

September 27, 2022

Mr. Matt Enghard  
119 Arrowhead LLC  
11777 San Vicente Boulevard, Suite 780  
Los Angeles, CA 90049

**SUBJECT: SOUTH ARROWHEAD AVENUE VEHICLE MILES TRAVELED (VMT) ANALYSIS**

Dear Mr. Matt Enghard:

The following VMT Analysis has been prepared for the proposed South Arrowhead Avenue (**Project**), which is located at 119 South Arrowhead Avenue in the City of San Bernardino.

### **PROJECT OVERVIEW**

The proposed Project includes the development of 57,614 SF manufacturing use and 57,614 SF of business/industrial park use over three buildings to include ancillary and associated assemblage and warehousing space in the amount of 115,228 SF<sup>1</sup>, as shown on Attachment A.

### **BACKGROUND**

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which requires all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) (**Technical Advisory**) (1). Based on OPR's Technical Advisory, the City of San Bernardino has adopted their City of San Bernardino Traffic Impact Analysis Guidelines (August 2020) (**City Guidelines**) (2). The adopted City Guidelines have been utilized to prepare this VMT analysis.

### **VMT SCREENING EVALUATION**

Under the City Guidelines, projects are required to be evaluated by available screening criteria based on their location and project type to determine if a presumption of a less than significant transportation impact can be made. It is our understanding that the City of San Bernardino utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (**Screening Tool**). The Screening Tool allows users to input an assessor's parcel number (APN) to determine if a project's location meets one

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<sup>1</sup> The trip generation utilized in this analysis is based on a previous site plan which assumed slightly larger building square footages. As such, the VMT analyzed in this report may be slightly overstated.

or more of the screening thresholds for land use projects. The following screening steps are listed in the City Guidelines:

Step 1: Transit Priority Area (TPA) Screening

Step 2: Low VMT Area Screening

Step 3: Project Type Screening

A land use project only needs to meet one of the above screening thresholds to result in a less than significant impact.

### **STEP 1: TPA SCREENING**

As described in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing “major transit stop”<sup>2</sup> or an existing stop along a “high-quality transit corridor”<sup>3</sup>) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the Screening Tool results presented in Attachment B, the Project site is located within ½ mile of an existing major transit stop, or along a high-quality transit corridor (See attachment B). However, the Project as designed does not meet the secondary criteria outlined for this screening, such as having a FAR of greater than 0.75.

**TPA screening criteria is not met.**

### **STEP 2: LOW VMT AREA SCREENING**

The City Guidelines states that “residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker, or per

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<sup>2</sup> Pub. Resources Code, § 21064.3 (“Major transit stop’ means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.”).

<sup>3</sup> Pub. Resources Code, § 21155 (“For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.”).

service population that is similar to the existing land uses in the low VMT area.” The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ’s) within the SBCTA region. The Project’s physical location based on the APN is input into the Screening Tool to determine VMT generated by the existing TAZ as compared to the City’s impact threshold of “better than General Plan Buildout VMT per service population<sup>4</sup> (SP)” or 31.6 VMT per SP. The parcel containing the proposed Project was selected and the Screening Tool was run for the Origin-Destination VMT per service population measure of VMT. Based on the Screening Tool results (see Attachment B), the Project’s TAZ was found to have a VMT per SP of 45.3, which does not indicate the Project located within a low VMT generating zone.

**Low VMT Area screening criteria is not met.**

### **STEP 3: PROJECT TYPE SCREENING**

The City Guidelines identifies that local serving retail projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition to local serving retail, other types of local serving uses such as day care centers, non-destination hotels, affordable housing, places of worship, municipal services, and other local essential services may also be presumed to have a less than significant impact as local serving in nature and would tend to shorten vehicle trips. The Project is not proposing any land uses that are local serving.

Additionally, the City Guidelines state that small projects generating fewer than 110 daily vehicle trips or less may be presumed to have a less than significant impact, subject to discretionary approval by the City. Trips generated by the Project’s proposed land uses have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11<sup>th</sup> Edition, 2021 (3) .The Project is anticipated to generate 662 daily vehicle trip-ends per day. Therefore, the Project generate daily vehicle trips exceeding the 110 daily vehicle trip threshold (See Attachment C).

**Project Type screening criteria is not met.**

As the Project was not found to meet any of the aforementioned VMT screening criteria, a project level VMT analysis is prepared to assess the Project’s potential impact to VMT.

## **VMT ANALYSIS**

### **VMT MODELING**

City Guidelines identify San Bernardino Transportation Analysis Model (SBTAM) as the appropriate tool for conducting VMT analysis for land use projects in the City of San Bernardino. SBTAM is a useful tool to estimate VMT as it considers interaction between different land uses based on socio-economic data such as population, households, and employment. The calculation of VMT for land use projects is based

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<sup>4</sup> Service population consists of population and employees.

on the total number of trips generated and the average trip length of each vehicle. SBTAM is also consistent with the model used to develop the City’s VMT impact thresholds listed by the City Guidelines.

**VMT METRIC AND SIGNIFICANCE THRESHOLD**

City Guidelines describe that Project generated VMT should be extracted from the SBTAM **origin-destination (OD) trip matrices** and include total VMT for all vehicle trips (i.e., passenger cars and trucks) and trip purposes, and include the calculation of total **VMT per Service Population (SP)**. City Guidelines identifies the following VMT impact thresholds:

The baseline project generated VMT per SP exceeds the City of San Bernardino General Plan Buildout VMT per SP, or

The cumulative project generated VMT per SP exceeds the City of San Bernardino General Plan Buildout VMT per SP.

**PROJECT LAND USE CONVERSION**

In order to evaluate Project VMT, standard land use information must first be converted into a SBTAM compatible dataset. The SBTAM model utilizes socio-economic data (SED) (e.g., population, households, employment, etc.) instead of land use information for the purposes of vehicle trip estimation. Project land use information such as building square footage must first be converted to SED for input into SBTAM. Adjustments in SED have been made within the SBTAM model to reflect the Project’s proposed land uses. Table 1 summarizes the employment estimates for the Project. Employment estimates used for this analysis are consistent with the employment density factors identified in the Southern California Association of Governments (SCAG) Employment Density Study (October 2001) (4).

**TABLE 1: EMPLOYMENT ESTIMATES**

Land Use	Building Area	SCAG Conversion Factor	Estimated Employees
Warehouse	115,228 sf	1 employee per 1,195 sf	96
Manufacturing	57,614 sf	1 employee per 705 sf	82
Business/Industrial Park	57,614 sf	1 employee per 705 sf	82
Total	230,456 sf	-	260

**PROJECT TOTAL VMT CALCULATION**

Consistent with City Guidelines and standard VMT calculation methods, total VMT is calculated from SBTAM’s OD trip matrices and then divided by the SP to derive the efficiency metric VMT per SP. These calculations are performed for baseline (2022) and cumulative year (2040) conditions.

Table 2 presents Project generated total VMT calculated as the total of passenger car, light-duty, medium-duty, and heavy-duty truck trips. Total trips by vehicle type are then multiplied by the average trip length for each vehicle type.

**TABLE 2: TOTAL VMT**

	Baseline (2022)	Cumulative Year (2040)
Automobile VMT	4,824	4,348
Truck VMT	3,253	3,290
Total VMT	8,077	7,638

Table 3 presents the calculation of VMT per SP, which is simply the quotient of total VMT for the Project divided by the Project’s SP or in this case the number of Project employees.

**TABLE 3: PROJECT-GENERATED TOTAL VMT PER SP**

	Baseline (2022)	Cumulative Year (2040)
SP	260	260
Total VMT	8,077	7,638
Total VMT / SP	31.1	29.4

Table 4 identifies the comparison between Project’s baseline and cumulative VMT per SP to the City’s impact threshold. As noted in the City Guidelines, the City of San Bernardino has identified a VMT per SP significance threshold of 31.6, which is the VMT per SP value for the City of San Bernardino General Plan Buildout condition. As shown below, the Project is below the City’s VMT per SP impact threshold for both the baseline and cumulative conditions by 1.6% - 7.0%, respectively. The Project VMT impact is therefore considered less than significant.

**TABLE 4: PROJECT COMPARISON TO CITY OF SAN BERNARDINO VMT PER SP SIGNIFICANCE THRESHOLD**

	Baseline	Cumulative
Regional Threshold	31.6	31.6
Project	31.1	29.4
Percent Below Threshold	-1.6%	-7.0%
Potentially Significant?	No	No

**PROJECT CUMULATIVE IMPACT ON VMT**

The City Guidelines consistent with the Technical Advisory states that cumulative impacts on VMT “... metrics such as VMT per capita or VMT per employee, i.e., metrics framed in terms of efficiency (as recommended below for use on residential and office projects), cannot be summed because they employ a denominator. A project that falls below an efficiency-based threshold that is aligned with long-term goals and relevant plans has no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa. This is similar to the analysis typically conducted for greenhouse gas emissions, air quality impacts,

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and impact that utilize plan compliance as a threshold of significance.”<sup>5</sup> As the Project is consistent with the RTP/SCS but is found to have a less than significant impact at the project level. The Project is also considered to have a less than significant cumulative impact as well.

## CONCLUSION

In summary, the Project was not found to meet any of the City’s described screening criteria and a project level VMT analysis was performed. The Project’s VMT analysis findings for project generated VMT per service population was found to not exceed the City’s threshold, the Project’s impact on VMT is presumed to be less than significant.

If you have any questions, please contact me at (949) 660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.



Alexander So  
Senior Associate

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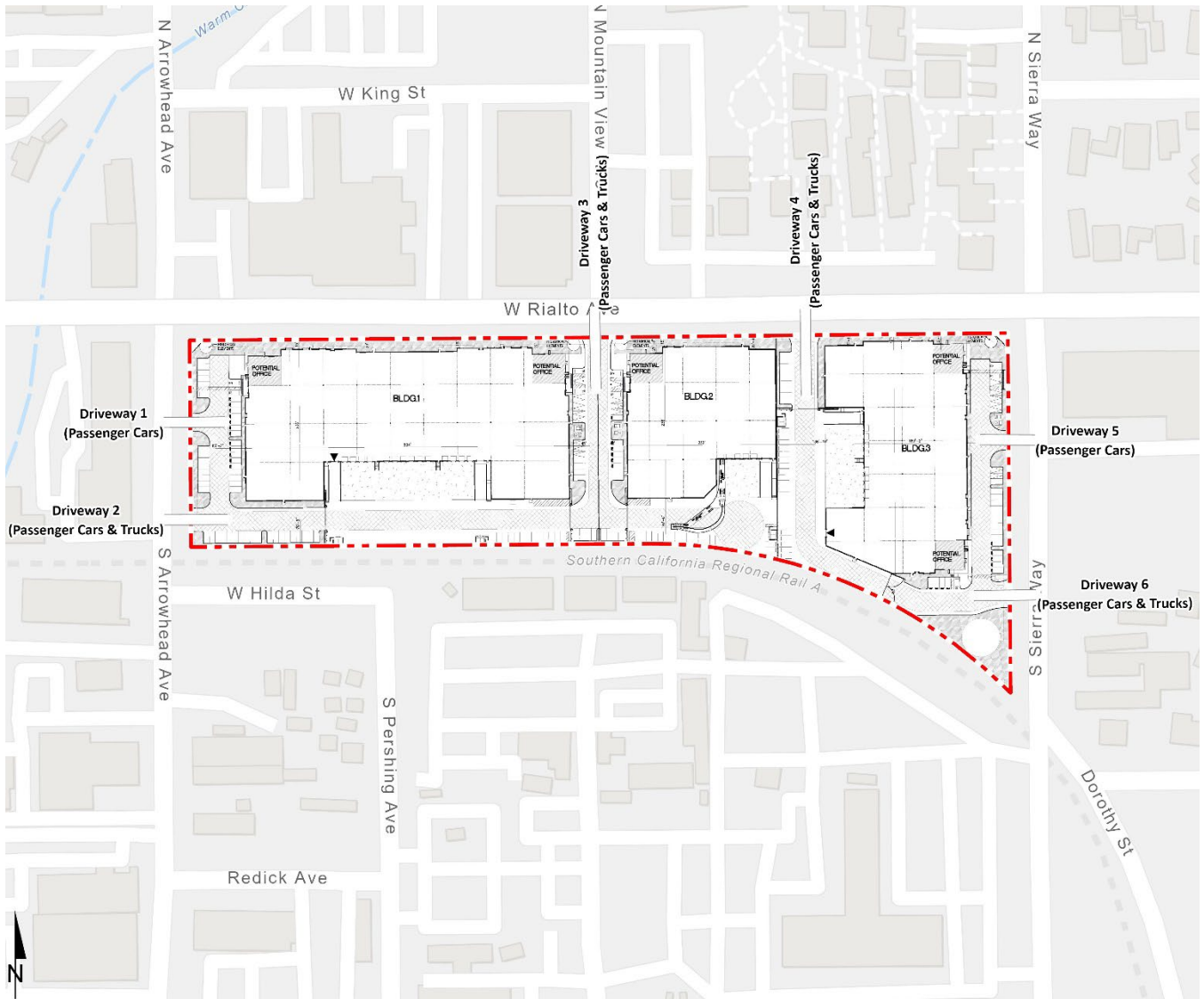
<sup>5</sup> OPR’s Technical Advisory; Page 6

## REFERENCES

1. **Office of Planning and Research.** *Technical Advisory on Evaluating Transportation Impacts in CEQA.* State of California : s.n., December 2018.
2. **Institute of Transportation Engineers.** *Trip Generation Manual.* 11th Edition. 2021.
3. **Southern California Association of Governments.** *Employment Density Study.* October 2001.

**ATTACHMENT A:  
PRELIMINARY SITE PLAN**





**ATTACHMENT B:  
SBCTA SCREENING TOOL**

**SBCTA VMT Screening Tool** Powered by Fehr & Peers User's Guide

119 S Arrowhead Ave, San Bern: X

Show search results for 119 S Arrowh...

**Complete #1 - 4, Then Click 'Run'**

VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.\*

OD VMT Per Service Population

#3. Select the Baseline Year. The years available for analysis are from 2016 to 2040.\*

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 Future Buildout (0%)

Run

**Project Area VMT (1 of 2)**

Assessor Parcel Number (APN)	013605154
Traffic Analysis Zone (TAZ)	53795101
TAZ VMT	45.3
Jurisdiction VMT	31.6
% Difference	43.46%
VMT Metric	OD VMT Per Service Population
Threshold	31.6

Zoom to

**Map Layers**

- Project Area VMT
- Screening Results
- Low VMT Generating TAZs
- Parcels
- Jurisdiction Boundaries
- TAZ
- Transit Priority Area

**ATTACHMENT C**  
**PROJECT TRIP GENERATION**

**TABLE 1: TRIP GENERATION RATES**

Land Use <sup>1</sup>	Units <sup>2</sup>	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
<b>Actual Vehicle Trip Generation Rates</b>									
Warehousing <sup>3</sup>	TSF	150	0.131	0.039	0.170	0.050	0.130	0.180	1.710
Passenger Cars (AM=88.2%, PM=83.3%, Daily=64.9%)			0.116	0.034	0.150	0.042	0.108	0.150	1.110
2-Axle Trucks (AM=1.97%, PM=2.79%, Daily=5.86%)			0.002	0.001	0.003	0.003	0.002	0.005	0.100
3-Axle Trucks (AM=2.44%, PM=3.46%, Daily=7.27%)			0.002	0.002	0.004	0.003	0.003	0.006	0.124
4+-Axle Trucks (AM=7.39%, PM=10.45%, Daily=21.97%)			0.007	0.006	0.013	0.010	0.009	0.019	0.376
Manufacturing <sup>3</sup>	TSF	140	0.517	0.163	0.680	0.229	0.511	0.740	4.750
Passenger Cars (AM=95.6%, PM=95.9%, Daily=90.5%)			0.500	0.150	0.650	0.217	0.493	0.710	4.300
2-Axle Trucks (AM=0.74%, PM=0.69%, Daily=1.59%)			0.003	0.002	0.005	0.002	0.003	0.005	0.075
3-Axle Trucks (AM=0.91%, PM=0.85%, Daily=1.97%)			0.003	0.003	0.006	0.003	0.004	0.006	0.093
4+-Axle Trucks (AM=3.73%, PM=2.56%, Daily=5.94%)			0.011	0.008	0.019	0.008	0.011	0.019	0.282
Industrial Park <sup>3</sup>	TSF	130	0.275	0.065	0.340	0.075	0.265	0.340	3.370
Passenger Cars (AM=88.2%, PM=88.2%, Daily=83.09%)			0.257	0.043	0.300	0.060	0.240	0.300	2.800
2-Axle Trucks (AM=1.96%, PM=1.96%, Daily=2.82%)			0.003	0.004	0.007	0.003	0.004	0.007	0.095
3-Axle Trucks (AM=2.44%, PM=2.44%, Daily=3.50%)			0.004	0.005	0.008	0.003	0.005	0.008	0.118
4+-Axle Trucks (AM=7.36%, PM=7.36%, Daily=10.59%)			0.011	0.014	0.025	0.010	0.016	0.025	0.357

<sup>1</sup> Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), [Trip Generation Manual](#), Eleventh Edition (2021).

<sup>2</sup> TSF = thousand square feet

<sup>3</sup> Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.

Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

**TABLE 2: TRIP GENERATION SUMMARY**

Land Use	Quantity Units <sup>1</sup>	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
<b>Actual Vehicles:</b>								
Warehousing (50%)	115.228 TSF							
Passenger Cars:		13	4	17	5	12	17	128
2-axle Trucks:		0	0	0	0	0	0	12
3-axle Trucks:		0	0	0	0	0	0	14
4+-axle Trucks:		1	1	2	1	1	2	44
Total Truck Trips (Actual Vehicles):		1	1	2	1	1	2	70
<b>Total Warehousing Trips (Actual Vehicles):</b>		<b>14</b>	<b>5</b>	<b>19</b>	<b>6</b>	<b>13</b>	<b>19</b>	<b>198</b>
Manufacturing (25%)	57.614 TSF							
Passenger Cars:		29	9	38	13	28	41	248
2-axle Trucks:		0	0	0	0	0	0	4
3-axle Trucks:		0	0	0	0	0	0	6
4+-axle Trucks:		1	0	1	0	1	1	16
Total Truck Trips (Actual Vehicles):		1	0	1	0	1	1	26
<b>Total Manufacturing Trips (Actual Vehicles):</b>		<b>30</b>	<b>9</b>	<b>39</b>	<b>13</b>	<b>29</b>	<b>42</b>	<b>274</b>
Business Park (25%)	57.614 TSF							
Passenger Cars:		15	2	17	3	14	17	162
2-axle Trucks:		0	0	0	0	0	0	6
3-axle Trucks:		0	0	0	0	0	0	8
4+-axle Trucks:		1	1	2	1	1	2	22
Total Truck Trips (Actual Vehicles):		1	1	2	1	1	2	36
<b>Total Business Park Trips (Actual Vehicles):</b>		<b>16</b>	<b>3</b>	<b>19</b>	<b>4</b>	<b>15</b>	<b>19</b>	<b>198</b>
Total Passenger Car Trips:		57	15	72	21	54	75	538
Total Truck Trips (Actual Vehicles):		3	2	5	2	3	5	132
<b>Total Trips (Actual Vehicles)<sup>2</sup></b>		<b>60</b>	<b>17</b>	<b>77</b>	<b>23</b>	<b>57</b>	<b>80</b>	<b>670</b>

<sup>1</sup> TSF = thousand square feet

<sup>2</sup> Total Trips = Passenger Cars + Truck Trips.