memorandum

DATE: February 25, 2022

TO: Dilesh Sheth, PE, Albert A. Webb Associates

FROM: Sandipan Bhattacharjee, PE, TE, AICP, ENV-SP

SUBJECT: Vernola Marketplace Apartment Phase B – VMT Analysis

Translutions, Inc. (Translutions) is pleased to provide this memorandum discussing the Vehicle Miles Traveled (VMT) evaluation for the proposed Vernola Marketplace Apartments Phase B Project (the Project) in the City of Jurupa Valley. This report is intended to satisfy the requirements for a VMT analysis established by the City as well as the requirements for the disclosure of potential impacts and mitigation measures per the California Environmental Quality Act (CEQA).

PROJECT DESCRIPTION

The proposed Project includes 208 apartments and is located on the east side of the Interstate 15 (I-15) freeway, just south of the Lowes Home Improvement Store in the City of Jurupa Valley. During any project planning stage, the number of dwelling units are preliminary and may change slightly. At the time the VMT analysis was conducted, the project included 200 apartment Dwelling Units (DU), and the slight change from 200 to 208 units will not change the findings of this analysis.

BACKGROUND AND GUIDANCE

Senate Bill 743 (SB-743), which was codified in Public Resources Code section 21099, was signed by the Governor in 2013 and directed the Governor's Office of Planning and Research (OPR) to identify alternative metrics for evaluating transportation impacts under CEQA. Pursuant to Section 21099, the criteria for determining the significance of transportation impacts must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." Recently adopted changes to the CEQA Guidelines in response to Section 21099 include a new section (15064.3) that specifies that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts. A separate Technical Advisory issued by OPR provides additional technical details on calculating VMT and assessing transportation impacts for various types of projects.

The City of Jurupa Valley has prepared and adopted the *City of Jurupa Valley Traffic Impact Analysis Guidelines* (Guidelines) in November 2020 to address changes to CEQA pursuant to SB-743 to include VMT analysis methodology, screening tools, and VMT thresholds. For projects that require a VMT analysis and do not screen out, the guidelines recommend using VMT per capita for home-based trips for residential projects.

Analysis Methodology. The Per Capita VMT was calculated from the Riverside Transportation Analysis Model (RivTAM). The base year RivTAM was modified to include the Project socio-economic data[1] (SED). The Project is located in traffic analysis zone (TAZ, Sequence Number) 3222. The project was coded into a Spare Zone (Sequence Number 4927) and the Project SED (200 households, 675 population) was included in TAZ 4927. The base and future year (cumulative) "plus project" conditions VMT was derived from full model runs performed to isolate the VMT for the Project. The Project generated VMT was extracted from the RivTAM using the production-attraction (P/A) trip matrix to isolate the VMT related to home-based-trips to isolate the residential VMT.

PROJECT ANALYSIS

As stated earlier, the VMT analysis was conducted using the RivTAM. The baseline homebased VMT for the Project was calculated to be 12.56 miles, which is approximately 5.5 percent lower than the baseline homebased VMT for the City of 13.3 miles extracted from the no project runs. The future year VMT for the Project was calculated to be 13.3 miles which is approximately 9.1 percent greater

[1] Socio-economic data are model inputs that include population, number of households, and types of employment that are used in the trip generation component.

than the future homebased VMT for the City of 12.18 miles. The City of Jurupa Valley Guidelines requires that Notice of Preparation (NOP) year VMT be calculated by interpolating between the base year and future year VMT. The NOP year homebased VMT for the Project was calculated to be 12.8 miles, which 0.6 percent lower than the NOP year homebased VMT for the City of 12.87. Table A shows the calculation details for the Project.

Table A - Project VMT Summary

	Model Base Year (2012)		Model Future Year (2040)		NOP Year (2021)	
	Project	**City**	**Project**	**City**	**Project**	**City**
Households	200	25,033	200	33,100	200	27,626
Population	675	96,303	675	124,131	675	105,248
Homebased (HB) VMT	8,478	1,280,549	8,977	1,512,243	8,638	1,355,022
HB VMT Per Capita	**12.56**	**13.30**	**13.30**	**12.18**	**12.80**	**12.87**

As seen from the table above, the NOP year project VMT is less than the City, and therefore, the project has a less than significant impact. However, the project involves a General Plan Amendment, and the future year project VMT is greater than the City VMT, resulting in a significant impact.

Mitigation Measures. Based on the Guidelines, when project VMT exceeds the threshold of significance, the project will need to mitigate its CEQA transportation impact. Projects must propose measures to reduce project VMT. The following VMT reducing strategies are recommended based on the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, California Air Pollution Control Officers Association (CAPCOA), December 2021 (henceforth referred to as CAPCOA Handbook):

- **T-1. Increase Residential Density:** 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. This measure is best quantified when applied to larger developments and developments where the density is somewhat similar to the surrounding area due to the underlying research being founded in data from the neighborhood level. To evaluate this measure, both the default base density (9.1 DU/Acre) and the Model Density (2.6 DU/Acre) were compared against the proposed density of 24.1 DU/Acre for the project. Both comparisons resulted in a VMT reduction of greater than 30%, which is the maximum allowed reduction for this measure. Therefore, due to the high-density nature of the proposed project, the VMT impacts will be less than significant. Calculations based on the CAPCOA Handbook are shown in Attachment B. It should be noted that while increased density is listed as a mitigation measure, it is a project design feature.

  Table B shows the resulting reductions and project VMT after application of mitigation measures.

Table B - VMT Reduction from Increased Residential Density (2040)

Improvement	**CAPCOA Reference**	**VMT Reduction/VMT**
Increased Residential Density	T-1	30%
Unmitigated VMT		**13.30**
Mitigated VMT		**9.31**
Threshold		**12.18**

  As seen above, with implementation of the recommended mitigation measures, the project VMT is anticipated to decrease to 9.31 miles per capita, which is below the City's threshold of 12.18. Therefore, the projects impacts under CEQA for traffic and transportation will be less than significant after mitigation.

Other Improvements. The proposed project will also work with the City to implement a bike lane on Pats Ranch Road. This is anticipated to reduce not just the project VMT but also VMT from other proposed and existing development in the area. VMT reduction from the bike lane is discussed below and calculated based on the CAPCOA Handbook.

- **T-19-A. Construct or Improve Bike Facility**: This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, a best practice is to consider local or state bike lane width standards. This measure reduces VMT on the roadway segment parallel to the bicycle facility (i.e., the corridor). An adjustment factor is included in the formula to scale the VMT reduction from the corridor level to the plan/community level. The bicycle lane facility must be either Class I, II, or IV. Class I bike paths are physically separated from motor vehicle traffic. Class IV bikeways are protected on-street bikeways, also called cycle tracks. Class II bike lanes are striped bicycle lanes that provide exclusive use to bicycles on a roadway. This will reduce VMT from the project as well as existing uses along Pats Ranch Road by 0.04%. Calculations based on the CAPCOA Handbook are shown in Attachment B.
- **Other Improvements:** The project is also working with the City to implement bike connectivity between 68th Street and Limonite Avenue. Based on the CAPCOA Handbook, this will result in a VMT reduction of 0.4% for the project as well as other existing and proposed uses in the area. The project is also working with the City to implement two bus shelters at the existing bus stops located in the project area just south of the Pats Ranch road and 65th Street intersection. The proposed bus shelters will provide protection from the sun, wind, and rain, which may help increase the ridership.

CONCLUSION

The existing (NOP year) homebased VMT for the Project was calculated to be 12.8 miles, which 0.6 percent lower than the NOP year homebased VMT for the City of 12.87, and therefore, the project has a less than significant impact under existing conditions. Since the project includes a General Plan Amendment, the future year (cumulative) VMT was also calculated. The future year VMT for the Project was calculated to be 13.3 miles which is approximately 9.1 percent greater than the future homebased VMT for the City of 12.18 miles, which results in an impact.

Due to the higher density proposed by the project, based on the CAPCOA Handbook, the project will result in a VMT reduction of 30% that can not be accounted for in the traffic modeling process or by using standard densities. After application of the reduction, the project's VMT is anticipated to be reduced to 9.31, resulting in a less than significant impact.

The project is also working with the City to implement a Class II bike lane on Pats Ranch Road, and is working with the city to implement other improvements to transit and bike connectivity in the City. Based on the CAPCOA Handbook, this will result in a VMT reduction of 0.4% for the project as well as other existing and proposed uses in the area.

Enclosures:

- Attachment A – RivTAM Outputs
- Attachment B – VMT Reduction Worksheets

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Attachment A – RIVTAM Outputs

Base Year 2012

Vernola Marketplace Apartments				City of Jurupa Valley (No Project)		
[seq #]	1	4927				
TAZ_ID	1	404191807				
District	1	4				
POP	1	675		POP		97,093
RES	1	675		RES		96,303
HH	1	200		HH		25,033
Tot_emp	1	-		Tot_emp		24,793
MS_HBWA_VMT	1	-		MS_HBWA_VMT		422,870
MS_HBP_VMT	1	8,478		MS_HBP_VMT		1,280,549
MS_TotP_VMT	1	9,098		MS_TotP_VMT		1,637,689
MS_TotA_VMT	1	2,625		MS_TotA_VMT		1,304,974
OD_CarP_VMT	1	10,065		OD_CarP_VMT		1,650,791
OD_CarA_VMT	1	10,628		OD_CarA_VMT		1,669,449
OD_CarP_Trps	0					
OD_CarA_Trps	0					
OD_TrkP_VMT	1	130		OD_TrkP_VMT		136,268
OD_TrkA_VMT	1	130		OD_TrkA_VMT		136,321
OD_TrkP_Trps	0					
OD_TrkA_Trps	0					
OD_TotP_VMT	1	10,195		OD_TotP_VMT		1,787,059
OD_TotA_VMT	1	10,759		OD_TotA_VMT		1,805,770
Tot HBP_VMT		8,478		Tot HBP_VMT		1,280,549
TotHBWA_VMT		-		TotHBWA_VMT		422,870
TotPA_VMT		11,723		TotPA_VMT		2,942,663
TotOD_VMT		20,954		TotOD_VMT		3,592,829
Tot_SerPop		675		Tot_SerPop		121,886
VMT/Cap		12.6		VMT/Cap		13.3
VMT/Emp		-		VMT/Emp		17.06
PAVMT/Serpop		17.4		PAVMT/Serpop		24.1
ODVMT/Serpop		31.0		ODVMT/Serpop		29.5

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Attachment A – RIVTAM Outputs

Future Year 2040

Vernola Marketplace Apartments				City of Jurupa Valley (No Project)		
[seq #]	1	4927				
TAZ_ID	1	404191807				
District	1	4				
POP	1	675		POP		125,061
RES	1	675		RES		124,131
HH	1	200		HH		33,100
Tot_emp	1	0		Tot_emp		47,430
MS_HBWA_VMT	1	0		MS_HBWA_VMT		835,536
MS_HBP_VMT	1	8,977		MS_HBP_VMT		1,512,243
MS_TotP_VMT	1	9,555		MS_TotP_VMT		2,164,282
MS_TotA_VMT	1	3,053		MS_TotA_VMT		2,330,892
OD_CarP_VMT	1	12,218		OD_CarP_VMT		2,528,230
OD_CarA_VMT	1	12,819		OD_CarA_VMT		2,515,967
OD_CarP_Trps	0					
OD_CarA_Trps	0					
OD_TrkP_VMT	1	130		OD_TrkP_VMT		216,551
OD_TrkA_VMT	1	130		OD_TrkA_VMT		216,563
OD_TrkP_Trps	0					
OD_TrkA_Trps	0					
OD_TotP_VMT	1	12,348		OD_TotP_VMT		2,744,781
OD_TotA_VMT	1	12,949		OD_TotA_VMT		2,732,531
Tot HBP_VMT		8,977		Tot HBP_VMT		1,512,243
TotHBWA_VMT		-		TotHBWA_VMT		835,536
TotPA_VMT		12,608		TotPA_VMT		4,495,174
TotOD_VMT		25,297		TotOD_VMT		5,477,311
Tot_SerPop		675		Tot_SerPop		172,491
VMT/Cap		13.3		VMT/Cap		12.2
VMT/Emp		-		VMT/Emp		17.62
PAVMT/Serpop		18.7		PAVMT/Serpop		26.1
ODVMT/Serpop		37.5		ODVMT/Serpop		31.8

Attachment B - VMT Reductions based on CAPCOA Handbook

T-1: Increase Residential Density (Default Density of 9.1 DU/Acre)

ID	Formula	Variable	Value		Unit	Source	Calculation
Project VMT							
Output							
A	A =(B-C/C)*D	Percent reduction in GHG emissions from project VMT in study area	0-30.0		%	calculated	-36.3%
User Inputs							
B		Residential density of project development		24.1	du/acre	user input	24.1
Constants, Assumptions, Defaults							
C		Residential density of typical development		9.1	du/acre	Ewing et al. 2007	9.1
D		Elasticity of VMT with respect to residential density		-0.22	unitless	Stevens 2016	-0.22
Project VMT after Mitigation							

Attachment B - VMT Reductions based on CAPCOA Handbook

T-1: Increase Residential Density (Model Density)

ID	Formula	Variable	Value		Unit	Source	Calculation
Project VMT							
Output							
A	A =(B-C/C)*D	Percent reduction in GHG emissions from project VMT in study area	0-30.0		%	calculated	-181.9%
User Inputs							
B		Residential density of project development		24.1	du/acre	user input	24.1
Constants, Assumptions, Defaults							
C		Residential density of typical development		2.6	du/acre	Ewing et al. 2007	2.6
D		Elasticity of VMT with respect to residential density		-0.22	unitless	Stevens 2016	-0.22
Project VMT after Mitigation							

Attachment B - VMT Reductions based on CAPCOA Handbook

T-19-A: Construct or Improve Bike Facility

ID	Formula	Variable	Value		Unit	Source	Calculation
Project VMT							
Output							
A	A=-B*((F/I*(C + D)*E*G/H)	Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility	0-0.8		%	calculated	-0.04%
User Inputs							
B		Percent of plan/community VMT on parallel roadway	0-100%	100.00%	%	user input	100.00%
C		Active Transportation adjustment factor	Table T-18.1	0.0019	unitless	CARB 2020	0.0019
D		Credits for key destinations near project	Table T-18.2	0.0005	unitless	CARB 2020	0.0005
E		Growth factor adjustment for facility type	Table T-18.3	1.0000	unitless	CARB 2020	1.0000
Constants, Assumptions, Defaults							
F		Annual days of use of new facility	Table T-18.4	337	days per year	NOAA 2017	337
G		Existing regional average one-way bicycle	Table T-9.1	2.2	miles per trip	FHWA 2017	2.2
H		Existing regional average one-way vehicle trip length	Table T-9.1	11.7	miles per trip	FHWA 2017	11.7
I		Days per year		365	days per year	standard	365.00