4.16 Transportation

This section evaluates potential impacts related to transportation due to implementation of the project, which consists of the 2021 General Plan Update (GPU), Housing Element Update, and Climate Action Plan (CAP). The analysis area covers the entire city of Moreno Valley (city) and sphere of influence, which are collectively referred to as the Planning Area. This section utilizes the results of the Moreno Valley General Plan Circulation Element Vehicle Miles Traveled Impact Assessment Memorandum (VMT Memo) prepared for the project (Appendix E).

4.16.1 Existing Conditions

4.16.1.1 Existing Street System

a. Roadway Network

The city is connected regionally by State Route 60 (SR-60) and Interstates 215 (I-215). SR-60 bisects the city and provides east-west connectivity to surrounding metropolitan areas. I-215 borders the city on the west and provides north-south connectivity. The roadway network in the Planning Area consists of freeways, boulevards, arterials, collectors, and local streets. The roadway network classifications below been developed to guide long range transportation planning within the Planning Area to balance access and capacity.

Freeways

Freeways generally provide high speed, high capacity inter-regional access. Their primary function is to move vehicles through or around the city; thus, there is no access to adjacent land, and limited access to arterial streets. Freeways contain anywhere from 4 to 12 lanes with recommended design volumes from 80,000 to 210,000 vehicles per day. The City has no direct control over freeways as they are maintained by Caltrans and improvements are programmed through the Riverside County Transportation Commission (RCTC).

Arterials

Arterial streets carry the majority of traffic traveling through the city. They serve two primary functions: to move vehicles into and through the city and to serve adjacent commercial land uses. They provide access to freeways as well as major activity centers and residential areas. Driveways and other curb cuts along arterials are designed to minimize disruption to traffic flow. Sidewalks are typically included along arterials and protected Class I or IV bike lanes are recommended. Truck routes are designated along arterials. The desired maximum roadway capacity on arterials averages from 30,000 to 55,000 vehicles per day

depending on number of lanes, type and width of directional separation, presence of on-street parking or bicycle facilities, configuration and frequency of access to adjacent land uses, and intersection configurations. Moreno Valley has several designations of varying right-of-way (ROW), the widest Divided Major Arterial (134-foot ROW), Divided Arterial (110-foot ROW), Arterial (100-foot ROW) and down to a Minor Arterial (88-foot ROW).

Boulevards

Boulevards are a type of arterial designed to connect major destinations within the city, and are highly visible and aesthetically landscaped with shade trees and wide sidewalks. Mixed-Use Boulevards in the city provide for high volumes of vehicle flow (40,000-55,000 vehicles per day) including trucks, while providing a wide pedestrian parkway with access to residences along the length of the corridors and shops and services primarily at intersections.

Collectors

Collectors are intended to carry traffic between the arterial street network and local streets or directly from the access drives of higher intensity land uses. Collectors serve commercial, residential, or public uses, and are generally two-lane roadways with sidewalks and bicycle facilities. The desired roadway capacity on a collector street is less than 12,000 vehicles per day. Moreno Valley has designated Industrial Collectors and Neighborhood Collectors. Industrial Collectors are designed primarily for access to industrial and logistics uses that emphasize truck access. Bike facilities on these roads are preferred off-street or with additional protective buffers and/or barriers. Neighborhood Collectors are residential streets that prioritize low vehicle speeds and low-stress bicycle and pedestrian use on parallel routes to arterials.

Local Streets

Local streets are designed to serve adjacent land uses only. They allow access to residential driveways and often provide parking for the neighborhood. They are not intended to serve through traffic traveling from one street to another, but solely local traffic. Sidewalks and shared bicycle facilities are appropriate on local streets. The desired roadway capacity on a residential street should not exceed about 2,500 vehicles per day and 200-300 vehicles per hour during peak periods. The maximum residential traffic volume that is acceptable to persons living along a street may vary from one street to another depending on roadway width, type of dwelling units (i.e., high density apartments versus single-family homes), presence of schools and other factors. The maximum volume of 2,500 is, therefore, to be used as a guide only, and a neighborhood's sensitivity to potential impacts need to be carefully considered.

4.16.1.2 Housing/Employment Dynamics

Based on 2017 American Community Survey and the 2017 Longitudinal Employer-Household Dynamics Origin Destination Employment Statics, commute patterns for employed city residents are as follows:

- 30 percent of residents travel less than 10 miles to reach their employment.
- 30 percent of residents travel between 10 and 24 miles to reach their employment.
- 40 percent of residents travel 25 miles or more to reach their employment.

Over two-thirds of city residents travel more than 10 miles to reach their places of employment. The small share of residents traveling less than 10 miles to reach their employment indicates that the city has a relatively small number of people who both live and work in Moreno Valley. An analysis was conducted for the inflow and outflow of workers into the city. Inflow includes people who are employed in the city but live outside of the area, and outflow includes those that live in the city but are employed outside of the area. The analysis determined that 33,621 people who are employed within the city live within another jurisdiction. 67,867 people live within the city but travel to another jurisdiction for employment, while only 11,070 people live and work within the city. Based on these statistics, approximately 14 percent of the working population lives and works in the city, while the other 86 percent lives in the city but is employed outside of it. Table 4.16-1 shows the different counties to which city residents travel for work.

Table 4.16-1
Counties Where Moreno Valley Residents are Employed

County	Count	Share
Riverside County	34,899	44.2%
San Bernardino County	16,837	21.3%
Los Angeles County	11,623	14.7%
Orange County	8,299	10.5%
San Diego County	3,193	4.1%
Ventura County	512	0.6%
All Other Locations	3,574	4.6%
TOTAL	**78,937**	**100.00%**

SOURCE: U.S. Census Bureau 2017: OnTheMap Application. Longitudinal-Employer Household Dynamics Program. http://onthemap.ces.census.gov/.

The ratio of jobs to employed residents is often used as an indicator of commute balance. A ratio close to 1.0 indicates a healthy balance and suggests that many people who live in the community are able to find jobs there as well. A high ratio indicates the community is rich in jobs, while a low ratio indicates that many residents need to commute to other cities for work. With 44,331 jobs and 78,937 employed residents in 2018, Moreno Valley has a ratio of 0.56, indicating a heavy out-commute. A focus on creating more jobs locally can help address this imbalance, reducing the need for long commutes and allowing Moreno Valley residents to spend more time with family and friends. About 90 percent of Moreno Valley residents work in Riverside, Orange, Los Angeles, or San Bernardino counties. Moreno Valley residents

traveling to work experience heavy levels of morning and evening congestion on freeways such as I-10, I-15, SR-60, SR-91, and I-215.

a. Mode Choice

Table 4.16-2 presents the transportation modes utilized for work commutes within the city, Riverside County, and California. The primary mode of travel for all three geographic areas is the automobile, which make up approximately 92 percent of total travel for the city, 90 percent of travel for Riverside County, and 84 percent for California. Public transit constitutes approximately one percent of work commutes for both the city and Riverside County, which is lower than the California average of 5 percent. Bicycling and walking are less common in the city compared to the county and state.

Table 4.16-2
Commuter Modal Split

Mode Choice	Moreno Valley	Riverside County	California
Single-Occupant Auto	77%	77%	74%
Carpool	15%	13%	10%
Public Transit[1]	1%	1%	5%
Bicycling/Walking	1%	2%	4%
Other Means	1%	1%	1%
Work at Home	3%	5%	6%

SOURCE: U.S. Census Bureau 2013-2017 American Community Survey 5-Year Estimates.
[1]Public transit includes metro ridership.

b. Vehicle Miles Traveled

Vehicle miles traveled (VMT) measures the number of miles traveled during a specified time within a specific region. Cities with more accessibility to key destinations and job centers in a region tend to generate less VMT on a per service population (service population is resident population plus employment) or per household basis compared to locations further away from job centers. After adjusting for commute distances, other things being equal, VMT can also be a good proxy to evaluate whether residents use local services or travel farther for those services. Table 4.16-3 presents the VMT for multiple cities in Riverside County from the Base Year (2012) Riverside Traffic Analysis Model (RIVTAM), which measures travel demand using the "full accounting method." The full accounting method tracks the full length of any trip that has at least one trip end in the identified city to its ultimate destination.

Moreno Valley VMT per service population is more than 15 percent lower than the average of incorporated cities in Riverside County and western Riverside County. The VMT per household is also lower than the comparative regions. These VMT per capita estimates signify that Moreno Valley is more efficient from a VMT perspective than other cities within Riverside County.

Table 4.16-3
Vehicle Miles Traveled Summary

City/Region	VMT	VMT per Service Population[1]	VMT per Household
Banning	1,110,797	29.8	108.9
Beaumont	1,219,970	27.9	101.3
Blythe	294,422	24.7	86.9
Calimesa	375,558	36.2	103.7
Canyon Lake	157,544	34.8	99.0
Cathedral City	1,409,540	22.4	82.5
Coachella	903,404	17.9	99.1
Corona	6,784,257	30.5	149.8
Desert Hot Springs	933,639	27.3	92.0
Eastvale	1,635,856	27.0	115.8
Hemet	2,295,355	22.7	76.5
Indian Wells	282,305	36.5	114.4
Indio	1,998,261	19.8	82.6
Jurupa Valley	3,637,399	29.8	145.3
Lake Elsinore	2,489,485	36.3	155.2
La Quinta	1,234,648	25.6	87.6
Menifee	2,998,816	31.0	99.5
Moreno Valley	5,505,655	24.5	108.3
Murrieta	3,655,216	28.5	112.0
Norco	1,522,109	36.3	200.5
Palm Desert	2,830,521	33.2	123.2
Palm Springs	2,283,456	31.3	99.6
Perris	2,367,263	27.6	142.8
Rancho Mirage	1,108,444	35.5	117.0
Riverside	12,130,842	27.8	130.1
San Jacinto	1,433,085	28.9	111.4
Temecula	3,690,123	26.2	119.6
Wildomar	1,193,167	32.9	124.4
Western Riverside County	67,129,140	29.8	126.4
Riverside County	83,929,504	29.3	120.9
SCAG Region[2]	626,112,185	24.3	106.4

SCAG = Southern California Association of Governments
[1]Service population is the sum of population and employment in the city.
[2]Estimates for the SCAG region were completed using Riverside Traffic Analysis Model, which is calibrated specifically for Riverside County. Estimates are provided for comparison purposes only.

4.16.1.3 Pedestrian and Bicycle Network

Active modes of transportation provide environmental, economic, and social sustainability to a city and its transportation system while improving public and personal health. Inadequate facilities misuse valuable resources and discourage potential users. Well-designed pedestrian and bicycle facilities are needed to make active transportation safe, accessible, attractive, and comfortable enough to be a desirable alternative to driving. It is important to provide a seamless transportation system for all modes and for all people to improve circulation. The Circulation Element of the existing 2006 General Plan focuses on vehicular travel but encourages the proposal of policies and programs that facilitate pedestrian improvements.

a. Sidewalks and Crosswalks

Pedestrian facilities within the Planning Area consist of sidewalks and crosswalks, along with multi-use trails. Figure 4.16-1 presents the locations of existing and proposed bicycle and pedestrian facilities within the city. Most residential and commercial developments provide sidewalks on public streets and internal circulation. Areas with no existing sidewalks are mainly located in undeveloped areas or in a more rural area in the eastern portion of the city and along the city boundary. Sidewalks vary from wide and meandering curb-separated sidewalks to narrow pathways on the side of the road. Sidewalks are sometimes obstructed, incomplete mid-block, or damaged. Crosswalks at signalized intersections are marked and are usually provided for all approaches. Crosswalks at unsignalized intersections are generally not marked, although crosswalks around schools are marked at intersections.

The city is a community designed with auto travel in mind, featuring a suburban tract housing layout, ample parking, major through streets, and separation of land uses that comprise a notable portion of the city. Although walking may not be a viable form of transportation for errand trips, the ample sidewalk widths in established neighborhoods provide a walking environment that accommodates walking trips for leisure and exercise. Factors that affect walkability and the pedestrian experience in the city are described below:

- **Direct, Fine-Grained Pedestrian Networks.** Walking is more efficient and desirable as a means of transportation if direct pedestrian travel, rather than circuitous routes, are available. This is achieved through the development of fine-grained networks of pedestrian pathways that allow for direct access to destinations.

- **Sidewalk Continuity:** Communities are more walkable if sidewalks do not end abruptly and are present on the entire segment and both sides of a roadway. This is especially important for mobility-impaired users or those pushing small children in strollers.

- **Sidewalk Conditions:** This refers to the physical condition of sidewalk surfaces. Sidewalks that are broken or cracked can deter walkability and impede mobility; particularly for persons with disabilities, such as those in wheelchairs, persons using walkers, or strollers.

- **Shading:** Persons are more inclined to walk in areas where there is shade present, particularly in southern California with its relatively warm weather and limited rainfall, as compared to other locations. Additionally, shade trees create an aesthetic value that is pleasing to the pedestrian.

Map Source: Dyett & Bhatia

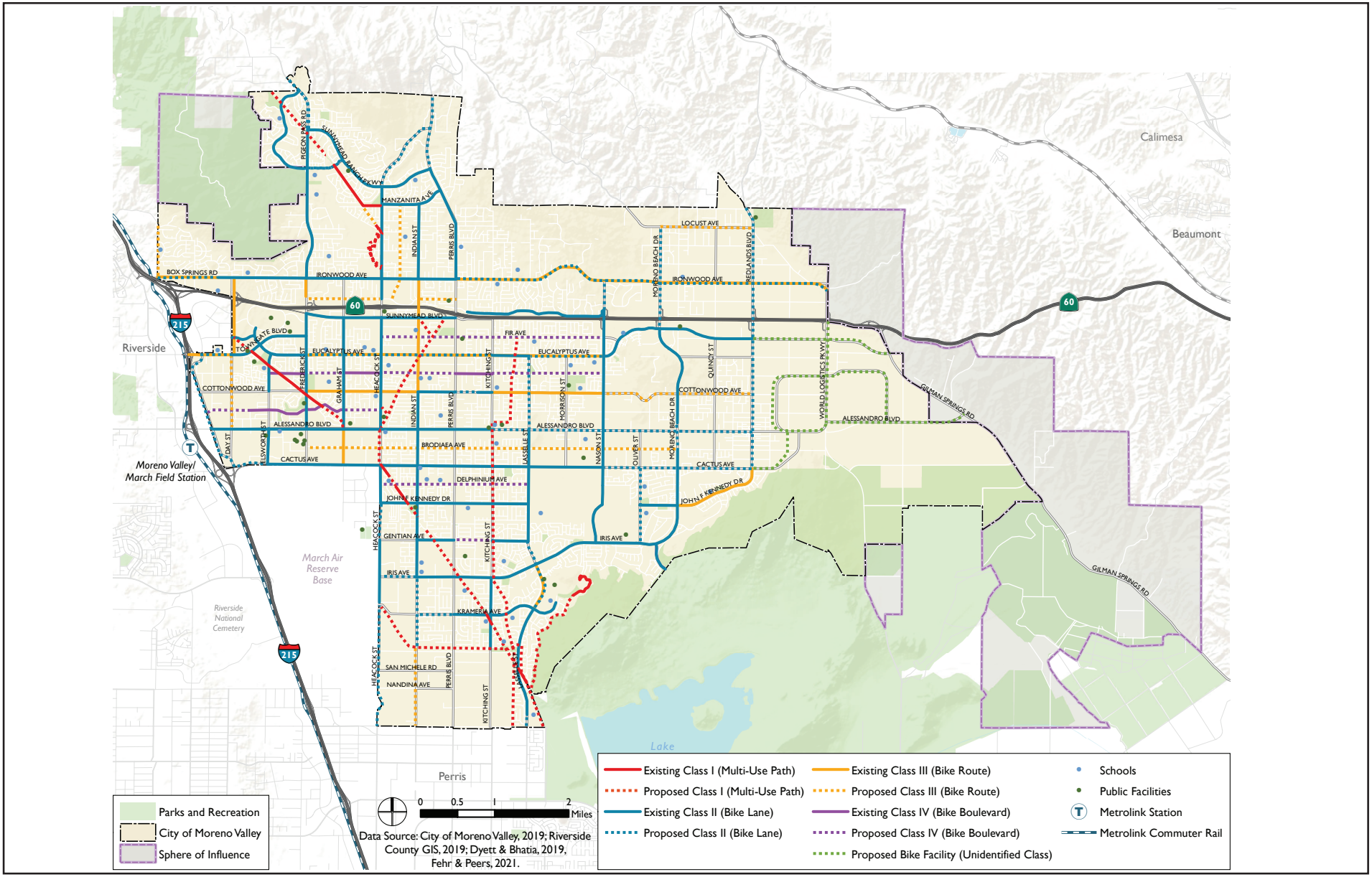

FIGURE 4.16-1
Existing and Planned Bicycle and Pedestrian Network

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b. Trails

The Moreno Valley Parks and Community Services Department maintains and operates over 675 acres of parks, trails, and park facilities. Existing multi-use trails accommodate pedestrians, equestrians, and bicyclists. In some instances, existing trails support access to State or regional trails within or near the city. For example, the Moreno Valley M Trail supports access to Box Mountain Regional Park trails. Additionally, the Rancho Verde Trail connects to trails near Lake Perris State Recreation. The Juan Bautista de Anza trail between the intersection of Eucalyptus Avenue/Arbor Park Lane in the north and Lasselle Street in the south provides bicycle northwest-southeast connectivity.

Proposed trails would close gaps between trails in the northwest, northeast, middle, and southern parts of the city and support active transportation in Moreno Valley. Some examples of proposed connections are listed below:

- The Cold Creek Trail in the middle of the city would be connected to the existing trail along Cactus Avenue.
- Proposed trails in nearby neighborhoods would be connected to the existing regional trail on Vista Suelto Road.

Proposed trails in the city not only provide opportunity for recreational activity, but afford off-street connectivity between neighborhoods, parks, schools, public facilities, and major job centers.

c. Bicycle Network

With relatively flat terrain and a rectilinear street grid, Moreno Valley is an inherently bikeable community. Improving bicycling facilities can increase the likelihood and desirability of active transportation modes for short distance trips, school trips, and recreational activities. By shifting mode share to include higher rates of active travel, the city can reduce greenhouse gas emissions and promote a healthy lifestyle, consistent with Assembly Bill (AB) 32 and other state laws. The different types of bicycle facilities designated in Moreno Valley are described below:

- **Class I Bikeways (Multi-Use Paths).** Class I bikeways are facilities that are physically separated from vehicles, designated for the exclusive use of bicyclists and pedestrians with minimal vehicle crossings.
- **Class II Bikeways (Bike Lanes).** Class II bikeways are striped lanes designated for the use of bicycles on a street or highway. Vehicle parking and vehicle/pedestrian cross flow are permitted at designated locations.
- **Class III Bikeways (Bike Routes).** Class III bikeways, also referred to as bike routes, are only identified by signs or pavement markings. A bicycle route is meant for use by bicyclists and for motor vehicle travel (i.e., shared use).

- **Class IV Bikeways (Cycle Tracks).** Class IV bikeways, also referred to as cycle tracks, are protected bike lanes, which provide a right-of-way designated exclusively for bicycle travel within a roadway that is protected from vehicular traffic with devices such as curbs, flexible posts, inflexible physical barriers, or on-street parking.

- **Bicycle Boulevards.** Bicycle Boulevards are convenient, low-stress cycling environments on low traffic volume streets, typically parallel to higher traffic volume streets as an alternative to them. These roads prioritize bicyclists and typically include speed and traffic volume management measures, such as intersection ROW control, to discourage motor vehicle traffic.

4.16.1.4 Public Transit

Public transportation is a vital part of the circulation system within the Planning Area. Transit expands mobility options to citizens that may not be able to afford or physically operate other means of travel, while some choose not to drive. Figure 4.16-2 presents existing transit facilities located within the Planning Area.

a. Riverside Transit Agency

The Riverside Transit Agency (RTA) provides the majority of public transportation within the Planning Area via fixed route and paratransit bus services. RTA provides routes within the city that connect to major destinations such as the Moreno Valley/March Field Metrolink Station, Perris Station Transit Center, University of California, Riverside (UCR), and Moreno Valley Mall. Major bus routes within the Planning Area include routes 11, 16, 18, 19, 19A, 20, and 31. Additionally, RTA has one commuter link express bus route within the city. Route 208 connects the cities of Temecula, Murrieta, Perris, Moreno Valley, and Riverside. Commuter link express bus routes provide peak hour services for commuters in the morning and evening on weekdays. Route 31 also provides connections to Beaumont, Banning, Hemet, and San Jacinto and passengers can transfer in Beaumont to Sunline Route 10 for service to the Coachella Valley. RTA also provides Dial-A-Ride services for seniors and persons with disabilities.

b. Metrolink

Metrolink is a commuter rail program operated by the Southern California Regional Rail Authority (SCRRA), providing service from outlying suburban communities to employment centers such as Burbank, Irvine, and downtown Los Angeles. The Moreno Valley/March Field Metrolink Station is located less than one-half mile west of the city limits. The 91/Perris Valley Line (PVL) train services Metrolink stations in the cities of Perris, Riverside, Corona, Fullerton, Buena Park, Norwalk/Santa Fe Springs, and Los Angeles. The establishment of the PVL was a joint effort of RCTC and Federal Transit Administration (FTA). The 24-mile extension of the PVL was the first major enhancement to the route network in 14 years.

Map Source: Dyett & Bhatia

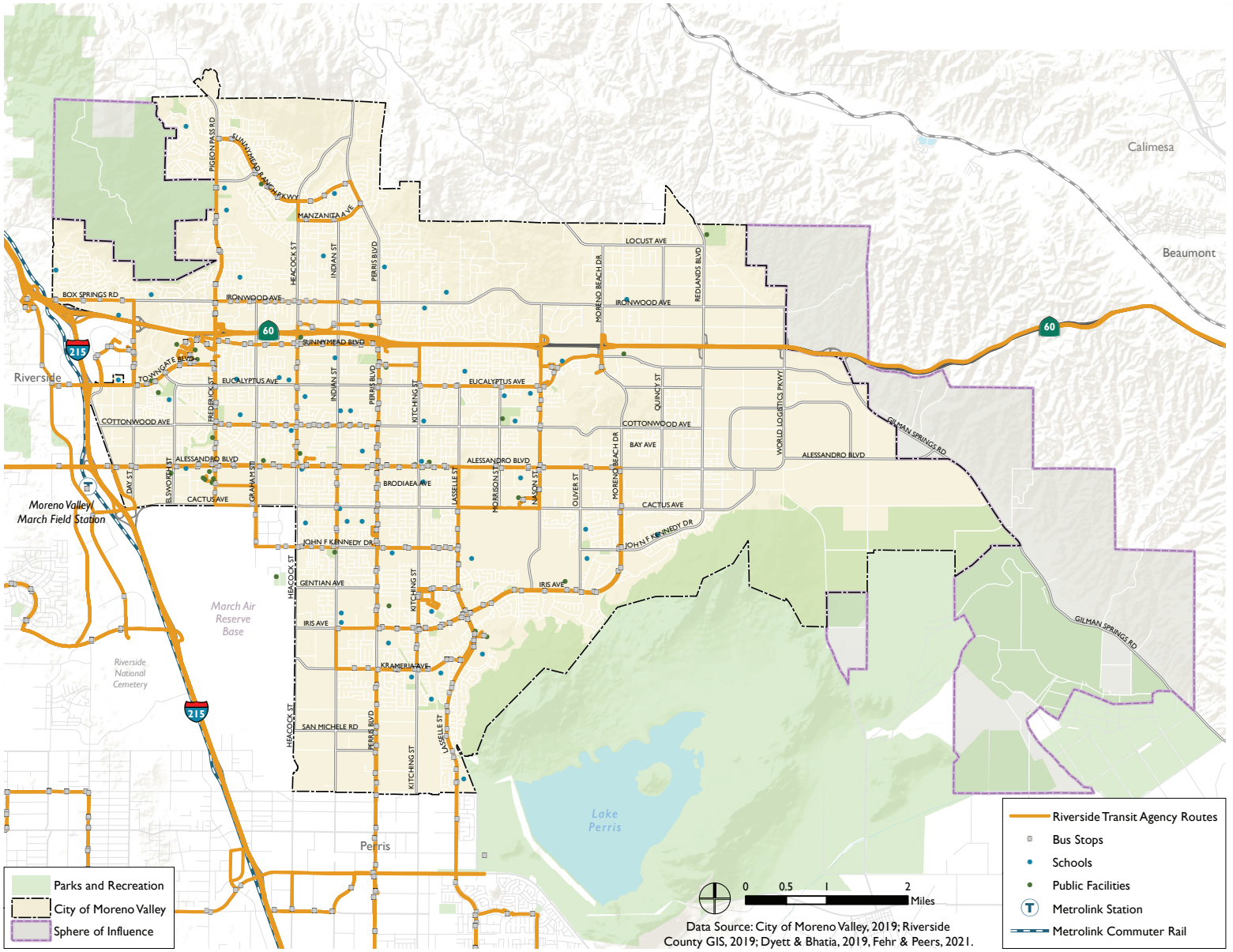

FIGURE 4.16-2
Transit Lines and Facilities

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The Metrolink 10-Year Strategic Plan (2015-2025) indicates that through a partnership with Metro, Metrolink will experiment with lower fares across the board and targeted discounts on shorter distance trips with the goal to increase ridership and revenue. Through 2025, ridership growth on the PVL is expected to increase between approximately 54 percent and 151 percent, depending on enhancements of the existing network and overlay of additional service patterns through 2025[1].

4.16.2 Applicable Regulatory Requirements

4.16.2.1 State Regulations

a. AB 1358 (Complete Streets)

In 2008, the state passed the California Complete Streets Act (AB 1358), requiring circulation elements to include a "Complete Streets" approach that balances the needs of all users of the street. Complete Streets are streets designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. The precise definition of a Complete Street can vary depending on the context and primary roadway users, but there are some common elements found in successful Complete Streets policies. These policies consider the needs of all users of the street in the planning, design, construction, operation, and maintenance of transportation networks. This framework allows policymakers to shift the goals, priorities, and vision of local transportation planning efforts by emphasizing a diversity of modes and users.

b. SB 375 (Sustainable Communities and Climate Protection Act)

The Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, provides incentives for cities and developers to bring housing and jobs closer together and to improve public transit. The goal is to reduce the number and length of automobile commuting trips, helping to meet the statewide targets for reducing greenhouse gas emissions set by AB 32.

SB 375 requires each Metropolitan Planning Organization to add a broader vision for growth to its transportation plan through development of a Sustainable Communities Strategy (SCS). The SCS must lay out a plan to meet the region's transportation, housing, economic, and environmental needs in a way that enables the area to lower greenhouse gas emissions. The SCS should integrate transportation, land use, and housing policies to plan for achievement of the emissions target for each region. The Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) were adopted in 2016.

[1] Growth is based on the 2015 existing average daily ridership of 2,467. This data is from the Metrolink 10 Year Strategic Plan (2015-2025).

For consistency with the regional planning objectives of the SCS, the City considered the following during development of the 2021 GPU:

- Support transit-oriented development;
- Support infill housing development and redevelopment;
- Support mixed-use development, which improves community walkability;
- Improve jobs-to-housing ratio;
- Promote land use patterns that encourage the use of alternatives to single-occupant automobile use;
- Apply Transportation System Management (TSM) and Complete Streets practices to arterials to maximize efficiency;
- Improve modes through enhanced service, frequency, convenience, and choices; and
- Expand and enhance Transportation Demand Management (TDM) practices to reduce barriers to alternative travel modes and attract commuters away from single-occupant vehicle travel.

c. SB 743 (General CEQA Reform, VMT)

SB 743 was signed into law on September 27, 2013, which seeks to balance the needs of congestion management, infill development, public health, greenhouse gas reductions, and other goals. The Office of Planning and Research released the *Technical Advisory on Evaluating Transportation Impacts in CEQA*[2] in December 2018. Western Riverside Council of Governments (WRCOG) released the *WRCOG SB 743 Implementation Pathway*[3] in March 2019, a guiding document for VMT analysis methodology, thresholds, and mitigation strategies for transportation impact evaluation for WRCOG agencies such as Moreno Valley. Furthermore, for the California Environmental Quality Act (CEQA) process, this bill eliminates measures such as auto delay, level of service (LOS), and other vehicle-based measures of capacity in many parts of California. Instead, other measurements such as VMT are to be utilized to measure impacts.

4.16.2.2 Regional Regulations

a. Transportation Demand Management

TDM refers to a comprehensive strategy to reduce driving and resulting VMT by promoting alternatives such as public transit, carpooling, bicycling, walking, and telecommuting. While some TDM measures can be undertaken by the City, such as investments in facilities and

[2]Technical Advisory on Evaluating Transportation Impacts in CEQA: http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf.

[3]WRCOG SB 743 Implementation Pathway: https://www.fehrandpeers.com/wp-content/uploads/2019/12/WRCOG-SB743-Document-Package.pdf.

programs to encourage alternative modes of transportation, other TDM measures require collaboration with other jurisdictions, for example with transit providers to seek expanded service, or with employers to encourage flexible work schedules and the provision of on-site childcare, preferential carpool parking, and subsidized transit passes.

SCAG has developed a long-range planning vision to balance future mobility and housing needs with economic, environmental, and public health goals. The SCAG's Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) has allocated $7.3 billion through 2045 to implement TDM strategies throughout the region. There are three primary goals of SCAG's TDM program:

- Reduce the number of single-occupant vehicle trips and per capita VMT through ridesharing (which includes carpooling and vanpooling) and providing first/last mile services to and from transit;

- Redistribute or eliminate vehicle trips during peak demand periods by supporting telecommuting and alternative work schedules; and

- Reduce the number of single-occupant vehicle trips through use of other modes such as transit, rail, bicycling, and walking, or other micro-mobility modes.

Additionally, WRCOG, of which the City is a member agency, has identified the following key strategies for TDM as most appropriate in the WRCOG subregion:

- Diversifying land use;
- Improving pedestrian networks;
- Implementing traffic calming infrastructure;
- Building low-stress bicycle network improvements;
- Encouraging telecommuting and alternative work schedules; and
- Providing ride-share programs.

b. Riverside County Congestion Management Program

The passage of Proposition 111 in June 1990 established a process for each metropolitan county in California, including Riverside, to prepare a Congestion Management Plan (CMP). The RCTC prepared the County's CMP in consultation with the County of Riverside and the cities within Riverside County. The CMP seeks to align land use, transportation, and air quality management efforts in order to promote reasonable growth management programs that effectively use statewide transportation funds, while ensuring that new development pays its fair share of needed transportation improvements.

The focus of the CMP is the development of an Enhanced Traffic Monitoring System, which would allow RCTC to access real-time traffic count data to evaluate the condition of the Congestion Management System (CMS), as well as to meet other monitoring requirements at the state and federal levels. RCTC's Long Range Transportation Study, approved in 2019, incorporates the state and federal CMP into the plan, including performance standards, conformance, monitoring, deficiency plan process, and management strategies.

Per the LOS target of "E" adopted by RCTC, when a CMS segment falls to "F," a deficiency plan must be prepared by the local agency where the deficiency is located. Other agencies identified as contributors to the deficiency will also be required to coordinate with the development of the plan. The plan must contain mitigation measures, including TDM strategies and transit alternatives, and a schedule of mitigating the deficiency. To ensure that the CMS is appropriately monitored to reduce the occurrence of CMP deficiencies, it is the responsibility of local agencies to consider the traffic impacts on the CMS when reviewing and approving development proposals.

c. Measure A (Riverside County Half-Cent Sales Tax)

In November 1988, Riverside County voters approved Measure A, a one-half cent increase in sales tax over a 20-year period to be used for transportation purposes. A major factor contributing to the support of Measure A was the "return to source" concept, which requires the additional sales tax revenue generated in a specific geographic area be used to finance projects within that same area.

The program has been so successful that in November 2002, Riverside County voters approved a 30-year extension of Measure "A" (2009-2039). Despite its success, Measure A funds only contribute a portion of the transportation improvements necessary to prevent a potential breakdown of the regional transportation system.

4.16.3 Methodologies for Determining Impacts

Fehr & Peers completed a VMT Memo (see Appendix E) consistent with the requirements of SB 743 and the *City of Moreno Valley Transportation Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment* (June 2020).

The impact analysis also evaluated how the proposed transportation network improvement and 2021 GPU goals and policies would serve to improve transportation conditions under project buildout.

4.16.4 Basis for Determining Significance

Thresholds used to evaluate impacts to transportation are based on applicable criteria in the CEQA Guidelines (California Code of Regulations Sections 15000-15387), Appendix G. A significant impact would occur if the project would:

1) Conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities;

2) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b);

3) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or

4) Result in inadequate emergency access.

4.16.5 Impact Analysis

4.16.5.1 Topic 1: Circulation System

Would the project conflict with a plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Figure 4.16-3 presents the proposed circulation network. As the Planning Area continues to experience residential, employment, and commercial growth, a connected, multi-modal street network would be essential to ensure efficient commutes for work and goods movement, safe active transportation, and easy access to retail and entertainment.

The 2021 GPU proposes a "layered network" approach, where traffic demands of the Planning Area and system-wide needs of different modes can be used as inputs as streets are redesigned and configured to better meet the needs of bicyclists, pedestrians, and transit, and enable everyone to efficiently and safely navigate through the Planning Area. Considering system-wide needs means assessing whether the system as a whole is able to meet the needs of travelers. The layered network approach designates modal emphasis by street to create a comprehensive street network. The layered network approach recognizes the need to accommodate all forms of traffic, but with the understanding that certain streets would emphasize certain forms of transportation. Layered networks balance vehicular transportation with "active transportation," which is human-powered transportation that includes walking, cycling, using a wheelchair, in-line skating, or skateboarding. The layered network approach recognizes that not all modes can be accommodated acceptably on all streets within this city, but bicycle and pedestrian movement can be emphasized on specific streets. The layered network would also help ensure consistency with the California Complete Streets Act passed in 2008.

a. Circulation Network

The regional transportation projects listed below have broad regional significance and would reduce congestion within the Planning Area by increasing capacity of the regional transportation network:

- SR-60 Truck Lanes Project: 4.5-mile widening project on SR-60 between Gilman Springs Road and 1.4 miles west of Jack Rabbit Trail in the unincorporated Riverside County Badlands. This project will enhance the mobility and safety of SR-60 through the Badlands and improve trucking accessibility from Moreno Valley to the east. This project is anticipated to be completed in 2021.

- I-215 High Occupancy Vehicle (HOV) Lanes Project: 11-mile widening project on I-215 to add HOV lanes in each direction from Box Springs Road in Moreno Valley to Nuevo Road in Perris. This project is anticipated to improve travel time on I-215.

Map Source: Dyett & Bhatia

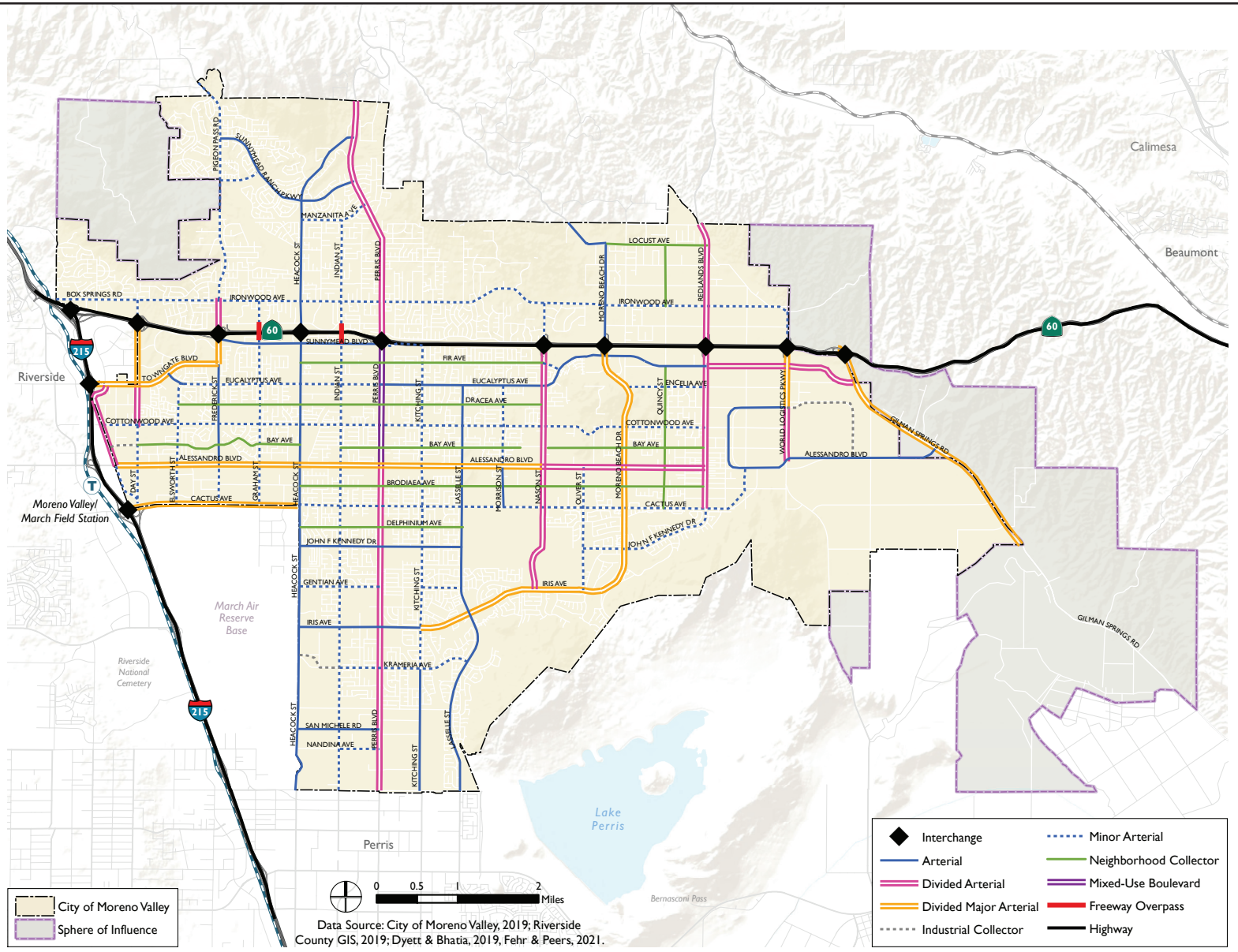

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FIGURE 4.16-3
Proposed Circulation Network

- Mid County Parkway Project: Also known as Community and Environmental Transportation Acceptability Process (CETAP) East, a 16-mile transportation corridor to relieve traffic congestion in southwestern Riverside County near San Jacinto and Perris. This project is anticipated to improve travel time between SR-79 and I-215 and provide connections that support multimodal transportation.

- CETAP West: 16-mile westerly extension of Mid County Parkway between I-15 in Corona and I-215 in Perris. This proposed project will provide an additional alternative east-west corridor from SR-91 between I-15 and I-215.

- Cajalco Road Improvement Project: 16-mile transportation corridor to relieve traffic congestion in southwestern Riverside County near Corona and Perris. This project will provide an alternative east-west corridor to SR-91 between I-15 and I-215.

- The Ethanac Road Improvement Project – 10-mile widening and realignment of the Ethanac corridor from I-15 in Lake Elsinore to I-215 in Perris. This project will provide additional east-west capacity and ease congestion on I-215.

The proposed circulation network would also implement the major roadway improvement projects listed below that are underway or planned. This is not an exhaustive list of all improvement projects, but highlights significant local improvement projects critical to the City's success.

- Eucalyptus Avenue Extension: Eucalyptus Avenue is the existing connection between Redlands Boulevard and World Logistics Parkway Street. The planned changes include the construction of three through lanes (two lanes in the westbound direction and one lane in the eastbound direction), the addition of medians, left-turn pockets, dedicated right-turn lanes, drainage improvements, landscaping, sidewalks, and a Class I bike path.

- Widening of Alessandro Boulevard: Alessandro Boulevard is planned to be widened from two to four lanes between Nason Street and Redlands Boulevard, and then approximately a half mile east of Redlands Boulevard to Gilman Springs Road, a project over five miles long. The improvements include medians, traffic signals, channelization, left-turn pockets, dedicated right turn, drainage, landscaping, sidewalks, bike lanes, and trails.

- Widening of Gilman Springs Road: Gilman Springs Road is planned to be widened from two to six lanes between SR-60 and Alessandro Boulevard, a project over five miles long. The improvements include medians, traffic signals, channelization, left-turn pockets, dedicated right-turn lanes, drainage, landscaping, sidewalks, and bike lanes.

- Gilman Springs Interchange Improvement: The Gilman Springs Road/SR-60 interchange improvement plans include the realignment of Gilman Springs Road and the removal of the existing eastbound and westbound ramps. The plans include widening the overcrossing from two to six through lanes, the westbound exit ramp

from one to two lanes and then to three lanes at the arterial, and the westbound loop and eastbound on-ramps from one lane to two lanes with a HOV lane. The improvements also include the addition of an auxiliary lane to the west of the interchange.

- SR-60 Interchange Improvements: Interchange improvements are proposed, in design and/or going to construction at Redlands Boulevard, World Logistics Center Parkway and Moreno Beach Drive.

Additionally, the 2021 GPU Circulation Element would implement the following goals, policies, and actions to improve the Planning Area circulation network.

Goal

C.1: Strengthen connections to the regional transportation network.

Policies

C.1-1 Support regional infrastructure investments for all modes to relieve congestion and support healthy communities in the City of Moreno Valley.

C.1-2 Maintain ongoing relationships with all agencies that play a role in the development of the City's transportation system.

C.1-3 Cooperatively participate with SCAG, RCTC, WRCOG, and the TUMF [Transportation Uniform Mitigation Fee Central Zone Committee to facilitate the expeditious construction of TUMF Network projects, and planning for a transportation system that anticipates regional needs for the safe and efficient movement of goods and people, especially projects that directly benefit Moreno Valley.

Actions

C.1-A Advocate for the completion of proposed and planned regional transportation projects as they will alleviate congestion on I-215 and SR-60, and will improve traffic conditions on City streets.

C.1-B Work with property owners, in cooperation with RCTC, to reserve rights-of-way for freeways, regional arterial projects, transit, bikeways, and interchange expansion and potential Community and Environmental Transportation Acceptability Process (CETAP) corridors through site design, dedication, and land acquisition, as appropriate.

C.1-C Pursue grant funding, including for major projects that enhance connectivity to the regional network.

Goal

C-2: Plan, design, construct, and maintain a local transportation network that provides safe and efficient access throughout the City and optimizes travel by all modes.

Policies

C.2-1 Design, plan, maintain, and operate streets using complete streets principles for all types of transportation projects including design, planning, construction, maintenance, and operations of new and existing streets and facilities. Encourage street connectivity that aims to create a comprehensive, integrated, connected network for all modes.

C.2-2 Implement a layered network approach by prioritizing conflicting modes, such as trucks and bicyclists, on alternative parallel routes to provide safe facilities for each mode.

C.2-3 Work to eliminate traffic-related fatalities and severe injury collisions by developing a transportation system that prioritizes human life on the roadway network.

C.2-4 Space Collectors between higher classification roadways within development areas at appropriate one-quarter mile intervals.

C.2-5 Prohibit points of access from conflicting with other existing or planned access points. Require points of access to roadways to be separated sufficiently to maintain capacity, efficiency, and safety of the traffic flow.

C.2-6 Wherever possible, minimize the frequency of access points along streets by the consolidation of access points between adjacent properties on all circulation element streets, excluding collectors.

C.2-7 Plan access and circulation of each development project to accommodate vehicles (including emergency vehicles and trash trucks), pedestrians, and bicycles.

C.2-8 For developments fronting both sides of a street, require that streets be constructed to full width. Where new developments front only one side of a street, require that streets be constructed to half width plus an additional 12-foot lane for opposing traffic, whenever possible. Additional width may be needed for medians or left and/or right turn lanes.

C.2-9 Require connectivity and accessibility to a mix of land uses that meets residents' daily needs within walking distance. Typically, this means creating walkable neighborhoods with block lengths between 330 feet and 660 feet in length, based on divisions of the square mile grid on which the city is laid out.

C.2-10 Ensure that complete streets applications integrate the neighborhood and community identity into the street design and retrofits. This can include special

provisions for pedestrians and bicycles that complement the context of each community.

C.2-11 Incorporate traffic calming design into local and collector streets to promote safer streets.

C.2-12 Recognize the need for modified sidewalk standards for local and collector roads within low density areas to reflect the rural character of those areas.

Actions

C.2-A Update Standard Plan cross-sections consistent with best practices and to address new cross-sections adopted in the Circulation Diagram (Neighborhood Collector and Mixed-Use Boulevard).

C.2-B Continue to implement the Bicycle Master Plan to provide low-stress bicycle network improvements citywide, and update the plan periodically as needed.

C.2-C Develop curb space management guidelines that incorporate best practices and strategies for deliveries and drop-offs in commercial and mixed-use areas.

C.2-D Invest in critical infrastructure and implement pilot programs to leverage new transportation technology.

C.2-E Establish uniform, transparent and anonymized data-sharing to assist mobility informed decision-making while maintaining people's privacy.

C.2-F As new transportation technologies and mobility services, including connected and autonomous vehicles, electric vehicles, electric bicycles and scooters, and transportation network companies (e.g., Uber and Lyft) are used by the public, review and update City policies and plans to maximize the benefit to the public of such technologies and services without adversely affecting the City's transportation network. Updates to the City's policies and plans may cover topics such as electric vehicle charging stations, curb space management, changes in parking supply requirements, shared parking, electric scooter use policies, etc.

C.2-G Research best management practices for new designs, improvements, and infrastructure upgrades such as Autonomous Vehicle (AV) sensors in the roadway and lane striping to promote safety, smart infrastructure that can communicate with vehicles and vice versa, and in road electrification of vehicles. Consider developing standards to designate AV parking areas separate from standard parking areas, where AVs have the ability to stack park when not in use.

C.2-H Evaluate opportunities to implement roundabouts as traffic control as new development projects are proposed, considering safety, traffic calming, cost, maintenance and greenhouse gas reduction related to idling.

Goal

C-3: Manage the City's Transportation System to minimize congestion, improve flow, and improve air quality.

Policies

C.3-1 Strive to maintain Level of Service (LOS) "C" on roadway links, wherever possible, and LOS "D" in the vicinity of SR 60 and high employment centers. Strive to maintain LOS "D" at intersections during peak hours.

C.3-2 Allow for a list of locations to be exempt from the LOS policy based on right-of-way constraints and goals and values of the community. The City Engineer shall update the exempted intersections and roadway segments list periodically to be included with the traffic impact study guidelines and adopted by ordinance.

C.3-3 Where new developments would increase traffic flows beyond the LOS C (or LOS D, where applicable), require appropriate and feasible improvement measures as a condition of approval. Such measures may include extra right-of-way and improvements to accommodate additional left-turn and right-turn lanes at intersections, or other improvements.

C.3-4 Require development projects to complete traffic impact studies that conduct vehicle miles traveled analysis and level of service assessment as appropriate per traffic impact study guidelines.

C.3-5 Manage freeway bypass traffic during peak commute hours from SR-60 and I-215 through traffic signal timing coordination and Intelligent Transportation Systems (ITS) to limit impact on City streets.

C.3-6 Require new developments to participate in Transportation Uniform Mitigation Fee Program (TUMF), the Development Impact Fee Program (DIF) and any other applicable transportation fee programs and benefit assessment districts.

C.3-7 Support regional efforts for the development of a VMT mitigation impact fee program.

C.3-8 Ensure that new development pays a fair share of costs to provide local and regional transportation improvements and to mitigate cumulative traffic deficiencies and impacts.

C.3-9 Employ parking management strategies, such as shared parking in mixed use areas, on-street residential parking, and spill-over parking to avoid construction of unnecessary parking.

C.3-10 Require traffic and parking management plans for major events to utilize travel demand management strategies encouraging transit and other alternatives to single occupant vehicles to limit the impact to City Streets.

C.3-11 Implement National Pollutant Discharge Elimination System Best Management Practices relating to construction of roadways to control runoff contamination from affecting water resources.

C.3-12 Evaluate opportunities to incorporate new materials, technologies or design features that improve performance of the circulation system.

C.3-13 Promote efficient circulation planning at schools, partnering with the local school districts to optimize school drop-off/pick-ups.

Actions

C.3-A Periodically review and update traffic impact study guidelines for vehicle miles traveled and level of service assessment.

C.3-B Periodically collect traffic count data to support existing traffic operations and future infrastructure.

C.3-C Update the City's standard roadway cross-sections and standard plans to reflect state-of-the-practice in safe and efficient roadway design.

C.3-D Update ITS Master Plan to include latest technology and innovations, and continue investment to expand ITS and citywide camera system.

The City also utilizes Intelligent Transportation Systems (ITS) to improve roadway circulation, which refers to a set of tools that facilitates a connected, integrated transportation system. Applications of ITS include adaptive traffic prioritization signals aimed at congestion management and improving traffic flow, and the collection and dissemination of real-time travel information such as transit arrivals or traffic incident alerts. Other applications of ITS to be considered as transportation patterns change and emerging technologies come online may include connected and autonomous vehicles and smart city integration.

The City currently has an Advanced Traffic Management System (ATMS) that allows staff to monitor traffic at strategic locations throughout the city. The system allows for the transportation system to work more effectively and efficiently by providing the ability to adjust critical traffic signals from the City's Transportation Management Center (TMC). These tools allow the City to effectively monitor and address congestion issues.

Additionally, the City's Intelligent Transportation System incorporates innovative field infrastructure including fiber-optic communication media and end equipment, closed-circuit television cameras, permanent Dynamic Message Signs (DMS), advanced transportation controllers, and video and radar traffic signal detection. The City is able to differentiate between vehicles, bicyclists and pedestrians, helping traffic to flow more efficiently and improving safety for all road users. The City also has the ability to provide signal priority for buses on heavy transit corridors. Utilization of these tools, as well as implementation of the roadway improvements and goals, polices, and actions described above would improve the

circulation network through project buildout in 2040. Therefore, the project would not conflict with a plan, ordinance, or policy addressing roadway circulation, and impacts would be less than significant.

b. Pedestrian and Bicycle Network

The City adopted a Bicycle Master Plan in November 2014, which recommends bicycle programs to improve facilities that can make it safer for users of all ages and abilities to ride a bicycle on city streets. Existing high traffic volume arterials and truck routes can conflict with existing and proposed bicycle routes throughout the City. The City's Bicycle Master Plan and Circulation Element have identified parallel east-west corridors (Neighborhood Collectors) to provide low-stress alternatives to riding on arterials as part of the layered network. The City still provides bicycle facilities on most major arterials and additional buffers/protection is recommended on high speed/volume roadways, especially along truck routes to limit conflicts. Additional bicycle infrastructure in congested areas, such as bicycle signal heads, traffic signal bicycle detection, green bicycle lanes, and two-stage turn queue boxes can further enhance bicycle facilities on high-stress corridors. Additionally, the 2021 GPU Circulation Element would implement the following goals, policies, and actions to improve the bicycle and pedestrian circulation.

Goal

C-4: Provide convenient and safe connections between neighborhoods and destinations within Moreno Valley.

Policies

C.4-1 Support the development of highspeed transit linkages or express routes connecting major destinations within the city and beyond, including the Metrolink Station, that would benefit the residents and employers in Moreno Valley.

C.4-2 Collaborate with major employers and other stakeholders to improve access and connectivity to key destination such as the Downtown Center, the Moreno Valley Mall, the hospital complexes, Moreno Valley College, and the Lake Perris State Recreation Area.

C.4-3 Support the establishment of a Transit Center/Mobility Hub in the Downtown Center.

C.4-4 All new developments shall provide sidewalks in conformance with the City's streets cross-section standards, and applicable policies for designated urban and rural areas.

C.4-5 Recognize that high-speed streets, high-volume streets and truck routes can increase pedestrian and bicycle stress levels and decrease comfortability. Provide increased buffers and protected bicycle lanes in high-stress areas, where feasible. Provide landscaped buffers where feasible to separate pedestrian environments

from the travel way adjacent to motor vehicles. Provide convenient and high-visibility crossings for pedestrians.

Actions

C.4-A Prepare and maintain a Pedestrian Access Plan supporting a safer and more convenient network of identified pedestrian routes with access to major employment centers, shopping districts, regional transit centers, schools, and residential neighborhoods; the plan should address safer routes to schools, safer routes for seniors, and increase accessibility for persons with disabilities.

C.4-B The City shall actively pursue funding for the infill of sidewalks in developed areas. The highest priority shall be to provide sidewalks on designated school routes.

C.4-C Continue ongoing coordination with transit authorities toward the expansion of transit facilities into newly developed areas.

C.4-D Work with major employers, the hospital complexes, and Moreno Valley College to study alternatives to conventional bus systems, such as smaller shuttle buses (micro-transit), on-demand transit services, or transportation networking company services that connect neighborhood centers to local activity centers with greater cost efficiency.

C.4-E Pursue regional, state and federal grant opportunities to fund design and construction of the City bikeway system.

C.4-F Periodically review and update citywide wayfinding strategy that enhances access to key destinations, including Moreno Valley College, Riverside University Medical Center, Kaiser, and Lake Perris State Recreation Area.

Goal

C-5: Enhance the range of transportation operations in Moreno Valley and reduce Vehicle Miles Traveled.

Policies

C.5-1 Work to reduce VMT through land use planning, enhanced transit access, localized attractions, and access to non-automotive modes.

C.5-2 Encourage public transportation that addresses the particular needs of transit-dependent individuals, including senior citizens, the disabled, and low -income residents.

C.5-3 Encourage bicycling as an alternative to single occupant vehicle travel for the purpose of reducing fuel consumption, traffic congestion, and air pollution.

C.5-4 Particularly in corridors and centers, work with transit service providers to provide first-rate amenities to support pedestrian, bicycle and transit usage, such as bus shelters and benches, bike racks on buses, high-visibility crossings, and modern bike storage.

C.5-5 Encourage local employers to implement TDM strategies, including shared ride programs, parking cash out, transit benefits, allowing telecommuting and alternative work schedules.

Actions

C.5-A Keep the City's traffic impact study guidelines current and revise the CEQA threshold of significance for VMT as appropriate.

C.5-B Maintain a list of recommended Transportation Demand Management (TDM) strategies for employers and new developments.

C.5-C Remain flexible in the pursuit and adoption of transportation funding mechanisms that fund innovative transportation solutions.

C.5-D Work with RTA and Metrolink to increase transit service frequency, speed, and reliability and increase ridership. Strengthen linkages and access to the Metrolink Station.

C.5-E Integrate transit access and information systems into employment centers, major destinations and new multi-family residential development.

C.5-F Develop a Park Once strategy to promote walkability in mixed use centers and corridors.

C.5-G Study the feasibility of implementing car-sharing program, working with established providers.

The project would also implement future pedestrian and bicycle facilities as shown in Figure 4.16-1 above. Therefore, the project would not conflict with a plan, ordinance, or policy addressing pedestrian and bicycle circulation, and impacts would be less than significant.

c. Public Transit

To improve transit connectivity, the City will work with other local agencies to increase transit access through a combination of new routes and/or higher service frequency, expanded hours, and making the public transit experience more user friendly and attractive, such as through improved bus shelters that offer cooling/shade from the sun during drier months and protection against rainy/cold conditions during wetter months. As the City expands its transit offerings, the City will help support the prioritization of needs of seniors, minorities, low-income, disabled, and transit-dependent residents to ensure that everyone can make the trips they need to live, work, and play to their fullest potential.

Given that the majority of the Planning Area is of a suburban, low-density character, expanding public transit routes would likely be an inefficient method of attracting greater transit ridership. Other methods of attracting ridership could include focusing on providing high-quality service between employment centers and mixed-use destinations along the major corridors of the city, supplemented with features such as park-n-rides and pedestrian and bicycle infrastructure to create multi-modal transportation nodes, and coordinating with transit providers to promote bus user satisfaction through strategies such as reduced headways and improved on-time performance. Additionally, the 2021 GPU Circulation Element would implement the policies, and actions described above under goals C-4 and C-5 to improve public transit within the Planning Area. Therefore, the project would not conflict with a plan, ordinance, or policy addressing transit circulation, and impacts would be less than significant.

4.16.5.2 Topic 2: Vehicle Miles Traveled

Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3 requires that the determination of significance for transportation impacts be based on VMT instead of a congestion metric such as LOS. The change in the focus of transportation analysis is the result of SB 743, as detailed in 4.16.2.1.

a. Vehicle Miles Traveled Modeling

The VMT Memo utilized the RIVTAM to estimate VMT under buildout of the project and existing 2006 General Plan. The VMT Memo interpolated between the base year (2012) and future year (2040)[4] to develop the appropriate existing baseline condition (2018). The total households and employment would be the same under buildout of both the project and existing 2006 General Plan. However, the project would increase the number multi-family residential units and decrease the number of single-family units compared to the existing 2006 General Plan while maintaining the same number of total units. Consequently, the project would have a projected buildout population size of 252,179, which would be less than the project buildout population of 256,600 for the existing 2006 General Plan. This reduced population projection for the project is due to the increased share of multi-family households in the 2021 GPU proposed land use plan, which typically have a lower household population. The project also anticipates a shift in the employment makeup in the City from retail/commercial to office employment. VMT modeling for buildout of both the project and the existing 2006 General Plan were updated to reflect the existing and proposed circulation networks. Table 4.16-4 presents the results of these VMT modeling scenarios.

[4]The 2040 condition of RIVTAM represents the SCAG land use forecast for growth from buildout of the Moreno Valley General Plan in year 2040.

Table 4.16-4
RIVTAM Model Inputs for General Plan Scenarios

Land Use	2012 Base Year	2018 Baseline	2040 Existing GP	2018-2040 EXGP Delta	2040 Proposed GP	2018-2040 PGP Delta
Population	194,669	195,177	256,600	61,423	252,179	57,002
Household[1]	51,038	52,008	72,737	20,729	72,737	20,729
Commercial/Retail Employment	21,781	25,007	35,985	10,978	32,209	7,202
Office Employment	4,084	6,090	9,543	3,453	13,625	7,535
Industrial Employment	4,968	13,326	37,708	24,382	37,503	24,177
Total Employment	30,993	44,659	83,573	38,914	83,573	38,914

SOURCE: Fehr & Peers 2021.
GP = General Plan, EXGP = Existing General Plan, PGP = Proposed General Plan
[1]Households reflect a 94 percent occupancy rate of available housing units.

The *City of Moreno Valley Traffic Impact Preparation Guide* (June 2020) includes the following thresholds of significance:

1. A project would have a significant VMT impact if, in the Existing Plus Project scenario, its net VMT per capita (for residential projects) or per employee (for office and industrial projects) exceeds the per capita VMT for Moreno Valley. For all other uses, a net increase in VMT would be considered a significant impact.

2. If a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence. If it is not consistent with the RTP/SCS, then it would have a significant VMT impact if:

    a. For residential projects its net VMT per capita exceeds the average VMT per capita for Moreno Valley in the RTP/SCS horizon-year.

    b. For office and industrial projects its net VMT per employee exceeds the average VMT per employee for Moreno Valley in the RTP/SCS horizon year

    c. For all other land development project types, a net increase in VMT in the RTP/SCS horizon-year would be considered a significant impact.

The *City of Moreno Valley Traffic Impact Preparation Guide* notes that the Cumulative No Project scenario shall reflect the adopted RTP/SCS. Therefore, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant subject to consideration of other substantial evidence.

As these thresholds were not intended to specifically address the appropriate methodology and metric for a general plan, the following thresholds of significance are used to evaluate the 2021 GPU:

1. Any increase in the VMT per Service Population/Resident/Employee calculated using the Boundary Method, Production/Attraction Method, or Origin/Destination method compared to the Existing Baseline would be considered a significant impact.

2. Any increase in the total VMT or VMT per Service Population/Resident/Employee calculated using the Boundary Method, Production/Attraction Method, or Origin/Destination method compared to the Existing General Plan would be considered a significant impact.

VMT can be presented as total VMT or as VMT per service population, resident, or employee. Total VMT represents all VMT generated in the city on a typical day, while VMT per service population, resident, or employee is an efficiency metric that represents VMT generated on a typical day per person who lives and/or works in the City. VMT per person can be measured as VMT per resident for residential only projects, VMT per employee for employment only projects, and VMT per service population for projects and land use plans which include both residential and employment uses. Total VMT gives an estimate of the total travel, while VMT per person measures the efficiency of travel. Total VMT and VMT per person estimates were calculated using the three methodologies described below.

Production/Attraction VMT: The Production/Attraction (PA) method for calculating VMT sums all weekday VMT generated by trips with at least one trip end in the study area and while trips are still tracked by trip purpose. The PA method tracks trips with at least one trip end to/from their ultimate destination unless that destination is outside of the model boundary area (e.g., outside of the SCAG region). Productions are land use types that generate trips (residences) and attractions are land use types that attract trips (employment). Productions and attractions are converted from person trips to vehicle trips for the purposes of calculating VMT.

The PA method allows project VMT to be evaluated based on trip purpose which is consistent with Office of Planning and Research (OPR) recommendations in the Technical Advisory and the City's guidelines. For example, a single-use project such as an office building could be analyzed based only on the commute VMT, or home-based-work attraction (HBWA) VMT per employee, and a residential project could be analyzed based on the home-based production (HBP) VMT per resident. PA matrices do not include external trips that have one trip end outside of the model boundary (IX-XI trips) or truck trips, and therefore do not include those trips in the VMT estimates. This is not consistent with the OPR recommendations that suggest full accounting of VMT should be completed.

Origin/Destination VMT: The Origin/Destination (OD) method for calculating VMT sums all weekday VMT generated by trips with at least one trip end in the study area and tracks those trips to their estimated origins/destinations. The OD method is completed after the final loops of assignment in the travel demand model after person trips are converted to total vehicle trips. Origins are all vehicle trips that start in a specific traffic analysis zone, and destinations are all vehicle trips that end in a specific traffic analysis zone.

The OD method accounts for external and truck trips and therefore provides a more complete estimate of all VMT within the study area. This methodology also estimates VMT consistent with VMT estimates in air quality, noise, and energy sections of an EIR. Unfortunately, OD trip matrices do not separate trips by trip purpose, and therefore VMT cannot be calculated by HBWA VMT per employee or HBP VMT per resident, but only by total VMT. It should also be noted that, although VMT includes trips to/from the City that originate or are destined to locations outside of the model area, those trip lengths are artificially truncated at the model boundary.

Boundary Method VMT: The boundary method is the sum of all weekday VMT on a roadway network within a designated boundary.[5] The boundary method estimates VMT by multiplying the number of trips on each roadway segment by the length of that segment. This approach includes all trips, including those trips that do not begin or end in the designated boundary and is another way to summarize VMT. This is the only VMT method that captures the effect of cut-through and/or displaced traffic. The boundaries utilized in the assessment below is the City boundary and Western Riverside Council of Governments boundary. The two boundaries provide a focused assessment specific to Moreno Valley while also reviewing the effect of uses in at the edge of the City that may be truncated by the City boundary.

b. Vehicle Miles Traveled Estimates

Table 4.16-5 presents the results of the VMT modeling described above. The bullet list below summarizes the results of the VMT modeling:

- The Total VMT, HBP VMT, and HBWA VMT generated within the city would be lower under buildout of the project compared to buildout of the existing 2006 General Plan.
- HBP VMT/resident and HBWA VMT/employee would be lower under buildout of the project compared to buildout of the existing 2006 General Plan. This indicates that the project would have a more efficient mix of jobs and households, resulting in shorter average commutes.
- HBP VMT/resident is forecast to improve with both plans as under buildout of both the project and existing 2006 General Plan compared to Existing Baseline (2018), though the reduction under buildout of both the project would be twice as large as the reduction under buildout of the existing 2006 General Plan.
- Boundary VMT would be higher under buildout of the project compared to buildout of the existing 2006 General Plan.

[5] OPR recommends against using "arbitrary" boundaries such as City or County lines, however the model-wide results would include all six counties in the model. The addition of a single project in such a large area would be negligible. The only way to distinguish between no project and plus project results to determine the effect on VMT is to set a boundary at a scale where the effect on VMT from an individual project can be measured. Therefore, Fehr & Peers recommends the City or sub-regional level boundary would be an appropriate scale for this methodology.

All of the above findings, except the increase in Boundary VMT, show that the project would be below the thresholds of significance related to VMT, resulting in more efficient land use patterns that decrease total VMT and VMT per Service Population/Resident/Employee based on several methods. The one exception is the increase in Boundary VMT under buildout of the project, including the amount of cut through traffic that bypasses the city. It should be noted that the Boundary VMT estimates under buildout of both the project and existing 2006 General Plan are within 0.09 to 0.66 percent of each other, which is within the default 1 percent convergence criteria programmed in the traffic model runs. This implies that the differences in the estimates could be attributed to "model noise," or inherent randomness between model runs.

Table 4.16-5
VMT Summary

Land Use	2012 Base Year	2018 Baseline Interpolation	2040 Existing General Plan	2040 Proposed General Plan
Population	194,669	195,177	256,600	252,179
Employment	30,993	44,659	83,573	83,573
Service Population	225,662	239,836	340,173	335,752
Total OD VMT	5,514,827	5,985,420	9,132,168	9,048,076
OD VMT/SP[1]	24.44	24.96	26.86	**26.96**
HBP VMT[2]	2,472,986	2,467,621	3,187,219	3,046,905
HBP VMT/Resident	12.70	12.64	12.42	12.08
HBWA VMT[3]	340,886	524,833	1,211,220	1,201,670
HBWA VMT/Employee	11.00	11.75	14.51	**14.40**
City Boundary VMT[4]	1,686,559	1,844,892	2,888,203	**2,907,283**
City Boundary VMT/SP	7.47	7.69	8.49	**8.66**
WRCOG Boundary VMT	37,762,840	43,066,465	64,353,390	64,296,920
WRCOG Boundary VMT/SP[5]	16.73	17.15	18.71	**18.72**

SOURCE: Fehr & Peers 2021.
NOTE: Items identified in **bold** are higher than either 2018 Baseline or 2040 Existing General Plan.

[1]SP = Service Population; the sum of population and employment.
[2]HBP VMT = Home-based production VMT; VMT generated by trips originating or ending at homes in Moreno Valley.
[3]HBWA = Home-based-work attraction VMT; VMT generated by trips originating or ending at employment centers in Moreno Valley.
[4]The boundary method VMT estimated for Existing General Plan and Proposed General Plan are within 1%, which could be a function of model noise related to the default convergence criteria (0.01) in RIVTAM.
[5]Land use assumptions for WRCOG are provided as Attachment B.

The VMT Memo reached the following conclusions based on the results of the VMT modeling described above:

- OD VMT/SP would be higher under buildout of the project compared to buildout of the existing 2006 General Plan.
- OD VMT/SP under buildout of the project (2040) would increase compared to existing baseline (2018).

- HBWA VMT/Emp under buildout of the project (2040) would increase compared to existing baseline (2018).

- Boundary VMT and Boundary VMT/SP would be higher under buildout of the project compared to buildout of the existing 2006 General Plan.

The modeling results and conclusions described above do not include any VMT reduction associated with TDM policies and actions under goals C-2 and C-3 of the 2021 GPU Circulation described in Section 4.16.5.1 above, or the TDM policies and actions under goals C-4 and C-5 of the 2021 GPU Circulation described in Section 4.16.5.3 below. However, it is not anticipated that VMT reductions associated with proposed TDM measures would be large enough to guarantee that significant impacts could be fully mitigated. Based on the increase in OD VMT/SP, HBWA VMT/Employee, City Boundary VMT, City Boundary VMT/SP, and WRCOG Boundary VMT/SP, shown in bold in Table 4.16-5, implementation of the project would exceed the established thresholds of significance. Therefore, projected VMT generated under buildout of the project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). This would be considered a significant impact.

4.16.5.3 Topic 3: Hazards Due to a Design Feature

Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The 2021 GPU includes policies and actions described above that would ensure future transportation facilities would not introduce hazards onto the circulation network. Policy C.2-5 would prohibit points of access from conflicting with other existing or planned access points and require points of access to roadways to be separated sufficiently to maintain capacity, efficiency, and safety of the traffic flow. Action C.2-H would evaluate opportunities to implement roundabouts as traffic control as new development projects are proposed, considering safety, traffic calming, cost, maintenance and greenhouse gas reduction related to idling. Future development and redevelopment would also be subject to applicable City road standards and would be designed consistent with all safety requirements pertaining ingress and egress onto the circulation network. Therefore, the project would not substantially increase hazards, and impacts would be less than significant.

4.16.5.4 Topic 4: Emergency Access

Would the project result in inadequate emergency access?

As described in Section 4.9.5.6 above, the City adopted its Local Hazard Mitigation Plan (LHMP) on October 4, 2011 (revised 2017). The LHMP contains a map of emergency evacuation routes in the community that includes I-215, SR-60, and major roadways through the city. The evaluation network consists of 129 miles of roadway designated as potential evacuation routes in the event of disaster, including 34 bridges and 127 water crossings. Evacuation times could be improved with the implementation of technological and design strategies. For example, where appropriate, the use of painted medians instead of raised medians on roadways in areas of highest risk would effectively allow for reversible lanes that

create additional outbound capacity, unless required to be installed by City Standard Plans. Application of this strategy would approximately double evacuation capacity in the northwestern portion of the city. Further, remote control of signal timing from the City's Traffic Management Center (TMC) allows for real-time modifications to signal timing that can speed evacuation in the event of emergency. Approximately half of the traffic signals in the city are currently connected to the TMC, and the 2021 GPU provides for the implementation of this technology in vulnerable areas as a priority going forward. The 2021 GPU also includes policies that provide for exploration of additional actions to facilitate emergency evacuation, including the study of improved roadway connections, including Morton Road/Gernert Road in unincorporated Riverside County to the west of Moreno Valley.

Future development would be designed, constructed, and maintained in accordance with applicable standards associated with the LHMP, including vehicular access to ensure that adequate emergency access and evacuation would be maintained. Construction activities that may temporarily restrict vehicular traffic would be required to implement appropriate measures to facilitate the passage of persons and vehicles through/around any required road closures. Moreover, future development would be required to adhere to the policies included in the 2021 GPU Safety Element described in Section 4.9.5.6 above. Additionally, the 2021 Circulation Element identifies roadway improvements that would increase traffic capacity, and thereby ensure that the roadway network would be capable of accommodating traffic flows during emergency response and emergency evacuation. Therefore, adherence to applicable LHMP standards and 2021 GPU Safety Element policies, as well as increased traffic capacity in the proposed roadway network, would ensure that the project would not result in inadequate emergency access, and impacts would be less than significant.

4.16.6 Cumulative Analysis

The impact analysis described above is cumulative in nature. The 2021 GPU Circulation Element provides a comprehensive framework that would improve the circulation network through project buildout in 2040. This would include implementing roadway and circulation improvements, new bicycle and pedestrian facilities, improving access to public transit, and utilizing ITS to improve the circulation network. The 2021 GPU includes policies and actions described above that would ensure future transportation facilities would not introduce hazards onto the circulation network, and future development and redevelopment would also be designed consistent with all safety requirements pertaining ingress and egress onto the circulation network. Adherence to applicable LHMP standards and 2021 GPU Safety Element policies, as well as increased traffic capacity in the proposed roadway network, would ensure that the adequate emergency access would be available for the Planning Area. The VMT analysis presented in Section 4.16.5.2 above evaluated future conditions for the entire Planning Area, and therefore was cumulative in nature. Significant impacts related to VMT were identified in Section 4.16.5.2 above, and it is not anticipated that VMT reductions associated with proposed TDM measures would be large enough to guarantee that significant impacts could be fully mitigated. Therefore, projected VMT generated under buildout of the project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b), and the project would result in cumulative impacts related to VMT.

4.16.7 Significance of Impacts before Mitigation

4.16.7.1 Topic 1: Circulation System

The project would implement roadway and circulation improvements, new bicycle and pedestrian facilities, as well as the polices and actions listed under goals C-1 through C-3 in order to improve the circulation network through project buildout in 2040. Therefore, the project would not conflict with a plan, ordinance, or policy addressing the circulation system, and impacts would be less than significant.

4.16.7.2 Topic 2: Vehicle Miles Traveled

Compared to the existing 2006 General Plan, implementation of the project would result in lower VMT using several metrics, demonstrating a land use plan that would increase per capita VMT efficiency. However, some metrics showed an increase in VMT based on several metrics (shown in bold in Table 4.16-5). As a result of some metrics that exceeded the significance criteria based on certain analysis methodologist, impacts would be significant. The project includes TDM goals, policies, and actions that would support VMT reductions; however, anticipated VMT reductions associated with proposed TDM measures would be large enough to guarantee that significant impacts could be fully mitigated. Therefore, projected VMT generated under buildout of the project would be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b). This would be considered a significant impact.

4.16.7.3 Topic 3: Hazards Due to a Design Feature

The 2021 GPU includes policies and actions described above that would ensure future transportation facilities would not introduce hazards onto the circulation network, and future development and redevelopment would also be designed consistent with all safety requirements pertaining ingress and egress onto the circulation network. Therefore, the project would not substantially increase hazards, and impacts would be less than significant.

4.16.7.4 Topic 4: Emergency Access

Adherence to applicable LHMP standards and 2021 GPU Safety Element policies, as well as increased traffic capacity in the proposed roadway network, would ensure that the project would not result in inadequate emergency access, and impacts would be less than significant.

4.16.8 Mitigation

4.16.8.1 Topic 1: Circulation System

Impacts would be less than significant. No mitigation is required.

4.16.8.2 Topic 2: Vehicle Miles Traveled

The project has incorporated VMT reducing goals and policies to the extent feasible. No additional mitigation was identified that could reduce VMT impacts. Therefore, impacts would remain significant and unavoidable.

4.16.8.3 Topic 3: Hazards Due to a Design Feature

Impacts would be less than significant. No mitigation is required.

4.16.8.4 Topic 4: Emergency Access

Impacts would be less than significant. No mitigation is required.

4.16.9 Significance of Impacts after Mitigation

4.16.9.1 Topic 1: Circulation System

Impacts would be less than significant. No mitigation is required.

4.16.9.2 Topic 2: Vehicle Miles Traveled

Impacts would be significant and unavoidable.

4.16.9.3 Topic 3: Hazards Due to a Design Feature

Impacts would be less than significant. No mitigation is required.

4.16.9.4 Topic 4: Emergency Access

Impacts would be less than significant. No mitigation is required.