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Subject: Avenue 50 Widening between Jefferson Street to Botella Place in the Cities of Indio and La Quinta – VMT Analysis

Dear Eliza:

Translutions, Inc. (Translutions) is pleased to provide this letter discussing the Vehicle Miles Traveled (VMT) for the proposed widening of Avenue 50 between Jefferson Street to approximately Botella Place in the Cities of Indio and La Quinta.

PROJECT DESCRIPTION

The Avenue 50 Improvement Project from Jefferson Street to Botella Place (hereinafter the Project) entails the improvement of Avenue 50 from the intersection of Avenue 50 and Jefferson Street to the intersection of Avenue 50 and Botella Place. The eastbound portion of the roadway between Jefferson Street and Madison Street is within the City of La Quinta. The remainder of the Project alignment is within the City of Indio.

Improvements generally include widening Avenue 50 from one travel lane to two travel lanes in each direction, closing gaps in existing sidewalks and trails, constructing a Class IV bike lane on both sides of the street, curb and gutter, and drainage improvements per the City of Indio's Master Drainage Plan (MDP). All improvements are consistent with the City of Indio and City of La Quinta's General Plan Road Classifications.

VMT DISCUSSION

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 La Quinta has adopted guidelines or thresholds under VMT. The City of Indio uses the guidelines adopted by the County of Riverside. The recommended threshold identified in both the City of La Quinta and County of Riverside Guidelines is based on increase in VMT, and an impact occurs if the project results in a net increase in jurisdiction VMT.

Based on discussion with the Cities, the analysis was conducted using the Riverside County Model (RIVCOM). The RIVCOM was run to evaluate the change in VMT for the project. The model was run for the base and future conditions and for the without and with project conditions. Based on discussions, an impact would occur if there is a net increase in VMT with the proposed project compared to the without project conditions.

All models are run until the model convergence is within certain parameters. This is done so that consistency is maintained between the speeds predicted by the highway assignment and the travel times input to the entire travel demand model chain. In this process, the predicted speeds are used to re-compute highway and transit travel times, and the entire model sequence is repeated until input and output speeds are generally consistent with each other. The averaging process used to smooth volume variations across feedback loops is the method of successive averages, with a 1/n step, where n is the number of iterations. The aggregate change of link travel times between the current iteration and the previous is compared against the convergence criteria. The percentage Root Mean Square Error and correlation coefficients at a regional level in the RIVCOM are 26.94% and 0.97 respectively.

At a regional level, the convergence of the model or slight changes in numbers between two model runs can result in significant changes to VMT. To evaluate the effect of the project on VMT, data was extracted from the model to evaluate how the project affects VMT within a 10-mile and County wide scenarios. Table A shows the findings of the analysis.

Table A: Change in VMT (Base Year)

	Without Project	With Project	Difference
5-mile Radius	2,547,731	2,547,015	(716)
10-mile Radius	4,593,023	4,591,725	(1,298)
Entire Riverside County	56,042,547	56,041,807	(740)

As seen above, the percentage decrease in VMT within a 5-mile and 10-mile radius is consistent, whereas at a Countywide level, the change is substantially lower, and in fact decreases from the 10-mile radius. A project like the proposed Project should not result in increases in VMT beyond the immediate area. Therefore, to identify why the VMT was changing, an evaluation of the change in traffic volumes on segments was conducted. Figure 1 shows the change in traffic volumes between the no project and with project conditions. The comparison shows that there is minimal change in traffic volumes outside a 5-mile radius, and no change outside of a 10-mile radius. Therefore, based on discussion with the Cities, the VMT analysis and findings are based on an influence area of 10 miles.

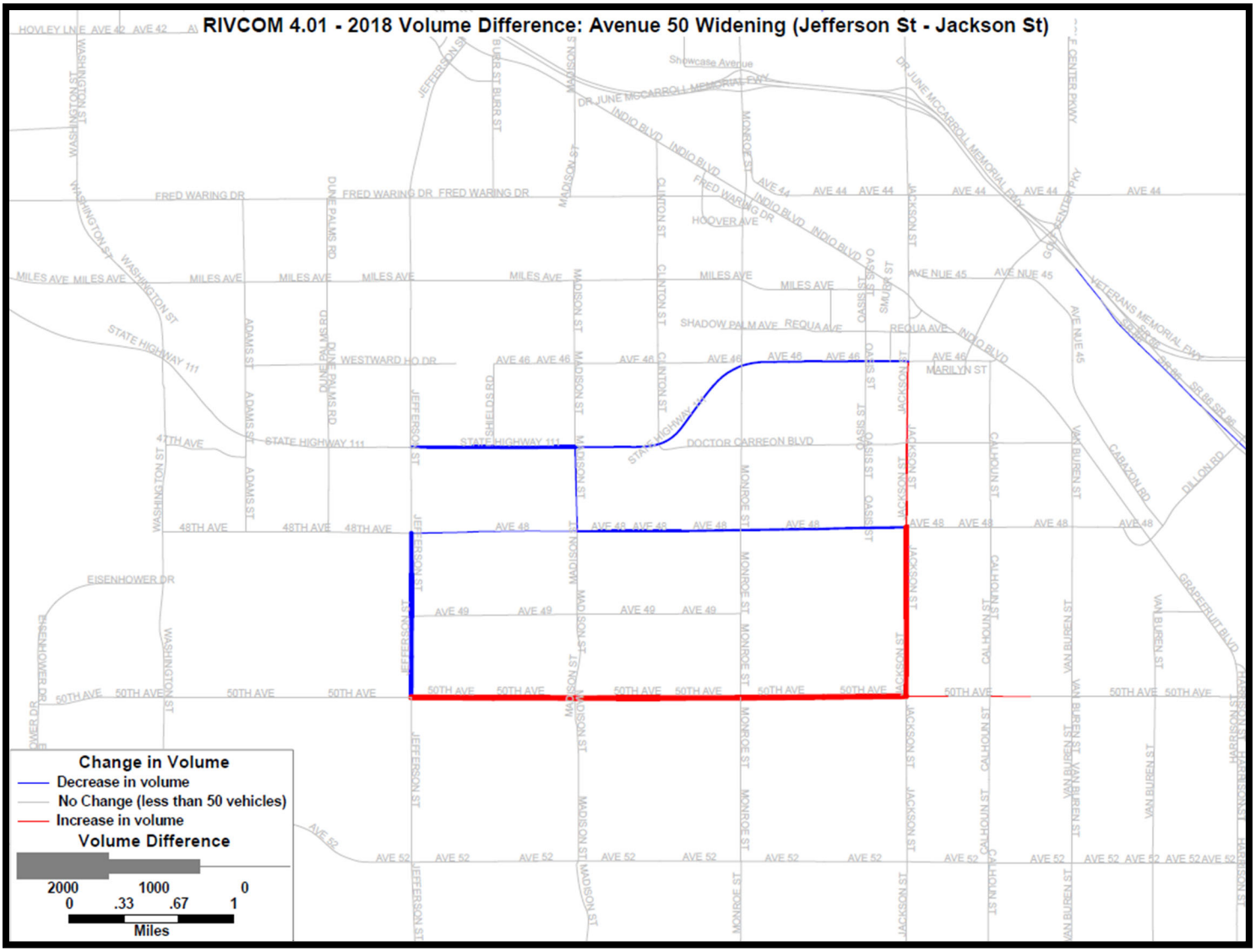

Figure 1: Change in Daily Traffic Volumes (Without Project to With Project)

Model Edits and Changes

The RIVCOM was run to evaluate the change in VMT for the project. The model was run for the base year (2018) and future year (2045) conditions and for the without and with project conditions. The model runs and data extraction process followed are consistent with standard industry practice.

Base Year Network. Upon review of the base year network in the area, the roadways within the immediate model area were compared with aerial photographs to verify roadway lanes and speeds. A few links were corrected to reflect the correct number of lanes, which was used for the "without project" scenario. Then, in a subsequent run, the project related changes to the number of lanes were included to reflect the "with project" scenario.

Future Year Network. The proposed project is part of the approved 2016 RTP/SCS, and therefore, was included in the future year model. Therefore, the future model was used as the "with project" scenario without any changes. To reflect "without project conditions", the number of lanes in the project area was reduced to existing conditions (2-lanes).

The model runs and data extraction process followed are consistent with standard modeling practice. Table B shows the VMT outputs from the model:

Table B – Model VMT Within 10-Mile Radius

Year	Without Project	With Project	Difference
2018	4,593,023	4,591,725	(1,298)
2045	7,354,427	7,354,000	(427)

As seen in Table B, the project results in a decrease in VMT under both the base and future year conditions. The model outputs show a decrease of 1,298 miles under base year and of 427 miles under future year conditions. This reduction is likely due to the use of more direct preferred route due to the added capacity and introduction of bicycle facilities along the project corridor.

VMT Reductions.

It should be noted that the model does not account for active transportation improvements, improved multimodal access to schools, and increased accessibility and availability of alternative modes. Therefore, these calculations were conducted separately and are discussed below. VMT reductions have been calculated using 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).

Since the project will provide bicycle network improvements (Class IV bike facilities) in the area, the total VMT associated with the traffic analysis zones along the project would result in reduced VMT due to bicycle improvements. For pedestrian network improvements, no reductions have been taken since these are mostly gap closure improvements to present a conservative analysis.

For this analysis, only Internal VMT for the TAZs adjacent to the project limits have been considered. Table C shows the Base Year and 2045 VMT for the adjacent TAZs as well as VMT reductions from the bicycle improvements portion of the proposed project. As seen on Table C, the project will result in a VMT reduction of 33 miles under 2018 and 46 miles under 2045 conditions.

Table C: VMT from Adjacent TAZs and Active Transportation Reductions

TAZ		2018	2045
752		1,028	6,411
759		1,900	3,591
761		13,928	26,483
773		56,122	54,020
820		8,441	25,917
831		9,616	16,040
912		18,405	21,690
Total Auto VMT		**109,441**	**154,152**
VMT Reductions			
Bike Facilities	-0.03%	**-33**	**-46**

Table D shows the resulting impact of the project on the VMT within a 10-mile area. As seen on Table D, the project is expected to result in a reduction of 1,331 miles under 2018 conditions and 474 miles under 2045 conditions.

Table D – VMT Reductions and Net VMT

	2018	2045
Model VMT (With Project)	4,591,725	7,354,000
Model VMT (Without Project)	4,593,023	7,354,427
Bicycle/Pedestrian Network Improvements	-33	-46
Project VMT with Active Transportation	4,591,692	7,353,953
Net Change (With Project - Without Project)	-1,331	-474

VMT Due to Induced Demand

The Governor's Office of Planning and Research (OPR) states that *building new roadways, adding roadway capacity in congested areas, or adding roadway capacity to areas where congestion is expected in the future, typically induces additional vehicle travel. For the types of projects previously indicated as likely to lead to additional vehicle travel, an estimate should be made of the change in vehicle travel resulting from the project*. Induced travel, or induced vehicle travel, is the "*additional vehicle travel that occurs when the cost [for travel] is lower," after travel constraints, such as congestion, are reduced*. It is the increase in travel that occurs when auto travel is made more convenient by new roadway capacity. The extent that this occurs due to new roadway capacity versus other variables such as the

economy (wage changes, gas prices, parking prices) and population growth varies across research, but in general, changes in travel times and costs affect demand and therefore VMT. For this reason, capacity-increasing projects generally need to be evaluated for their potential induced travel. The mechanisms by which induced travel occur include:

- Route changes (may increase or decrease overall VMT)
- Longer trips (increases overall VMT)
- Mode shift to automobile use (increases overall VMT)
- More trips (increases overall VMT)
- More disperse development (increases overall VMT)

The RIVCOM evaluates the effect of route changes and longer trips (associated with the route changes). The mode shift to automobile use is generally captured in the model if a robust transit network exists in the area. In this area, there is minimal transit, and as such, mode shift from transit is not applicable.

The last two items, i.e. more trips and more disperse development cannot be calculated by tour based models. However, these occur if there are conditions that make it difficult to make more trips or disperse development due to congestion. The explanation for this is that if the transportation network is severely congested, automobile users will not make certain trips. Then, when capacity is added, and as a result, the roadway becomes less congested, the trip would be made. However, if the roadway is less congested to begin with, there is nothing preventing the original trips, and adding additional capacity would not result in additional VMT. It does appear that the RIVCOM includes calculations for some induced demand. It has been observed that the number of trips from the TAZs adjacent to the project limits increased with the roadway widening. Therefore, the outputs and numbers reported in the "with project conditions" include some induced demand from the roadway widening. In spite of the observed induced demand discussed above, as shown in Table B, overall VMT for the area within a 10-mile radius is reduced with the project.

Caltrans sponsored research states that areas with limited congestion and limited linkages to nearby urban districts can still experience induced travel resulting from new capacity, because the new capacity improves travel times or reduces costs and creates new patterns of accessibility and new location and land-use opportunities. It should be noted that the research and recommendations are limited to areas with limited linkages, wherein, addition of a new link to the transportation network makes destinations more accessible. The project area is generally developed, and adjacent undeveloped areas are zoned for specific land use types in the General Plans. Speculation on future land use changes is beyond the scope of the current project and as land use changes occur, the impacts of such changes will be evaluated at the time applications are made.

SUMMARY & CONCLUSION

As seen from the above discussion, the project adds roadway capacity and decreases VMT due to added capacity in the area. In addition, because the project also improves bicycle and pedestrian network in the area, the project further reduces VMT and results in a net reduction of VMT in the influence area. Therefore, it is our professional opinion that the project will have a less than significant impact on VMT.

We hope you will find this information helpful. Should you have any questions, please don't hesitate to call me at (949) 656-3131.

Sincerely,

translutions, Inc.

Sandipan Bhattacharjee, P.E., T.E., AICP, ENV SP
Principal

translutions
the transportation solutions company...

T-19-A: Construct or Improve Bike Facility

ID	Formula	Variable	Value		Unit	Source	Calculation
Area							
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**	**-0.030%**
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	0.0027	unitless	CARB 2020	0.0027
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	0.5400	unitless	CARB 2020	0.5400
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