APPENDIX D21

VMT Analysis

SB 743 VMT Analysis
for:

Districts at Jurupa Valley

In the City of Jurupa Valley

Prepared by:

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January 2023

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Districts at Jurupa Valley
January 13, 2023

BACKGROUND

In 2013, SB 743 was signed into law by California Governor Jerry Brown with a goal of reducing Greenhouse Gas (GHG) emissions, promoting the development of infill land use projects and multimodal transportation networks, and to promote a diversity of land uses within developments. One significant outcome resulting from this statue is the removal of automobile delay and congestion, commonly known as Level of Service (LOS), as a basis for determining significant transportation impacts under the California Environmental Quality Act (CEQA).

The Governor's Office of Planning and Research (OPR) selected Vehicle Miles Traveled (VMT) as the principal measure to replace LOS for determining significant transportation impacts. VMT is a measure of total vehicular travel that accounts for the number of vehicle trips and the length of those trips. OPR selected VMT, in part, because jurisdictions are already familiar with this metric. VMT is already used in CEQA to study other potential impacts such as GHG, air quality, and energy impacts and is used in planning for regional Sustainable Communities Strategies (SCS).

VMT also allows for an analysis of a project's impact throughout the jurisdiction rather than only in the vicinity of the proposed project allowing for a better understanding of the full extent of a project's transportation-related impact. It should be noted that SB 743 does not disallow an agency to use LOS for other planning purposes outside the scope of CEQA.

This section documents SB 743 VMT analysis based on City of Jurupa Valley traffic analysis guidelines [1]

PROJECT DESCRIPTION

The proposed Project consists of a new specific plan (The District at Jurupa Valley Specific Plan) that would replace the Emerald Meadows Ranch Specific Plan (SP-337) originally adopted by Riverside County in 2005, prior to the City's incorporation. The District at Jurupa Valley Specific Plan contains approximately 243 acres and 4 acres of existing residential parcels, for a total of 247 (+/-) acres; see **Figure 1: Land Use Plan**. A proposed Tentative Map (Tentative Tract map 38318) would combine existing multiple lots into a consolidated plan. Subsequent final maps and lotting would support future development. The Project would be developed over several phases subject to market factors.

The development plan allows for a variety of residential and non-residential uses that incorporate strong employment opportunities through the warehouse/industrial and commercial land uses, generating new business core of retail, services and employment. In addition to economic development, the proposed residential land uses will support the General Plan's Housing Element by providing new housing opportunities to meet the City's Regional Housing Needs Assessment.

[1] *City of Jurupa Valley Traffic Impact Analysis Guidelines, November 2020*

The District at Jurupa Valley Specific Plan would permit development of up to 1,196 residential units (4 existing + 1,192 proposed); around 3 million square feet of commercial and industrial land uses (including warehouse and logistic uses as permitted by the Agua Mansa Warehouse and Distribution Overlay Zone proposed to be applied to a portion of the Project site); a hotel with conference and hospitality area; and 7.2 acres of parks and open space. The proposed Specific Plan land use components are shown in **Figure 1: Land Use Plan** and **Table 1: Specific Plan Land Use Summary**.

Figure 1: Land Use Plan

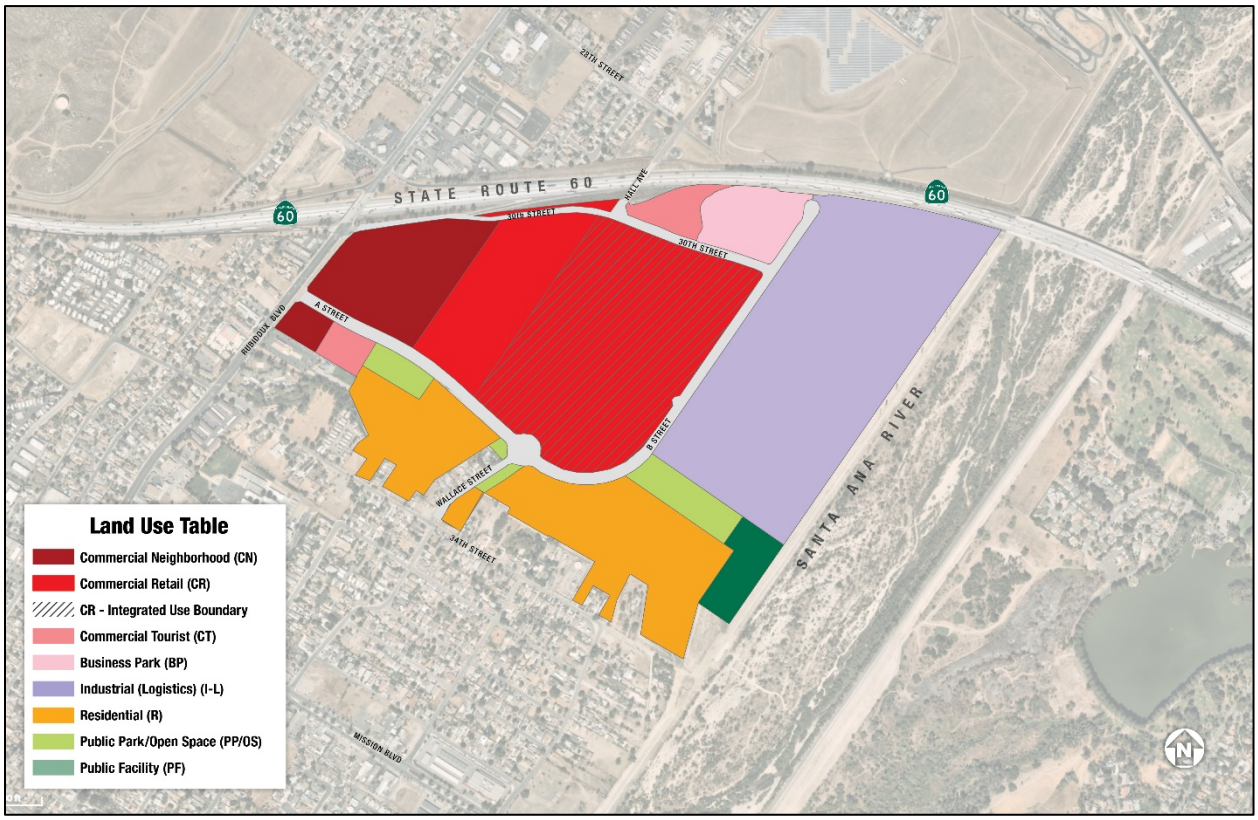


Table 1: Land Use Summary

Land Use	Gross Acreage[1]	Non-Residential Square Feet[2]	Hotel Rooms[3]	Dwelling Unit
Commercial				
Neighborhood	20.3	160,000	---	---
Retail	69.8	1,200,000	---	---
Existing Non-Conforming	1.1			
Tourist	5.9	122,500	160	---
Commercial Sub-Total	**97.1**	**1,482,500**	**160**	**0**
Residential				
High Density Residential[2] 25+ du/acre	41.6	---	---	1,196
Residential Sub-Total	**41.6**	**-**	**-**	**1,196**
Business Park				
Business Park	6.8	30,000	---	---
Existing Non-Conforming	1.0		---	---
Business Park Sub-Total	**7.8**	**30,000**	**-**	**-**
Industrial/Logistics				
Industrial	72.1	1,500,000	---	---
Industrial Sub-total	**72.1**	**1,500,000**	**-**	**-**
Open Space				
Open Space	8.2	---	---	---
Residential Sub-Total	**8.2**	**-**	**-**	**-**
Public Improvements				
Public Streets	15.7	---	---	---
Public Parkway	0.7	---	---	---
Public Facility	5.2	---	---	---
Public Imp Sub-Total	**21.6**	**-**	**-**	**-**
TOTALS	**248.4 AC**	**3,012,500 SF**	**160 Rooms**	**1,196 Units**

Notes:

1. Gross Acreage includes Existing Non-Conforming properties. Future redevelopment of the non-conforming properties would default to the respective Specific Plan land use designation. Gross Acreages are rounded to the nearest tenths based on the TTM.
2. Hotel Square Feet are estimated for the purpose of FAR calculation only. Subsequent development applications may exceed the total square feet, provided that the maximum FAR is not exceeded.
3. Hotel Rooms are the basis of trip generation for technical study purpose, and represents the maximum number of hotel rooms.

The residential area of the specific plan would include up to 1,196 multi-family unit types and assumed 4 existing units. The residential uses would be clustered in the southern portion of the Project site, adjacent to existing residential uses, and away from SR-60.

The commercial area of the specific plan would include a neighborhood shopping center to serve the local area including a grocery store, restaurants, retail stores, and community services. There would also be an area designated for larger big-box retailers to serve regional consumers that may include furniture and product showrooms with on-site assembly and inventory storage. A tourist commercial component would include a hotel, EV charging facility, a conference facility, and tourist facility.

The industrial area would have a maximum of 1.5 million square feet of building area with supporting parking for employees, trucks, and trailers on approximately 72.1 acres. An approximately 30,000 square foot business park would be included on approximately 7.8 acres.

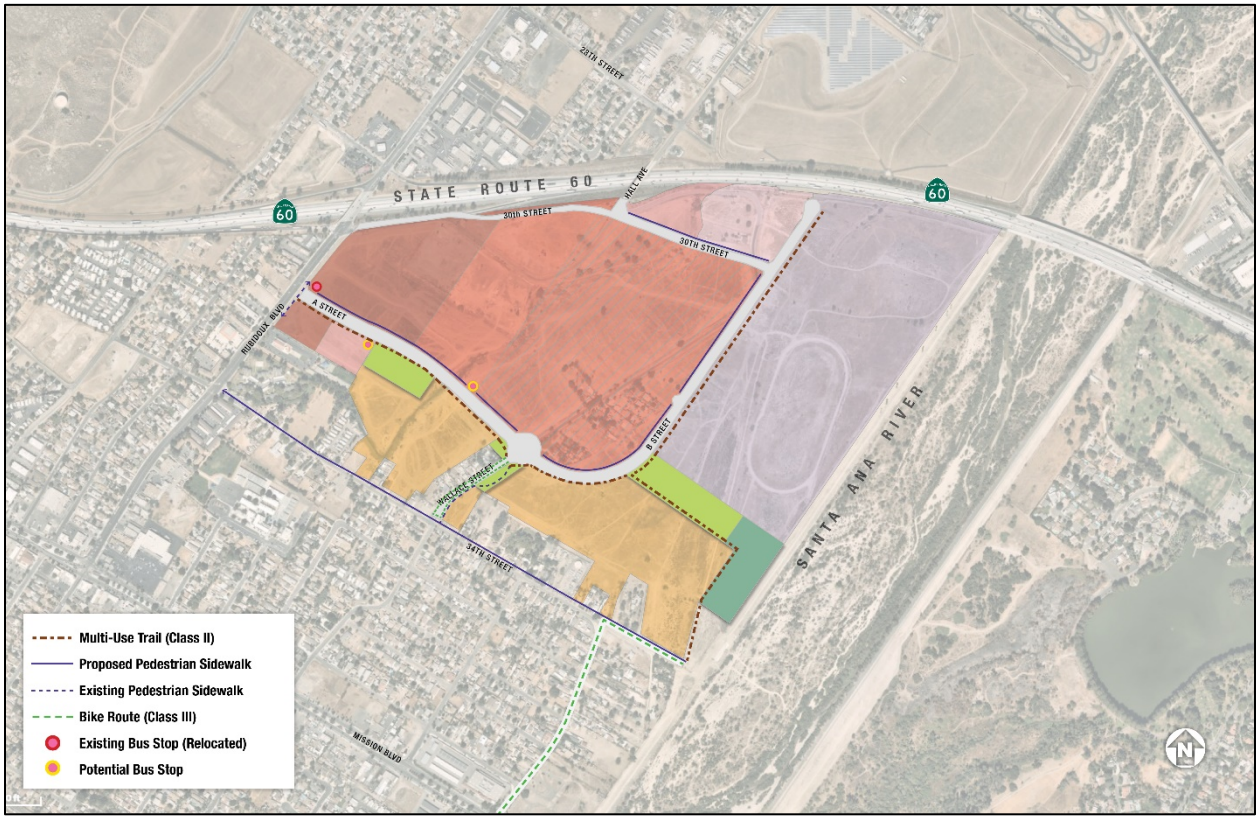
Project street improvements would include both on-site and off-site roadways as well as the vacation of certain existing roads or portions of street rights-of-way within the Project site boundaries. The Project would be required to install sewer, water, storm drain and dry utilities throughout the site in size and capacity to meet the requirements of the development.

The Project would provide approximately 8.1 acres of passive open space. The Project would have paseos and walking trails that would link the open space to the various neighborhoods including a link to the Santa Ana River regional trail. Approximately 1.1 miles of new sidewalks will be added to the city's network, 0.7 miles of on-street bicycle routes, and 1.4 miles of off-street multi-use trail. See **Figure 2**, **Multi-Use Trail Network**.

The Project has incorporated truck access routes on B Street and 30th/Frontage Street that provide a clear path of travel for truck traffic. Traffic calming features have been designed into the plan to divert truck traffic away from the proposed residential neighborhoods, as well as existing residential neighborhoods in the vicinity of the Project site. The main traffic calming feature is the incorporation of a traffic round-about at the junction of A/B Street and Wallace to deter truck traffic. Additionally, a curve in B Street will further deter truck traffic. These design features have also incorporated sidewalks and trail improvements to further pedestrian connectivity and encourage multimodal options.

In addition to the enhanced pedestrian network provided with the Project, the existing bus stop will be relocated for better access to the future retail at the corner of Rubidoux Boulevard and Frontage Road. The Project also proposes bus stops on A Street, which will be reviewed and confirmed with Riverside Transit Authority (RTA). The proposed locations have been preliminary identified to best serve the future retail and residential uses. The ultimately location of bus stop locations and design criteria will be determined as part of the street improvement plans.

Figure 2: Multi-Use Trail Network



VMT SCREENING

A VMT screening was conducted for the proposed project. Based on the City of Jurupa Valley's VMT screening criteria, the proposed project would not screen out of a VMT analysis based on the Transit Priority Area Screening, Low VMT Area Screening, or Project Type Screening. The project is consistent with the Regional Transportation Plan (RTP) and Sustainable Communities Strategy's (SCS). The project's VMT screening is provided in ***Appendix A***.

The VMT screening shows that the residential and employment uses of the Project is expected to have VMT per Capita and VMT per Employee values lower than the City average. However, Full VMT analysis has been conducted because the project is seeking a General Plan Amendment and zone change and just relying on screening is not appropriate for larger sized projects. Further full VMT analysis is required to determine net change in VMT within the City criteria for other uses.

VMT THRESHOLDS

Project VMT Impacts

A project would result in a significant project-generated VMT impact if:

- For residential projects, in the Baseline Plus Project scenario its net VMT per capita exceeds the City's average VMT per capita.
- For office and industrial projects its net VMT per employee exceeds the City's average VMT per employee.
- For all other uses, a net increase in total VMT within the city would be considered a significant impact.

Cumulative VMT Impacts

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, a project would result in a significant VMT impact if:

- For residential projects its cumulative project-generated VMT per capita exceeds the average VMT per capita for Jurupa Valley in the RTP/SCS horizon-year.
- For office and industrial projects its cumulative project-generated VMT per employee exceeds the average VMT per employee for Jurupa Valley in the RTP/SCS horizon year.
- For all other land development project types, a net increase in total VMT in the Cumulative Plus Project scenario versus the RTP/SCS Without Project horizon-year would be considered a significant impact.

ANALYSIS SCENARIOS

The VMT analysis was completed using the most current version of Riverside County's Transportation Model, RIVCOM (referred to as the "RIVCOM Model"). The model is trip-based and considered interaction between different land uses based on socio-economic data such as population, households, and employment. Adjustments in socio-economic data (employment) were made to the appropriate Traffic Analysis Zones (TAZ) in the RIVCOM Model to reflect the project's proposed land uses.

The current version of the RIVCOM Model maintains a base year condition of 2018 which, for the purposes of analysis, is considered to be representative of baseline conditions. The planning horizon for the RIVCOM Model is 2045.

VMT analysis was conducted for existing and cumulative scenarios and results were compared to the existing conditions. The analysis includes the following scenarios:

- **Baseline Conditions -** based on 2022 RIVCOM Model conditions
- **Baseline Plus Project Conditions** – Based on 2022 RIVCOM Model with proposed Project
- **Cumulative No Project Conditions** – Based on 2045 RIVOM Model conditions

- **Cumulative Plus Project Conditions** – Based on 2045 RIVCOM Model conditions with proposed Project

Districts at Jurupa Valley Land Use Conversion

In order to evaluate the project's VMT, the land use plan needed to be first turned into a RIVCOM compatible dataset. This dataset relied on land use assumptions developed as part of the project and the population and employment estimates for the project. The population and employment factors used for preparation of socio-economic data was based on factors used in the City of Jurupa Valley General Plan Land Use Element [2]. Consistent with the City of Jurupa Valley General Plan, a factor of 3.75 persons per dwelling unit was used for residential, 1 employee per 600 SF for commercial, and 1 employee per 800 SF for business park, and 1 employee per 1,200 SF for industrial was used. The resultant land use data was coded into the RIVCOM Model for analysis.

VMT ANALYSIS

As described in the City of Jurupa Valley traffic impact analysis guidelines, VMT significance thresholds are based on land use type, broadly categorized as efficiency metrics. Efficiency metrics include VMT/Capita (Residential) and Work VMT/employee (Employee-Based VMT).

The calculation of VMT efficiency metrics has two components – the total number of trips generated and the average trip length of each vehicle. As the proposed project has both residential and non-residential trips, trip productions were used for home-based trips from residential uses and trip attractions were used from all home-based-work trip purpose matrices. Using the peak and off-peak person trip matrices, skim (distances) matrices and appropriate occupancy rates, VMT was calculated for the Project traffic analysis zones (TAZs).

Exhibit 1 shows the residential VMT calculations for the project TAZ (TAZ 899) and **Exhibit 2** shows the efficiency metric results for the analysis scenarios.

Exhibit 1 – Project Residential VMT Calculations

	TAZ	Daily_Home-Based (incl. IEHB) Prod VMT	Population	VMT/Cap
Baseline	899	6193	316	19.6
Baseline plus Project	899	25331	4786	5.3
Cumulative	899	28470	1445	19.7
Cumulative plus Project	899	44872	5915	7.6

[2] Source: Jurupa Valley General Plan, 2017, Table 2.2: Residential Land Use Statistics and Buildout Projects and Table 2.3:Non-Residential Land Use Statistics and Buildout Projects

Exhibit 2 – Project VMT Impact Evaluation – Residential Efficiency Metric

Analysis Scenario		Home-Based VMT/CAP	% change compared to City average	VMT Impact
City Average		21.84		
	Baseline Plus Project			
Project HB VMT/Capita		5.3	-75.73%	No
	Cumulative Plus Project Conditions			
Project HB VMT/Capita		7.6	-65.2%	No

The residential VMT per Capita of 5.3 miles per resident in Baseline plus Project conditions and 7.6 miles per capita in Cumulative plus Project conditions is not limited to home-based work VMT. This is an average of Home-based work, Home-based Shopping, Home-based school and Home-based other trip purposes. Since the trip length for other trip purposes such as shopping and school will be significantly less for a mixed use project, the low overall average residential VMT per Capita is reasonable for this location and type of project proposed.

Exhibit 3 shows the employment based VMT calculations for the project TAZ (TAZ 899) and **Exhibit 4** shows the efficiency metric results for the analysis scenarios.

Exhibit 3 – Project Employment VMT Calculations

	TAZ	Daily_HBW (incl. EIHBW) Attr VMT	Employment	VMT/EMP
Baseline	899	758	14	54.1
Baseline plus Project	899	83055	2052	40.5
Cumulative	899	1672	30	55.7
Cumulative plus Project	899	85017	2068	41.1

Exhibit 4 – Project VMT Impact Evaluation – Industrial Employment Efficiency Metric

Analysis Scenario		Employment-Based VMT/EMP	% change compared to City average	VMT Impact
City Average		48.05		
	Baseline Plus Project			
Project HBW VMT / Employee		40.0	-16.75%	No
	Cumulative Plus Project Conditions			
Project HBW VMT / Employee		41.7	-13.21%	No

The regional retail employment was added to TAZ 895 to calculate the net change in VMT for the City of Jurupa Valley with and without the project. **Exhibit 4** shows the net change in VMT results for the analysis scenarios.

Exhibit 5 – Project VMT Impact Evaluation – Regional Retail/Other (Net Change Metric)

Analysis Scenario	Total VMT	% change in Citywide VMT	VMT Impact
Baseline - City of JV	4,255,118		
Baseline Plus Project - City of JV	4,278,890		
Net Change in VMT (Baseline)	23,772	+0.56%	Yes
Cumulative - City of JV	5,535,957		
Cumulative Plus Project - City of JV	5,559,996		
Net Change in VMT (Cumulative)	24,039	+0.43%	Yes

Screenshot of TAZ boundaries and detailed VMT calculations from RIVCOM are included in Appendix B.

Based on the results summarized in **Exhibits 2, 4 and 5** and the City of Jurupa Valley traffic impact study guidelines, the following initial unmitigated results are determined:

- The proposed project's Home-based VMT is 75.73% lower than Citywide average under baseline conditions and 65.2% lower than Citywide average under cumulative conditions. As such, residential land uses **do not exceed the City threshold under baseline and cumulative scenarios.**
- The proposed project's Employment-Based VMT is 16.75% lower than Citywide average under baseline conditions and 13.21% lower than Citywide average under cumulative conditions. As such, employment land uses **do not exceed the City threshold under baseline and cumulative scenarios.**
- The proposed project's Regional Commercial uses results in a net increase Citywide VMT of 0.56% under baseline conditions and 0.43% under cumulative conditions. As such, regional retail land uses **exceed the City threshold under baseline and cumulative scenarios.**

MITIGATION MEASURES

Given the lack of specifics that are available for this level plan, it is not possible to fully account for the effect of specific design principles, policies, and improvements that will reduce VMT as part of this analysis. However, these approaches are still important considerations in evaluating the results of this VMT analysis and as appropriate they should be accounted for within the project area. The model does not account for pedestrian, bicycle, transit, and other Transportation Demand Management (TDM) related improvements. Since the project is expected to include several such elements, this section discusses potential VMT reductions from these project features that are likely to occur.

VMT Mitigation

The following mitigation measures have the potential to reduce the project's VMT. Given the lack of specifics that are available for this conceptual level plan, it is not possible to fully account for the effect of specific design principles, policies and improvements that will reduce VMT as part of this analysis. These measures are based on coordination with the City staff and the recommendations contained within the City's Traffic Impact Analysis Guidelines and the Western Riverside Council of governments (WRCOG) TDM Strategies Evaluation Memo. An agreeable VMT mitigation program will be developed between the applicant and the City to mitigate the project VMT impacts.

Bike/Pedestrian Facilities

The Project incorporates community serving pedestrian and bicycle pathways through a multi-use trail and sidewalks along A and B Streets as previously shown on **Figure 2**. The pedestrian and bicycle pathways are setback from the curb within a landscape parkway that provides a pedestrian friendly environment. See **Figure 3: Modified Arterial Cross Section (A Street & B Street) and Figure 4: Industrial Collector Cross Section (B Street).**

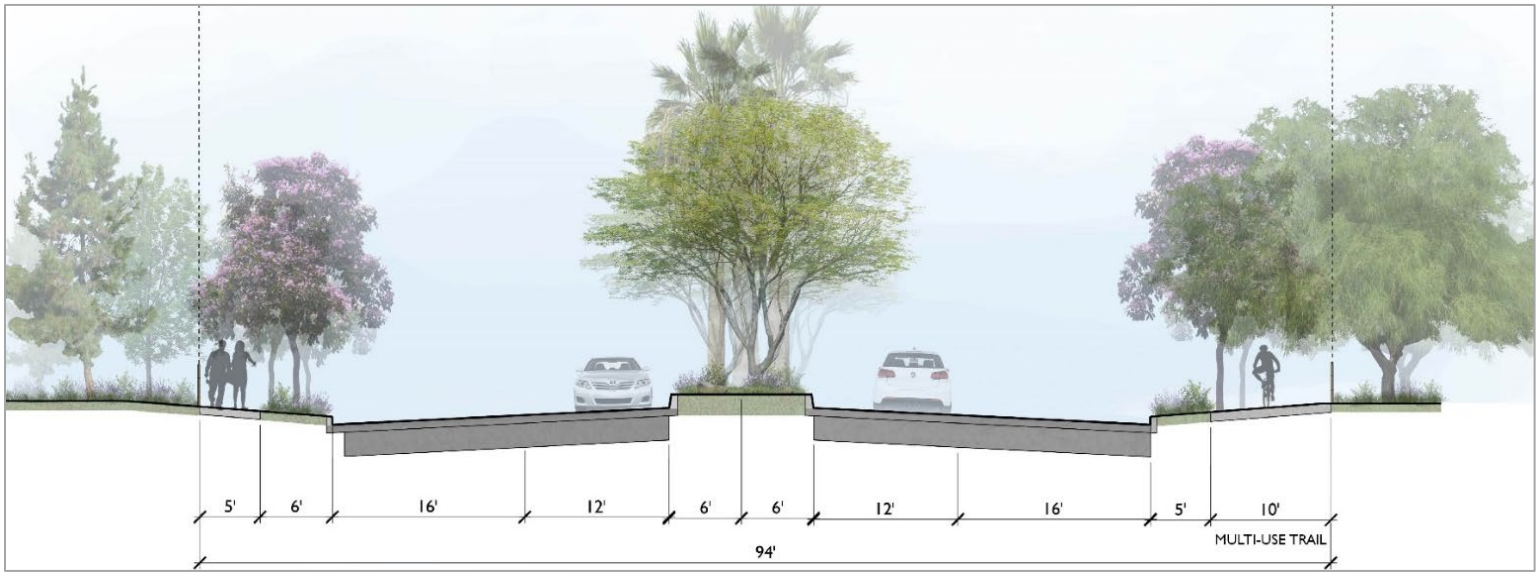
The Specific Plan accommodates transitions between bike routes along Wallace Street to the above-mentioned multi-use trail for bicycle paths along A Street, and B Street. Bike routes shall continue from 34th Street south along to Crestmore Road to Mission Boulevard. Ultimate configuration will be determined with site development permit applications.

The City of Jurupa Valley includes General Plan goals for the creation and maintenance of transportation networks (e.g., multi-use equestrian, pedestrian and bicycle trails, complete streets, sidewalks, airport, rail, and public transit) that are safe, attractive, and efficient and provide connectivity to meet the diverse needs for the movement of people and goods.

The project shall provide, if approved by the City Engineer, Class III bike route along Crestmore Road from 34th Street to Mission Boulevard by placing bike route signs and optional shared roadway markings (sharrow) along Crestmore Road. The County of Riverside, in cooperation with the Cities of Riverside and Jurupa Valley, proposes to replace the existing Mission Boulevard Bridge over the Santa Ana River near Mount Rubidoux in Riverside County. The proposed County project will accommodate two 12-ft lanes, two 14-ft lanes, two 8-ft shoulders and a 4-ft median. A 12-ft multipurpose trail with barrier separation from vehicular traffic will be located along the south side of the bridge in lieu of standard sidewalks on each side. This will provide a connection to Santa ana River Trail via Mission Boulevard.

Current 34th Street includes some sidewalks and curb/ gutter, but a majority includes unpaved shoulders. The project shall provide up to 7800 linear feet of pedestrian street improvements in coordination with the City. The City Engineer can approve alternative design with future street improvements that provide pedestrian connections as intended in the City of Jurupa Valley Complete Streets Safety Assessment, dated November 2021. Such alternative design can consider using the on-street parking on the north shoulder for a 4-foot pedestrian sidewalk. On the south side between the pavement edge and front yard fence lines, an alternative design could install a standard 4-foot sidewalk protected from traffic with a raised feature such as an intermittent asphalt dike.

Figure 3: Modified Arterial Cross Section (A Street & B Street)



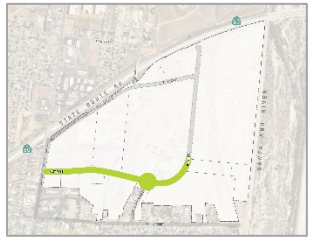
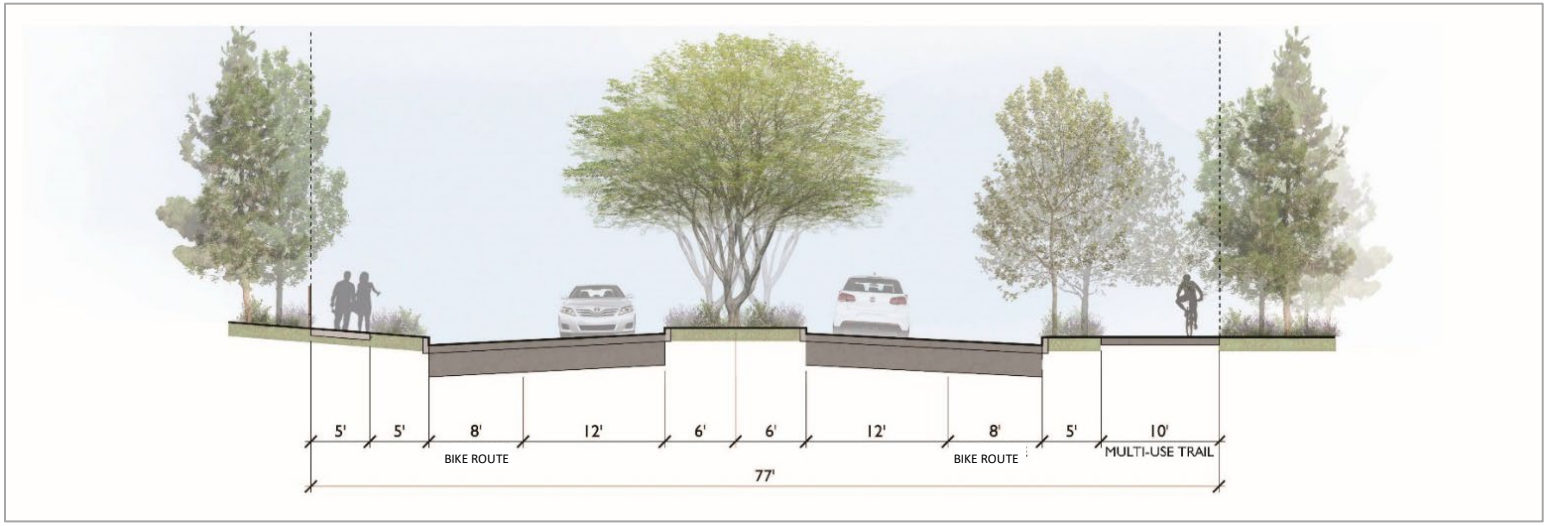
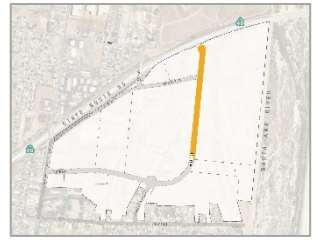


Figure 4: Industrial Collector Cross Section (B Street)





Transit

Transit service to the project area is provided via the Riverside Transit Agency (RTA) transit lines, which serve many cities in Riverside County. Bus stops in the project vicinity are located along Market Street, Rubidoux Boulevard, Mission Boulevard, Riverview Drive, and Limonite Avenue.

As previously noted, the Project proposes relocation of the existing bus stop on Rubidoux and new bus stops on A Street that will be reviewed and confirmed with Riverside Transit Authority (RTA). The proposed locations have been preliminary identified to best serve the future retail and residential uses. The ultimately location of bus stop locations and design criteria will be determined as part of the street improvement plans.

Additionally, the RTA will need to assess the potential demand for more frequent services at existing and future stops and may establish new or extended routes. Continued coordination with RTA would be required as the Project develops determine the need for future bus service to the Project site.

A description of the bus routes serving the project area is provided below.

- **Route 29** operates between the Cities of Eastvale, Jurupa Valley, and Riverside, traveling through Jurupa Valley along Limonite Avenue, Rubidoux Boulevard, and Market Street in the project vicinity. Route 29 operates on weekdays from approximately 5:10 AM to 9:50 PM with approximately 80-minute headways (the time between bus arrivals) and on weekends from approximately 5:55 AM to 9:10 PM with approximately 70-minute headways.
- **Route 49** operates between the City of Jurupa Valley and City of Riverside, traveling along Mission Boulevard in the project vicinity. Route 49 operates on weekdays from approximately 5:55 AM to 9:00 PM with approximately 60-minute headways (the time between bus arrivals) and on weekends from approximately 6:20 AM to 8:30 PM with approximately 50-minute headways.

Commuter Trip Reduction Program (CTR)

The project shall develop a qualifying Commute Trip Reduction (CTR)/ Transportation Demand Management (TDM) plan. The TDM plan shall be approved by the City of Jurupa Valley prior to the issuance of building permits and incorporated into the Project's Codes Covenants and Restrictions (CC&Rs). The TDM plan shall discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking. The following measures shall be incorporated into the TDM plan.

TDM REQUIREMENTS FOR NON-RESIDENTIAL USES

- The Project Applicant shall consult with the local transit service provider on the need to provide infrastructure to connect the Project with transit services. Evidence of compliance with this requirement may include correspondence from the local transit provider(s) regarding the potential need for installing bus turnouts, shelters, or bus stops at the site.
- The portion of the TDM plan for non-residential uses shall include, but not be limited to the following potential measures: ride-matching assistance, preferential carpool parking, flexible work schedules for carpools, transportation coordinators, providing a web site or message board for coordinating rides, designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles, and including bicycle end of trip facilities. This list may

be updated as new methods become available. Verification of this measure shall occur prior to building permit issuance for the commercial uses.

TDM REQUIREMENTS FOR RESIDENTIAL UNITS

- Owner-Occupied Units. Upon a residential dwelling being sold or offered for sale, the Project Applicant shall notify and offer to the buyer or prospective buyer, as soon as it may be done, materials describing public transit, ridesharing, and nonmotorized commuting opportunities available in the vicinity of the Project. Such information shall be transmitted no later than the close of escrow. This information shall be submitted to the City of Jurupa Valley Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.
- Rental Units. Upon a residential dwelling being rented or offered for rent, the Project Applicant shall notify and offer to the tenant or prospective tenant, materials describing public transit, ridesharing, and nonmotorized commuting opportunities in the vicinity of the development. The materials shall be approved by the City of Jurupa Valley. The materials shall be provided no later than the time the rental agreement is executed. This information shall be submitted to the City of Jurupa Valley Planning Department for review and approval, prior to the issuance of the first certificate of occupancy.

VMT REDUCTION CALCULATIONS

VMT reduction calculations based on California Air Pollution Control Officers Association (CAPCOA) Handbook for Analyzing Greenhouse Gas Emissions Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity are presented below.

Increase Residential Density (T-1)

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units (du) compared to the average residential density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$$A = \frac{B - C}{C} \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project VMT in study area	0–30.0	%	calculated
User Inputs				
B	Residential density of project development	[ ]	du/acre	user input
Constants, Assumptions, and Available Defaults				
C	Residential density of typical development	9.1	du/acre	Ewing et al. 2007
D	Elasticity of VMT with respect to residential density	-0.22	unitless	Stevens 2016

Based on the proposed residential density of 28.75 (1196 units in 41.6 acres) for the project, the potential VMT reduction is calculated as 48%. The percent reduction in GHG emissions is capped at 30% based on CAPCOA guidelines. However, since the VMT reduction due to increased residential density and proximity to employment is already captured as part of the model run, additional VMT reduction is not expected from this project design feature.

Voluntary Commuter Trip Reduction (CTR) Program (T-5)

This measure will implement a voluntary commute trip reduction (CTR) program with employers. CTR programs discourage single-occupancy vehicle trips and encourage alternative modes of transportation such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions. Voluntary implementation elements are described in this measure. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$A = B \times C$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project/site employee commute VMT	0–4.0	%	calculated
User Inputs				
B	Percent of employees eligible for program	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Percent reduction in commute VMT from eligible employees	-4	%	Boarnet et al. 2014

Based on 100% of the employees being eligible for the voluntary CTR, the potential VMT reduction from this measure is calculated to be 4%.

Implement Commuter Trip Reduction Marketing (T-7)

This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$A = B \times C \times D$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project/site employee commute VMT	0–4.0	%	calculated
User Inputs				
B	Percent of employees eligible for program	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Percent reduction in employee commute vehicle trips	-4	%	TRB 2010
D	Adjustment from vehicle trips to VMT	1	unitless	assumed

Based on 100% of the employees being eligible for the marketing program, the potential VMT reduction from this measure is calculated to be 4%.

Provide End-of-trip Bicycle Facilities (T-10)

This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$$A = \frac{C \times (E - (B \times E))}{D \times F}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from employee project/site commute VMT	0.1–4.4	%	calculated
User Inputs				
	None			
Constants, Assumptions, and Available Defaults				
B	Bike mode adjustment factor	1.78 or 4.86	unitless	Buehler 2012
C	Existing bicycle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
D	Existing vehicle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
E	Existing bicycle mode share for work trips in region	Table T-10.2	%	FHWA 2017b
F	Existing vehicle mode share for work trips in region	Table T-10.2	%	FHWA 2017b

Based on default trip length values for Riverside/San Bernardino County, the potential VMT reduction from this measure is calculated to be 0.3%. VMT reduction calculation worksheets are provided in Appendix C.

Provide Pedestrian Network Improvements (T-18)

This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

Based on the approximately 2.5 miles of proposed new pedestrian facilities (sidewalk and multi-purpose trail) with approximately 0.34 miles of existing sidewalk in the project vicinity, the potential VMT reduction is calculated as 6.4%. VMT reduction calculation worksheets are provided in Appendix C.

Construct or Improve Bike Boulevard (T-19-B)

Construct or improve a single bicycle boulevard that connects to a larger existing bikeway network. Bicycle boulevards are a designation within Class III Bikeway that create safe, low-stress connections for people biking and walking on streets. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. The VMT reduction formula from CAPCOA for this measure is shown below:

GHG Reduction Formula

$$A = B \times \frac{D \times (F - (C \times F))}{E \times G}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from displaced vehicles on roadway with bicycle boulevard	0–0.2	%	calculated
User Inputs				
B	Percent of plan/community VMT on roadway to have bicycle boulevard	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Bike mode adjustment factor	1.14	unitless	Schwartz 2021
D	Existing bicycle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
E	Existing vehicle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
F	Existing bicycle mode share for work trips in region	Table T-10.2	%	FHWA 2017a
G	Existing vehicle mode share for work trips in region	Table T-10.2	%	FHWA 2017a

Based on the proposed new bike route connection, the potential VMT reduction is calculated as 0.01%. VMT reduction calculation worksheets are provided in Appendix C.

A summary of potential reductions in VMT due to TDM measures are listed in Exhibit 6 .

Exhibit 6 – TDM Measures and VMT Reductions

TDM Strategy	Potential VMT Reduction
Voluntary CTR Program (T-5)	4%
Implement Commute Trip Reduction Marketing (T-7)	4%
Provide End-of-Trip Bicycle Facilities (T-10)	0.3%
Provide Pedestrian Network Improvements (T-18)	6.4%
Construct or Improve Bike Boulevard (T-19-B)	0.01%
Total Potential VMT Reduction	14.71%

Source: CAPCOA Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity (December 2021)

It should be noted that although only the regional retail component of the project is identified to have significant VMT impact, the mitigation measures proposed to reduce residential, non-residential (employee) VMT will help reduce VMT associated with the project as whole and in turn the net increase in Citywide VMT, which is the metric used to measure retail VMT impact. Although many of the VMT mitigation measures that are listed above will ultimately potentially reduce the project VMT outlined in this evaluation, necessary details for implementation and appropriately evaluate their effect are not yet available until TDM implementation plan.

Further, per WRCOG SB 743 Implementation Document Package (March 2019), recognition that land use context matters when it comes to the potential VMT mitigation options and effectiveness is important. For suburban place types, 10% is the maximum and requires a project to contain a diverse land use mix, workforce housing, and project-specific transit. The relevant excerpt from WRCOG SB 743Documentation Package (March 2019) is below:

> *"The Technical Advisory relies on the Quantifying Greenhouse Gas Mitigation Measures, (CAPCOA) 2010 resource document to help justify the 15 percent reduction in VMT threshold stating, " . . . fifteen percent reduction in VMT are achievable at the project level in a variety of place types . . . ". A more accurate reading of the CAPCOA document is that a fifteen percent is the maximum reduction when combining multiple mitigation strategies for the suburban center[6] place type. For suburban[7] place types 10 percent is the maximum and requires a project to contain a diverse land use mix, workforce housing, and project-specific transit. It is also important to note that the maximum percent reductions were not based on data or research comparing the actual performance of VMT reduction strategies in these place types. Instead, the percentages were derived from a limited comparison of aggregate citywide VMT performance for Sebastopol, San Rafael, and San Mateo where VMT performance ranged from 0 to 17 percent below the statewide VMT/capita average based on data collected prior to 2002. Little evidence exists about the long-term performance of similar TDM strategies in different land use contexts. As such, VMT reductions from TDM strategies cannot be guaranteed in most cases" (WRCOG SB 743 Implementation Pathway Document Package, pages 65 and 66).*

The existing programs in Riverside County Transportation Uniform Mitigation Fee (TUMF) and the Congestion Management Program (CMP) include transit, bicycle, and pedestrian projects that could contribute to VMT reduction. However, in their current form, the TUMF and CMP would not qualify as VMT impact mitigation programs as they are largely focused on roadway capacity expansion. If a new VMT fee

program is developed with supporting nexus study to show associated VMT reduction, the project could pay into such program to mitigate its VMT impact. A VMT fee program is not currently available in City of Jurupa Valley or Riverside County.

New mitigation program concepts such as VMT Mitigation Exchange and VMT Mitigation Bank are not currently available in Riverside County

As such, the VMT impacts from regional retail portion of the project are considered **significant and unavoidable**.

CONCLUSION

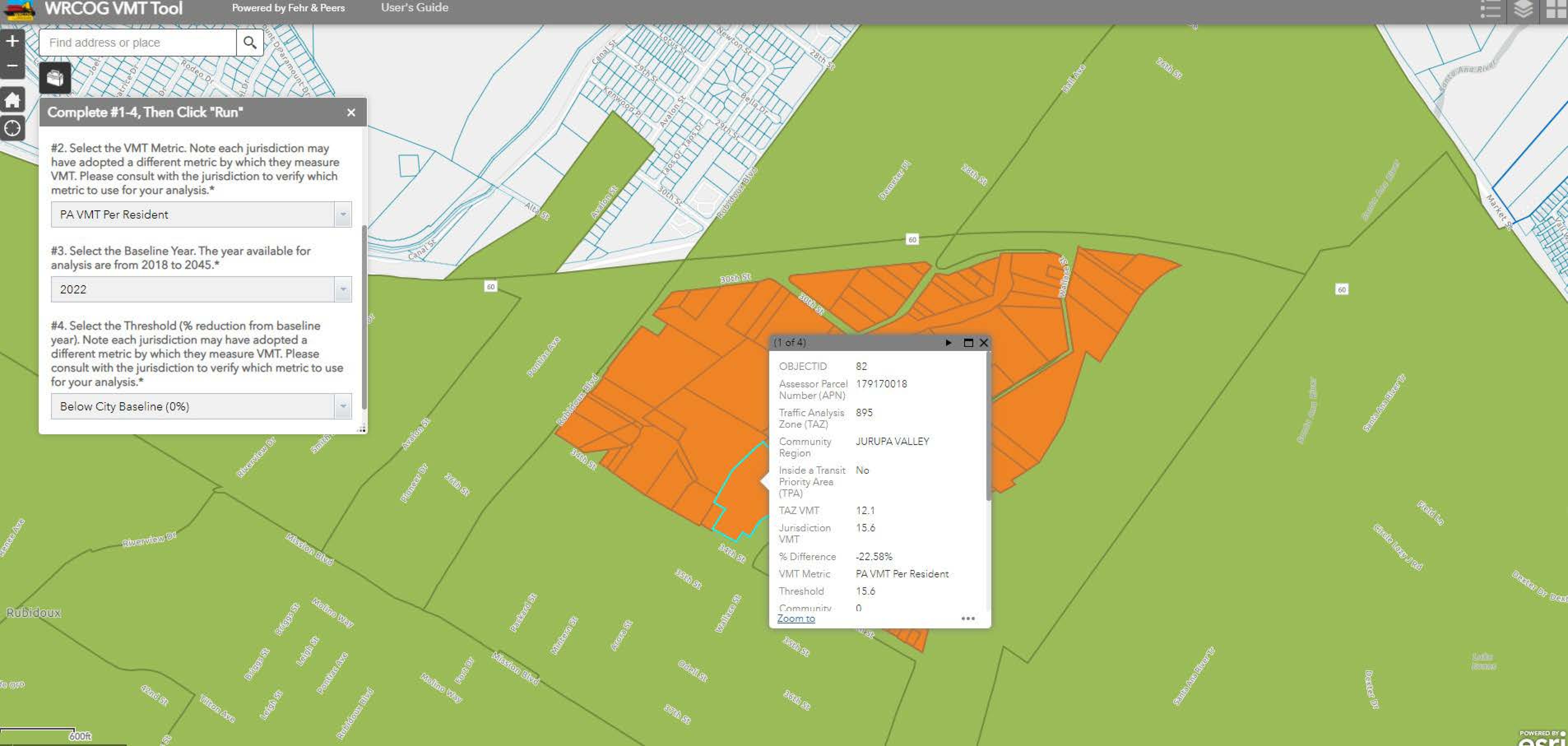
Based on the results of this analysis, the following findings are made:

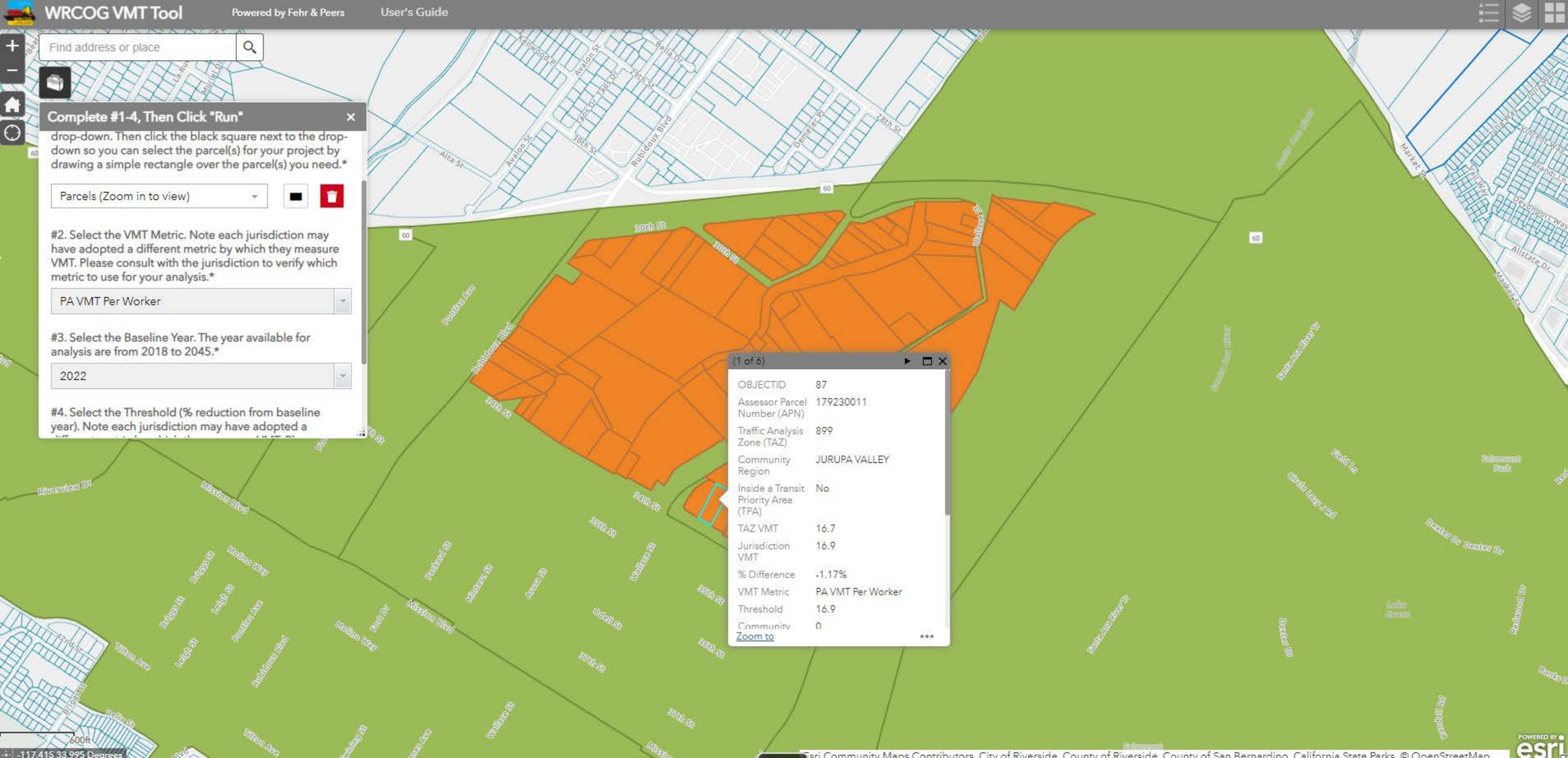
- The proposed project's Residential Home-Based and Employment-Based VMT **does not exceed the threshold under any project scenario and as a result are determined to not have a significant transportation impact** based on the City's adopted thresholds**.**
- The VMT impact for Regional Commercial based on net change in total roadway VMT within the City of Jurupa Valley is determined **to have a significant impact per City's adopted thresholds.**

List of Acronyms:

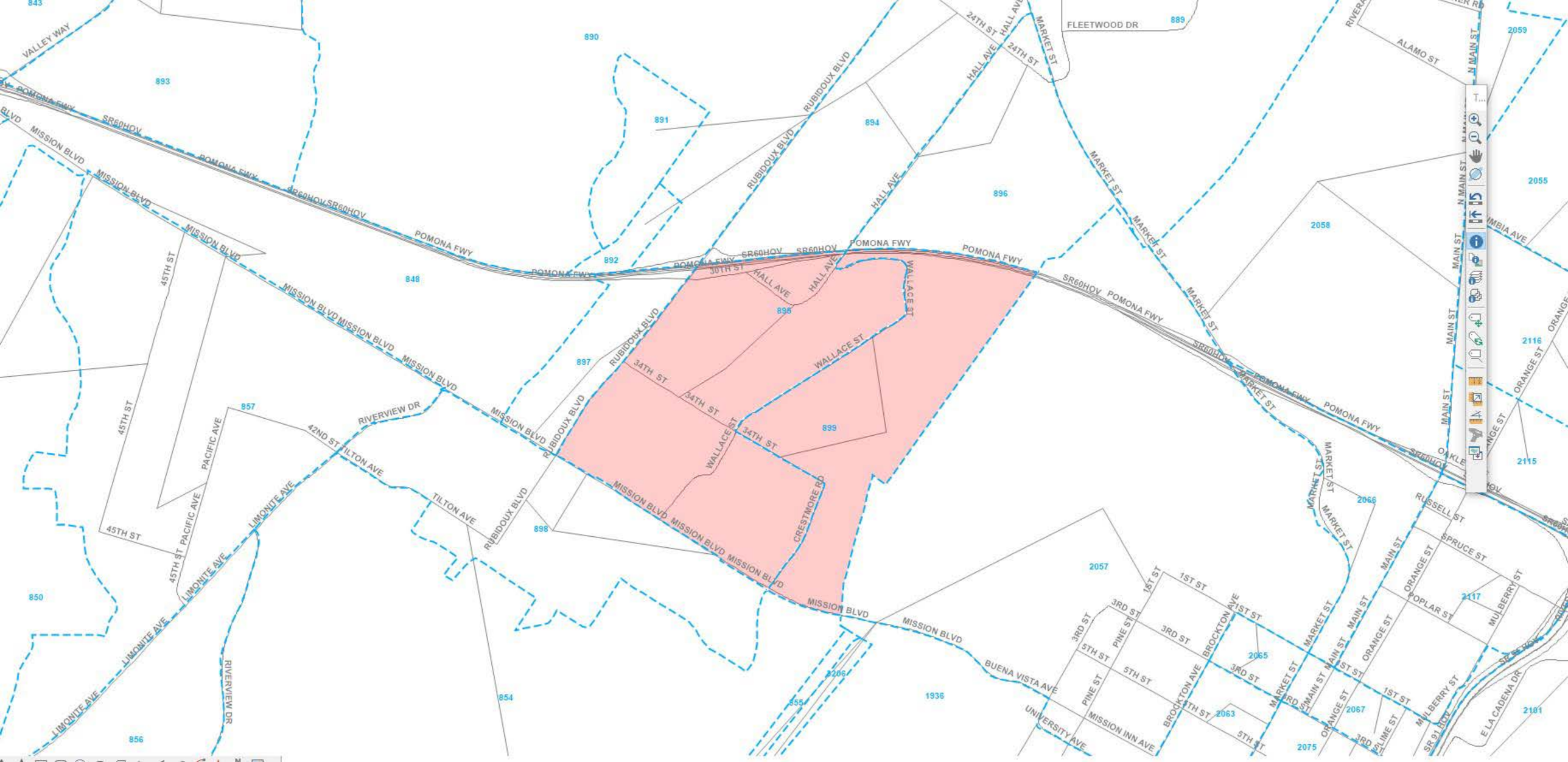
- GHG – Greenhouse Gas
- LOS – Level of Service
- CEQA – California Environmental Quality Act
- OPR – Governor's Office of Planning and Research
- VMT – Vehicle Miles Traveled
- SCS – Sustainable Communities Strategies
- SOI – Sphere of Influence
- SF – Square Feet
- TAZ – Traffic Analysis Zones
- TDM – Transportation Demand Management
- CTR – Commuter Trip Reduction
- CAPCOA – California Air Pollution Control Officers Association
- GPA – General Plan Amendment
- WRCOG – Western Riverside Council of Governments

APPENDIX A – VMT SCREENING RESULTS


WRCOG VMT Tool
Powered by Fehr & Peers
User's Guide
Find address or place
Complete #1-4, Then Click "Run"
#2. Select the VMT Metric. Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
PA VMT Per Resident
#3. Select the Baseline Year. The year available for analysis are from 2018 to 2045.*
2022
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
Below City Baseline (0%)
(1 of 4)
OBJECTID 82
Assessor Parcel Number (APN) 179170018
Traffic Analysis Zone (TAZ) 895
Community Region JURUPA VALLEY
Inside a Transit Priority Area (TPA) No
TAZ VMT 12.1
Jurisdiction VMT 15.6
% Difference -22.58%
VMT Metric PA VMT Per Resident
Threshold 15.6
Community 0
Zoom to
Rubidoux
60
30th St
Rubidoux Blvd
Mission Blvd
Riverview Dr
600ft


WRCOG VMT Tool
Powered by Fehr & Peers
User's Guide
Find address or place
Complete #1-4, Then Click "Run"
drop-down. Then click the black square next to the drop-down so you can select the parcel(s) for your project by drawing a simple rectangle over the parcel(s) you need.*
Parcels (Zoom in to view)
#2. Select the VMT Metric. Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
PA VMT Per Worker
#3. Select the Baseline Year. The year available for analysis are from 2018 to 2045.*
2022
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a
(1 of 6)
OBJECTID 87
Assessor Parcel Number (APN) 179230011
Traffic Analysis Zone (TAZ) 899
Community Region JURUPA VALLEY
Inside a Transit Priority Area (TPA) No
TAZ VMT 16.7
Jurisdiction VMT 16.9
% Difference -1.17%
VMT Metric PA VMT Per Worker
Threshold 16.9
Community 0
Zoom to
Rubidoux Blvd
Mission Blvd
30th St
34th St
Esri Community Maps Contributors, City of Riverside, County of Riverside, County of San Bernardino, California State Parks, © OpenStreetMap

APPENDIX B – RIVCOM VMT ANALYSIS RESULTS


VALLEY WAY
POMONA FWY
SR60HOV
MISSION BLVD
45TH ST
PACIFIC AVE
RIVERVIEW DR
42ND ST
TILTON AVE
LIMONITE AVE
RUBIDOUX BLVD
30TH ST
34TH ST
WALLACE ST
CRESTMORE RD
HALL AVE
24TH ST
MARKET ST
FLEETWOOD DR
ALAMO ST
N MAIN ST
MAIN ST
ORANGE ST
RUSSELL ST
SPRUCE ST
POPLAR ST
MULBERRY ST
1ST ST
3RD ST
5TH ST
PINE ST
BROCKTON AVE
MISSION INN AVE
UNIVERSITY AVE
BUENA VISTA AVE
E LA CADENA DR
SR91 HOV
848
850
854
855
856
857
890
891
892
893
894
895
896
897
898
899
1936
2055
2057
2058
2059
2063
2065
2066
2067
2075
2101
2115
2116
2117
2206

APPENDIX C – VMT Reduction Calculations Worksheets for Measures T-10, T-18 and T-19B

Provide End-of-trip Bicycle Facilities (T-10)

GHG Reduction Formula

$$A = \frac{C \times (E - (B \times E))}{D \times F}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from employee project/site commute VMT	0.1–4.4	%	calculated
User Inputs				
	None			
Constants, Assumptions, and Available Defaults				
B	Bike mode adjustment factor	1.78 or 4.86	unitless	Buehler 2012
C	Existing bicycle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
D	Existing vehicle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
E	Existing bicycle mode share for work trips in region	Table T-10.2	%	FHWA 2017b
F	Existing vehicle mode share for work trips in region	Table T-10.2	%	FHWA 2017b

B =4.86

C = 2.2

D=11.7

E = 0.4%

F = 95.3%

A = 2.2 x (0.4 – (4.86x0.4) / (11.7x95.3) = - 0.3%

Provide Pedestrian Network Improvements (T-18)

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

B =0.34

C = 2.5

D=-0.05

A= (2.5/0.34 – 1)* -0.05 = -31.76% > -6.4% maximum. Therefore use -6.4% reduction

Construct or Improve Bike Boulevard (T-19-B)

GHG Reduction Formula

$$A = B \times \frac{D \times (F - (C \times F))}{E \times G}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from displaced vehicles on roadway with bicycle boulevard	0–0.2	%	calculated
User Inputs				
B	Percent of plan/community VMT on roadway to have bicycle boulevard	0–100	%	user input
Constants, Assumptions, and Available Defaults				
C	Bike mode adjustment factor	1.14	unitless	Schwartz 2021
D	Existing bicycle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
E	Existing vehicle trip length for all trips in region	Table T-10.1	miles	FHWA 2017a
F	Existing bicycle mode share for work trips in region	Table T-10.2	%	FHWA 2017a
G	Existing vehicle mode share for work trips in region	Table T-10.2	%	FHWA 2017a

B =100

C = 1.14

D=-2.2

E=11.7

F=0.4

G=95.3

A = 100%x2.2x(0.4-(1.14x0.4))/(11.7x95.3) = - 0.01%