevard. The Richards Boulevard bus station connects with the Sacramento Regional Transit (SacRT) light rail station at Township 9. Greyhound offers regular service to San Francisco and Los Angeles from its Sacramento station. Private intercity bus service operators serving Sacramento include MegaBus (services to San Francisco and Reno/Sparks from the SacRT 65th Street light rail station) and FlixBus (services to San Francisco and Southern California from several locations around the Sacramento central city).

**LIGHT RAIL**

Light rail (LRT) is a rail system designed for operating in lighter-demand, urban environments. In the plan area, LRT operates with up to four-car trains on fixed rails in an exclusive right-of-way in some locations or mixed with street vehicle traffic in others. Light rail vehicles are typically driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. SacRT operates the only light rail service within the plan area of the proposed MTP/SCS. In general, LRT operates with station spacing one-half mile or more, and with maximum running speeds of about 55 miles-per-hour. The current system operated by SacRT is 43 miles and consists of Blue, Gold, and Green Lines. The Gold Line serves the US 50 corridor extending from downtown Sacramento to Folsom. The Blue Line serves the I-80 corridor northeast of downtown Sacramento and extends south of downtown to Cosumnes River College. The Green Line serves the Sacramento central city between Midtown Sacramento and the River District area just north of downtown.

**EXPRESS BUS**

Express bus service is typically operated over long distances with limited stops. Express buses typically travel on highways and freeways with extended “closed door” (i.e., no passengers boarding or alighting) distances. Operators providing express bus service to residents within the region, primarily to Downtown Sacramento, are:

- Yolobus
- Yuba-Sutter Transit
- Placer County Transit
- e-transit (Elk Grove)
- El Dorado Transit
- Roseville Transit.

Several transit operators provide express bus services to residents outside the MTP/SCS plan area, but to employment centers within the plan area. Examples of these operators are Fairfield and Suisun Transit, Amador Stage Lines, and San Joaquin Regional Transit District.

**FIXED-ROUTE BUS**

Fixed-route bus (or “local bus”) service is the largest share of bus transit services. Buses stop frequently along a route that is typically several miles long. This is the most common type of bus service in the plan area of the proposed MTP/SCS. Within the plan area of the proposed MTP/SCS, the following operators provide fixed-route service in the Sacramento or Yuba City/Marysville urbanized areas:
- City of Auburn – providing intra-city service;
- El Dorado County Transit – providing intra-city, intra-county, and commuter service to Sacramento;
- e-Tran – operated by SacRT, providing intra-city service and commuter service to Sacramento;
- Folsom Stage Line – operated by SacRT, providing intra-city service within the City of Folsom;
- Placer County Transit with service connecting I-80 communities, commuter service to Sacramento and the Regional Transit light rail stop at Watt Avenue and I-80, and community service within the City of Lincoln;
- Roseville Transit – operated by the City of Roseville, providing intra-city and commuter services to Sacramento;
- SacRT – the largest fixed-route transit provider in the plan area of the proposed MTP/SCS, with extensive service coverage across urban Sacramento County; Unitrans – operated jointly by the City of Davis and the Associated Students of University of California, Davis (UC Davis), providing intra-city service in Davis and the UC Davis campus;
- Yolobus – serving Davis, Woodland, West Sacramento, Downtown Sacramento, the Sacramento International Airport, and rural Yolo County;
- Unitrans—serving Davis and UC Davis, focusing on travel to and from the university; and
- Yuba-Sutter Transit – providing intra-city service in the Marysville/Yuba City area, intercity service to Live Oak, Wheatland and the Yuba foothills, and commuter service to Sacramento.

Transit service in the non-urbanized portion of Sacramento County includes South County Transit Link fixed route services linking the Cities of Elk Grove, Galt, Isleton, Lodi, Sacramento, and other Delta communities. Amador Transit provides additional fixed-route services that link Jackson and Sutter Creek in Amador County with Rancho Murieta, the 65th Street light rail station, and downtown Sacramento.

COMMUNITY SHUTTLES

Community shuttles provide short-distance transit service within a small geographic area and are often called circulator, feeder, neighborhood, trolley, or shuttle services. Shuttles often have a lower fare than local fixed route service, frequently operate in a loop and connect to major routes for travel to more outlying destinations. SacRT; California State University, Sacramento (CSUS); and North Natomas Jibe provide publicly operated shuttles in the plan area of the proposed MTP/SCS.

PARATRANSIT SERVICES

Paratransit services provide transportation service required by the Americans with Disabilities Act (ADA) of 1990 (42 U.S. Code 12101 et seq.) for seniors or individuals with disabilities who are unable to use fixed-route transit systems. Under federal law, paratransit services must be comparable in service-area coverage to fixed-route services in the same area. Paratransit services providers within the plan area of the proposed MTP/SCS include the following operators:

- Davis Community Transit - serving the City of Davis;
- El Dorado County Transit - serving El Dorado County;
Paratransit Inc., the largest paratransit provider in the plan area of the proposed MTP/SCS - providing door-to-door share-ride, subscription, and intermittent transportation service within the Sacramento Metropolitan area;

- Placer County Transit - serving the Rocklin/Loomis area, Granite Bay, and along the state Route 49 corridor;
- Roseville Transit Dial-A-Ride - serving the City of Roseville;
- South County Transit - providing service in the Galt area;
- Yolo County Transportation District ADA Service - serving Woodland, West Sacramento and intercity service needs throughout Yolo County and into Sacramento County; and
- Yuba Sutter Transit - serving the Marysville/Yuba City urban area.

Paratransit service is commonly operated as a form of demand responsive transit (discussed below).

**Demand Responsive Transit**

Demand responsive transit (DRT), also encompasses a variety of transit service products that provide on-demand service to passengers. Examples of DRT service types include point-deviation, route-deviation, and simple DRT (service area based) services. Micro-transit is a form of DRT. Typically, DRT requires a simple timepoint-based schedule or an advance bookings system to match passengers with vehicles. The City of West Sacramento and SacRT have introduced new DRT services within the last several years to augment fixed-route transit or provide transit coverage in lower demand transit markets.

The SacRT service is called SmaRT Ride and was initially launched in Citrus Heights in 2018. The service is curb-to-curb and allows rides to be booked by smart phone app, phone, or on-line reservation. The success of the initial service led to expansion into Antelope and Orangevale plus service in Franklin-South Sacramento. Other geographies will be considered in the future for this service.

The City of West Sacramento service was implemented in May 2018 and is also proving popular with users. The curb-to-curb service operates seven vans with six seats each. Rides can be booked using a smartphone app or by phone. Service hours have been expanded since initial roll out with current service available from 6 a.m. to 11 p.m. weekdays and 9 a.m. to 11 p.m. on Saturdays. On average, passengers experience an eight-minute wait time and eight-minute travel time with average trip lengths of about three miles per ride. Average weekday ridership has reached about 400 passengers and 3.46 passengers per driver hour.

**16.2.3 Bicycle and Pedestrian Network**

Bicycling and walking are active transportation modes. In addition to providing low-cost transportation, bicycling and walking contribute to community health and wellness and reduce congestion, regional GHG emissions, and other transportation-related pollutants. The SACOG region has a robust system of bicycling and walking facilities. A complete inventory is included the SACOG Regional Bicycle, Pedestrian, and Trails Master Plan published in 2015. The bicycle and pedestrian system currently (2016) serves almost four percent of all commuter trips and about 10 percent of all trips, as reported in Table 16-6 below.
BICYCLES

As of 2018, the Sacramento area bikeway network consists of over 495 miles of Class I multi-use pathways, 1,270 miles of Class II bike lanes, 216 miles of Class III signed bicycle routes, and two miles of Class IV separated bikeways (SACOG 2019a). A highlight of the regional bikeway system is the 23-mile American River Parkway trail. This Class I multi-use trail extends from Folsom to downtown Sacramento along the American River and is heavily used for recreation and commute travel. Figure 16-3 shows the cross-section of each type of bicycle facility, as further defined below.

Class I Shared Use Paths provide a completely separated right-of-way for non-motorized users such as bicycles, pedestrians, joggers, and skaters, with crossflows by motorists minimized. Shared or multi-use paths are often the most popular type of facilities because of their exclusive use by active transportation modes and separation from vehicles. Prime locations for bike paths are areas such as power-line easements, utility easements, canal banks, river levees, drainage easements, railroad or highway rights-of-way, or regional community parks.

Class II Bike Lanes usually consist of a portion of a roadway that has been set aside by striping and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are intended to promote an orderly flow of bicycle and vehicle traffic. This type of facility is established by using the appropriate striping, legends, and signs.

Class III Bike Routes are facilities shared with motor vehicle traffic. Bike routes must be of benefit to the bicyclist and offer a higher degree of service than adjacent streets. They provide for specific bicycle demand and may be used to connect discontinuous segments of bike lanes. Bike routes may also be located on residential streets and rural roads. If the pavement width is sufficient and traffic volume/speeds warrant, an edge line may be painted to further delineate the bike route.

Class IV Separated Bikeways (a.k.a., Cycle Tracks), provide a right-of-way for exclusive bicycle use adjacent to but separated and protected from vehicular traffic. Separation may be provided by grade differences, flexible posts, inflexible physical barriers, on-street parking, or other means. The barrier separation from vehicular traffic is intended to provide greater protection for cyclists using these bikeways, and thereby make them more attractive than Class II lanes or Class III routes.

In addition to paths, lanes, routes, and separated bikeways, secure and convenient parking and bus and rail bike accommodations are an important supporting part of regional bicycle infrastructure. The SacRT LRT system incorporates bicycle parking at 25 stations (SacRT 2019). SacRT also accommodates up to four bicycles inside each LRT car, and all SacRT buses have bicycle racks with capacity for two or three bicycles (SacRT). Additionally, Amtrak Capitol Corridor trains include two “bike cars” that can accommodate dozens of bicycles per train (Amtrak 2019b). Amtrak San Joaquin service accommodates six bicycles per train (Amtrak 2019c). Bicycle infrastructure is supplemented with a regional bikeshare system launched by SACOG and local partners in May 2018. Currently, JUMP is the sole vendor, operating and maintaining a fleet of electric-assist bicycles in the cities of Davis, Sacramento, and West Sacramento and on the UC Davis and CSUS campuses. Rides are available on a per-use basis or through a monthly subscription package. JUMP and Lime have both recently introduced scooters in the City of Sacramento and City of West Sacramento service areas. Finally, a pilot project is under way to test shared bikes in the Cities of Folsom, Rancho Cordova, and Elk Grove.

Figure 16-3
Bicycle Facility Classifications
PEDESTRIANS

Pedestrian facilities include multi-use paths, sidewalks, crosswalks, walkways, stairs, ramps, and building entranceways. By far, sidewalks are the most common type of public pedestrian facility and exist along streets in most of the urbanized areas of the plan area of the proposed MTP/SCS. Exceptions generally include rural areas or still developing areas where gaps in sidewalks occur due to undeveloped parcels or low potential for walking. The region has made a concerted effort over the past few years to improve the pedestrian system and continues to focus on the following types of improvements in modifying and expanding the system.

- Improved signals and signal timings to better accommodate pedestrians
- Improved accessibility to meet ADA requirements including curb cuts, wheelchair access, connected sidewalks, and surface overlays.
- Safety projects that improve pedestrian crossing locations, including high visibility sidewalks along all sides of intersections, advanced signing to alert drivers to pedestrians, pedestrian refuge islands and medians, and curb extensions to reduce crossing distances (SACOG 2015).

Aviation

The plan area of the proposed MTP/SCS contains 18 public use airports. While most of these are smaller airports for general aviation, the region also hosts Sacramento International Airport (commercial passenger and cargo service) and Mather Airport (commercial cargo service). Additionally, Beale Air Force Base is located within the plan area of the proposed MTP/SCS, approximately eight miles east of Marysville. Figure 16-4 shows the general aviation airports in the plan area of the proposed MTP/SCS.

Sacramento International Airport is owned by the County of Sacramento, occupies approximately 6,000 acres, and has two 8,600-foot runways (SACOG 2013). The airport is bordered by I-5 to the south and is also located 8 miles from I-80, 5 miles from CA-99, and ten miles from CA-113. The airport served 12 million annual passengers in 2018 (Sacramento County 2018a). The number of enplaned passengers is forecasted to increase by over 40 percent by 2035 (Sacramento County 2017). Service is available from twelve major air carriers (Sacramento County 2019).
Source: Data compiled by SACOG in 2019

Figure 16-4
General Aviation Airports in the Plan Area of the Proposed MTP/SCS
Mather Airport is also owned by the County of Sacramento. The airport is located approximately twelve miles from downtown Sacramento and one mile from US-50. Mather occupies 2,253 acres approximately 12 miles from downtown Sacramento and has two parallel runways, one 11,301 feet long and one 6,040 feet long. Mather serves cargo carriers, notably United Parcel Service (UPS), and general aviation (Sacramento County 2013). The region’s 16 local general aviation airports include (FAA 2019):

- Auburn Municipal
- Blue Canyon – Nyack
- Cameron Airpark
- Franklin Field
- Georgetown
- Lincoln Regional
- McClellan
- Placerville
- Rancho Murieta
- Rio Linda
- Sacramento Executive
- Sutter
- University
- Watts/Woodland
- Yolo County
- Yuba County

**Emerging Travel Options and Technology Changes**

Several new options for travel are emerging around the nation, including Sacramento: ride-sharing services (e.g. Uber, Lyft), food delivery services (e.g., Postmates, Grubhub, Uber Eats) car-sharing services (e.g. Zipcar, GIG, Turo), bike- and scooter-sharing (e.g., JUMP and Lime), parking-space-finding applications (e.g., SacPark, ParkMobile), demand responsive transit (e.g., West Sacramento On-Demand rideshare service and Sacramento Regional Transit SmartRide service), and autonomous transit (e.g., CSUS Olli shuttle).

Uber and Lyft are both increasingly prevalent in the region, Zip-Car has services focused on the CSUS campus, Downtown Sacramento, and UC Davis, GIG provides services throughout the Sacramento central city and adjoining neighborhoods, and JUMP is steadily growing its fleet of bicycles and scooters and expanding its service area (see Figure 16-5), and ridership has grown quickly.
Figure 16-5

JUMP Bikes/Scooters Service Areas in the Plan Area of the Proposed MTP/SCS
Though prevalent in conversation and highly visible due to their novelty, these new travel options are, at the moment, serving a very small percentage of trips in the plan area of the proposed MTP/SCS:

- The 2018 SACOG Household Travel Survey (2018 SACOG HTS) found that Uber and Lyft served about one-quarter of one percent of all weekday trips made by residents in the Sacramento Region. The 2017 National Household Travel Survey (2017 NHTS) for the Sacramento-Roseville-Arden-Arcade core area of the region revealed a weekday mode split of 0.31 percent (FHWA 2017). These estimates are comparable to results in other small-to-medium metropolitan areas in other similar surveys.

Based on the most recent data from Uber, JUMP bike ridership has reached 140,000 trips per month during summer months, and 100,000 trips per month during winter months. On a per-day basis, this is less than one-half of one percent of trips within the JUMP service area.

While current visibility is greater than their actual impact on travel in the region, these new travel options are likely to grow and can serve a much larger share of trips. Denser cities with much higher parking costs, like San Francisco, have weekday mode splits closer to 1.5 percent or higher for Uber, Lyft and other ride-hailing services. These higher estimates point to the potential growth of these services as the region grows.

Beyond new travel options, emerging vehicle technology will influence travel behavior and safety. For example, smart phone applications such as Google Maps and Waze better inform travelers regarding travel options, comparative costs, and travel routes. Safety technology on some new vehicles, such as assisted braking and lane guidance on some new vehicles, will likely be standard equipment by 2040, leading to fewer collisions. Narrower lanes and shoulders may become more feasible due to these technology advancements reducing the need for physical capacity expansions. If collisions decline as expected, congestion would also be reduced since incidents and collisions are significant causes of congestion.

### 16.2.4 Goods Movement

The major urbanized areas of the Sacramento region require millions of tons of goods each year to maintain economic activities and quality of life. Further, the nature of travel demand is shifting -- more goods are being delivered directly to the home due to the convenience of internet shopping. Wholesale and retail trade, transportation, and manufacturing support over 202,700 jobs in the region according to statistics provided by the state’s Employment Development Department (EDD 2019). Located at the center of the Central Valley, a major agricultural region, the transport of agricultural commodities from farm to market is also a vital function for the regional economy. Therefore, freight transportation is essential for the region’s consumers and businesses.

Goods are transported by rail, air, truck, auto, and ship into, out of, and through the plan area of the proposed MTP/SCS, although pipelines also carry products such as fuel. An international port of entry is also located at the Sacramento International Airport (U.S. Customs and Border Protection 2019). The goods movement system includes not only highways, railroads, sea lanes, and airways, but also truck terminals, railyards, warehousing, and other facilities serving these transportation routes. For goods traveling within the plan area of the proposed MTP/SCS, about 96 percent of freight tonnage is carried by truck, and the remainder by other modes. For goods originating or destined for the region, but with the other end of trip outside the region, the mode share mix is still
77 percent of the tonnage is carried by trucks, and the remainder by other modes. For goods traveling through the region, only 45 percent is by truck, 22 percent by rail, 14 percent by pipeline, and the remaining 19 percent by other modes. Almost all goods delivered to final destinations in the plan area involve trucks or autos. Table 16-3 contains the detailed breakdown of tonnage by mode.

### Table 16-3
Mode Share by Tonnage of Goods Transported in Caltrans District 3

<table>
<thead>
<tr>
<th>Mode</th>
<th>All Goods To, From &amp; Through District</th>
<th>Goods Within District</th>
<th>Goods to/from District &amp; Points Outside District</th>
<th>Goods Passing Through District</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>68%</td>
<td>96%</td>
<td>77%</td>
<td>45%</td>
</tr>
<tr>
<td>Water</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air (incl. truck&gt;air)</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple Modes &amp; Mail</td>
<td>7%</td>
<td>4%</td>
<td>23%</td>
<td>19%</td>
</tr>
<tr>
<td>Other, Unknown</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipeline</td>
<td>7%</td>
<td></td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>Rail</td>
<td>11%</td>
<td></td>
<td></td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Total Tonnage (in millions)</td>
<td>273</td>
<td>55.9</td>
<td>103.6</td>
<td>114</td>
</tr>
</tbody>
</table>


An important change in freight movement over the past few years has been the increasing amount of internet shopping. The combination of internet shopping and the e-commerce system that supports it has altered traditional travel demand. One of the reasons people travel is to obtain goods and services. Today, goods and services are routinely delivered directly to users including food delivery within minutes of ordering and commerce from many major retailers within two hour, same-day, next-day, and two-day shipping windows. According to Professor Jose Holguin-Veras, director of the Center of Excellence for Sustainable Urban Freight Systems at New York's Rensselaer Polytechnic Institute, the number of daily freight deliveries per person in the U.S. has increased from about 0.12 in 2009 to 0.25 (TIME 2018). This rate is expected to double by 2023. In response to growing demand and faster delivery times, delivery vehicle options have expanded to include passenger cars and experimentation with drones and small robot vehicles operating on sidewalks.

### MEDIUM AND HEAVY-DUTY TRUCKS

One of the key components of the region's goods movement system is the fleet of medium- and heavy-duty trucks, defined as cargo-carrying vehicles with a gross weight rating in excess of 8,500 pounds (by the U.S. Environmental Protection Agency [EPA]) or 10,000 pounds (by the Federal Highway Administration [FHWA]) (DOE 2012). Trucks provide a vital link in the distribution of all types of goods between the region’s airports, seaport, railroads, warehouses, factories, farms, construction sites and stores.

The industry uses the public highway system for over-the-road and local service. I-80 is the major east-west freeway through the Sacramento region, not only facilitating goods movement to and from the region but also connecting the ports and industry of the San Francisco Bay Area to much of the rest of the country. I-5 and SR 99 are the two major north-south corridors serving the region, facilitating goods movement through the Central Valley and connecting the Sacramento region to...
the rest of the state, the Pacific Northwest, and Mexico and Canada. Figure 16-6 shows the Goods Movement Routes for trucks in the plan area of the proposed MTP/SCS.

While trucks are essential to the goods movement for the region, they also create conflicts with neighbors when operated on roadways not designated for trucks, contribute to freeway and highway congestion, and contribute to air pollutant and GHG emissions.

**Passenger Vehicles Used for Goods Movement**

To help complete the last mile of freight delivery, especially to individual homes, internet shopping businesses such as Amazon have developed networks that rely on passenger vehicles and light-duty trucks and vans. The increase in deliveries to homes is occurring at the same time trips from home for shopping, recreation, or other purposes is declining according to analysis of the 2017 NHTS by Fehr & Peers. Whether the declines offset the new increases in passenger vehicle trips for goods delivery is uncertain; however, one estimate of passenger vehicle VMT changes in California based on gasoline fuel sales prepared by the California Air Resources Board (CARB) reveals that VMT per capita has been increasing since about 2011 (CARB 2018a). This increase may, in part, be due to increased goods delivery in passenger vehicles but other contributors could be higher levels of visitors in California, more auto drivers, and lower fuel prices.

**Rail Transport**

The Sacramento region is served by both major railroads and shortline railroads, shipping products such as motor vehicles, lumber, chemicals, petroleum, agricultural products, cement, and aggregate. These railroads shipped 104 million tons of freight into California and 63 million tons of freight out of California in 2017 (AAR 2019).

The Union Pacific Railroad (UPRR) is the largest Class 1 railroad serving the region. The UPRR links the Sacramento area to the rest of California and other United States regions, Mexico, and Canada, both directly via its major north/south and east/west lines passing through the region and via their connections with other railroads. The UPRR’s Roseville Yard is the largest rail facility on the West Coast and handles approximately 98 percent of all rail traffic moving through Northern California. The yard occupies 915 acres and includes a repair facility. An additional Class 1 railroad, BNSF Railway, also operates in the region through UPRR track rights (BNSF Railway 2014).

The Sierra Northern Railway is a shortline railroad with 17 miles of track between West Sacramento and Woodland. The railway connects customers to the UPRR and BNSF railways via its interchange location in West Sacramento. The railway also serves the Port of Sacramento. The railway serves both freight and excursion train (via the Sacramento River Train) customers (SNR 2015).

Genesee & Wyoming owns the California Northern Railroad, which operates 256 miles of track in Northern California. This shortline railroad connects customers in Northern California to Sacramento and San Francisco Bay Area via links to the UPRR in Davis. The railway serves freight customers (Genessee and Wyoming, Inc. 2015).

Patriot Rail operates the Sacramento Valley Railroad, which supports seven miles of tracks within McClellan Business Park, where it interchanges traffic with the UPRR and BNSF. The railway serves freight customers (Patriot Rail 2019).
Figure 16-6
Goods Movement Routes
In addition to shipping other agricultural, commercial, and industrial goods, the region’s rail network also handles crude oil shipments. These shipments, connecting production fields in California, the rest of the U.S., and Canada to refineries and ports on the coast, are expected to grow in coming years with increasing North American oil production. In response to concerns about possible dangers from such shipments, including explosions and spills, state officials have requested the railroads handling these shipments provide plans showing that they can clean up any spills (Sacramento Bee 2014).

**Air Freight**

Air freight also arrives and departs the plan area of the proposed MTP/SCS through two major cargo airports, Sacramento International and Mather. While the data above based on a 2011 regional study showed air carrying about 300,000 tons of freight to/from/through the region, more recent information shows that the air service carried just under 197,000 tons. In 2018, Sacramento International handled 120,000 tons of freight and Mather handled 77,000 tons of freight. Additionally, Sacramento International handled 6,700 tons of airmail in 2018 (Sacramento County 2018b). UPS is the primary cargo carrier serving Mather.

**Maritime Port**

The inland Port of West Sacramento, managed by the City of West Sacramento, is located near the center of the Sacramento metropolitan area and thus also the Central Valley agricultural region. The port is connected to Suisun Bay and San Francisco by the 40-mile long, 30-foot deep Deep Water Ship Channel (City of West Sacramento 2015). The port is the primary handler of the region’s rice exports and handles other agricultural and industrial bulk products. As of 2012, the port averaged approximately 320,000 tons of cargo annually (Port of West Sacramento 2013).

**16.2.5 Existing Conditions: Transportation Performance Measures**

Regional conditions for select performance indicators form the basis for the transportation impacts analysis presented in this EIR. These indicators include VMT, shares of transit and non-motorized trips, transit productivity, and miles of bicycle and pedestrian routes. These indicators have been important performance measures throughout the development of the proposed MTP/SCS, and all relate directly to the performance of the region’s transportation system. The discussion below includes historical context on travel trends in the plan area of the proposed MTP/SCS related to VMT and mode split shares. More details on each indicator are included in the impact analysis section. In addition to these metrics, information is summarized below about the aviation and goods movement components of the transportation system.

**Vehicle Miles Traveled**

A “VMT” is one vehicle traveling on a roadway for one mile. Regardless of how many people are traveling in the vehicle, each vehicle traveling on a roadway within the Sacramento region generates one VMT for each mile it travels. For the purposes of this EIR, VMT is estimated and projected for a typical weekday. The efficacy of this measure is as a result of several factors:
VMT is relatively easy to measure by counting traffic on roadways at different locations. It is one of the few measures of transportation performance that has been consistently and comprehensively monitored and documented over time in the Sacramento region.

VMT bears a strong and direct relationship to vehicle emissions, although this relationship is becoming more complex as vehicular technologies evolve. State and federal policies pertaining to vehicle efficiency and formulation of vehicle fuels suggest that on a per VMT basis, emissions for most pollutants and GHGs will decline relative to today. However, even with these per VMT improvements due to fuel and vehicle technology changes, lower VMT will mean lower emissions.

VMT can be influenced by policy in a number of different ways. By providing more attractive alternatives to driving alone, VMT can be reduced by shifting from vehicle to non-vehicle modes (i.e., from a car trip to a bike or walk trip), or from low occupancy to HOVs (i.e., from a single-occupant vehicle trip to a carpool or transit trip). VMT can be influenced by land use patterns as well. A better mix of residential, employment, education, and service uses in an area can allow people to accomplish their daily activities with less driving, and consequently less VMT. Locating land uses in closer proximity to each also makes walking and bicycling more viable, while also making transit more effective.

As displayed in Table 16-4, VMT per capita increased by 3.1 percent from 2012 to 2016 while the region’s population continued to increase for the same period (7.3 percent). This trend can at least in part be attributed to the improving economy and associated travel since the 2008/09 recession.

<table>
<thead>
<tr>
<th>County</th>
<th>Daily VMT (thousands)</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2012</td>
</tr>
<tr>
<td>El Dorado¹</td>
<td>3,801</td>
<td>3,848</td>
</tr>
<tr>
<td>Placer¹</td>
<td>8,502</td>
<td>8,605</td>
</tr>
<tr>
<td>Sacramento</td>
<td>31,835</td>
<td>32,937</td>
</tr>
<tr>
<td>Sutter</td>
<td>2,444</td>
<td>2,283</td>
</tr>
<tr>
<td>Yolo</td>
<td>5,489</td>
<td>5,710</td>
</tr>
<tr>
<td>Yuba</td>
<td>1,787</td>
<td>1,765</td>
</tr>
<tr>
<td>Region</td>
<td>53,859</td>
<td>55,148</td>
</tr>
<tr>
<td>Pop. (thousands)²</td>
<td>2,215</td>
<td>2,268</td>
</tr>
<tr>
<td>VMT per Capita²</td>
<td>24.3</td>
<td>24.3</td>
</tr>
</tbody>
</table>

Notes:
¹Includes VMT from all sources (household-generated, commercial and external) on all roadways within the SACOG region. Estimates from California Public Road Data (CPRD) reports, adjusted to exclude Tahoe Basin portions of El Dorado and Placer County.
²Only the portions of Placer and El Dorado County outside the Tahoe Basin are reported.

Sources: Data compiled by SACOG in July 2019; Caltrans 2008-2016

TRAVEL BY BICYCLING, WALKING, AND TRANSIT

Table 16-5 provides data and estimates on travel by walking, biking, and transit in the region. The commuter travel estimates are survey data from the American Community Survey. These data show
that mode shares have remained relatively stable since 2008 although bicycling has increased notably while carpooling has declined. The other key change is that working at home has increased.

**Table 16-5**
Transit and Non-Motorized Weekday Mode Shares in the SACOG Region, 2008-2016

<table>
<thead>
<tr>
<th>Mode of Travel</th>
<th>2008</th>
<th>2012</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commuter Travel</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Workers</td>
<td>1,020,500</td>
<td>968,200</td>
<td>1,023,200</td>
</tr>
<tr>
<td>Drive-Alone Commuters</td>
<td>767,200</td>
<td>729,500</td>
<td>782,100</td>
</tr>
<tr>
<td>Carpool Commuters</td>
<td>126,700</td>
<td>110,800</td>
<td>105,700</td>
</tr>
<tr>
<td>Public Transit Commuters</td>
<td>26,100</td>
<td>24,800</td>
<td>26,000</td>
</tr>
<tr>
<td>Bicycle Commuters</td>
<td>14,900</td>
<td>17,000</td>
<td>17,400</td>
</tr>
<tr>
<td>Walk Commuters</td>
<td>21,600</td>
<td>20,500</td>
<td>21,400</td>
</tr>
<tr>
<td>Combined Bicycle and Walk Commuters</td>
<td>36,500</td>
<td>37,600</td>
<td>38,800</td>
</tr>
<tr>
<td>Worked at Home</td>
<td>51,000</td>
<td>55,100</td>
<td>57,600</td>
</tr>
<tr>
<td><strong>Mode Shares</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive-Alone</td>
<td>75.2%</td>
<td>75.3%</td>
<td>76.4%</td>
</tr>
<tr>
<td>Carpool</td>
<td>12.4%</td>
<td>11.4%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Public Transit</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>1.5%</td>
<td>1.8%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Walk</td>
<td>2.1%</td>
<td>2.1%</td>
<td>2.1%</td>
</tr>
<tr>
<td>Combined Bicycle and Walk</td>
<td>3.6%</td>
<td>3.9%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Worked at Home</td>
<td>5.0%</td>
<td>5.7%</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

1 SACOG, based on data from the American Community Survey 3-year sample data releases for 2008, 2012, and 2016. Data shown are 6-county totals, including Tahoe Basin.  
Source: Data compiled by SACOG in July 2019

Table 16-6 provides recent information on mode of commute for residents in the SACOG region. Mode of travel varies significantly, based on the type of area where the resident lives. For example, the non-auto share of person trips (including every mode, except driving alone or carpooling) accounted for nearly 21 percent of all trips for residents of Center and Corridor communities, but 11 percent for residents of Developing and Rural communities. The majority of this difference is accounted for by the walk mode, which accounts for 14 percent of person trips in Center and Corridor communities, but only 6 percent in Developing and Rural communities. Some of the factors related to these differences are discussed in greater detail in this chapter in the “Methods and Assumptions” section, but the key factors are: more activities clustered closer to residences in Center and Corridor communities, and street patterns and pedestrian facilities (e.g., sidewalks) are more supportive of walking and biking. Also, transit service is more prevalent in Center and Corridor communities.

Recent trends in transit ridership are shown in Table 16-7. The decline in ridership in transit has been a topic of great interest in the U.S., and in the SACOG region as well. From 2008 to 2016, transit ridership in the region has declined 16 percent in total, and 22 percent on a per capita basis. Note that these figures are for all thirteen fixed route transit providers—ridership losses are higher for some operators and lower for others. Two factors impacting these declines are illustrated on the table: provision of transit service in the region, and the cost of driving in the region. On a per capita basis, transit service hours declined by 19 percent from 2008 to 2012, and increased by 10 percent.
from 2012 to 2016. Overall, service declined by 10 percent from 2008 to 2016. Over that same time period, the average price of a gallon of gasoline declined by 31 percent, from $4.08 to $2.81, adjusted for inflation, and many transit operators increased transit fares. The increase of transportation network companies (TNCs) and micro-mobility are additional factors that may account for some part of the ridership decline.

### Table 16-6

<table>
<thead>
<tr>
<th>Community Type</th>
<th>Center &amp; Corridor</th>
<th>Established</th>
<th>Developing</th>
<th>Rural</th>
<th>Regional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Alone</td>
<td>42.5%</td>
<td>40.7%</td>
<td>52.6%</td>
<td>60.1%</td>
<td>42.4%</td>
</tr>
<tr>
<td>Carpool</td>
<td>40.4%</td>
<td>47.1%</td>
<td>38.9%</td>
<td>33.9%</td>
<td>45.4%</td>
</tr>
<tr>
<td>Walk</td>
<td>11.5%</td>
<td>7.5%</td>
<td>5.7%</td>
<td>1.3%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Bike</td>
<td>2.5%</td>
<td>2.5%</td>
<td>0.8%</td>
<td>0.1%</td>
<td>2.3%</td>
</tr>
<tr>
<td>School Bus</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.2%</td>
<td>0.9%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Transit</td>
<td>2.0%</td>
<td>1.0%</td>
<td>1.7%</td>
<td>0.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>TNC/Taxi</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.0%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Other</td>
<td>0.6%</td>
<td>0.8%</td>
<td>0.1%</td>
<td>2.9%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Non-SOV Share</td>
<td>57%</td>
<td>59%</td>
<td>47%</td>
<td>40%</td>
<td>58%</td>
</tr>
<tr>
<td>Transit/Bike/Walk Share</td>
<td>16%</td>
<td>11%</td>
<td>8%</td>
<td>2%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Note: 10ths of percentages are shown in the mode breakdown, purely to capture the relative magnitude of some of the modes showing less than one percent in the survey results. 10ths of percentages are below the margin of error for the survey results.

Source: Data compiled by SACOG in August 2019. Based on 2018 SACOG Household Travel Survey, filtered to typical weekdays, weighted results.

### Table 16-7

<table>
<thead>
<tr>
<th>Indicator (all in 1000's)</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
</tr>
<tr>
<td>Annual Vehicle Service Hours</td>
<td>1,326</td>
</tr>
<tr>
<td>Annual Passenger Boardings</td>
<td>40,951</td>
</tr>
<tr>
<td>Population (in 1000's)</td>
<td>2,215</td>
</tr>
<tr>
<td>Boardings per Capita</td>
<td>18.5</td>
</tr>
<tr>
<td>VSH per Capita</td>
<td>0.60</td>
</tr>
<tr>
<td>Average Price of Gasoline (2017)</td>
<td>$4.08</td>
</tr>
</tbody>
</table>

1 National Transit Database and Triennial Performance Audits, 2008-2016. For all operators of fixed route service in SACOG region.

2 Data compiled by SACOG in July 2019

3 Data compiled by SACOG in July 2019. Based on California Energy Commission weekly spot price data, aggregated to yearly, and adjusted for inflation to 2017 dollars base on Wester States Urban CPI.
AVIATION

An important air transportation performance measure is passengers served. In 2018, Sacramento International Airport enplaned 6,031,630 passengers and deplaned 6,019,133 passengers (Sacramento County 2018b). Approximately 261,520 of these passengers were from international flights, which nearly tripled compared to 2012, while domestic flights increased nearly 34 percent. International flights are projected to continue growing and overall forecast trends indicate that total demand may reach 8.5 million annual enplaned passengers by 2035 (Sacramento County 2017).

GOODS MOVEMENT

With trucks being the predominant goods movement mode, their volume on regional roadways is an important metric to monitor. Table 16-8 shows truck traffic volumes on key freeways in the SACOG region. I-5 carries the highest volume of trucks in the region followed by SR 99.

<table>
<thead>
<tr>
<th>Interstate/Highway</th>
<th>Vehicle Average Annual Daily Traffic (AADT)</th>
<th>All Truck AADT</th>
<th>All Truck %</th>
<th>3+ Axle % of All Trucks</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-5 at I Street (City of Sacramento)</td>
<td>190,800</td>
<td>18,320</td>
<td>10%</td>
<td>77%</td>
</tr>
<tr>
<td>I-5 at SR-113 (City of Woodland)</td>
<td>38,200</td>
<td>8,160</td>
<td>21%</td>
<td>92%</td>
</tr>
<tr>
<td>SR-20 at Acacia (City of Yuba City)</td>
<td>9,700</td>
<td>450</td>
<td>5%</td>
<td>62%</td>
</tr>
<tr>
<td>US-50 at SR-16 (City of Sacramento)</td>
<td>189,000</td>
<td>4,740</td>
<td>3%</td>
<td>54%</td>
</tr>
<tr>
<td>SR-51 at US-50/SR-99 (City of Sacramento)</td>
<td>146,500</td>
<td>5,430</td>
<td>4%</td>
<td>63%</td>
</tr>
<tr>
<td>SR-70 at Yuba/Butte County Line</td>
<td>13,900</td>
<td>900</td>
<td>6%</td>
<td>77%</td>
</tr>
<tr>
<td>I-80 at US-50 (City of West Sacramento)</td>
<td>86,500</td>
<td>8,640</td>
<td>10%</td>
<td>63%</td>
</tr>
<tr>
<td>I-80 at I-5 (City of Sacramento)</td>
<td>143,900</td>
<td>8,250</td>
<td>6%</td>
<td>68%</td>
</tr>
<tr>
<td>I-80 at Clipper Gap (Placer County)</td>
<td>42,000</td>
<td>6,360</td>
<td>15%</td>
<td>68%</td>
</tr>
<tr>
<td>SR-99 at US-50/SR-99 (City of Sacramento)</td>
<td>231,700</td>
<td>10,450</td>
<td>5%</td>
<td>69%</td>
</tr>
<tr>
<td>SR-99 at Elverta Rd. (Sacramento County)</td>
<td>47,100</td>
<td>4,520</td>
<td>10%</td>
<td>56%</td>
</tr>
</tbody>
</table>

Source: Caltrans 2016

16.3 Regulatory Setting

16.3.1 Federal Regulations

Fixing America’s Surface Transportation

The Fixing America’s Surface Transportation (FAST) Act was signed into law on December 4, 2015 and legislates U.S. transportation funding and set expectations for metropolitan transportation planning. In general, FAST continues all the metropolitan planning requirements that were in effect under the previous federal legislation, Moving Ahead for Progress in the 21st Century Act (MAP-21).
Under MAP-21, the U.S. Department of Transportation (DOT), FHWA, and Federal Transit Administration (FTA) require that metropolitan planning organizations (MPOs) prepare and submit long-range transportation plans. In regions that are designated federal air quality non-attainment areas, these plans must be updated at least every four years. The federal requirements for metropolitan transportation plans include the following (23 U.S. Code Section 134(j)):

- **Transportation facilities.** An identification of transportation facilities (including major roadways, transit, multimodal and intermodal facilities, and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions.

- **Mitigation activities.** A long-range transportation plan shall include a discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the plan. The discussion shall be developed in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies.

- **Financial plan.** A financial plan that demonstrates how the adopted transportation plan can be implemented, indicates resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends any additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the adopted transportation plan if reasonable additional resources beyond those identified in the financial plan were available. For the purpose of developing the transportation plan, the metropolitan planning organization, transit operator, and state shall cooperatively develop estimates of funds that will be available to support plan implementation.

- **Operational and management strategies.** Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods.

- **Capital investment and other strategies.** Capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs.

- **Transportation and transit enhancement activities.** Proposed transportation and transit enhancement activities.

According to the FHWA Fact Sheet for the FAST Act (https://www.fhwa.dot.gov/fastact/factsheets/metropolitanplanningfs.cfm), the following changes or emphasis were added to MAP-21 expectations:

**Scope of Planning Process**

The FAST Act expands the scope of consideration of the metropolitan planning process to include:

- improving transportation system resiliency and reliability;
- reducing (or mitigating) the stormwater impacts of surface transportation; and
- enhancing travel and tourism. [23 U.S. Code 134(h)(1)(I) & (J)]
Capital Investment and Other Strategies

The FAST Act continues to require a metropolitan transportation plan to include strategies to meet current and projected transportation infrastructure needs. [23 U.S. Code 134(i)(2)(G)]

Resilience and Environmental Mitigation Activities

The FAST Act expands the focus on the resiliency of the transportation system as well as activities to reduce stormwater runoff from transportation infrastructure. In addition, it newly requires strategies to reduce the vulnerability of existing transportation infrastructure to natural disasters. [23 U.S. Code 134(d)(3) & (i)(2)(G)]

Transportation and Transit Enhancement Activities

The FAST Act continues to require a metropolitan transportation plan to include transportation and transit enhancement activities. When proposing these activities, the plan must now include—

- consideration of the role that intercity buses may play in reducing congestion, pollution, and energy consumption in a cost-effective manner; and
- strategies and investments that preserve and enhance intercity bus systems (including those that are privately owned and operated. [23 U.S. Code 134(i)(2)(H)]

Participation by Interested Parties In the Planning Process

The FAST Act explicitly adds public ports and certain private providers of transportation, including intercity bus operators and employer-based commuting programs to the list of interested parties that an MPO must provide with reasonable opportunity to comment on the transportation plan. [23 U.S. Code 134(i)(6)(A)]

Congestion Management

The Congestion Management Process (CMP) is a collaboratively developed set of objectives, performance metrics, and strategies the Sacramento region will use to monitor and manage traffic congestion on select roadways that comprise its CMP network. The Federal Highway Administration (FHWA) requires all metro regions with a population of more than 200,000 to maintain a CMP. SACOG’s CMP will be part of its metropolitan transportation plan (MTP) and bring several benefits, including:

- Providing a system to quantitatively monitor the region’s progress toward MTP goals,
- Identifying and prioritizing cost-effective, multi-modal strategies to address congestion, and
- Aligning specific congestion management projects and strategies with MTP policies.

SACOG’s current CMP work involves developing a methodology to measure, monitor and manage congestion and reliability on the regionally significant roadways across the SACOG region. It will incorporate data from the National Performance Measurement Research Data Set, which provides detailed vehicle speed information based on data collected from millions of GPS-enabled mobile devices. SACOG is developing its CMP measurements and methodology to align with the federal MAP 21 and FAST Acts.
16.3.2 State Regulations

State requirements for long-range transportation plans are similar to the federal regulations. However, key additional requirements described in Government Code Section 65080 include:

- compliance with CEQA;
- consistency with state Transportation Improvement Program;
- use of program level performance measures that include goals and objectives;
- inclusion of a policy element, an action element, and a financial element; and
- inclusion of a Sustainable Communities Strategy for MPOs (see Senate Bill [SB] 375 discussion below).

CALIFORNIA TRANSPORTATION COMMISSION REGIONAL TRANSPORTATION PLAN GUIDELINES

The California Transportation Commission (CTC) publishes and periodically updates guidelines for the development of long-range transportation plans, such as SACOG’s MTP/SCS. Pursuant to Government Code Section 65080(d), each regional transportation planning agency (RTPA) is required to adopt and submit an updated regional transportation plan (RTP) to CTC and Caltrans every four years. SACOG is the designated RTPA for Sacramento, Yolo, Sutter, and Yuba counties. The El Dorado County Transportation Commission (EDCTC) and the Placer County Transportation Planning Agency (PCTPA) are the RTPAs for their respective counties.

Under Government Code Section 14522, the CTC is authorized to prepare guidelines to assist in the preparation of RTPs. The most recent update to the RTP guidelines was published in 2017, and includes separate guidance for RTPAs and MPOs and new checklists for RTP content. See Appendix E: Plan Performance in the proposed MTP/SCS.

CEQA STREAMLINING

SB 226 (Stats. 2011, ch.469) revises the CEQA Guidelines to set forth a streamlined review process for infill projects, including performance standards to determine an infill project’s eligibility for that streamlined review. One of the requirements for streamlined review is that the project be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy.

SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT

California’s Sustainable Communities and Climate Protection Act (SB 375) (Stats. 2008, ch.728) requires MPOs to prepare a sustainable communities strategy (SCS) that demonstrates how the region will meet its GHG per capita emissions reduction targets through integrated land use, housing, and transportation planning. Specifically, the SCS must identify a transportation network that is integrated with the forecasted development pattern for the plan area and will reduce GHG emissions (over a 2005 base year) from automobiles and light trucks in accordance with targets set by CARB. In March 2018, CARB established new GHG emissions reduction targets for all MPOs in the state. SACOG’s GHG emissions reduction target for Year 2035 was increased from 16 percent to 19 percent (CARB 2017a; see Chapter 8 for more detailed discussion on the SACOG SB 375 target). While increasing the SB 375 targets, CARB also noted that the increase fell short of what
was needed to fully achieve state goals on GHG emissions reduction and climate change mitigation. In combination, the staff report and presentation materials to the CARB Board show that in total, the revised SB 375 GHG emissions reduction targets for all of the state’s MPOs would result in a statewide reduction of 19 percent (compared to 18 percent from the prior SCS achievement), but that a 25 percent reduction was needed to fully meet the GHG emissions reduction goals of the Scoping Plan (CARB 2018b). The difference between the 19 percent resulting from CARB’s updated SB 375 targets and the 25 percent identified need is referred to in other various CARB documents as the “gap.”

In the SB 375 target resetting, CARB recognized that additional state action was needed to close this gap. “The recommended targets also recognize that additional State policy and funding tools are being developed to support further VMT reduction that will both help the State overall in achieving needed emission reductions and support MPOs in their ability to achieve higher targets by 2035.” The categories of state action to accomplish this, with help of MPOs and other organizations, were: funding mechanisms to incentivize infill development; improved performance analysis to assist agencies in funding supportive transportation projects; expanding investment in transit and active transportation; and pricing policies and programs. A common theme to all the additional actions is the focus on VMT reduction.

Two additional state documents provide context for understanding how these GHG emissions reduction targets relate to the transportation issues discussed in this chapter. One is the Scoping Plan itself, which also recognizes that statewide collaboration is needed to address the gap; and further, that the gap in GHG emissions reductions would be closed through VMT reduction strategies (CARB 2017b):

Discussions among a broad suite of stakeholders from transportation, the building community, financial institutions, housing advocates, environmental organizations, and community groups are needed to begin the process to pursue and develop the needed set of strategies to ensure that we can achieve necessary VMT reductions, and that the associated benefits are shared by all Californians. Appendix C further details potential actions for discussion that can be taken by State government, regional planning agencies, and local governments, to achieve a broad, statewide vision for more sustainable land use and close the VMT gap.

The second document, published by CARB in January 2019, provided additional detail on the scope of the challenge, and its relationship to CEQA (CARB 2019):

An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050. This means that SB 375 targets are not stand-alone CEQA thresholds for GHG or transportation impact analysis (though SCS compliance may nonetheless entitle projects to certain CEQA exemptions or streamlining procedures pursuant to statute). In other words, a project that is consistent with an SCS may be eligible for certain exemptions, but compliance does not necessarily more broadly imply consistency with state climate goals nor with science-based GHG reduction targets, in CARB staff’s non-binding view. Some land use development projects contemplated in an SCS that will be operational in 2030 and 2050 will be consistent with state climate goals, and SB 375 defines project circumstances under which CEQA streamlining is available to qualified projects consistent with an SCS. Other projects may
need to consider additional mitigation measures to further reduce per capita light-duty transportation-related GHG emissions to levels that would not conflict with state climate goals. Likewise, certain transportation infrastructure projects that will be operational in 2030 and 2050 that substantially increase VMT may conflict with state climate goals, even if they are included in an SCS that meets the applicable SB 375 targets.

Setting aside the historic base years for the Scoping Plan (Year 1990) and for SB 375 (Year 2005), CARB focused on the VMT reductions needed over current conditions (2015-2018) to meet the state’s 2030 and 2050 climate goals. CARB concluded that a 14.3 percent reduction in daily VMT per capita and a 16.8 percent reduction in light-duty VMT per capita was needed to meet these goals.

**Senate Bill 743 Vehicle Miles Traveled Analysis (Public Resources Code Section 21099)**

SB 743 (Stats. 2013, ch. 386) resulted in several statewide CEQA changes. It required the Governor’s Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected VMT as the preferred transportation impact metric and applied their discretion to require its use statewide. This legislation also established that aesthetic and parking effects of a residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement this legislation became effective on December 28, 2018, and state that vehicle level of service (LOS) and similar measures related to delay shall not be used as the sole basis for determining the significance of transportation impacts, and that as of July 1, 2020, this requirement shall apply statewide, but that until that date, lead agencies may elect to rely on VMT rather than LOS to analyze transportation impacts. Finally, the legislation establishes a new CEQA exemption for a residential, mixed-use, and employment center project a) within a TPA, b) consistent with a specific plan for which an EIR has been certified, and c) consistent with an SCS. This exemption requires further review if the project or circumstances change significantly.

To aid in SB 743 implementation, the following state guidance has been produced.

- Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018);
- The aforementioned 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals (CARB 2019); and

Of these documents, the California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals is most relevant for transportation impact analysis of the proposed MTP/SCS. It provides recommendations for VMT reduction thresholds that would be necessary to achieve the state’s GHG reduction goals and acknowledges that the SCS targets alone are not sufficient to meet climate goals.
16.3.3 Local Regulations

REGIONAL TRANSPORTATION PLANNING AGENCIES AND OTHER SUB-REGIONAL AGENCIES

Within the SACOG region are several sub-regional agencies that oversee some planning, programming, and administration functions related to planned transportation improvements. These sub-regional agencies coordinate directly with local agencies in their geographic part of the SACOG region. In some cases, these sub-regional agencies also provide transportation services, such as transit. These sub-regional agencies include:

- **PCTPA** – This agency is designated in state law as the RTPA for Placer County. PCTPA is also the county’s Congestion Management Agency (CMA), a statutorily designated member of the Capitol Corridor Joint Powers Authority, and the airport land use planning body and hearing board for Lincoln, Auburn, and Blue Canyon Airports. As part of their Joint Powers Agreement, PCTPA is the designated administrator for the South Placer Regional Transportation Authority (SPRTA). Under an agreement with SACOG, PCTPA also represents Placer jurisdictions in federal planning and programming issues. Since the PCTPA has a local Agency-state Agreement for federal aid projects, it is also eligible to administer federal projects. PCTPA is also responsible for adopting and implementing the RTP for Placer County. As part of a memorandum of understanding with SACOG, PCTPA’s RTP is integrated into SACOG’s regional MTP/SCS.

- **EDCTC** – This agency is designated in state law as the RTPA for El Dorado County. As the RTPA, the EDCTC serves as the planning and programming authority for planned transportation improvements on the western slope of El Dorado County, excluding those areas within the Tahoe Regional Planning Agency boundaries. In 2008, the EDCTC was designated as the Airport Land Use Commission for the Placerville, Georgetown, and Cameron Park airports. EDCTC is also responsible for adopting and implementing the RTP for El Dorado County. As part of a memorandum of understanding with SACOG, EDCTC’s RTP is integrated into SACOG’s regional MTP/SCS.

- **Sacramento Transportation Authority (STA)** – This agency is a local transportation authority pursuant to the California Public Utilities Code Sections 131300—131304. The STA is primarily responsible for administering the Measure A program that is supported by a one-half percent sales tax in Sacramento County for transportation improvements. The STA also administers the Sacramento Metropolitan Freeway Service Patrol (FSP) program in cooperation with Caltrans and the California Highway Patrol. The FSP’s primary objective is to reduce the traffic congestion caused by roadway incidents. The STA Governing Board and staff also serve as the Governing Board and staff of the Sacramento Abandoned Vehicle Service Authority (SAVSA). SAVSA provides funding to participating local jurisdictions for the abatement of abandoned vehicles and vehicle parts on streets and private property.

LOCAL AGENCY GENERAL PLANS

State law requires cities and counties to adopt general plans, which must include, among others, a circulation element. The circulation element is required to map and provide a policy framework for circulation via all modes and public utilities. The information in the circulation element is required to be correlated with the land use element, and serve the projected population and employment growth in a manner consistent with the general plan vision. Circulation elements generally address...
expectations for transportation network operations and safety based on goals and policies of the city or county. Circulation elements typically address the roadway network and its traffic operations, goods movement, public transit, bicycle facilities, and pedestrian facilities, among other things.

AIRPORT LAND USE COMPATIBILITY PLANS

Each public airport has an Airport Land Use Commission (ALUC) that is responsible for preparing airport land use compatibility plans (ALUCP). The statutes governing ALUCs and ALUCPs are set forth in Division 9, Part 1, Chapter 4, Article 3.5, Sections 21670 – 21679.5 of the California Public Utilities Code (PUC).

The desired outcome or result of airport land use compatibility planning is to “minimize the public’s exposure to excessive noise and safety hazards” while providing for the “orderly expansion of airports” according to the California Airport Land Use Planning Handbook, Caltrans, October 2011. The ALUCPs influence land use and transportation decisions near airports and have been considered in the development of the proposed MTP/SCS. SACOG serves as the ALUC for airports in Yuba, Yolo, Sutter, and Sacramento Counties; except for the UCD airport and any located on tribal land. The Placer County Transportation Planning Agency and the El Dorado County Transportation Commission serve as the ALUCs for their respective counties.

BICYCLE, PEDESTRIAN, AND TRAILS MASTER PLANS AND ACTIVE TRANSPORTATION PLANS

Bicycle, Pedestrian, Trails, and Active Transportation Plans are planning documents used to guide future development of a jurisdiction’s bicycle and pedestrian facilities. At a minimum, these plans usually contain an inventory of existing facilities, a discussion of the plan’s goals, recommendations for new projects, and an implementation plan. SACOG has worked with its member agencies to create and maintain the Regional Bicycle, Pedestrian, and Trails Master Plan, April 16, 2015. This regional plan was originally developed in 2004 and the latest version is the sixth update. Recent work in 2018 included updates of the existing and planned bikeway networks and access to the data through SACOG’s open data portal. The regional plan complements the plans developed by local agencies and highlights those facilities with regional significance.

16.4 Impacts and Mitigation Measures

16.4.1 Methods and Assumptions

This program-level analysis generally evaluates the potential impacts to the environment from implementation of the proposed MTP/SCS, including the projected land use pattern and planned transportation network, compared to existing conditions in the plan area.

By 2040, implementation of the proposed MTP/SCS would result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, “existing conditions” in the proposed MTP/SCS refers to conditions in the baseline year of 2016. The proposed MTP/SCS uses 2016 because it is the most recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SACOG region. Chapter 1 – Introduction includes a more detailed discussion of the baseline for the proposed MTP/SCS.
For each impact, implementation of the proposed MTP/SCS is assessed on three levels. First, impacts are assessed at the regional level for the entire plan area. Second, impacts are assessed for the plan area’s five Community Types: Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, and Lands Not Identified for Development. Third, implementation of the proposed MTP/SCS is assessed in terms of its impacts to the region’s High Frequency Transit Areas (HFTAs). Refer to Chapter 2 – Project Description for a full description of the Community Types and HFTAs, and the projected land use pattern and planned transportation improvements within these areas.

SB 375 (see above) requires MPOs to explicitly account for the combined effects of land use and planned transportation improvements in updates to the regional transportation plans. Informing the development of the proposed MTP/SCS is a body of research and knowledge on relationship between characteristics of land use and travel behavior, often referred to as “the Ds.” The land use characteristics recognized as most influential to travel behavior are listed below (Ewing and Cervero 2010).

- **Regional Accessibility (“Destinations”)** is a way of quantifying how “connected” a given area is to the existing development in a region and is usually stated as the number of jobs within an “average” auto commute drive time. It is a measure of how many activities are within a reasonable drive time from a given place of residence. In areas within the existing urbanized area, regional accessibility is usually higher, because these areas are surrounded by other development. In outlying areas or areas on the urban edge, where a major part of the area within a given travel time is undeveloped, this measure tends to be lower. This factor has the strongest potential effect on VMT; a 10 percent increase in this measure would, on average, result in a 2 percent decline in VMT for residents of an area.

- **Street Pattern/Urban Design (“Design”)** refers to how “walkable” a given area is, based on characteristics of the street pattern in that area. It is usually measured as the density of intersections in a given area. The greater are the number of intersections, the smaller are the blocks and the more potential walking connections there are in that area. Although other factors (presence/absence of sidewalks, pedestrian amenities on the street, traffic volumes on streets, presence/absence of crosswalks, treatment of pedestrians at signalized intersections, etc.) affect walkability and walk mode share, street pattern has been used as a proxy in research, in part because it is relatively easy to assemble data. In terms of VMT reduction, this is the second strongest factor, with a 10 percent improvement resulting in, on average, a 1.2 percent reduction in VMT, a 2 percent increase in trips made by transit, and a 4 percent increase in trips made by walking.

- **Mix of Use (“Diversity”)** refers to the inclusion in an area of a range of complementary land uses, which allows for more activities (e.g., working, shopping, school, etc.) to be contained within that area. Good land use mix allows for reductions in VMT through shortening of vehicle trips or shifting to other non-vehicle modes of travel like walking. The most common measures of mix of use combine the relative proportions of residential, overall jobs, retail, and other residential supporting land uses into an “entropy” formula. A 10 percent improvement in mix of use would, on average, result in a 0.9 percent reduction in VMT, and a just over 1 percent increase in walk and transit trips.

- **Distance to Transit (“Distance”)** refers to the distance from a residence to the nearest transit station or stop, with VMT declining, and both walking and transit use increasing, as
distance to the nearest transit decreases. Although this factor has modest impact on VMT, with a 10 percent improvement resulting in, on average, a less-than-one percent decrease in VMT, the potential to increase transit trip-making is greater, with a nearly 3 percent increase.

- **Residential Density (“Density”)** refers to the number of persons or dwellings clustered into a given area. Conceptually, density is quite easy to understand—it is the number of persons or dwellings located in a given area. However, because there are different definitions of area (net acreage, gross acreage, total area, etc.) the effects of density are often over- or under-stated. Recent research shows that a 10 percent increase in density at the place of residence might reduce VMT by about 0.4 percent.

These land use and transportation factors are not the only factors influencing travel in the SACOG region. Other important factors, which are accounted for in the modeling and forecasting tools, described in greater detail below, include:

- demographic factors such as age, income, household size, and number of workers;
- household transportation costs, in particular costs of fuel and transit fares;
- characteristics of travel in neighboring regions and the amount and extent of external, or through, travel they might generate in the SACOG region; and
- geographic features such as rivers, which may separate or divide areas.

Through the development of the proposed MTP/SCS, SACOG has taken into account the general land use and transportation relationships described above and, along with other factors, applied them to the task of developing the land use forecast and the planned transportation improvements. In particular, the following mobility principles guided development of the proposed MTP/SCS:

- The value of compact development and mixed-use development to support an efficient transportation system and reduce the need for vehicle travel for future residents engaging in work, school, and other activities within the region.
- The necessity of aligning transit services in corridors with sufficient density and concentration of uses in order to support more efficient, productive service.
- The value of providing alternatives to driving alone, including bicycle routes, transit service, and land use patterns that allow for walking to activities near home or work, as an effective way to reduce vehicle travel.
- The value of creating pleasant, high quality pedestrian environments to encourage residents to make more trips by walking.

Table 16-9 and below summarize the projected land use pattern projected by the proposed MTP/SCS, sorted by each of the four Ds and by Community Type.

- **Regional Accessibility (“Destinations”)** would increase by 29 percent overall, with all community area types increasing by 27 percent or more relative to 2016. Center and Corridor Communities would have the highest level of regional accessibility in both 2016 and 2040 with implementation of the proposed MTP/SCS—in both years, accessibility to jobs would be over 40 percent higher for residents of these areas, compared to the regional average. Accessibility to jobs would decline for the remaining area types, with residents of Rural Residential Communities and Lands Not Identified for Development having the
lowest accessibility in both 2016 and 2040, with 60 percent or more below regional averages. This reflects the fact that Center and Corridor Communities are centrally located in the region, and generally are surrounded by urban development. Developing Communities, Rural Residential Communities, and Lands Not Identified for Development are located on the urban edge, or are completely outside the urbanized area. Developing Communities, to the extent they are at the edge of the urbanized area, have access to jobs on only one side. These locational factors drive down regional accessibility and, by extension, drive up VMT generation.

- **Street Pattern ("Design")** would follow a pattern similar to regional accessibility, with Center and Corridor Communities measuring the highest of all Community Types in both 2016 and 2040. Overall, the street pattern measure (in this case, intersection density) would increase by 24 percent regionally. Each Community Type would increase by 10 percent or more.

- **Mix of Use ("Diversity")** is highest in Center and Corridor Communities and Established Communities, largely because these areas are located near jobs and commercial centers. In 2016, Rural Residential Communities were very low in measured mix of use (8) on the SACOG mix index.\(^1\) In general, measured land mix of use is low in these areas because they are predominantly residential, with very little commercial, school, or other supportive non-residential uses within one-half mile of residences. The biggest change in mix of use between 2016 and 2040 would occur in Developing Communities. This change reflects a significant amount of growth, especially in non-residential development and schools, in the planning for these areas.

- **Distance to Transit ("Distance")** as expected, is lowest (i.e., best) in Center and Corridor Communities, with distance to the nearest transit station or stop averaging approximately one-fifth of a mile in 2016. That remains constant though 2040. Regional average distance to transit would decline from 0.91 miles in 2016 to 0.85 miles by 2040. Distance to transit is greatest in Rural Residential Communities, where average distance to transit is about 6 miles.

- **Residential density ("Density")** of developed parcels would increase overall by about 18 percent, from an average of 1.7 dwellings per net residential acre to two units per acre. The biggest change would occur in Developing Communities, where growth as a percentage of 2016 existing development would be high, and significantly higher in density than the baseline because the baseline is rural residential or undeveloped land. Established Communities would experience little change because the amount of growth would be relatively small compared to the amount of existing development in 2016. Center and Corridor Communities are both the highest in density and would experience the most significant change, with an estimated increase from about 11 units per net acre to about 14 units per acre by 2040.

---

\(^1\) SACOG’s mix index is a variant on an entropy index. It is defined as a residential mix, and measures the degree to which an optimal array of activities and services, which support residents, are present within a one-half mile radius (i.e., 502.6 acres) around the place of residence. The measure includes total jobs per household, retail jobs per household, K-12 school enrollments per household, and medical jobs per household. An area with a perfect balance of each of these factors would score 100; a completely homogenous area, with no mix of use, would score 0.
Table 16-9

Key Land Use / Transportation Characteristics of the Proposed MTP/SCS

<table>
<thead>
<tr>
<th>Land Use/Transportation Factor</th>
<th>Community Area Type</th>
<th>Center and Corridor</th>
<th>Established</th>
<th>Developing</th>
<th>Rural Residential</th>
<th>Regional Average</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year 2016</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^2) (Auto)</td>
<td>595,581</td>
<td>409,636</td>
<td>208,180</td>
<td>113,976</td>
<td>377,257</td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^1) (Transit)</td>
<td>26,864</td>
<td>2,767</td>
<td>137</td>
<td>462</td>
<td>4,829</td>
<td></td>
</tr>
<tr>
<td>Street Pattern/Urban Design(^2)</td>
<td>132</td>
<td>88</td>
<td>47</td>
<td>14</td>
<td>91</td>
<td></td>
</tr>
<tr>
<td>Mix of Use(^3)</td>
<td>33</td>
<td>29</td>
<td>9</td>
<td>8</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Transit(^4)</td>
<td>0.20</td>
<td>0.71</td>
<td>1.5</td>
<td>5.67</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Residential Density(^5)</td>
<td>11.0</td>
<td>4.5</td>
<td>1.8</td>
<td>0.2</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td><strong>2040 MTP/SCS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^2) (Auto)</td>
<td>762,200</td>
<td>518,317</td>
<td>317,573</td>
<td>163,729</td>
<td>486,796</td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^1) (Transit)</td>
<td>86,163</td>
<td>17,239</td>
<td>2,684</td>
<td>1,180</td>
<td>22,362</td>
<td></td>
</tr>
<tr>
<td>Street Pattern/Urban Design(^2)</td>
<td>170</td>
<td>102</td>
<td>111</td>
<td>15</td>
<td>113</td>
<td></td>
</tr>
<tr>
<td>Mix of Use(^3)</td>
<td>37</td>
<td>31</td>
<td>22</td>
<td>8</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Transit(^4)</td>
<td>0.20</td>
<td>0.65</td>
<td>1.22</td>
<td>5.97</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>Residential Density(^5)</td>
<td>14.0</td>
<td>4.7</td>
<td>3.2</td>
<td>0.2</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td><strong>Change from 2016</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^2) (Auto)</td>
<td>28%</td>
<td>27%</td>
<td>53%</td>
<td>44%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Regional Accessibility(^1) (Transit)</td>
<td>221%</td>
<td>523%</td>
<td>1861%</td>
<td>155%</td>
<td>363%</td>
<td></td>
</tr>
<tr>
<td>Street Pattern/Urban Design(^2)</td>
<td>29%</td>
<td>16%</td>
<td>136%</td>
<td>8%</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Mix of Use(^3)</td>
<td>12%</td>
<td>5%</td>
<td>154%</td>
<td>9%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Distance to Nearest Transit(^4)</td>
<td>0%</td>
<td>-9%</td>
<td>-21%</td>
<td>5%</td>
<td>-7%</td>
<td></td>
</tr>
<tr>
<td>Residential Density(^5)</td>
<td>27%</td>
<td>5%</td>
<td>76%</td>
<td>1%</td>
<td>60%</td>
<td></td>
</tr>
</tbody>
</table>

Notes: All numbers are averages for residences in each community area type across the region.

1 Total jobs within 30-minute travel time from place of residence to jobs; for drive, times based on AM peak period roadway times for transit, travel times include estimates of average walk to first station/stop, average wait time, line haul times, transfer times (if any), and walk time to final destination.

2 Intersection density, stated as intersections per square mile, within 1/2 mile of place of residence.

3 SACOG entropy index, 0 to 100 scale with 0 = homogenous, 100 = perfect mix of use.

4 Shown as distance from place of residence to nearest transit station or stop, in miles per resident.

5 Dwelling units per net residential acre, within 1/2 mile of place of residence.

Source: Data compiled by SACOG in July 2019

**TRAVEL DEMAND FORECASTING MODEL**

SACOG utilized its regional travel demand model to compare the proposed MTP/SCS for 2040 conditions to the 2016 baseline conditions. SACOG’s primary model is the Sacramento Regional Activity-Based Simulation Model or “SACSIM.” SACOG periodically updates and improves SACSIM, and releases versions of the model and data for use by member agencies when the MTP/SCS is adopted, with versions numbered according to the year the version was finalized.
SACSIM15 was used for the 2016 MTP/SCS. SACSIM19 was used for the analysis of this proposed MTP/SCS.\(^2\)

SACSIM includes four sub-models for predicting travel demand. The major sub-model is “DAYSIM,” which is an advanced-practice activity-based tour sub-model for predicting household-generated travel (TRB 2007). DAYSIM is a demand micro-simulation, which represents travel activities as tours, or series of trips, connecting the activities a person engages in during a normal day. DAYSIM allows more detailed representation of key factors influencing household-generated travel, such as detailed characteristics of land use in the region, age of residents, household income, cost of fuel, and other factors.

SACSIM also includes a more conventional, state-of-practice (TRB 2007) sub-model for predicting commercial vehicle travel. Two classes of commercial vehicles are modeled: two-axle commercial vehicles, and three-plus-axle commercial vehicles. Two-axle commercial vehicles include a wide range of vehicles, ranging from a passenger vehicle, which might be used to transport a computer repair person and their tools and equipment to an office to perform a repair, to a relatively small truck delivering produce to a restaurant or store. Three-plus-axle commercial vehicles also include a wide array of vehicles, ranging from medium-sized delivery trucks to large, five-axle tractor-trailer combinations. The common element tying these vehicles together is that they are used to transport goods and services, and are not used for personal (household-generated) travel.

SACSIM also includes state-of-practice sub-models for predicting air passenger ground access to the Sacramento International Airport, and for predicting external travel (including travel by residents of the region to locations outside the region, residents outside the region traveling to locations within the region, and travel that goes through, but does not stop within, the region).

Vehicle or transit passenger trips are assigned to detailed computer representations of the region’s highway and transit networks using state-of-practice (TRB 2007) software and programs. The resulting assignments are used for evaluation of VMT on roadways, congested travel on roadways, and travel on the region’ transit system.

The analysis period of SACSIM is a “typical weekday.” A typical weekday is intended to represent weekday conditions during a non-summer month (i.e., a time period when most workers are at work, rather than on vacation, and when schools are normally in session). Where annual or other time periods are required, typical weekday estimates of travel are scaled up to represent those time periods.

SACSIM is adjusted to capture observed travel behavior in the base year (2016). The process of measuring the degree to which the model captures observed travel in the base year is known as “validation.” This step is undertaken in compliance with guidelines provided by the California Transportation Commission (CTC 2017). In addition to validation, sensitivity testing is performed to ensure that SACSIM is appropriately sensitive to key factors affecting travel (e.g., cost of travel, household income, age, etc.).

\(^2\) Documentation of the SACSIM model is available in “Appendix E: Plan Performance” of the proposed MTP/SCS.
potential limitations to travel demand model

While the SACSIM model ranges from state-of-practice to advanced-practice in travel modeling, travel behavior and the transportation systems are changing quickly in response to emerging trends, new technologies, and different preferences. Some of the new travel options and technologies emerging in the SACOG region are discussed below. Additionally, information about how technology is affecting travel is accumulating over time. Some of these emergent changes that could influence future travel forecasts include:

- Substitution of internet shopping and home delivery for some shopping or meal-related travel.
  - The 2018 SACOG HTS showed that adults reported receiving a home delivery of a package on 17 percent of the travel days in the survey—and additional 4 percent received packages at work, food deliveries at home, etc. How these percentages compared to earlier years is not known.
  - NHTS showed the number of online purchases with home delivery doubling between 2009 and 2017, from about 2.5 to 4.9 per household per month (FHWA 2018).
  - Comparisons of 2017 to 2009 NHTS data show that nationally, non-work trips per household declined by 11 percent. Most of that decline is attributed to lower rates of shopping trips and other family-related errands (FHWA 2018).

- Substitution of telework for commute travel.
  - The 2018 SACOG HTS showed that 17 percent of the respondents reported working at home at least one day per week.

- New travel modes and choices
  - TNCs, car share, bike share, scooter share, and on-demand micro transit have increased the travel options available to travelers in the SACOG region and have contributed to changes in traditional travel demand relationships. As noted above, the current share of resident trips served by TNCs is less than one-quarter percent, and future growth depends on TNCs developing a sustainable business model.

- Automation of vehicles
  - Both passenger vehicles and commercial vehicles and trucks are evolving to include more automation. Research, development, and deployment testing is proceeding on fully autonomous vehicles (FAVs), for which no human driver would be required, and the vehicle itself can navigate the roadways to take people or goods where they need to go. Forecasts of how quickly research, development, and deployment testing will transition to full deployment and mass marketing of FAVs vary widely both on the pace of the transition, and the market acceptance of fully autonomous operation. More uncertainty exists for the behavioral response to FAVs. In terms of impact on the transportation
system and the environment, a scenario of concern would be one in which FAVs are privately owned, like automobiles in the present, but the automated function of the vehicles would entice users to travel more. Examples of this phenomenon could include:

- Vehicles are repositioned to serve different members of a household (e.g., have a car drop a worker at their workplace, then drive back home empty to serve another trip, such as a student going to school). The repositioning of driverless vehicles could add significantly to traffic volumes and VMT.

- The time spent in a vehicle is re-evaluated by travelers, resulting in an increase in the willingness to make longer trips. For example, if a person could read or do work in a vehicle instead of focusing on driving, they might be willing to commute longer to work. Conversely, a worker who prefers to live in a rural area, but is unwilling to drive far enough to act on that preference in a conventional vehicle, may be willing to do so in an FAV.

- There may be an increasing willingness to drive more to avoid parking costs or tolls. For example, a person going to a sporting event in an area that charges for parking may use an FAV to be dropped off at the venue, with the FAV repositioning to an area that does not charge for parking.

- Connected vehicles
  - A connected vehicle (CV) can communicate wirelessly with its surroundings, including other vehicles, bicyclists, pedestrians, roadway infrastructure (i.e., traffic signals, toll facilities, traffic management facilities, etc.), and the internet. The influence that CVs may have is still speculative, but includes the potential for reductions in collisions and congestion, and greater overall network performance optimization.

SACSIM does not explicitly capture the above-mentioned new modes of travel and emerging trends in travel behavior. Through validation of the model to 2016 conditions, the cumulative effect of the new modes and changes are reflected in the resulting travel demand estimates, but the underlying behavioral impact of the modes are not modeled. Significant uncertainties exist at the present time that prevent explicit modeling of these new modes and emerging trends for the analysis of the proposed MTP/SCS.

Additionally, future deployment levels for new modes of travel are unknown. For example, Uber and Lyft have both significantly increased trips, but both continue to run large operating losses and are reliant on investors to cover losses. A sustainable business model may require significant changes to services and/or fares, both of which could affect the trajectory of use and impact on travel behavior. Similar issues apply to bike share and other micro-mobility services.

The impact of new modes on individual and household travel behavior also is not fully understood and is the subject of ongoing research. Limitations on accessing utilization data directly from TNC vendors, in particular, constrains the ability to fully understand the impact of those services. Regulatory and legislative efforts to address the limits on access are underway in California and elsewhere, but these efforts will take time. Only a few household travel surveys, including the 2018 SACOG HTS, have surveyed TNC use in detail, and the e-assist JUMP bikes were introduced partway through the 2018 SACOG HTS. Other major research studies focused on TNC use, and TNC driver behavior, are just being launched in California, and data collection and analysis has not
yet started. Until this research is completed, there is no effective way to incorporate even the known new modes into travel demand models.

SACOG is participating in some of the ongoing monitoring and research on the deployment and impact of new modes of travel and will incorporate analysis findings related to individual and household travel behavior into later versions of SACSIM.

**TREATMENT OF TRAVEL INDUCED BY ADDITION OF NEW ROADWAY CAPACITY**

Research suggests that provision of new roadway capacity, all other things being equal, can itself result in generating additional vehicle travel. This phenomenon is often labeled “induced travel,” and is in reality composed of many different effects. Those effects fall into two general categories:

- **Short-term effects**—changes in the near term to individual and household travel behavior due to a new or expanded roadway. All of the short-term effects are the result of travel on the new or expanded roadway being faster or more reliable than the prior condition:
  - Driving slightly out of one’s way in order to use a new facility, compared to prior routes;
  - Shifting trips made by walking, biking, transit, or some non-private-vehicle mode to a private vehicle; or
  - Making more trips using a vehicle compared to the prior condition.
- **Long-term effects**—changes in long-term individual or household choices, or causing new growth and development in areas where options to driving area few, or where the density and mix of uses require longer-than-average (regional) vehicle trips:
  - An individual deciding to relocate his or her place of residence from an area where lower-than-average vehicle use is required, to an area where higher-than-average vehicle use is required, simply because new roadway capacity makes the move more attractive.
  - A property owner or developer deciding to build in an area where higher-than-average vehicle use is required for future residents, simply because new roadway capacity makes that area more marketable and valuable to future homebuyers.

The proposed MTP/SCS includes policies focused on limiting the potential impact of induced travel. Almost $9 billion of the $35 billion budget is anticipated to go to expanding the transportation system. Of this capacity budget, $6.8 billion will go to road and highway expansion projects, including operational, safety, and multi-modal elements as part of large capital projects. The $6.8 billion in capacity projects were selected from nominations of over $12 billion. More than two-thirds of the $6.8 billion will be invested in existing, rather than new, streets and roads.

These investments are guided by the following policies of the proposed MTP/SCS: Policy 2, which prioritizes pursuit of “…funding opportunities that support the infrastructure improvements needed to support new housing and employment opportunities in existing urban, suburban, and rural communities.” Policy 18 of the plan, which states that “system expansion investments that are not directly paid for by new development should be focused on fixing major bottlenecks that exist today, and/or incentivize development opportunities in infill areas.”

For purposes of evaluating $12 billion in nominated projects, screening questions focused on identifying projects for inclusion in the proposed 2020 MTP/SCS. The screening questions were
also intended to assist in synchronizing roadway capacity investments to areas with significant existing needs, or areas with significant planned growth (SACOG 2018). The screening questions included: 1) is there evidence of significant congestion on the roadway, either in the base year or in the planning horizon year?; 2) where a capacity increase is proposed, is the scale of the capacity increase similar to the scale of the growth in demand?; and 3) with the proposed capacity increase in place, is the roadway well-utilized in peak periods in the planning horizon year? For example, if a capacity project was nominated for roadway segment “A,” and there was no evidence of congestion on Segment A in either the base year or the future year, the project was flagged for potential exclusion from the proposed plan. Similarly, if the nominated project for segment “A” was widening from two lanes (one in each direction) to six lanes (three in each direction), the nominated project increased capacity by 200 percent. If the 2040 demand on segment “A” only increased 20 percent, the nominated project was flagged for potential exclusion from the proposed MTP/SCS, or for potential downscaling. Though it is impossible to boil all project decisions down to a formula, the screening questions did serve as flags for projects that could be excluded. The screening criteria were only one input into decisions on project inclusion—other criteria included safety, project readiness, financial capacity of the sponsoring agency to fund the project, connection of the project to other committed projects in the MTP/SCS, and other factors.

The analysis of the MTP/SCS using the SACSIM model also includes an analysis of the potential for induced travel, both for short-term and long-term effects. The short-term effects are captured directly in the model itself, since a) the impact of new capacity on vehicle travel speed is captured in the model, and b) the impact of speed of travel on roadways affects the frequency of trip-making, mode of travel, and travel routing.

Testing of the ability to capture long-term induced travel effects is beyond the capability of the SACSIM model alone, since the travel model itself is not integrated with a spatial economic or “land use” model. However, the SACSIM model, in combination with the process used for developing the land use forecast, and the process used for identifying roadway capacity projects through an iterative approach, does reasonably capture the effects of the land development and transportation project deployment that, based on the historical research focused on similar development in the 1990’s and 2000’s, resulted in estimates of the induced travel effects in use today. The growth allocation includes land uses in areas that are above regional average in VMT generation, especially in areas at the edge of the region. The transportation project list includes new roadway capacity to accommodate that growth. An elasticity analysis of the base year to future year changes in the proposed MTP/SCS was used as a reasonableness check of the SACSIM modeling results, including the long-term induced travel effects. Testing of both the short-term and long-term effects is provided in Appendix E: Plan Performance, with documentation available at SACOG during the comment period.

**KEY PERFORMANCE MEASURES AND POLICY OBJECTIVES FOR ASSESSING THE TRANSPORTATION IMPACTS OF THE PROPOSED MTP/SCS**

The impact analysis considers the roadway, transit, bicycle, pedestrian, aviation, agricultural, and goods movement components of the regional transportation system. Quantitative analysis focuses on the following performance measures derived from the forecasting results of the SACSIM model.

- Household-generated VMT and total VMT;
- Number of person trips made by different non-private-vehicle modes (bicycling, walking or public transit); and
- Number of transit passenger boardings and amount of transit service provided.

In addition to these quantitative measures, qualitative analysis is included to address the overall connectivity of the pedestrian and bicycle system, the ability to move agricultural goods and farm products on roadways, aviation, goods movement, construction activity associated with proposed MTP/SCS projects, and safety. Each of the quantitative and qualitative measures are described in more detail below.

**Vehicle Miles Traveled Per Capita**

The basic measure of the amount of vehicle travel generated by the project is VMT, defined and described above. Two slightly different measures of VMT are commonly used in analysis: household-generated VMT and total VMT. Both measures are directly from SACSIM model outputs.

Household-generated VMT is the VMT generated by residents of the SACOG region, for all travel within the region for all purposes (e.g., going to/from work, to/from school, shopping, personal business, social/recreational). Because this travel is estimated using an advanced-practice travel demand micro-simulation, it is possible to tabulate all the household-generated VMT by tracing the trips of each resident of the household throughout the day (e.g., trips the residents make away from the home, such as trip from work to a restaurant for lunch). In general, about 75 percent of all VMT is household-generated (i.e., created by residents of the SACOG region). This capability is unique to travel demand micro-simulation models and allows for geographic comparisons of VMT generation by households, and evaluation of impacts for sub-areas within the region.

Total VMT includes household-generated, plus VMT from all other sources. SACSIM adds commercial vehicle, airport passenger ground access, and external travel to household-generated travel to estimate total VMT.

For the reasons described above, household-generated VMT is the measure used in the analysis of impacts for the plan. Although the absolute amount of household-generated VMT is reported, impact analysis is based on VMT normalized to population as “per capita” rates. This metric provides a measure of travel efficiency and helps depict whether people are traveling more or less by vehicle over time. A goal of the proposed MTP/SCS is to reduce VMT per capita, even though the absolute amount of VMT may increase. A per capita decline in VMT indicates that the transportation network is operating more efficiently, and that people have more travel choices.

**Person Trips by Bicycle, Walk, or Transit Modes Per Capita**

Estimates of person trips by walk, bike, and public transit from SACSIM are the basic measure of non-private-vehicle travel for evaluating change in non-private-vehicle modes. A goal of the proposed MTP/SCS is to enhance the region’s bike, walk, and transit systems, and to promote growth and land uses that maximize the potential for shorter trips, which are more likely to be made by walking, biking, or transit. As with VMT, because of expected population growth, total trips are normalized to population and reported as per capita rates for purposes of impact analysis.
An increase in bike, walk, and transit trips per capita indicate that the land use and planned transportation improvements in the proposed MTP/SCS are effectively working together to improve the mode share of non-auto travel. Compact and mixed land uses more effectively serve transit, support higher rates of walking and biking, and generate less vehicle travel. While it is important that the regional bike, walk, and transit trips increase per capita regionally, it is expected that local areas will see variations.

**Transit Passenger Boardings per Vehicle Service Hour**

Transit service and vehicles need to be well-utilized to reduce GHG and air pollution emissions. For example, buses operate on fixed schedules throughout the day regardless of how many passengers are onboard. Since buses are large and consume more fuel per mile than passenger cars, it is important for them to carry multiple passengers to achieve desired emissions reductions. It is a goal of the proposed MTP/SCS to increase the productivity and efficiency of transit service provided in the region through a combination of the projected land use pattern that better supports transit service and transit services that directly serve travel needs. Passenger boardings per service hour is the most common and widely reported measure of transit productivity and efficiency. In general, the more boardings per hour, the more productive and efficient is the system.

**Connectivity of the Region’s Pedestrian and Bicycle System**

The proposed MTP/SCS contains a number of bicycle and pedestrian projects. These projects are generally designed to expand and complement the existing bicycle and pedestrian network. A goal of the proposed MTP/SCS is to increase connectivity of the bicycle and pedestrian networks through strategic investments and minimizing conflicts with projected land use pattern and transportation improvements.

Although some projected land use pattern and planned transportation improvements may disrupt existing or planned bicycle and pedestrian system segments, supportive land uses and strategic investments in the proposed MTP/SCS focus on improving the connectivity of the bicycle and pedestrian system. If the proposed MTP/SCS was significantly interfering with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bike.

**Movement of Agricultural and Farm Products on Rural Roadways**

The movement of agricultural equipment and the delivery of farm products to market are essential roles of the roadway system in many rural areas and select parts of urban areas. A goal of the proposed MTP/SCS is to preserve and, where possible, enhance the efficiency of these movements. This goal is challenged when growth requires new or expanded roads that cut through existing agricultural lands or disrupt agricultural equipment access to fields, processing destinations, or other agricultural goods movement routes.

**Aviation**

Aviation service is an integral component of moving people and goods in the SACOG region. The proposed MTP/SCS accommodates forecasted growth in the plan area and does not impede aviation travel for people and goods. The goal is to avoid disrupting existing and planned aviation
service due to the land use pattern or transportation improvement in the proposed MTP/SCS. Ground access for airport passengers to the Sacramento International Airport is included in the SACSIM travel demand model.

**Goods Movement**

Many of the planned transportation improvements in the proposed MTP/SCS are designed to help accommodate goods movement by rail, air, and roadway. Like aviation, the environmental impact assessment is focused on identifying potential disruption of existing or future goods movement.

**Construction Activity**

The planned transportation improvements in the proposed MTP/SCS will require substantial construction activity during the life of the plan. The environmental impact assessment recognizes the disruptive nature of construction and focuses on providing potential specifications for construction activity that implementing agencies can use to reduce travel disruptions.

**Safety**

Transportation safety is assessed based on how the proposed MTP projects will comply with applicable design standards of the implementing agencies.

The analysis assumes implementing agencies would ensure that transportation systems and related issues are treated in accordance with applicable federal, state and local laws and regulations.

**16.4.2 Criteria for Determining Significance**

For the purposes of this EIR, SACOG has determined that adoption and/or implementation of the proposed MTP/SCS would result in significant impacts under CEQA, if any of the following would occur:

**TRN-1** Substantially interfere with achievement of VMT reductions consistent with CARB’s 2017 Scoping Plan.

**TRN-2** Cause combined bicycle, walk, and transit person trips per capita to be lower than the baseline average for the applicable sub-area, and cause a decline in the bicycle, walk, and transit person trips per capita that is lower than the baseline regional average.

**TRN-3** Cause average transit passenger boardings per vehicle service hour to be lower than the baseline average for transit service provided in the relevant sub-area.

**TRN-4** Cause interference with existing or planned bicycle and pedestrian facilities.

**TRN-5** Cause a disruption to the movement of agricultural products on rural roadways.

**TRN-6** Cause a disruption to aviation access or service.

**TRN-7** Cause a disruption to goods movement into or through the SACOG region.
TRN-8 Cause a disruption to the ongoing operations of the applicable regional or local area transportation system due to construction activities.

TRN-9 Result in inconsistency with project design standards related to traffic safety.

16.4.3 Impacts and Mitigation Measures

**IMPACT TRN-1: SUBSTANTIALLY INTERFERE WITH ACHIEVEMENT OF VMT REDUCTIONS CONSISTENT WITH CARB’S 2017 SCOPING PLAN.**

**Regional Impacts**

The proposed MTP/SCS is based on a regional employment and population forecast and accommodates this growth through the projected land use pattern and planned transportation improvements. It does not create the growth, but is a strategy to accommodate that projected growth in a manner that increases transportation system efficiency and reduces growth in vehicle miles traveled. While the proposed MTP/SCS does not create the forecasted growth, Chapter 19 considers whether the proposed MTP/SCS has the potential to induce growth beyond the current forecasted growth.

Table 16-10 provides estimates of household-generated VMT for the region as a whole. The proposed MTP/SCS forecasts that household-generated VMT will increase by approximately 6.9 million miles per weekday. This increase is primarily due to the addition of 620,520 new residents by 2040. However, the projected household-generated VMT per capita rate would decrease by about 8 percent by 2040.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline (2016)</th>
<th>MTP/SCS (2040)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT</td>
<td>42,579,646</td>
<td>49,478,847</td>
</tr>
<tr>
<td>Population</td>
<td>2,376,311</td>
<td>2,996,832</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>17.92</td>
<td>16.51</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>-7.86%</td>
</tr>
</tbody>
</table>

1Includes household-generated VMT for all residents of the SACOG region, for travel within the region. This is a subset of total VMT. Estimates and forecasts from SACSIM regional travel demand model.

*Source: SACOG 2019a; SACOG 2019b.*

The VMT per-capita decline indicates that the projected land use pattern and planned transportation improvements assumed in the proposed MTP/SCS would effectively work together to improve system efficiency and minimize increases in VMT. A summary of the main reasons for this include the following:

- The proposed MTP/SCS reflects a more compact development form for the region. Compact land uses across the region in the proposed MTP/SCS are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher...
rates of non-motorized travel. Further benefits result from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

- The proposed MTP/SCS places an emphasis on transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points, while other Blueprint supportive programs and transportation systems management strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure.

- Other factors affecting future VMT are aging of the population and forecasted increases in auto operating costs, including transitioning from a fuel tax to a pay-as-you-go mileage fee.

The proposed MTP/SCS’s emphasis on transit service, and the projection of transit use counters the information above showing a significant decline in transit ridership since 2008. The proposed MTP/SCS’s investment and policy strategies are directed at reversing this trend through the following:

- Increasing transit service hours by 60 percent; from 0.54 hours per person per year in 2016 to 0.85 hours per person per year in 2040. Providing more transit service allows for higher frequency service on productive corridors, broader coverage during the weekday (e.g., more evening service), and more service during weekend hours. These strategies have increased transit ridership in other regions.

- Promoting growth and higher density in areas with frequent transit service. In 2016, only 15 percent of residents lived near a high-frequency transit line. By expanding the number of high-frequency transit lines, and focusing growth in areas served by those lines, the proposed MTP/SCS would result in 42 percent of residents living near a high-frequency transit line by 2040.

- Generating revenues on roadway express lanes that can partially subsidize express bus service in those corridors. Subsidizing fares in express lanes corridors, and increasing frequency of service, will increase transit ridership in those corridors.

- Implementing a Next Generation Transit study to help transit operators adapt to the changing transportation marketplace. One element of this initiative is comprehensive updates to bus routes, that in some cases have not be evaluated for many years. Sacramento Regional Transit recently completed planning work on such a route update and is in the process of implementing the planned changes.

Notwithstanding past and projected progress on VMT reductions in the SACOG region, recent progress reports the state’s climate goals suggest that additional VMT reductions are required. As discussed in detail in the Regulatory Setting above, both in its target resetting process and in its 2018 progress report pursuant to SB 150, CARB noted:

- The regional 2035 GHG emissions reduction targets under SB 375 are not adequate to fully meet the goals of the state’s 2017 Climate Change Scoping Plan: The Strategy for Achieving California’s 2030 Greenhouse Gas Target. As CARB noted, “An RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050.” CARB identified a 6% gap between the 19%
emissions reductions targets set for the regions (over a base year of 2005) and the 25% reductions required to meet the Scoping Plan goal.

- Much greater reductions in VMT will be required to meet the state climate goals for 2030 and 2050. CARB concluded that a 14.3 percent reduction in total VMT per capita and a 16.8 percent reduction in light-duty VMT per capita (over current conditions; 2015-2018) was needed to meet these goals.

- California – at the state, regional, and local levels – has not yet gone far enough in making the systemic and structural changes to how we build and invest in communities that are needed to meet state climate goals. It will take collaboration among all these levels of government, and supporting actions by other organizations and actors, to achieve the state’s climate goals because the MPOs do not have the land use authority or resources to meet challenge alone.

For its part, SACOG has reported on the region’s progress to meet goals set in the Blueprint and in its 2016 MTP/SCS, and noted several areas where the region is not staying on track to meet those goals (SACOG 2017):

- The share of attached and small lot housing growth for 2005 to 2015 was about 47 percent of all dwelling units, compared to a goal of 73 percent in the MTP/SCS.

- While about 15 percent of the land identified for residential growth in the Blueprint was consumed from 2005 to 2015, only about 8 percent of the Blueprint dwelling unit growth occurred over that period. The density of housing growth is below the target set in the Blueprint.

- VMT, which dipped significantly during the Great Recession, has increased in the region starting in 2011.

- Transit ridership has declined since 2008, as discussed above and shown in Table 16-7.

Figure 16-7 provides information on progress toward reducing total VMT in the SACOG region. “Total VMT” includes VMT from all sources (household generated, commercial, external or through travel, etc.). The figure is based estimates of actual total VMT occurring on roadways within the SACOG region, divided by the population of the SACOG region. The historic high for total VMT per capita in the SACOG region occurred in 2004. Starting in 2004, total VMT per capita began to decline, and this decline continued as the Great Recession took hold in 2008. As the economy in the SACOG region began to recover starting in 2011 and 2012, total VMT per capita began to increase again, though the region remains 6 percent below the historic high in 2004. This source shows a small decrease in total VMT per capita between 2016 and 2017, the most recent data available. Future monitoring will determine how enduring this one-year decline may be. Also shown on this Figure are:

- The trendline in total VMT per capita for the proposed MTP/SCS between 2016 and 2040. The reduction in total VMT per capita by 2040 is 6 percent relative to 2016.

- The statewide total VMT per capita reduction recommended by CARB, to fully make up the gap between the SB 375 GHG emissions reduction target and the needs identified in the 2017 Scoping Plan. This issue is discussed in greater detail in the Regulatory Settings above. CARB concluded that a statewide reduction of 14.3 percent in total VMT per capita was needed by 2050.

It is clear that the trendline, which shows a six percent reduction in total VMT per capita by 2040, would not support achievement of the 14.3 percent identified by CARB statewide.
Therefore, although the region is making progress in VMT reductions and is making significant strides in the development of new initiatives, projects, and programs in the 2020 MTP/SCS, and is not directly interfering with the statewide VMT reductions required to meet the state’s climate goals, the plan does not clearly establish the necessary level of VMT reductions now forecast by the state. And although the state acknowledges that SACOG and other MPOs cannot meet this need without the collaboration and help of the state itself, as well as local partners, at the time of writing this Draft EIR it is unknown how CARB and other state agencies, through statewide programs or in coordination with local and regional governments, would meet the identified higher VMT reductions. And while SACOG stands ready to contribute to this statewide effort, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.

Source: Data compiled by SACOG in August 2019, based on:
- California Public Road reports for actual vehicle miles traveled.
- California Department of Finance for population estimates to compute per capita values.
- SACOG forecasts of total VMT per capita prepared for the 2020 MTP/SCS.
- California Air Resources Board, 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals, January 2019, for recommended VMT reduction for total VMT per capita statewide.

Figure 16-7
VMT Trends and VMT Reduction Targets
As a result, the potential of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s 2017 Scoping Plan at the regional level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Localized Impacts

Center and Corridor Communities

The proposed MTP/SCS projected land use pattern and planned transportation improvements in Center and Corridor Communities would reduce the need to travel frequently or over long distances using single occupancy vehicles by putting people closer to jobs and other destinations, and by increasing opportunities to bicycle, walk, or ride transit. Table 16-11 provides estimates of household-generated VMT for Center and Corridor Communities. The proposed MTP/SCS would reduce (relative to the baseline) household-generated VMT per capita in Center and Corridor Communities by 9.12 percent.

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT¹</td>
<td>3,222,163</td>
<td>4,880,398</td>
</tr>
<tr>
<td>Population</td>
<td>256,882</td>
<td>428,119</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>12.54</td>
<td>11.40</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>-9.12%</td>
<td></td>
</tr>
</tbody>
</table>

¹Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Center and Corridor Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s 2017 Scoping Plan at the Center and Corridor Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Established Communities

The proposed MTP/SCS land use and planned transportation improvements in Established Communities would decrease household-generated VMT by 7.50 percent, relative to the baseline year (Table 16-12).
### Table 16-12
Local Area VMT Per Capita—Established Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline 2016</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT¹</td>
<td>32,232,897</td>
<td>32,913,683</td>
</tr>
<tr>
<td>Population</td>
<td>1,886,607</td>
<td>2,082,544</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>17.09</td>
<td>15.80</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>-7.50%</td>
<td></td>
</tr>
</tbody>
</table>

¹Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG's achievement of per capita VMT reductions in Established Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB's 2017 Scoping Plan at the Established Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

### Developing Communities
The proposed MTP/SCS land use and planned transportation improvements in Developing Communities would decrease household-generated VMT per capita by 13.30 percent relative to the baseline year (Table 16-13).

### Table 16-13
Local Area VMT Per Capita—Developing Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline 2016</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT¹</td>
<td>1,536,946</td>
<td>6,059,556</td>
</tr>
<tr>
<td>Population</td>
<td>67,888</td>
<td>308,699</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>22.64</td>
<td>19.63</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>-13.30%</td>
<td></td>
</tr>
</tbody>
</table>

¹Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

Source: SACOG 2019a; SACOG 2019b.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Developing Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state's 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s 2017 Scoping Plan at the Developing Community level is
considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

**Rural Residential Communities** The proposed MTP/SCS land use and planned transportation improvements in Rural Residential Communities would decrease household-generated VMT by 6.44 percent, relative to the baseline year (Table 16-14).

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline 2016</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT(^1)</td>
<td>5,587,640</td>
<td>5,624,966</td>
</tr>
<tr>
<td>Population</td>
<td>164,934</td>
<td>177,466</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>33.88</td>
<td>31.70</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>-6.44%</td>
</tr>
</tbody>
</table>

\(^1\)Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.

*Source: SACOG 2019a; SACOG 2019b*

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Rural Residential Communities by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s *2017 Scoping Plan* at the Rural Residential Community level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

**Lands Not Identified for Development in the Proposed MTP/SCS**

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. With no growth and limited planned transportation improvements, household-generated VMT per capita in these areas is not expected to change.

Therefore, the potential to substantially interfere with achievement of the state’s VMT goals as identified in the *2017 Scoping Plan* related to implementation of the projected land use pattern, planned transportation improvements, and other transportation strategies of the proposed MTP/SCS in Lands not Identified for Development are considered less than significant (LS) for Impact TRN-1. No mitigation is required.

**High Frequency Transit Area Impacts**

The proposed MTP/SCS analyzes localized impacts using household-generated VMT per capita, which constitutes about 75 percent of all VMT in the region. As discussed in the Methods and Assumptions section, regional non-household travel (commercial vehicles, airport access, thru traffic) is not attributable to specific sub-areas, including HFTAs, leaving only household-generated VMT for examining localized HFTA impacts.
Placer County High Frequency Transit Areas
The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Placer County HFTAs, relative to 2016, by 8.45 percent (Table 16-15).

Table 16-15
Local Area VMT Per Capita—Placer County High Frequency Transit Areas

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT(^1)</td>
<td>826,491</td>
<td>1,235,943</td>
</tr>
<tr>
<td>Population</td>
<td>45,690</td>
<td>74,635</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>18.09</td>
<td>16.56</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>-8.45%</td>
</tr>
</tbody>
</table>

\(^1\)Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Placer County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.

As a result, the potential to substantially interfere with achievement of the VMT reductions set forth in the 2017 Scoping Plan related to implementation of the projected land use pattern, planned transportation improvements, and other transportation strategies of the proposed MTP/SCS in Placer County HFTAs is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Sacramento County High Frequency Transit Areas
The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Sacramento County HFTAs, relative to 2016, by 8.75 percent (Table 16-16).

Table 16-16
Local Area VMT Per Capita—Sacramento County High Frequency Transit Areas

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT(^1)</td>
<td>10,841,665</td>
<td>11,764,485</td>
</tr>
<tr>
<td>Population</td>
<td>786,456</td>
<td>935,217</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>13.79</td>
<td>12.58</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>-8.75%</td>
</tr>
</tbody>
</table>

\(^1\)Includes household-generated VMT for all residents of the listed geography. Estimates and forecasts from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Sacramento County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.
As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s 2017 Scoping Plan at the Sacramento County HFTA level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

Yolo County High Frequency Transit Areas

The proposed MTP/SCS land use and planned transportation improvements would decrease household-generated VMT in Yolo County HFTAs, relative to 2016, by 11.22 percent (Table 16-17).

<table>
<thead>
<tr>
<th>Geography / Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household-Gen. VMT¹</td>
<td>1,872,817</td>
<td>2,191,891</td>
</tr>
<tr>
<td>Population</td>
<td>116,622</td>
<td>153,736</td>
</tr>
<tr>
<td>HH-Gen VMT per Capita</td>
<td>16.06</td>
<td>14.26</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>-11.22%</td>
<td></td>
</tr>
</tbody>
</table>

¹Includes household-generated VMT for all residents of the listed geography.

Consistent with the regional VMT impact analysis above, notwithstanding SACOG’s achievement of per capita VMT reductions in Yolo County HFTAs by 2040, SACOG cannot conclude that the reductions are sufficient to meet the state’s climate goals. Therefore, for the reasons stated above, the gap in VMT reductions needed to achieve the state’s 2030 and 2050 GHG reduction targets remains.

As a result, the potential of the proposed MTP/SCS to substantially interfere with achievement of the VMT reductions set forth in CARB’s 2017 Scoping Plan at the Yolo County HFTA level is considered potentially significant (PS) for Impact TRN-1. Mitigation is required. Mitigation Measure TRN-1 is discussed below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of other public agencies. However, implementation of the following measure(s) would reduce VMT impacts and local agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-1: Strategies to reduce VMT from existing and proposed land use development.

The state recognized that additional state policy actions and funding would be required to close the VMT gap between what the MPOs could achieve through implementation of their SCSs, and reductions needed to meet state goals. Though the state must initiate these additional actions and funding programs, the exact form of the policies and funding programs must be collaboratively developed with input from MPOs, local agencies, and other organizations to ensure they provide the tools and incentives necessary to go beyond the SCSs in reducing VMT. SACOG shall be an active
participant in this process. As part of the development of this proposed MTP/SCS, SACOG
developed the “Green Means Go” program, which SACOG shall implement and is intended to
serve as a pilot for some of the infill incentives and support for transit and innovative mobility that
are envisioned in the 2017 Scoping Plan as key elements of filling that VMT gap.

In addition, implementing agencies shall comply with state guidance on VMT reduction, which may
be achieved by implementation of the following:

- Implementing agencies shall require project modifications during the project design and
  environmental review stage of project development that would reduce VMT effects in a
  manner consistent with state guidance on VMT reduction. For roadway capacity expansion
  projects, this would include but is not limited to demand management through
  transportation systems management and operations (TSMO) including the use of pricing.
  This mitigation is consistent with project VAR-5 in the MTP/SCS that identifies the
  implementation of an express lanes network, which can consider re-purposing existing lanes
  and using tolls that vary based on traffic levels and time of day. Other project modifications
  may include, but are not limited to:
    - improve or increase access to transit;
    - increase access to common goods and services, such as groceries, schools, and
daycare;
    - incorporate affordable housing into the project;
    - incorporate neighborhood electric vehicle network;
    - orient the project toward transit, bicycle and pedestrian facilities;
    - improve pedestrian or bicycle networks, or transit service;
    - provide traffic calming;
    - provide bicycle parking;
    - limit or eliminate parking supply;
    - unbundle parking costs;
    - provide parking cash-out programs;
    - implement roadway pricing;
    - implement or provide access to a commute reduction program;
    - provide car-sharing, bike sharing, and ride-sharing programs;
    - provide transit passes;
    - shifting single occupancy vehicle trips to carpooling or vanpooling, for example
      providing ride-matching services;
    - providing telework options;
    - providing incentives or subsidies that increase the use of modes other than single-
      occupancy vehicle;
providing on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms;
providing employee transportation coordinators at employment sites;
providing a guaranteed ride home service to users of non-auto modes;
locate the project in an area of the region that already exhibits low VMT;
locate the project near transit;
increase project density;
increase the mix of uses within the project or within the project’s surroundings;
increase connectivity and/or intersection density on the project site; and/or
deploy management strategies (e.g., pricing, vehicle occupancy requirements) on roadways or roadway lanes.

Implementing agencies shall require implementation of VMT reduction strategies through transportation demand management programs, impact fee programs, mitigation banks or exchange programs, in-lieu fee programs, or other land use project conditions that reduce VMT in a manner consistent with state guidance on VMT reduction. Programs should be designed to reduce VMT from existing land uses, where feasible, and from new discretionary residential or employment land use projects. Project conditions should be reserved for situations where programs are not feasible. The design of programs and project conditions should focus on VMT reduction strategies that increase travel choices and improve the comfort and convenience of sharing rides in private vehicles, using public transit, riding bicycles/scooters, or walking.

**Significance After Mitigation**

If the implementing agency adopts this mitigation measure, Impact TRN-1 would be reduced to a less than significant (LS) level in some communities, although additional state policy actions and funding would be required to close the gap at the state level. The strategies identified are programmatic; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis. For projects proposing to streamline environmental review, lead agencies must comply with state guidance on VMT reduction and conduct project-level analysis for each project to analyze whether, based on substantial evidence in the record, the proposed mitigation would reduce the VMT impact to less than significant. However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-1 remains significant and unavoidable (SU) for purposes of this program-level review.

**Impact TRN-2: Cause combined bicycle, walk, and transit person trips per capita to be lower than the baseline average in the applicable sub-area, and cause a decline in the bicycle, walk, and transit person trips per capita that is lower than the baseline regional average.**

**Regional Impacts**

Table 16-18 provides estimates of weekday person trips by bicycle, walk or transit modes for the region as a whole. Total weekday person trips by all three modes increase by 532,130 (a 55 percent increase
from the baseline). This is achieved through compact land uses, which are more effectively served by transit and support potentially higher rates of walking and biking, and investment in supporting transportation infrastructure. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS further supports shorter vehicle trips and higher rates of non-motorized travel. Further benefits result from concentrating development in high-quality transit corridors, where residents are more likely to use available transit. Table 16-18 shows the proposed MTP/SCS would increase per capita trips by bicycle, walk or transit from 0.41 in 2016 to 0.50 in 2040, a 23 percent increase. Therefore, the bicycle, walk, or transit person trips per capita impacts related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-18
Regional Bicycle, Walk, or Transit Person Trips Per Capita

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>963,444</td>
<td>1,495,574</td>
</tr>
<tr>
<td>Population</td>
<td>2,376,311</td>
<td>2,996,832</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.41</td>
<td>0.50</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>23.09%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Local Impacts

Center and Corridor Communities
Table 16-19 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Center and Corridor Communities by 29.88 percent from 0.75 in 2016 to 0.97 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Center and Corridor Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-19
Bicycle, Walk, or Transit Person Trips Per Capita—Center and Corridor Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>192,471</td>
<td>416,617</td>
</tr>
<tr>
<td>Population</td>
<td>256,882</td>
<td>428,119</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.75</td>
<td>0.97</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>29.88%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Established Communities
Table 16-20 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Established Communities by 18.45 percent from 0.39 in 2016 to 0.46 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Established Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.
Table 16-20
Bicycle, Walk, or Transit Person Trips Per Capita—Established Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>734,195</td>
<td>959,956</td>
</tr>
<tr>
<td>Population</td>
<td>1,886,607</td>
<td>2,082,544</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.39</td>
<td>0.46</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>18.45%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Developing Communities
Table 16-21 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Developing Communities by 45.64 percent from 0.20 in 2016 to 0.30 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Developing Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-21
Bicycle, Walk, or Transit Person Trips Per Capita—Developing Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>13,852</td>
<td>91,734</td>
</tr>
<tr>
<td>Population</td>
<td>67,888</td>
<td>308,699</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.20</td>
<td>0.30</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>45.64%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Rural Residential Communities
Table 16-22 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in Rural Residential Communities by 10.54 percent from 0.14 in 2016 to 0.15 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the Rural Residential Communities level are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-22
Bicycle, Walk, or Transit Person Trips Per Capita—Rural Residential Communities

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>22,926</td>
<td>27,267</td>
</tr>
<tr>
<td>Population</td>
<td>164,934</td>
<td>177,466</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.14</td>
<td>0.15</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>10.54%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b
Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The focus for the limited investments is on road maintenance, safety enhancements, and other roadway operational improvements. These limited planned transportation improvements in Lands Not Identified for Development would not measurably change bicycle, walk, or transit trips within these areas. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
Table 16-23 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Placer County HFTAs by 24.17 percent from 0.31 in 2016 to 0.38 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

<table>
<thead>
<tr>
<th>Table 16-23</th>
<th>Bicycle, Walk, or Transit Person Trips Per Capita—Placer County High Frequency Transit Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography/Variable</td>
<td>Baseline (2016)</td>
</tr>
<tr>
<td>Weekday Bike+Walk+Transit Trips</td>
<td>14,150</td>
</tr>
<tr>
<td>Population</td>
<td>45,690</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.31</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>24.17%</td>
</tr>
</tbody>
</table>

1Estimates of weekday person trips by mode from SACSIM regional travel demand model. 
Source: SACOG 2019a; SACOG 2019b

Sacramento County High Frequency Transit Areas
Table 16-24 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Sacramento County HFTAs by 32.23 percent from 0.52 in 2016 to 0.69 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

<table>
<thead>
<tr>
<th>Table 16-24</th>
<th>Bicycle, Walk, or Transit Person Trips Per Capita—Sacramento County High Frequency Transit Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geography/Variable</td>
<td>Baseline (2016)</td>
</tr>
<tr>
<td>Weekday Bike+Walk+Transit Trips</td>
<td>412,838</td>
</tr>
<tr>
<td>Population</td>
<td>786,456</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.52</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td>32.23%</td>
</tr>
</tbody>
</table>

1Estimates of weekday person trips by mode from SACSIM regional travel demand model. 
Source: SACOG 2019a; SACOG 2019b
Yolo County High Frequency Transit Area

Table 16-25 shows that the proposed MTP/SCS land use and planned transportation improvements would increase per capita trips by bicycle, walk or transit in the Yolo County HFTAs by 27.28 percent from 0.78 in 2016 to 0.99 in 2040. Therefore, the impacts to bicycle, walk, or transit trips related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered less than significant (LS) for Impact TRN-2. No mitigation is required.

Table 16-25

<table>
<thead>
<tr>
<th>Geography/Variable</th>
<th>Baseline (2016)</th>
<th>2040 MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Bike+Walk+Transit Trips¹</td>
<td>91,157</td>
<td>152,949</td>
</tr>
<tr>
<td>Population</td>
<td>116,622</td>
<td>153,736</td>
</tr>
<tr>
<td>Trips Per Capita</td>
<td>0.78</td>
<td>0.99</td>
</tr>
<tr>
<td>% Change from Baseline</td>
<td></td>
<td>27.28%</td>
</tr>
</tbody>
</table>

¹Estimates of weekday person trips by mode from SACSIM regional travel demand model.
Source: SACOG 2019a; SACOG 2019b

Mitigation Measures

None required.

Impact TRN-3: Cause average transit passenger boardings per vehicle service hour to be lower than the baseline average for transit service provided in the relevant sub-area.

Regional Impacts

The projected land use pattern of the proposed MTP/SCS, in combination with the planned transportation improvements, would improve transit productivity throughout the region. This would be achieved by emphasizing transit service and complete streets near transit, walk, and bicycle supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Table 16-26 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for each county and the plan area as a whole. Transit productivity, as measured by passenger boardings per service hour, would increase regionally by 57 percent.

Table 16-26

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>El Dorado</td>
<td>1,235</td>
<td>130</td>
<td>9.5</td>
<td>12.8</td>
<td>+35%</td>
</tr>
<tr>
<td>Placer</td>
<td>2,746</td>
<td>341</td>
<td>8.1</td>
<td>23.1</td>
<td>+186%</td>
</tr>
<tr>
<td>Sacramento</td>
<td>86,865</td>
<td>2,578</td>
<td>33.7</td>
<td>55.0</td>
<td>+63%</td>
</tr>
<tr>
<td>Sutter</td>
<td>1,828</td>
<td>126</td>
<td>14.5</td>
<td>23.9</td>
<td>+66%</td>
</tr>
<tr>
<td>Yolo</td>
<td>25,614</td>
<td>690</td>
<td>37.1</td>
<td>42.3</td>
<td>+14%</td>
</tr>
<tr>
<td>Yuba</td>
<td>2,192</td>
<td>130</td>
<td>16.9</td>
<td>22.8</td>
<td>+35%</td>
</tr>
<tr>
<td>Total</td>
<td>120,480</td>
<td>3,994</td>
<td>30.2</td>
<td>47.3</td>
<td>+57%</td>
</tr>
</tbody>
</table>

Source: Data compiled by SACOG in July 2019.
As explained above for bicycle, walk, and transit trips, these predicted increases are based on the SACSIM model. The same limitations described above could influence the forecasts of transit passenger boardings per vehicle service hour. This information does not change potential impact conclusions related to this metric since the basis for a significant impact is whether the proposed MTP/SCS would cause a decrease. The proposed MTP/SCS is specifically designed to improve transit performance as discussed above, but other travel behavior factors beyond the influence of the proposed MTP/SCS may result in lower levels of future ridership that could result in transit service hours to be less productive.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

**Local Impacts**

**Center and Corridor Communities, Established Communities, and Developing Communities**

While SACOG does not model passenger boardings and vehicle service hours at the Community Type level, Table 16-26 illustrates major increases in transit productivity within each county in the plan area of the proposed MTP/SCS. The regional and county level transit productivity improvements would be expected to extend to the Community Types with Centers and Corridors, Established and Developing Communities each experiencing an increase in high quality local and commuter transit service and more transit-supportive land uses in 2040, as compared to the baseline. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Center and Corridor, Established, and Developing Communities are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

**Rural Residential Communities**

Regional and county level transit productivity improvements discussed above and illustrated in Table 16-26 would also extend to Rural Residential Communities. Although transit trips would remain a small share of travel in these areas, strategic investments made to lifeline rural and commuter bus services that serve these areas would be more productive in 2040, as compared to the baseline. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Rural Residential Communities are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

**Lands Not Identified for Development in the Proposed MTP/SCS**

Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements. With little to no transit service currently in these areas, the planned transportation improvements in the proposed MTP/SCS would not negatively affect transit passenger boardings per service hour. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in Lands Not Identified for Development in the Proposed MTP/SCS are considered less than significant (LS) for Impact TRN-3. No mitigation is required.
High Frequency Transit Area Impacts

Placer County High Frequency Transit Areas
In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support shorter vehicle trips and higher rates of non-motorized travel in the Placer County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-27 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Placer County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. As such, no qualifying service existed in 2016 but the plan would add service generating 44.4 passenger boardings per service hour in 2040.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Placer County HFTAs are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Placer</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>7,134</td>
<td>161</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

1"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG 2019a; SACOG 2019b

Sacramento County High Frequency Transit Areas
In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support shorter vehicle trips and higher rates of non-motorized travel in the Sacramento County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-28 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Sacramento County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service would increase 46 percent from 55.2 in 2016 to 80.4 in 2040. Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Sacramento County HFTAs are considered less than significant (LS) for Impact TRN-3. No mitigation is required.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Placer</td>
<td>0</td>
<td>0</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>7,134</td>
<td>161</td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

1"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG 2019a; SACOG 2019b
Table 16-28
Passenger Boardings Per Service Hour for TPA-Qualifying All Service1—Sacramento County HFTA

<table>
<thead>
<tr>
<th>County/Service</th>
<th>Passenger Boardings</th>
<th>Vehicle Service Hours</th>
<th>Passenger Boardings Per Service Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline (2016)</td>
<td>2040 MTP/SCS</td>
<td>Baseline (2016)</td>
</tr>
<tr>
<td>Sacramento</td>
<td>60,237</td>
<td>218,977</td>
<td>1,091</td>
</tr>
</tbody>
</table>

"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG 2019a; SACOG 2019b

Yolo County High Frequency Transit Areas
In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would further support higher rates of non-motorized travel in the Yolo County HFTAs. Further benefit results from concentrating development in high-quality transit corridors, where residents are more likely to use available transit.

Table 16-29 provides estimates of weekday passenger boardings, vehicle service hours, and passenger boarding per vehicle service hour for the Yolo County HFTAs. The table reflects only that transit service that meets the SB 375 requirements for high quality transit service of 15 minutes or better headways or rail transit of any frequency. Boardings per vehicle service hour on this type of transit service would increase 16 percent from 51.8 in 2016 to 59.5 in 2040.

Therefore, the impacts to transit passenger boardings per service hour related to land use and planned transportation improvements from implementation of the proposed MTP/SCS in the Yolo County HFTAs are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Table 16-29
Passenger Boardings Per Service Hour for TPA-Qualifying All Service1—Yolo County HFTA

<table>
<thead>
<tr>
<th>County/Service</th>
<th>Passenger Boardings</th>
<th>Vehicle Service Hours</th>
<th>Passenger Boardings Per Service Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline (2016)</td>
<td>2040 MTP/SCS</td>
<td>Baseline (2016)</td>
</tr>
<tr>
<td>Yolo</td>
<td>21,523</td>
<td>37,300</td>
<td>415</td>
</tr>
</tbody>
</table>

"TPA Qualifying" transit service is defined in SB375 legislation as any transit service operating at 15-minute or better headway (i.e., 4 schedules per hour) during the peak period, or rail transit service of any service frequency. Source: SACOG, July 2019.

Mitigation Measures
None required.

Impact TRN-4: Cause interference with existing or planned bicycle and pedestrian facilities.

Regional Impacts
Compact land uses are more effectively served by transit, support potentially higher rates of walking and biking, and generate less vehicle travel. In addition to compact development, the amount of complementary, mixed-use development in the proposed MTP/SCS would support higher rates of non-motorized travel. Table 16-30 provides estimates for total bicycle and walk trips and trips per capita in 2016 and 2040. Bicycle and walk trips per capita would increase by 12.51 and 15.24 percent, respectively.
Table 16-30
Bicycle and Walk Travel in the SACOG Region: 2016 and Proposed MTP/SCS

<table>
<thead>
<tr>
<th>Mode of Travel</th>
<th>2016</th>
<th>2040 Proposed MTP/SCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday Person Trips by Walk/Bike</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Trips</td>
<td>210,122</td>
<td>298,139</td>
</tr>
<tr>
<td>Walk Trips</td>
<td>652,288</td>
<td>948,006</td>
</tr>
<tr>
<td>Population</td>
<td>2,376,311</td>
<td>2,996,832</td>
</tr>
<tr>
<td>Bicycle Trips Per Capita</td>
<td>0.09</td>
<td>0.10</td>
</tr>
<tr>
<td>Walk Trips Per Capita</td>
<td>0.27</td>
<td>0.32</td>
</tr>
<tr>
<td>Percent Change in Trips Per Capita from 2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Trips</td>
<td>n/a</td>
<td>12.51%</td>
</tr>
<tr>
<td>Walk Trips</td>
<td>n/a</td>
<td>15.24%</td>
</tr>
</tbody>
</table>

Source: SACOG 2019a; SACOG 2019b

In terms of planned transportation improvements, the proposed MTP/SCS would invest in a number of improvements to the transportation system in the plan area. These investments include $2.5 billion (current dollars) in exclusively bicycle and pedestrian investments and additional bicycle and pedestrian infrastructure as part of roadway projects in the proposed MTP/SCS. An estimated 8 percent of road capital projects in the proposed MTP/SCS include bicycle and pedestrian improvements and all projects awarded funds managed by SACOG are anticipated to maintain or improve bicycle and pedestrian travel. Despite this policy support for bicycle and pedestrian travel, some of these roadway projects in the proposed MTP/SCS may interfere with the existing or planned bicycle or pedestrian system. Interferences may include:

- roadway improvement projects or the projected land use pattern which result in higher vehicle volumes or speeds adjacent to bike facilities;
- roadway improvement projects that eliminate bike facilities;
- projects that make pedestrian or bicycle traffic crossing roadways more difficult by increasing roadway width or resulting in higher volumes of vehicles;
- projects that interfere with the right-of-way or construction of future planned bike or pedestrian facilities; and
- other projects which may interfere with or interrupt bike routes or pedestrian facilities.

Although some proposed MTP/SCS projects may interfere with existing or planned bicycle and pedestrian system elements, Table 16-30 illustrates significant increases in forecasted bike and walk trips in the plan area. As a result of proposed MTP/SCS investments for bicycle and pedestrian supportive transportation infrastructure and the underlying land use patterns, the plan is forecasted to increase regional bicycle and pedestrian trips per capita. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.

The proposed MTP/SCS would also result in a significant expansion of the region’s bicycle and pedestrian system. Table 16-31 provides tabulation of baseline mixed-use trail (Class I) and on road bicycle lane (Class II) mileage, and an estimate of the increase in mileage, which could be funded through the proposed MTP/SCS. Total mileage would increase 97 percent combining both Class I and Class II route types, and 56 percent on a per 100,000 population basis. Because the proposed
MTP/SCS would expand the network of Class I and Class II facilities well above population growth, implementation of the proposed MTP/SCS would improve overall connectivity of the region’s bicycle system. It is also possible that the region will fund new Class IV bikeways, which have already been constructed in Davis through continued competitive regional funding round opportunities. These are a new classification with evolving design standards so a specific forecast of planned miles was not available for this plan update.

While Class I paths serve both bicyclists and pedestrians, they do not fully represent the full investment in pedestrian specific improvements such as sidewalks, crossing signals, and other intersection improvements. Although no quantifiable accounting of the region’s pedestrian system is available, the overall improvements in land use pattern and street pattern described above would make walking a more attractive option.

Table 16-31
Bicycle Route Miles

<table>
<thead>
<tr>
<th>County</th>
<th>Class 1</th>
<th>Class 2</th>
<th>Both Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016¹</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Dorado²</td>
<td>11</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Placer</td>
<td>109</td>
<td>221</td>
<td>330</td>
</tr>
<tr>
<td>Sacramento</td>
<td>288</td>
<td>678</td>
<td>966</td>
</tr>
<tr>
<td>Sutter</td>
<td>11</td>
<td>44</td>
<td>55</td>
</tr>
<tr>
<td>Yolo</td>
<td>65</td>
<td>172</td>
<td>237</td>
</tr>
<tr>
<td>Yuba</td>
<td>9</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td>Region</td>
<td>493</td>
<td>1,150</td>
<td>1,643</td>
</tr>
<tr>
<td>Miles Per 100k Population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040 MTP/SCS³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Dorado²</td>
<td>58</td>
<td>206</td>
<td>264</td>
</tr>
<tr>
<td>Placer</td>
<td>179</td>
<td>275</td>
<td>454</td>
</tr>
<tr>
<td>Sacramento</td>
<td>512</td>
<td>1,400</td>
<td>1,912</td>
</tr>
<tr>
<td>Sutter</td>
<td>34</td>
<td>64</td>
<td>98</td>
</tr>
<tr>
<td>Yolo</td>
<td>134</td>
<td>291</td>
<td>425</td>
</tr>
<tr>
<td>Yuba</td>
<td>33</td>
<td>43</td>
<td>76</td>
</tr>
<tr>
<td>Region</td>
<td>950</td>
<td>2,280</td>
<td>3,230</td>
</tr>
<tr>
<td>Miles Per 100k Population</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change from 2016</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El Dorado²</td>
<td>427%</td>
<td>796%</td>
<td>676%</td>
</tr>
<tr>
<td>Placer</td>
<td>64%</td>
<td>24%</td>
<td>38%</td>
</tr>
<tr>
<td>Sacramento</td>
<td>78%</td>
<td>106%</td>
<td>98%</td>
</tr>
<tr>
<td>Sutter</td>
<td>209%</td>
<td>45%</td>
<td>78%</td>
</tr>
<tr>
<td>Yolo</td>
<td>106%</td>
<td>69%</td>
<td>79%</td>
</tr>
<tr>
<td>Yuba</td>
<td>267%</td>
<td>291%</td>
<td>280%</td>
</tr>
<tr>
<td>Region</td>
<td>93%</td>
<td>98%</td>
<td>97%</td>
</tr>
<tr>
<td>Miles Per 100k Population</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹2016 route mileage from SACOG’s regional GIS centerline data.
²El Dorado and Placer Counties exclude the Tahoe Basin portions.
Estimates of 2040 MTP/SCS are based on explicitly identified bicycle lane projects, plus an estimate of currently adopted bicycle master plans which may be funded or implemented through other planned transportation improvements, or as stand-alone projects.

Source: SACOG 2019a; SACOG 2019b

Therefore, the impacts to the connectivity of the region’s bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Local Impacts

Center and Corridor Communities, Established Communities, and Developing Communities
All Community Types would have various transportation improvements by 2040 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Due to a land use pattern that is supportive of non-motorized travel and strategic investments in the plan area, the proposed MTP/SCS is forecasted to increase regional transit, bicycle and pedestrian trips per capita. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.

It is anticipated that the regional and county level transit productivity improvements summarized in Table 16-26 would extend to the Community Type level. Centers and Corridors, Established and Developing Communities would each experience a substantial increase in bicycle and pedestrian infrastructure and more compact and mixed land uses in 2040 that are more supportive of walking and biking. Table 16-19, Table 16-20, and Table 16-21 in the preceding impact discussion demonstrate that the combined walk, bike and transit mode shares would increase significantly in each of these three Community Types by 2040.

Combined with the projected land use pattern in these Community Types, the planned transportation improvements in the proposed MTP/SCS would improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region’s bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Center and Corridor, Established, and Developing Communities level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Rural Residential Communities
All Community Types would have various transportation improvements by 2040 and a limited number of these projects may create interference to the existing or planned bicycle or pedestrian system. Most existing and planned bicycle and pedestrian facilities in Rural Residential Communities consist of Class III bicycle routes along rural roadways and limited sidewalks or shoulder paths. It is unlikely that the limited transportation improvements or traffic increases in these areas would significantly interfere with these types of facilities. If the proposed MTP/SCS would significantly interfere with bicycle and pedestrian facilities, trips per capita would decrease as individuals would be less likely or able to choose to walk or bicycle.
It is anticipated that the regional per capita increase in bike and walk travel identified in Table 16-30 would extend to the local level in Rural Residential Communities given the limited projected land use pattern in these areas and the transportation investment focus on safety and road rehabilitation investments along county roads that also include Class III bicycle facilities. Furthermore, Table 16-22 demonstrates that the combined walk, bike and transit mode shares would increase in Rural Residential Communities by 2040, as compared to the 2016 baseline. Combined with the land use patterns in Rural Residential Communities, the planned transportation improvements in the proposed MTP/SCS would improve connectivity of the bicycle and pedestrian systems in these areas.

Therefore, the impacts to the connectivity of the region’s bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Rural Residential level are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Lands Not Identified for Development in the Proposed MTP/SCS
Since no growth is assumed in the proposed MTP/SCS in this Community Type, the proposed MTP/SCS would make a very limited number of planned transportation improvements in this Community Type by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements that would not disrupt the minimal bicycle and pedestrian system in these areas. Therefore, the impacts to the connectivity of the region’s bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The regional per capita increase in non-motorized travel identified in Table 16-30 is expected to apply in all the HFTAs given the land uses in these areas and the focus on bicycle and pedestrian investments. Furthermore, Table 16-23 Table 16-24, and Table 16-25 demonstrate that the combined walk, bike and transit mode shares would increase in each of the three county HFTAs by 2040, as compared to 2016. The projected land use pattern in HFTAs, in combination with the planned transportation improvements, would improve the connectivity of the bicycle and pedestrian systems in these areas. Therefore, the impacts to the connectivity of the region’s bicycle and pedestrian system related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in the Placer County HFTAs, Sacramento County HFTAs, and Yolo County HFTAs are considered less than significant (LS) for Impact TRN-4. No mitigation is required.

Mitigation Measures

None required
IMPACT TRN-5: CAUSE A DISRUPTION TO THE MOVEMENT OF AGRICULTURAL PRODUCTS ON RURAL ROADWAYS.

Regional Impacts

Focusing on rural areas within the region, less than two percent of the growth in housing and employment would take place in Rural Residential Communities, keeping the makeup of the land use patterns in these areas largely the same as they are in the 2016 baseline. Forecasted growth along the urban/rural edge, however, would lead to some conversion of agricultural lands which is addressed under Impacts AG-1, AG-2, AG-4, and AG-6, in Chapter 4 – Agricultural Resources. Planned transportation improvements to accommodate growth in these areas, may disrupt the movement of agricultural and farm products on rural roadways in the following situations:

- new or expanded roads that cut through existing agricultural lands and access roads; and
- new or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other agricultural goods movement routes.

In cases where planned transportation improvements may interfere with the movement of agricultural or farm products, the proposed MTP/SCS includes a regional policy and related strategies to support planned transportation improvements that help implement the Rural-Urban Connections Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Little growth and limited roadway expansions in the proposed MTP/SCS would occur in rural areas away from the edge or urban development. Also, rural roadways are a small share of the regional transportation network lane miles and an even smaller share of overall travel for both the baseline and 2040 horizon year. Two of the region’s Community Types (Centers and Corridors and Established Communities) comprise the largest share of baseline and 2040 population, lane miles and travel demand. Neither of these Community Types contains agricultural land uses or rural roadways.

Therefore, impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

Local Impacts

**Center and Corridor Communities and Established Communities**

Center and Corridor and Established Communities do not contain rural land uses or rural roadways.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS for lands in the Center and Corridor and Established Communities are considered less than significant (LS) for Impact TRN-5. No mitigation is required.
Developing Communities

Developing communities would not see the same mix of planned transportation improvements as Center and Corridor Communities and Established Communities. Developing Communities would see more road widening projects and newly constructed road projects adjacent to agricultural areas to serve the new residential and employment developments that would be built by 2040. Therefore, there is a greater risk of disrupting the movement of agricultural products on rural roadways.

Planned transportation improvements to serve development in Developing Communities may interfere with the movement of agricultural and farm products on rural roadways in the following situations:

- new or expanded roads that cut through existing agricultural lands and access roads; and
- new or expanded roads that disrupt agricultural or farm equipment access to, along or across roads used for accessing fields, processing destinations, or other farm-to-market goods movement routes.

These disruptions are partially addressed through policies and investments to support agricultural goods movement travel. In cases where planned transportation improvements may interfere with the movement of agricultural or farm products, the proposed MTP/SCS includes a regional policy and related strategies to support planned transportation improvements that help implement the Rural-Urban-Connections-Strategy (RUCS). This policy support has been reflected in the last two SACOG regional funding rounds that included funding support for regionally important farm-to-market goods movement travel investments.

Despite a regional policy commitment to efficient agricultural and farm product movement on rural roadways, a significant share of the new growth in the proposed MTP/SCS would be in areas adjacent to farmland and agricultural operations. The planning, design, construction and operation of expanded roadways adjacent to agricultural lands may take into account the needs of agricultural activity. Nevertheless, it is possible that some of the new and expanded roadways in Developing Communities would have a negative impact on the movement of agricultural and farm products.

Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN-5. Mitigation is required. Mitigation measure TRN-2 is described below.

Rural Residential Communities

Rural Residential Communities would have significantly less growth than Developing Communities and limited new or expanded roadways. Disruptions to the movement of agricultural and farm equipment on rural roadways are possible, however, because virtually all growth in these areas would be near or adjacent to agricultural lands and the largest share of passenger travel increases would be on rural roadways that also support agricultural truck and equipment movements. These disruptions can be minimized through RUCS policies and investments to support agricultural goods movement travel.

As described in the preceding Developing Communities impact discussion, some of the proposed MTP/SCS transportation improvements may interfere with the movement of agricultural and farm products on rural roadways. It is possible that some of the MTP/SCS improvements would have a negative impact on the movement of agricultural and farm products in Rural Residential Communities.
For example, an increase in higher-speed traffic volumes along rural roads may reduce safety and access to farm fields for agricultural vehicles. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the Developing Communities level are considered potentially significant (PS) for Impact TRN-5. Mitigation is described below.

Lands Not Identified for Development in the Proposed MTP/SCS
Although some housing and employment growth, consistent with historical trends, may occur in this Community Type within the MTP/SCS planning period, the proposed MTP/SCS does not forecast any development in these areas by 2040. The limited number of planned transportation improvements focus on road maintenance, safety enhancements, and other roadway operational improvements. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS in Lands Not Identified for Development are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

High Frequency Transit Area Impacts

Placer County, Sacramento County, and Yolo County High Frequency Transit Areas
The HFTAs do not contain rural land uses or rural roadways. Therefore, the impacts to the movement of agricultural and farm products on rural roadways related to implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS for lands in the MTP/SCS HFTAs are considered less than significant (LS) for Impact TRN-5. No mitigation is required.

Mitigation Measures

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following measure(s) at a project-level would reduce the impacts to the transportation system as they relate to the movement of agricultural products on rural roadways and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-2: Strategies to support the movement of agricultural products on rural roadways near growth areas.

Implementing agencies shall require implementation of best practice goods movement standards regarding agricultural products transport and apply recommended applicable mitigation measures as defined by state and federal agencies for new growth in Developing Communities or Rural Residential Communities. To reduce the impacts to the movement of agricultural products on rural roadways related to land use and planned transportation improvements from the implementation of the proposed MTP/SCS, one or more of the following measures shall be implemented by local agencies for new growth in Developing Communities or Rural Residential Communities:

- During site design and phasing of development adjacent to rural roads, access needs for agricultural uses shall be considered. Balancing the needs from increased passenger vehicle
travel in Developing Communities with the preservation of key access points for trucks and agricultural equipment can increase safe and efficient agricultural operations.

- Projects in Developing Communities and Rural Residential areas shall prioritize safety and design improvements along rural roadways that are important farm-to-market routes and projected to accommodate future traffic increases. Focusing available local funding improvements to make these roadways consistent with local design standards (such as horizontal curvature, site distance, etc.) improves safety and reduces friction between agricultural operations, trucks, and passenger vehicles on the corridors with the greatest need.

- Local agencies shall reduce the growth in passenger VMT in Developing Communities and Rural Residential areas through increased local investments in transit and active transportation network improvements. Transportation demand management strategies identified in Mitigation Measure TRN-1 that divert some single occupancy auto trips to alternative modes reduces friction with travel for agricultural operations along rural roadways shall be implemented.

**SIGNIFICANCE AFTER MITIGATION**

If the implementing agency adopts this mitigation measure, Impact TRN-5 would be reduced to a less than significant (LS) level. The strategies identified are programmatic; they would need to be refined and matched to local conditions in any subsequent project level environmental analysis. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-5 remains significant and unavoidable (SU) for purposes of this program-level review.

**IMPACT TRN-6: CAUSE A DISRUPTION TO AVIATION ACCESS OR SERVICE.**

**Regional, Local, and High Frequency Transit Area Impacts**

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed based on existing deficiencies and anticipated future needs given projected population, employment, and travel growth in the region. Anticipated future needs accounted for growth in aviation demand for moving people and goods and the proposed MTP/SCS includes projects to improve existing aviation access and service, such as a lengthened deceleration lane on the Airport Boulevard northbound off-ramp from Interstate 5. A full list of planned transportation improvements contained in the proposed MTP/SCS is available in Appendix A. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-6. No mitigation is required.

**MITIGATION MEASURES**

None required.
**IMPACT TRN-7: CAUSE A DISRUPTION TO GOODS MOVEMENT INTO OR THROUGH THE SACOG REGION.**

Regional, Local, and High Frequency Transit Area Impacts

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed based on existing deficiencies and anticipated future needs given projected population, employment, and travel growth in the region. Anticipated future needs accounted for growth in goods movement and the proposed MTP/SCS includes projects to improve existing transportation facilities associated with the increased demand, such as construction of a third track along the Union Pacific mainline between Sacramento and Placer Counties, a truck climbing lane on I-80 near Colfax, and a number of highway improvements that will benefit both passenger vehicles and trucks. A full list of planned transportation improvements contained in the proposed MTP/SCS is available in Appendix A. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-7. No mitigation is required.

**MITIGATION MEASURES**

None required.

**IMPACT TRN-8: CAUSE A DISRUPTION TO THE ONGOING OPERATIONS OF THE APPLICABLE REGIONAL OR LOCAL AREA TRANSPORTATION SYSTEM DUE TO CONSTRUCTION ACTIVITIES.**

Regional Impacts

Construction activities from the implementation of the proposed MTP/SCS would be short term, intermittent, and dispersed geographically. At the regional level, these disruptions would likely impact a very small portion of the overall roadway network and would not significantly impact the operations of the overall regional transportation system. Therefore, construction activities that interfere with the ongoing operations of the transportation system from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional level are considered less than significant (LS) for Impact TRN-8. No mitigation is required.

Local and High Frequency Transit Area Impacts

*Center and Corridor Communities, Established Communities, Developing Communities, Rural Residential Communities, Lands Not Identified for Development in the Proposed MTP/SCS, Placer County, Sacramento County, and Yolo County High Frequency Transit Areas*

The construction activities associated with implementing the land use and planned transportation improvements in the proposed MTP/SCS would potentially interfere with the normal operations of the localized transportation system. These construction activities include land development projects and new transit, non-motorized and roadway projects. Interference with the normal operations of a local transportation system could occur from detours or bottlenecks where activities disrupt traffic in one or more travel lanes, sidewalks, or bicycle routes. Also, certain large construction projects may increase travel on local roads not designed for heavier traffic volumes as workers and supplies travel to and from the sites.
Large numbers of construction projects occurring at the same time in a local area, or the construction of many projects consecutively in a local area, could result in localized delay impacts or emergency response delays. These potential impacts should be evaluated at the project level as more information about the timing, design, scope and construction program are available. Therefore, construction activities that interfere with the ongoing operations of the transportation system from implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the localized level are considered potentially significant (PS) for Impact TRN-8. Mitigation is required. Mitigation Measure TRN-3 is described below.

MITIGATION MEASURES

SACOG does not have authority to require the implementing agencies to adopt the identified mitigation measures; the mitigation measures are within the responsibility and jurisdiction of another public agency. However, implementation of the following mitigation measures at a project-level would reduce the impacts from construction activities on the transportation system and traffic, and agencies with jurisdiction to adopt these measures can and should do so (PRC Section 21081).

Mitigation Measure TRN-3: Apply best practice strategies to reduce the localized impact from construction activities on the transportation system.

Implementing agencies shall require implementation of best practice strategies regarding construction activities on the transportation system and apply recommended applicable mitigation measures as defined by state and federal agencies. Examples of mitigation measures should include, but are not limited to, the following:

- Apply special construction techniques to minimize impacts to traffic flow and provide adequate access to important destinations in the area.
- Develop circulation and detour plans to minimize impacts to local street impacts from construction activity on nearby major arterials. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Establish truck “usage” routes that minimize truck traffic on local roadways to the extent possible.
- Schedule truck trips outside of peak morning and evening commute hours.
- Route truck trips to avoid roadway segments with at risk or failed pavement conditions.
- Limit the number of lane closures during peak hours to the extent possible.
- Identify detours for bicycles and pedestrians in all areas potentially affected by project construction and provide adequate signage to mark these routes.
- Install traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Develop and implement access plans for potentially impacted local services such as police and fire stations, transit stations, hospitals, schools and parks. The access plans should be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions should be asked to identify detours for emergency vehicles, which will then be posted by the contractor.
● Store construction materials only in designated areas that minimize impacts to nearby roadways.

● Coordinate with local transit agencies for temporary relocation of routes or bus stops in works zones, as necessary.

● Conduct a public information campaign about how to use transit and other methods to reduce single-occupant vehicle use.

● Coordinate with local police, fire, sheriff, and emergency services regarding closures including magnitude and duration of closure.

SIGNIFICANCE AFTER MITIGATION

If the implementing agency adopts this mitigation measure, Impact TRN-8 would be reduced to a less than significant (LS) level. Projects taking advantage of CEQA streamlining provisions of SB 375 (PRC Sections 21155.1, 21155.2, and 21159.28) must apply the mitigation measure described above to address site-specific conditions, resulting in impacts that are less than significant (LS). However, SACOG cannot require the implementing agency to adopt this mitigation measure, and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation. Therefore, Impact TRN-8 remains significant and unavoidable (SU) for purposes of this program-level review.

IMPACT TRN-9: RESULT IN INCONSISTENCY WITH PROJECT DESIGN STANDARDS RELATED TO TRAFFIC SAFETY.

Regional, Local, and High Frequency Transit Area Impacts

The proposed MTP/SCS contains various projects that would modify or expand the regional transportation network. These projects were developed to address existing deficiencies and/or in anticipation of future needs given projected population, employment, and travel growth in the region. The proposed MTP/SCS projects are required to conform to the design standards of the public agency responsible for implementation. Design standard conformance is a key part of developing networks that provide common expectations for users to minimize conflicts and conditions that could contribute to collisions. These standards cover all aspects of the transportation right-of-way including physical and operational features as well as appropriate actions during construction activity. Nothing in this proposed MTP/SCS would change the applicable design standards of the implementing agencies; therefore, implementation of the proposed MTP/SCS would not result in inconsistency with design standards related to traffic safety. Therefore, implementation of the projected land use pattern and planned transportation improvements of the proposed MTP/SCS at the regional, local, and HFTA levels are considered less than significant (LS) for Impact TRN-9. No mitigation is required.

MITIGATION MEASURES

None required.