



A LOCHNER COMPANY

333 S. Anita Drive, Suite 800, Orange, CA 92868  
T: (714) 573-0317 | F: (714) 573-9534 | www.koacorp.com  
MONTEREY PARK ORANGE ONTARIO SAN DIEGO

To: Freddie Olmos, Southern California Regional CEQA/NEPA Group Manager – ECORP Consulting Inc.  
From: Jonathan Louie, PE - KOA Corporation  
Date: June 2, 2025  
Subject: Vehicle Miles Traveled Analysis for Western Way Widening Project, City of Perris

---

This technical memorandum has been prepared to document the Vehicle Miles Traveled (VMT) analysis for the Western Way Widening project in the City of Perris. The methodology is based on the guidelines and recommendations developed by the City of Perris (the "City") and the California Office of Planning and Research (OPR). The proposed methodologies for the calculation of VMT reductions associated with the project active transportation elements have been determined based on documentation published by the California Air Pollution Control Officers Association (CAPCOA).

## INTRODUCTION

The City, with a population of about 80,600, is located approximately 71 miles east-southeast of Los Angeles. Municipal boundaries encompass approximately 32 square miles of land in Riverside County. The City is served by the Escondido Freeway (I-215), which runs from Murrieta to northern San Bernardino. From I-10 to SR 210, I-215 is known as the San Bernardino Freeway. Between Highland Avenue in San Bernardino and its northern terminus, I-215 is named the Barstow Freeway. Unofficially, I-215 is known as the Armed Forces Freeway between I-15 and SR 60, given its proximity to the March Air Reserve Base.

In an effort to address existing traffic deficiencies and additional traffic flow associated with existing and future developments, the City of Perris intends to improve traffic operations by widening and modifying the roadway lane configurations of Western Way from Harley Knox Boulevard at the southern end to Van Buren Boulevard at the northern end.

## PROJECT DESCRIPTION

The City proposes to construct the Western Way Widening project (the "Project") by widening the approximate 2,770-foot segment of Western Way between Harley Knox Boulevard and Van Buren Boulevard to improve and expand transportation facilities for all travel modes. The Proposed Project would widen the Western Way ROW alignment to an ultimate width of 94-feet north of Nandina Ave, and an 88- to 84-foot ROW south of Nandina Ave, to allow for the construction of a 64-foot-wide paved surface with two 14-foot wide through lanes, two 12-foot wide through lanes, and one 12-foot striped median. The Project would include the construction of two new through lanes, and a new 12-foot striped median within the Western Way alignment.

In addition to the Project's new northbound and southbound traffic lanes, the Project would include the installation of new traffic signals, street lighting, sidewalks, curb and gutter, and ADA ramps. The Project Site Plan is included in **Attachment A**.

## PURPOSE AND NEED

Western Way is currently a local street with one lane in each direction and minimal, non-continuous pedestrian facilities. The Project area land uses have multiple commercial and industrial uses, making it a major employment and logistics center. These businesses include construction materials, moving and storage pod services, and auto parts. Additionally, Western Way is the sole connection to a newly constructed segment of Van Buren Boulevard, which runs parallel to I-215 and serves multiple major logistics facilities including a Target Fulfillment Center. While I-215 functions as the major north-south corridor in the area, the Van Buren-to-Western Way corridor is key for local traffic, for both automobiles and commercial trucks. Given the existing and emerging land uses, and the new connection via Van Buren Boulevard, it is no longer adequate for Western Way to remain a two-lane local street with minimal pedestrian facilities.

## VMT ANALYSIS METHODOLOGY

All projects within the State of California are required to prepare a Vehicle Miles Traveled (VMT) analysis. The City of Perris published the *Transportation Impact Analysis Guidelines for CEQA* dated May 12, 2020, to outline VMT analysis requirements for projects located in the City. The Guidelines establish VMT per Service Population as the key metric by which to measure VMT impacts, with the following significance thresholds:

- The base model year project-generated VMT per service population exceeds the City of Perris baseline VMT per service population, or
- The future model year project-generated VMT per service population exceeds the City of Perris base year VMT per service population.

For transportation projects, such as the Western Way Widening, the Guidelines also refer to the California Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA*, published in December 2018, for guidance on VMT methodology. The OPR guidance offers multiple approaches, such as using a travel demand model or directly calculating induced demand from lane-miles. The latter approach would be performed through a tool such as the National Center for Sustainable Transportation (NCST) Induced Travel Calculator.

Both approaches have certain limitations unique to that approach. Travel demand models can account for induced trips among existing residents and employees who are incentivized to use the new capacity, but they are typically not responsive to land use changes that might be induced by a roadway project. Conversely, the NCST Induced Travel Calculator tool may oversimplify the effects of roadway expansion for roadways that close gaps or are not at peak congestion levels. To address these challenges, the OPR guidelines provide the option of incorporating results from both; this is discussed under the “RIVCOM Travel Demand Model and NCST Induced Travel Calculator” section below.

## VMT SCREENING ASSESSMENT

The City’s VMT Guidelines provide a list of criteria that can be used to exempt a transportation project from VMT analysis. Included in this list is:

*Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and if applicable, transit. (p. 12)*

The project will include the construction of 0.65 miles of new sidewalk, which will fully complete double-sided sidewalks along the length of the project segment. This will supplement the existing pedestrian facilities, which are partial and non-continuous. The current condition is not ADA-accessible and poses safety concerns due to the volume of heavy vehicles on Western Way. Therefore, the Project substantially improves conditions for pedestrians.

However, in consideration of the subjectivity of this criterion, in the interest of being fully comprehensive, and to support other aspects of the environmental assessment of the Project, the Project was studied using travel demand modeling.

### RIVCOM TRAVEL DEMAND MODEL AND NCST INDUCED TRAVEL CALCULATOR

The Riverside County Transportation Model (RIVCOM) was used to conduct the VMT analysis for the Project. The RIVCOM is an activity-based model developed by the Western Riverside Council of Governments (WRCOG) to be used to analyze the effects of land use changes and transportation improvements on travel patterns within Riverside County. This model was selected for use in the analysis as it has been recently developed and calibrated to align with conditions in the Project area and in the surrounding region.

As the Project increases capacity, a VMT analysis must consider the induced travel effects. The OPR guidance states:

*A program-level analysis of VMT should include effects of the program on land use patterns, and the VMT that results from those land use effects. In order for a program-level document to adequately analyze potential induced demand from a project or program of roadway capacity expansion, lead agencies cannot assume a fixed land use pattern (i.e., a land use pattern that does not vary in response to the provision of roadway capacity). (p. 25)*

Although RIVCOM accounts for induced trips among existing (and future baseline) residents and employees, it does not consider potential land use changes that can result from increased capacity. Therefore, additional steps are required to ensure that this effect is fully considered.

In order to address this deficiency, the OPR Guidance provides recommended approaches for estimating and incorporating the VMT effects due to potential land use changes. The Technical Advisory presents the following three methods for accounting for this limitation:

1. Employ an expert panel.
2. Adjust model results to align with empirical research.
3. Employ a land use model, running it iteratively with a travel demand model.

For this study, the second approach was employed, and the VMT results from the RIVCOM were adjusted upward to account for potential land use changes resulting from the Project. The VMT adjustment that was applied to the travel demand model results was taken from the NCST Calculator to provide a conservative estimate of the induced VMT potential of the Project improvements. The combination of the NCST Calculator and RIVCOM travel demand model results ensure that the induced VMT from the Project is fully quantified, while also accounting for congestion and trip-shortening benefits associated with relieving the local bottleneck.

The RIVCOM includes a baseline scenario for 2018 and 2045, which is typically sufficient to act as a “No Build” scenario for most projects. However, it was found that Western Way does not exist in its entirety in the baseline RIVCOM network. These discrepancies are not uncommon for minor roadways, but it was decided that a “No Build” model run should include the existing condition portrayed as accurately as possible. Therefore, the existing condition of Western Way, along with adjacent roadways, were added to the model for the “No Build” model run, with the Project-added lane adjustments included in the “Build” model run. Existing and future roadway network plans, capital projects, and cumulative development projects in the Project vicinity were also reviewed to ensure consistency with the RIVCOM network and to ensure that growth is accurately accounted for. Therefore, “No Build” model outputs might not exactly match the baseline conditions cited in other studies, but any such discrepancy would be small.

## ACTIVE TRANSPORTATION VMT REDUCTION STRATEGIES

In addition, as the Project incorporates and expands active transportation facilities for pedestrians, the VMT analysis should incorporate VMT reduction estimates associated with these facilities. However, traditional travel demand models, such as the RIVCOM, are not the appropriate tools for calculating VMT reductions associated with mode shift resulting from improvements to active transportation facilities. Therefore, additional off-model calculations were conducted to quantify the VMT reductions resulting from the proposed Project improvements. The calculations follow the methodologies outlined in the California Air Pollution Control Officers Association (CAPCOA) *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (October 2024), as discussed below.

## PEDESTRIAN IMPROVEMENT METHODOLOGY

Based on CAPCOA measure T-18, "Provide Pedestrian Network Improvement", the following formula may be used to calculate VMT reduction from new pedestrian facility improvements:

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

Where:

- A** = Percent reduction in VMT in plan/community
- B** = Existing sidewalk length in study area
- C** = Sidewalk length in study area with measure
- D** = Elasticity of household VMT with respect to the ratio of sidewalks-to-streets

For Input **B**, the "plan/community" is defined as anywhere within a 0.6-mile walkshed of either end of the Project segment. Based on analysis of existing conditions, the existing sidewalk length surrounding the Project segment is 2.08 miles (counting each side of each roadway separately). For Input **C**, the "with measure" sidewalk length is the existing length plus added sidewalk from this project.

Based on *An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy* (Frank et al. 2011), cited in the Handbook, Input **D** (elasticity) is -0.05.

The Handbook caps the percentage reduction at 6.4% of existing VMT.

## PROJECT THRESHOLDS

The City of Perris provides VMT impact thresholds in the VMT Guidelines, but also notes to refer to the OPR guidance. The OPR guidance offers recommendations to local agencies on best practices when establishing VMT thresholds, but does not strictly prescribe a set of VMT thresholds for a transportation project, only indicating that "[a] lead agency that uses the VMT metric to assess the transportation impacts of a transportation project may simply report that change in VMT as the impact." Therefore, the City of Perris thresholds, which are not inconsistent with this OPR guidance, are used.

## VMT ANALYSIS RESULTS

The quantitative VMT analysis for the Project consists of the following components: (1) the direct impact on VMT calculated using the RIVCOM based on the change in VMT between Build and No Build scenarios; (2) the induced VMT generated by potential land use changes calculated based on lane-mile elasticity from the NCST calculator; and (3) active

transportation VMT reductions based on the methodology outlined in the CAPCOA Handbook. The Project-related changes in VMT resulting from these three sources are detailed further in the following sections.

### DIRECT IMPACT ON VMT

The Project’s direct impact on VMT in the study area was determined by running the RIVCOM model under Build and No Build configurations for both the base model year (2018) and future model year (2045). **Table 1** shows how the lane configuration was modified in the model. **Figure 1** depicts the project road segment locations.

**TABLE 1: ROAD SEGMENT LANE ASSUMPTIONS - WITHOUT AND WITH PROJECT**

Segment		Number of Travel Lanes			
		Without Project		With Project	
		NB	SB	NB	SB
1	Western Way, bet. Harley Knox Boulevard and Jet Way	1	1	2	2
2	Western Way, bet. Jet Way and Airport Way	1	1	2	2
3	Western Way, bet. Airport Way and Nandina Avenue	1	1	2	2
4	Western Way, bet. Nandina Avenue and Van Buren Boulevard	1	1	2	2

**FIGURE 1: PROJECT ROAD SEGMENTS**



**Table 2** presents a summary of the Project’s direct impact on VMT in the study area prior to any adjustments. Per the City Guidelines, the VMT results are given in **VMT per Service Population**, with Service Population being defined as the sum

of residents, employees, and students in the City of Perris. The Service Population does not change between Build and No Build scenarios, as the Project does not feature any direct land use changes. A list of TAZs considered as the City of Perris is provided in **Attachment B** of this technical memorandum.

**TABLE 2: DIRECT VMT IMPACTS (NO ADJUSTMENTS)**

VMT per Service Population in City of Perris			
Scenario Year	No Build	Build	Net Change
2018	27.969	27.956	-0.013
2045	28.879	28.882	0.003

The results show that the VMT per Service Population would slightly decrease under the model base year scenario and slightly increase under the model future year scenario. The Project directly affects VMT in separate and counteracting manners: the increase in capacity may induce additional travel based on the more attractive new option thus increasing VMT, while the improved availability of the shorter route between Perris and Moreno Valley (avoiding I-215 or a long detour around March Air Reserve Base) might shorten trips and reduce VMT. These model results show that both effects might take place in different amounts depending on the scenario year.

### INDUCED VMT ANALYSIS

On top of the direct impact of the Project on VMT, the Project is anticipated to also induce VMT as additional capacity is introduced to the existing roadway network. The induced VMT factor accounts for the potential of a new roadway project to increase travel demand through land use changes or mode shifts. The induced VMT factor was estimated using the NCST Calculator Tool, which provides an output in annual VMT.

**Table 3** summarizes the induced VMT effect determined from NCST Calculator based on the lane miles added to the roadway network by the Project and an elasticity factor relating the percent change in lane miles to the percent change in VMT. The elasticity factor applied for the Project, based on its location in Riverside County, is 0.75. As shown, the Project is expected to induce an additional 2.9 million VMT annually, which is converted to Daily VMT per Service Population for each scenario below.

**TABLE 3: INDUCED VMT IMPACTS**

	New Lane Miles	Elasticity Factor	Annual Growth-Induced VMT (NCST Tool Output)	Daily VMT per Service Population Adjustment
2018	1.0	0.75	2,900,000	+0.0753
2045	1.0	0.75	2,900,000	+0.0434

The final adjustment value is added directly, which is shown in the fourth column of **Table 5**.

### ACTIVE TRANSPORTATION VMT REDUCTIONS

The Project also includes the installation of sidewalks to close all remaining sidewalk gaps on both sides of the Project segment. Currently, the Project segment contains 0.425 mile of non-continuous sidewalk. The Project will add 0.650 mile of total sidewalk on either side.

**Table 4** below shows the inventory of existing sidewalks within a 0.6-mile walkshed of the Project location. The second column, "Measured From", indicates where the 0.6-mile measurement is started from: either the north end, south end, or a

midpoint of the Project. All possible branches are considered; branches that use multiple roads are indicated using “via” to indicate the route. The “Length” indicates the total length that falls within the 0.6-mile walkshed, not necessarily the length of the entire segment. For segments with double-sided sidewalks, each sidewalk is counted individually; therefore, the sidewalk length may exceed the segment length if there are double-sided portions.

**TABLE 4: PEDESTRIAN FACILITIES WITHIN A 0.6-MILE WALKSHED**

Street	Measured From	Length (mi)	Sidewalk length (mi)	Existing Facilities Description
Western Way	N/A	1.01	0.425	Single-sided partial
Van Buren Blvd	North End	0.60	0.600	Single-sided full
Nandina Ave	Middle Point	0.50	0.512	Double-sided partial
Harley Knox Blvd (West of Project)	South End	0.60	0.951	Double-sided partial
Harley Knox Blvd (East of Project)	South End	0.60	0.379	Single-sided partial
Harvill Ave (North) via Harley Knox Blvd	South End	0.20	0.400	Double-sided full
Harvill Ave (South) via Harley Knox Blvd	South End	0.20	0.400	Double-sided full
Blanding Way via Harley Knox Blvd	South End	0.07	0.000	No facilities
Patterson Ave via Nandina Ave	Middle Point	0.34	0.000	No facilities
Jet Way	Middle Point	0.09	0.000	No facilities
Airport Way	Middle Point	0.09	0.000	No facilities
Natwar Ln via Nandina Ave	Middle Point	0.18	0.180	Single-sided full
Patterson Ave via Harley Knox Blvd	South End	0.19	0.114	Single-sided partial
California Ave via Patterson Ave via Harley Knox Blvd	South End	0.09	0.095	Single-sided full
Oleander Ave via Harley Knox Blvd	South End	0.19	0.189	Single-sided full
<b>Total Sidewalk Miles Within 0.6-Mile Walkshed</b>			4.245 mi	
Project-Added Sidewalk			0.650 mi	
With-Measure Sidewalk Miles Within 0.6-Mile Walkshed			4.895 mi	

Therefore, using the formula described in the “Pedestrian Improvement Methodology” section above, the variable **C** is equal to 4.895 miles, and the variable **B** is equal to 4.245 miles. With variable **D** defined by literature as -0.05, the percent reduction is **-0.766%**. This value is applied to the 2018 and 2045 VMT per Service Population results, shown in the fifth column of **Table 5**.

### TOTAL PROJECT VMT IMPACT

**Table 5** below shows the total Project VMT impact when all adjustments are considered.

**TABLE 5: NET PROJECT VMT IMPACT CALCULATION**

VMT per Service Population in City of Perris					
Scenario Year	No Build	Build	Build (With Induced Travel Adjustment)	Build (With Mitigation)	Net Change
2018	27.969	27.956	28.031	27.817	-0.153
2045	28.879	28.882	28.926	28.704	-0.175

These results show that, upon applying adjustments for induced travel and pedestrian network improvements, there is an overall net decrease in VMT per Service Population in the City of Perris under model base and model future year scenarios.

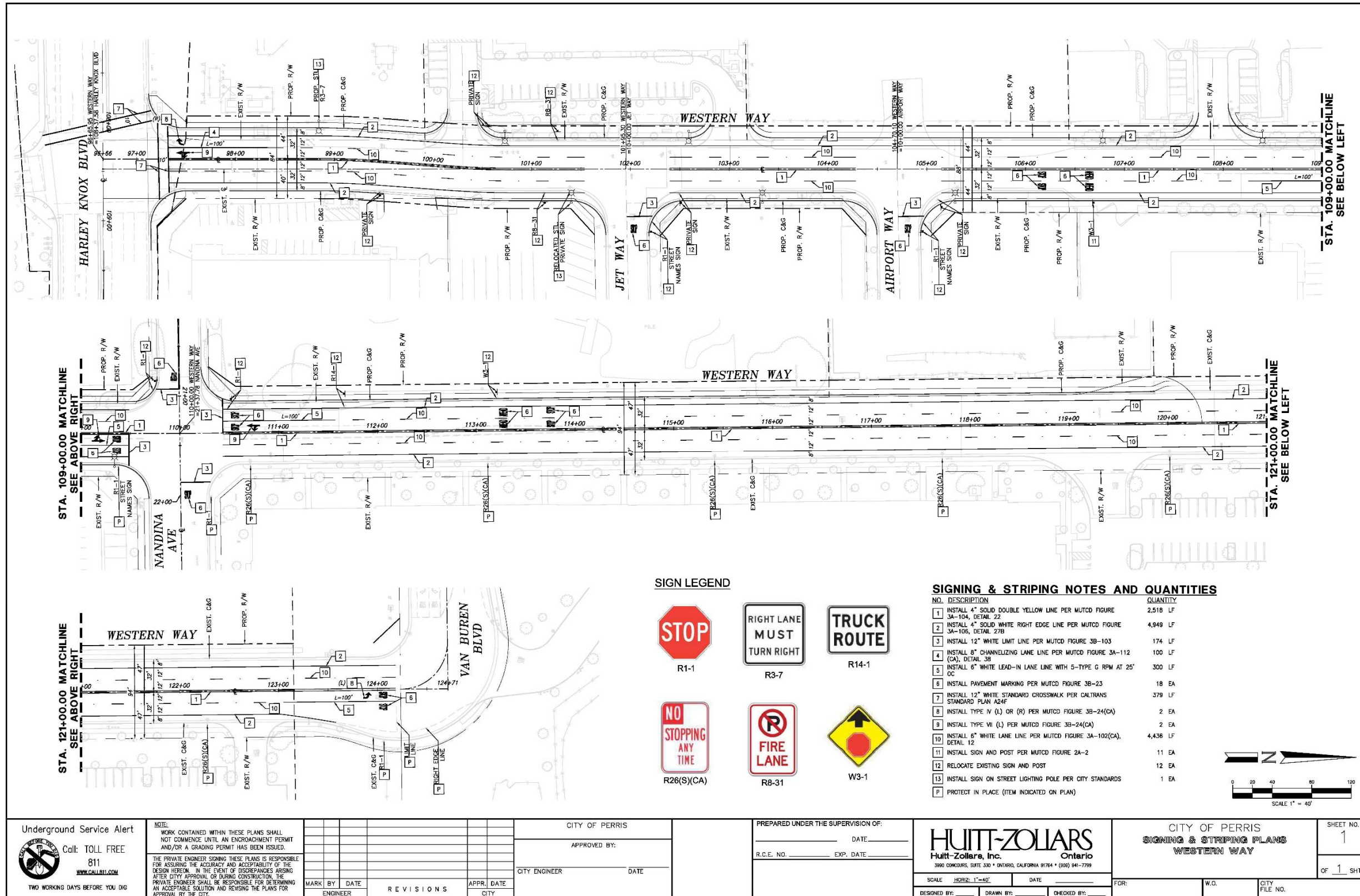
## CONCLUSION

This VMT analysis studies the impact of the Western Way Widening Project based on direct VMT impact, induced travel, and pedestrian network improvement, performed in accordance with the methods described in the City of Perris *Transportation Impact Analysis Guidelines for CEQA* (May 12, 2020) and the California Office of Planning and Research *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018).

As the Project includes improvements to the multimodal network, this technical memorandum finds that the Project should be presumed to have a less-than-significant VMT impact. However, in consideration of the subjectivity of this criterion, in the interest of being fully comprehensive, and to support other aspects of the environmental assessment of the Project, the Project was studied using the RIVCOM travel demand model with a full VMT analysis prepared.

This technical memorandum finds that, upon applying adjustments for induced travel and pedestrian network improvements, there is an overall net decrease in VMT per Service Population in the City of Perris under model base and model future year scenarios, which indicates that the Project will have a less-than-significant transportation impact.

# ATTACHMENT A – Project Site Plan

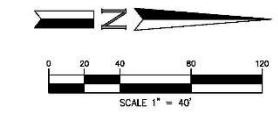


### SIGN LEGEND

R1-1	R3-7	R14-1
R26(S)(CA)	R8-31	W3-1

### SIGNING & STRIPING NOTES AND QUANTITIES

NO.	DESCRIPTION	QUANTITY
1	INSTALL 4" SOLID DOUBLE YELLOW LINE PER MUTCD FIGURE 3A-104, DETAIL 22	2,518 LF
2	INSTALL 4" SOLID WHITE RIGHT EDGE LINE PER MUTCD FIGURE 3A-106, DETAIL 27B	4,949 LF
3	INSTALL 12" WHITE LIMIT LINE PER MUTCD FIGURE 3B-103	174 LF
4	INSTALL 8" CHANNELIZING LANE LINE PER MUTCD FIGURE 3A-112 (CA), DETAIL 3B	100 LF
5	INSTALL 6" WHITE LEAD-IN LANE LINE WITH 5-TYPE G RPM AT 25' OC	300 LF
6	INSTALL PAVEMENT MARKING PER MUTCD FIGURE 3B-23	18 EA
7	INSTALL 12" WHITE STANDARD CROSSWALK PER CALTRANS STANDARD PLAN A24F	379 LF
8	INSTALL TYPE IV (L) OR (R) PER MUTCD FIGURE 3B-24(CA)	2 EA
9	INSTALL TYPE VII (L) PER MUTCD FIGURE 3B-24(CA)	2 EA
10	INSTALL 6" WHITE LANE LINE PER MUTCD FIGURE 3A-102(CA), DETAIL 12	4,436 LF
11	INSTALL SIGN AND POST PER MUTCD FIGURE 2A-2	11 EA
12	RELOCATE EXISTING SIGN AND POST	12 EA
13	INSTALL SIGN ON STREET LIGHTING POLE PER CITY STANDARDS	1 EA
P	PROTECT IN PLACE (ITEM INDICATED ON PLAN)	



**Underground Service Alert**  
 Call: TOLL FREE 811  
 www.call811.com  
 TWO WORKING DAYS BEFORE YOU DIG

NOTE: WORK CONTAINED WITHIN THESE PLANS SHALL NOT COMMENCE UNTIL AN ENCROACHMENT PERMIT AND/OR A GRADING PERMIT HAS BEEN ISSUED.

THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING AFTER CITY APPROVAL OR DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

MARK	BY	DATE	REVISIONS	APPR. DATE
	ENGINEER			CITY

CITY OF PERRIS  
 APPROVED BY: \_\_\_\_\_  
 CITY ENGINEER DATE \_\_\_\_\_

PREPARED UNDER THE SUPERVISION OF:  
 DATE \_\_\_\_\_  
 R.C.E. NO. \_\_\_\_\_ EXP. DATE \_\_\_\_\_

**HUITT-ZOLIARS**  
 Huitt-Zollars, Inc. Ontario  
 3980 CONCORDS, SUITE 330 • ONTARIO, CALIFORNIA 91784 • (951) 941-7799

SCALE: HORIZ. 1"=40' DATE \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CHECKED BY: \_\_\_\_\_

CITY OF PERRIS  
**SIGNING & STRIPING PLANS**  
**WESTERN WAY**

FOR: \_\_\_\_\_ W.O. \_\_\_\_\_ CITY FILE NO. \_\_\_\_\_

SHEET NO. 1  
 OF 1 SHTS

## ATTACHMENT B – City of Perris RIVCOM TAZs

TAZ Numbers			
1825	1807	1829	1856
1795	1808	1830	1857
1811	1809	1831	1859
1813	1812	1832	1860
<b>1833*</b>	1810	1834	1861
1794	1814	1835	1862
1793	1815	1836	1863
1796	1816	1837	1865
1870	1817	1838	1866
1841	1818	1839	1867
1858	1819	1844	1868
1843	1820	1845	1869
1797	1821	1846	1871
1798	1822	1847	1872
1799	1823	1848	1873
1800	1824	1849	1874
1801	1826	1850	1875
1802	1864	1851	1876
1803	1842	1852	1877
1804	1840	1853	1878
1805	1827	1854	1879
1806	1828	1855	

\* *Project TAZ*