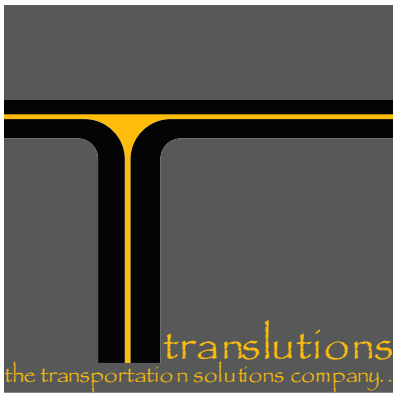


Appendix N

---

Almond Avenue Warehouse – Vehicle Miles Travelled (VMT) Evaluation Memorandum



# memorandum

**DATE:** January 20, 2020  
**TO:** Jeremy Johnson, County of San Bernardino  
**FROM:** Sandipan Bhattacharjee, PE, TE, AICP, Env SP  
**SUBJECT:** Almond Avenue Warehouse – Vehicle Miles Traveled (VMT) Evaluation

Translutions, Inc. (Translutions) is pleased to provide this memorandum discussing the trip generation and project related vehicle miles traveled (VMT) for the proposed Almond Avenue Warehouse. The project will be located on the west side of Almond Avenue south of Cherry Avenue in the County of San Bernardino. The project includes 186,167 square feet of warehousing use.

## PROJECT TRIP GENERATION

The trip generation for the proposed project is based on trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation* (10<sup>th</sup> Edition) and are based on Land Use 150 – "Warehousing". Attached Table A shows the calculation of the project trip generation. As shown in Table A, the proposed project is forecast to generate 31 trips in the a.m. peak hour, 35 trips in the p.m. peak hour, and 325 daily trips. After converting truck trips to passenger car equivalents, the project is forecast to generate 41 PCE trips in the a.m. peak hour, 46 PCE trips in the peak hour and 425 daily PCE trips.

The County of San Bernardino *Transportation Impact Study Guidelines (July 9, 2019)* requires a Transportation Impact Study (TIS) if a project generates 100 or more trips without consideration of pass-by trips during any peak hour. Since the trip generation of the project is less than 100 trips during any peak hour, it is our professional opinion that a TIS should not be required.

## VMT ANALYSIS

The VMT analysis was evaluated consistent with the County Guidelines and include VMT thresholds which state that a project should be considered to have a significant impact if the project VMT per person/employee is greater than 4% below the existing VMT per person/employee for the unincorporated County. In addition, the San Bernardino County Transportation Analysis Model (SBTAM) was used to calculate the VMT for the project and County of San Bernardino.

Table B shows the home-based-work VMT for the County of San Bernardino for industrial employment, as well as the home-based-work VMT for the project.

Table B: VMT Calculations from SBTAM			
	Total Homebased/Work VMT (miles)	Total Employees	VMT per Employee
Project	697	38	18.3
County of San Bernardino	5,154,554	212,001	24.3

As shown in Table B, the per employee VMT (VMT per capita) for the County of San Bernardino is 24.3 miles per day. Based on the County threshold, the project will have a significant impact if the per capita VMT is greater than 23.3 miles per day. The project VMT is 18.3 miles per day, which is less than the 23.3 miles per day. Therefore, the project will have a less than significant impact under the County of San Bernardino VMT thresholds.

## CONCLUSION

The County of San Bernardino *Transportation Impact Study Guidelines (July 9, 2019)* requires a Transportation Impact Study (TIS) if a project generates 100 or more trips without consideration of pass-by trips during any peak hour. Since the trip generation of the project is less than 100 trips during any peak hour, it is our professional opinion that a TIS should not be required.

The project VMT is 18.3 miles per day, which is less than the 23.3 miles per day. Therefore, the project will have a less than significant impact under the County of San Bernardino VMT thresholds.

**Table A - Proposed Project Trip Generation (Standard Warehouse)**

Land Use	Units	Peak Hour						Daily
		AM Peak Hour			PM Peak Hour			
		In	Out	Total	In	Out	Total	
<b>Total Vehicle Rates</b>								
Trip Generation Rates <sup>1</sup>	Per TSF	0.131	0.039	0.170	0.051	0.139	0.190	1.740
PCE Inbound/Outbound Splits		77%	23%	100%	27%	73%	100%	50%/50%
<b>Passenger Car Equivalent Rates Calculations</b>								
<b>Passenger Cars</b>								
Recommended Mix (%) <sup>2</sup>		79.57%	79.57%	79.57%	79.57%	79.57%	79.57%	79.57%
PCE Factor <sup>3</sup>		1.0	1.0	1.0	1.0	1.0	1.0	1.0
PCE Rates		0.104	0.031	0.135	0.041	0.110	0.151	1.385
<b>2-Axle Trucks</b>								
Recommended Mix (%) <sup>2</sup>		3.46%	3.46%	3.46%	3.46%	3.46%	3.46%	3.46%
PCE Factor <sup>3</sup>		1.5	1.5	1.5	1.5	1.5	1.5	1.5
PCE Rates		0.007	0.002	0.009	0.003	0.007	0.010	0.090
<b>3-Axle Trucks</b>								
Recommended Mix (%) <sup>2</sup>		4.64%	4.64%	4.64%	4.64%	4.64%	4.64%	4.64%
PCE Factor <sup>3</sup>		2.0	2.0	2.0	2.0	2.0	2.0	2.0
PCE Rates		0.012	0.004	0.016	0.005	0.013	0.018	0.161
<b>4-Axle Trucks</b>								
Recommended Mix (%) <sup>2</sup>		12.33%	12.33%	12.33%	12.33%	12.33%	12.33%	12.33%
PCE Factor <sup>3</sup>		3.0	3.0	3.0	3.0	3.0	3.0	3.0
PCE Rates		0.048	0.014	0.063	0.019	0.051	0.070	0.644
<b>Warehouse Net PCE Rate</b>		<b>0.172</b>	<b>0.051</b>	<b>0.223</b>	<b>0.067</b>	<b>0.182</b>	<b>0.249</b>	<b>2.280</b>
<b>Total Project Trip Generation (Trips, By Vehicle Type)</b>								
Warehouse	186.167 TSF							
<b>Passenger Cars</b>		<b>19</b>	<b>6</b>	<b>25</b>	<b>7</b>	<b>21</b>	<b>28</b>	<b>258</b>
2-Axle Trucks		1	0	1	0	1	1	11
3-Axle Trucks		1	0	1	1	1	2	15
4+ Axle Trucks		3	1	4	1	3	4	40
<b>Total Trucks</b>		<b>5</b>	<b>1</b>	<b>6</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>66</b>
<b>Total Vehicles</b>		<b>24</b>	<b>7</b>	<b>31</b>	<b>9</b>	<b>26</b>	<b>35</b>	<b>324</b>
<b>Total Project Trip Generation (Passenger Car Equivalent Trips, By Vehicle Type)</b>								
<b>Passenger Cars</b>		<b>19</b>	<b>6</b>	<b>25</b>	<b>7</b>	<b>21</b>	<b>28</b>	<b>258</b>
<b>Truck PCE</b>								
2-Axle Trucks		2	0	2	0	2	2	17
3-Axle Trucks		2	0	2	2	2	4	30
4+ Axle Trucks		9	3	12	3	9	12	120
<b>Total Truck PCE</b>		<b>13</b>	<b>3</b>	<b>16</b>	<b>5</b>	<b>13</b>	<b>18</b>	<b>167</b>
<b>Total PCE</b>		<b>32</b>	<b>9</b>	<b>41</b>	<b>12</b>	<b>34</b>	<b>46</b>	<b>425</b>

Notes: Per TSF = Per Thousand Square Feet

<sup>1</sup> Rates based on Land Use 150 - "Warehousing" from Institute of Transportation Engineers (ITE) Trip Generation (10th Ed.).

<sup>2</sup> Recommended Truck Mix Percentages per City of Fontana Truck Trip Generation Study for Heavy Warehouse uses, August 2003

<sup>3</sup> Recommended PCE Factor per SBCTA