

## TECHNICAL MEMORANDUM

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**To:** Steven Valdez, Senior Planner, County of San Bernardino  
**From:** Amanda Meroux, EIT, Assistant Transportation Engineer  
Dennis Pascua, Transportation Services Manager  
**Subject:** Whittram Warehouse Project Transportation Memorandum (TRSTY-2021-00008)  
**Date:** June 7, 2021  
**cc:** Sean Kilkenny, Project Manager, Development Services  
Patrick Cruz, Environmental Analyst  
**Attachment(s):** Figure 1 – Proposed Site Plan  
Attachment A – SBCTA VMT Screening Tool Results

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The following technical memorandum provides an analysis of the trip generation and vehicle miles traveled (VMT) associated with development of the Whittram Warehouse Project (proposed project) in the County of San Bernardino (County). This assessment is prepared consistent with the requirement of the County's General Plan Circulation Element, Senate Bill (SB) 743, and the most recent CEQA guidelines.

The proposed project is the construction and development of a 209,600-square foot industrial/warehouse building (inclusive of office/mezzanine), located on a 10.02-acre (gross) property on the south side of Whittram Avenue, north of the Auto Club Speedway and west of Cherry Avenue (project site). The project site includes the following Assessor's Parcel Numbers (APNs): 0230-122-19, 0230-132-23, 0230-132-13, and 0230-132-14. Access to the project site is proposed through two driveways along Whittram Avenue. Figure 1 shows the proposed site plan.

### Trip Generation Analysis

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Handbook, 10th Edition (2017). Although the proposed project would meet the square footage and height characteristics of a high-cube warehousing land use, the standard warehousing land use (ITE Code 150) is used to provide a conservative analysis as the proposed project is just over 200,000 square feet and could support either high cube or standard warehousing uses. Additionally, while there are existing industrial uses on the site, consisting of approximately 10.02 acres of primarily trucking, heavy equipment businesses, and a wood recovery facility, trip generation estimates of the existing uses could not be determined from available ITE trip rates. However, for the purposes of this analysis, existing trip generation is provided for informational purposes only, and are estimated based on a General Light Industrial rate (ITE Code 110), consistent with the zoning for the project site. Due to absence of the acreage variable for the General Light Industrial use in the 10th Edition of ITE's Trip Generation, rates based on acreage in the 9th Edition were used as existing building square footages are unknown. It should be noted that no trip credits have been assumed in this analysis; therefore, the project's net trip generation estimates are conservative.

Passenger car equivalent (PCE) factors were applied to the trip generation estimates to account for truck traffic. The San Bernardino County Congestion Management Program (CMP) indicates that projects with high truck

percentages should convert project trips to PCE. A 1.5 PCE factor was applied to 2-axle trucks, 2.0 PCE for 3-axle trucks, and a 3.0 PCE factor was applied to 4-axle trucks per the San Bernardino County CMP. Trip generation rates, vehicle splits, and the resulting trip generation estimates for the project are summarized in Table 1.

As shown in Table 1, the proposed project would generate 365 daily trips, 36 AM peak hour trips (27 inbound and 9 outbound), and 40 PM peak hour trips (11 inbound and 29 outbound). Accounting for truck traffic from the warehousing land use, the proposed project would generate 534 daily PCE trips, 53 AM peak hour PCE trips (39 inbound and 14 outbound), and 60 PM peak hour PCE trips (17 inbound and 43 outbound).

**Table 1 - Trip Generation Summary**

Land Use	ITE Code	Size/Units	Daily	AM Peak Hour			PM Peak Hour			
				In	Out	Total	In	Out	Total	
<b>TRIP RATES<sup>1</sup></b>										
Warehousing	150	TSF	1.74	0.13	0.04	0.17	0.05	0.14	0.19	
<b>TRIP GENERATION</b>										
Whittram Warehouse	150	209.600	TSF	365	27	9	36	11	29	40
<b>TRIP GENERATION (PCE-ADJUSTED)</b>										
Vehicle Mix <sup>3</sup>		Percent <sup>2</sup>								
Passenger Vehicles		69.0%		252	19	6	25	7	20	27
2-Axle Trucks		6.8%		25	2	0	2	1	2	3
3-Axle Trucks		5.5%		20	1	1	2	1	2	3
4+-Axle Trucks		18.7%		68	5	2	7	2	5	7
<i>Project Trip Generation (Non-PCE)</i>				365	27	9	36	11	29	40
		PCE Factor <sup>3</sup>								
Passenger Vehicles		1.0		252	19	6	25	7	20	27
2-Axle Trucks		2.0		37	3	0	3	2	3	5
3-Axle Trucks		2.5		40	2	2	4	2	4	6
4+-Axle Trucks		3.0		205	15	6	21	6	16	22
<b>Project Trip Generation (PCE)</b>				<b>534</b>	<b>39</b>	<b>14</b>	<b>53</b>	<b>17</b>	<b>43</b>	<b>60</b>

**Notes:** TSF = Thousand Square Feet

<sup>1</sup>Trip rates from the Institute of Transportation Engineers (ITE), *Trip Generation, 10th Edition, 2017*.

<sup>2</sup>Vehicle Mix and Percent from SCAQMD, Warehouse Truck Trip Study Data Results and Usage, July 2014.

<sup>3</sup> Passenger Car Equivalent (PCE) factors are assumed to be 1.0 for passenger vehicles, 2.0 for 2-axle trucks, 2.5 for 3-axle trucks, and 3.0 for heavy trucks per City of Fontana TIA Guidelines for VMT and Level of Service Assessment (October 2020)

As shown in Table 2, the existing industrial uses generate approximately 519 daily trips, 75 AM peak hour trips (62 inbound and 13 outbound), and 73 PM peak hour trips (16 inbound and 57 outbound). Accounting for truck traffic, the proposed project would generate 659 daily PCE trips, 97 AM peak hour PCE trips (79 inbound and 18 outbound), and 89 PM peak hour PCE trips (18 inbound and 71 outbound). As discussed above, the trip generation estimates of the existing uses on site are provided for informational purposes only and are not applied to the proposed project's net trip generation for a conservative analysis.

**Table 2 – Existing Land Use Trip Generation Summary**

Land Use	ITE Code	Size/Units	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<b>Trip Rates<sup>1</sup></b>									
General Light Industrial	110	Acres	51.80	6.23	1.28	7.51	1.60	5.66	7.26
<b>Trip Generation</b>									
Existing Land Uses	110	10.020 Acres	519	62	13	75	16	57	73
<b>Trip Generation (PCE Adjustments)</b>									
<b>General Light Industrial Vehicle Mix<sup>2</sup></b>		<b>Percent<sup>2</sup></b>							
Passenger Vehicles		78.6%		408	49	10	59	13	57
2-Axle Trucks		8.0%		42	5	1	6	1	6
3-Axle Trucks		3.9%		20	2	1	3	1	3
4+-Axle Trucks		9.5%		49	6	1	7	1	7
<i>Existing Land Uses Trip Generation (Non-PCE)</i>				519	62	13	75	16	73
				<b>PCE Factor<sup>3</sup></b>					
Passenger Vehicles		1.0		408	49	10	59	13	58
2-Axle Trucks		1.5		62	7	2	9	1	7
3-Axle Trucks		2.0		40	5	2	7	1	5
4+-Axle Trucks		3.0		148	18	4	21	3	19
<b>Existing Land Uses Trip Generation (PCE)</b>				<b>659</b>	<b>79</b>	<b>18</b>	<b>97</b>	<b>18</b>	<b>89</b>

**Notes:**

<sup>1</sup> Trip rates from the Institute of Transportation Engineers (ITE), Trip Generation, 9th Edition, 2012 due to absence of the acreage metric in the 10th Edition. Existing building square footages are unknown.

<sup>2</sup> Vehicle Mix and Percent from the City of Fontana Truck Trip Generation Study, August 2003 for the General Light Industrial land use.

<sup>3</sup> Passenger Car Equivalent (PCE) factors are assumed to be 1.0 for passenger vehicles, 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for heavy trucks per Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County (2016).

The Guidelines for San Bernardino County Congestion Management Program (CMP) Traffic Impact Analysis (TIA) Reports in San Bernardino County identifies a 250 two-way peak hour trip threshold when determining when a TIA should be prepared to satisfy the CMP. Additionally, the County of San Bernardino Transportation Impact Study (TIS) Guidelines (July 2019) indicate capacity and level of service (LOS) analyses should be conducted at intersections where the proposed project would add 50 or more peak hour trips, and a TIS should be prepared if the project generates 100 or more trips during any peak hour.

As the proposed project is forecast to generate 36 AM peak hour trips (53 AM peak hour PCE trips) and 40 PM peak hour trips (60 PM peak hour PCE trips), the project would not exceed the 250 two-way peak hour trip threshold for the preparation of a TIA. Additionally, although the proposed project would generate greater than 50 PCE-adjusted peak hour trips, project traffic would be distributed to the east and west along Whittram Avenue out to truck routes along Cherry Avenue to the east and Etiwanda Avenue to the west. Therefore, per both the San Bernardino CMP and Transportation Impact Study Guidelines, a TIA and further LOS analysis would not be required.

## Vehicle Miles Traveled Analysis

On September 27, 2013, Senate Bill 743 was signed into law, which creates a process to change the way that transportation impacts are analyzed under CEQA. SB 743 required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to level of service (LOS) for evaluating transportation impacts. Under the new transportation guidelines, LOS, or vehicle delay, will no longer be considered an environmental impact under CEQA. OPR recommended Vehicle Miles Traveled (VMT) as the most appropriate measure of project transportation impacts for land use projects and land use plans. The updates to the CEQA Guidelines required under SB 743 were approved on December 28, 2018.

The Updated CEQA Guidelines state that "...generally, vehicle miles traveled (VMT) is the most appropriate measure of transportation impacts..." and define VMT as "...the amount and distance of automobile travel attributable to a project...". It should be noted that "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT). Other relevant considerations may include the effects of the project on transit and non-motorized travel.

The County released Transportation Impact Study (TIS) guidelines on July 9, 2019, detailing the County's methodology for SB 743 compliance. Per the County's guidelines, "...a VMT analysis should be conducted for land use projects as deemed necessary by the Traffic Division and would apply to projects that have the potential to increase the average VMT per person or employee" allowing the project to be compared "to the remainder of the unincorporated area for purposes of identifying transportation impacts."

### VMT Project Screening

The following screening criteria have been used in the project's VMT assessment, consistent with the County's TIS guidelines:

- **Local Serving Community Projects:** *Projects which serve the local community and have the potential to reduce VMT should not be required to complete a VMT assessment. These projects are noted below:*
  - *K-12 schools*
  - *Local-serving retail less than 50,000 sq. ft.*
  - *Local parks*
  - *Day care centers*
  - *Local serving gas stations*
  - *Local serving banks*
  - *Student housing projects*
  - *Local serving community colleges that are consistent with the assumptions noted in the RTP/SCS*

The proposed project would not be categorized as a local serving land use; therefore, the project cannot be screened out from further VMT analysis using this criterium.

- **Projects generating less than 110 daily vehicle trips:** Projects that correspond to the “typical” development potentials, as shown below:
  - 11 single family housing units
  - 16 multi-family, condominiums, or townhouse housing units
  - 10,000 sq. ft. of light industrial
  - 63,000 sq. ft. of warehousing
  - 79,000 sq. ft. of high cube transload and short-term storage warehouse
  - 12 hotel rooms

The proposed project is the construction and development of a 209,600-square foot industrial/warehouse building, estimated to generate 365 ADT as shown in Table 1. Therefore, the project would not fall under the 63,000 square foot warehouse threshold for projects generating less than 110 ADT.

- **Transit Priority Area (TPA) Screening:** Projects located within a TPA as determined by the most recent SCAG RTP/SCS.

As shown in Attachment A, the proposed project is not located within a TPA. The nearest bus service is provided by Omnitrans route 66 along Foothill Boulevard, approximately 0.75 miles north of the project site. As such, the project site is not located within one-half mile of a TPA and cannot be screened out using the proximity to transit availability criteria.

- **Low VMT Area Screening:** Projects located within a low VMT generating area as determined by the analyst (e.g. development in efficient areas of the County will reduce VMT per person/employee and is beneficial to the region).

The SBCTA screening tool (available at <https://sbcta.maps.arcgis.com/apps/webappviewer/index.html?id=779a71bc659041ad995cd48d9ef4052b>) was used to determine whether or not the proposed project would be located in a low VMT-generating area.

Although the County does not provide a specific low-VMT screening threshold, the County’s TIS guidelines define a project VMT impact if “the project VMT per person/employee is greater than 4% below the existing VMT per person for the unincorporated County.” As such, for the purposes of this analysis, if the proposed project is located within a Traffic Analysis Zone (TAZ) in which the VMT per employee is greater than 4% below the existing baseline, the project would be located in a low VMT generating area. TAZs are geographic polygons similar to Census block groups used to represent areas of homogenous travel behavior.

As shown in Table 3, the VMT per worker for the project TAZ is 15.6, and the County of San Bernardino VMT per worker is 17. Therefore, the TAZ would be 8.4% below the County’s threshold, which would meet the 4% below baseline screening criteria. Therefore, the proposed project **can be screened** out from further VMT analysis using this criterium.

**Table 3 – Summary of Project TAZ VMT**

Base Year (2020)	VMT
<b>VMT Per Worker</b>	
Project TAZ	15.6
Jurisdiction	17
<b>% Difference (Project TAZ - Jurisdiction)</b>	<b>-8.4%</b>
Threshold	17

Source: SBCTA VMT Screening Tool (Attachment A)

As the proposed project meets one of the four screening criteria established in the County’s TIS guidelines, a project-level detailed VMT analysis would not be required, and project impact to VMT can be presumed to be less than significant.

## Conclusion

As the proposed project is forecast to generate 36 AM peak hour trips (53 AM peak hour PCE trips) and 40 PM peak hour trips (60 PM peak hour PCE trips), the project would not exceed the 250 two-way peak hour trip threshold for the preparation of a TIA. Additionally, although the proposed project would generate greater than 50 PCE-adjusted peak hour trips, project traffic would be distributed from two project driveways to the east and west along Whittram Avenue out to truck routes along Cherry Avenue to the east and Etiwande Avenue to the west. Further, the proposed project would not generate 100 or more trips during any peak hour per the County TIS Guidelines.

In addition to the project trip generation criteria noted above, the County TIS Guidelines include the following criteria to determine whether a TIS should be completed:

- *If a project is located within 300 feet of*
  - *The intersection of two streets designated as Collector or higher in the County’s General Plan or the Department’s Master Plan or*
  - *An impacted intersection as determined by the Traffic Division*

Whittram Avenue is designated as a Secondary Highway per the Countywide Plan; however, the proposed project is not located within 300 feet of an intersection, aside from Almond Avenue, which is not designated as Collector or higher.

- *If the project creates safety or operational concerns.*

Existing uses located on the project site, as well as land uses surrounding the site, currently serve truck traffic operations. Access to the project site would be provided by two driveways off Whittram Avenue; the first driveway would be a 40-foot-wide truck driveway at the northwestern corner of the project site, and the other driveway would be a 40-foot-wide truck driveway at the northeastern corner of the site. With the exception of required street frontage improvements along Whittram Avenue, including a new sidewalk and curb and gutter, the project does not include any substantial changes to the geometry of streets or intersections. All improvements within the public right-of-way are required to comply with standards set forth by the County to ensure that the project does not introduce an incompatible design feature that would impede operations on

adjacent local streets. Additionally, a site plan identifying the lane striping and truck turning templates demonstrating safe and proper movements to and from the site, is provided in Figure 1.

- *The project has the potential to generate VMT that could result in a transportation impact as noted in the significance criteria presented [above].*

As noted above, the project site is located in a low VMT area. Therefore, the proposed project can be screened out from further VMT analysis based on this criterium, and a project-level detailed VMT would not be required. The project's impact to VMT can be presumed to be less than significant

Therefore, per both the San Bernardino CMP and TIS Guidelines, a TIA/TIS and further LOS analysis would not be required.

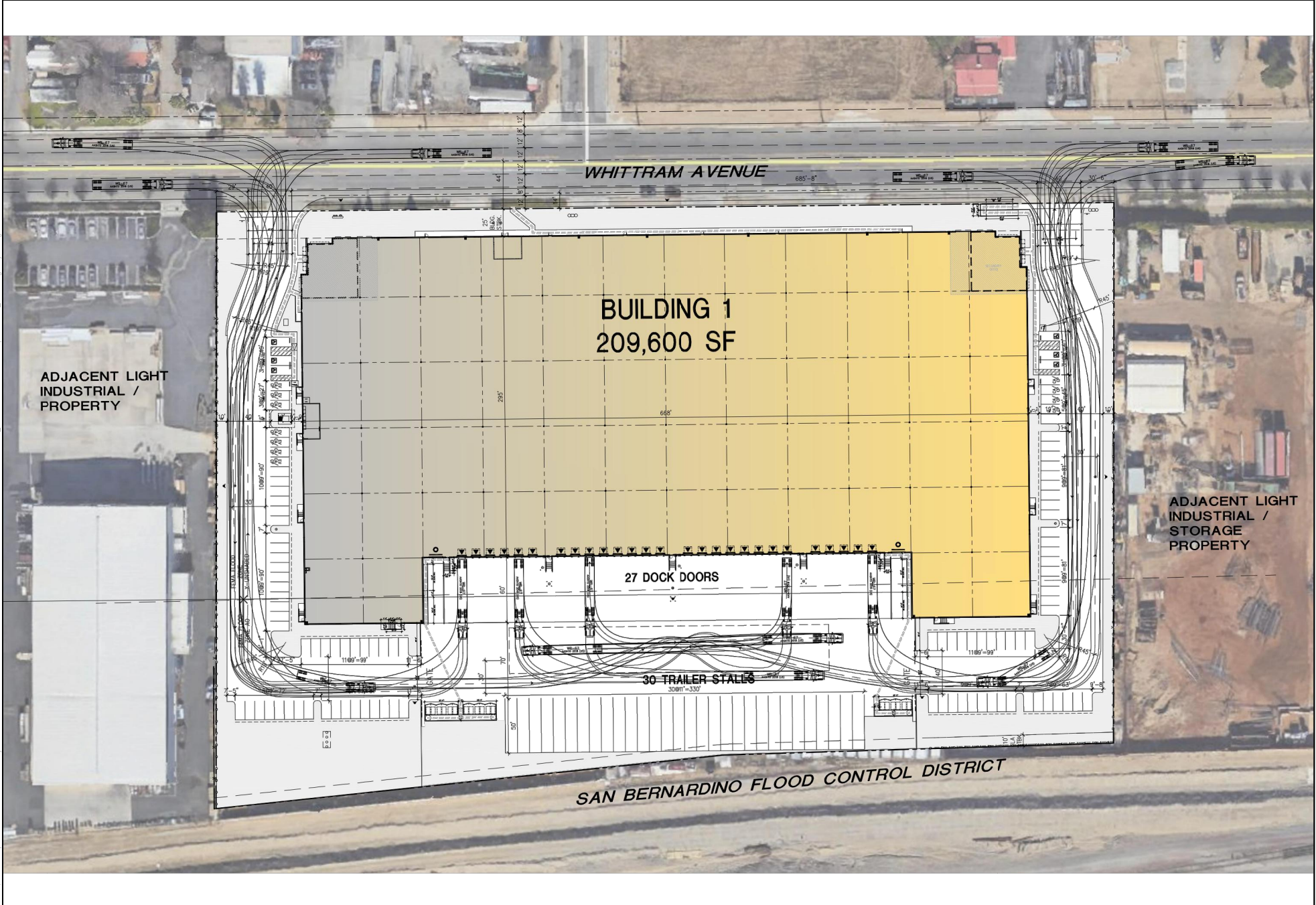


# Figure 1

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Proposed Site Plan





SOURCE: GAArchitects 2021



**FIGURE 1**  
Site Plan



# Attachment A

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SBCTA Screening Tool Results

Completely within a TPA? No (Fail)

Within a low VMT generating TAZ? No (Fail)

Note Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.

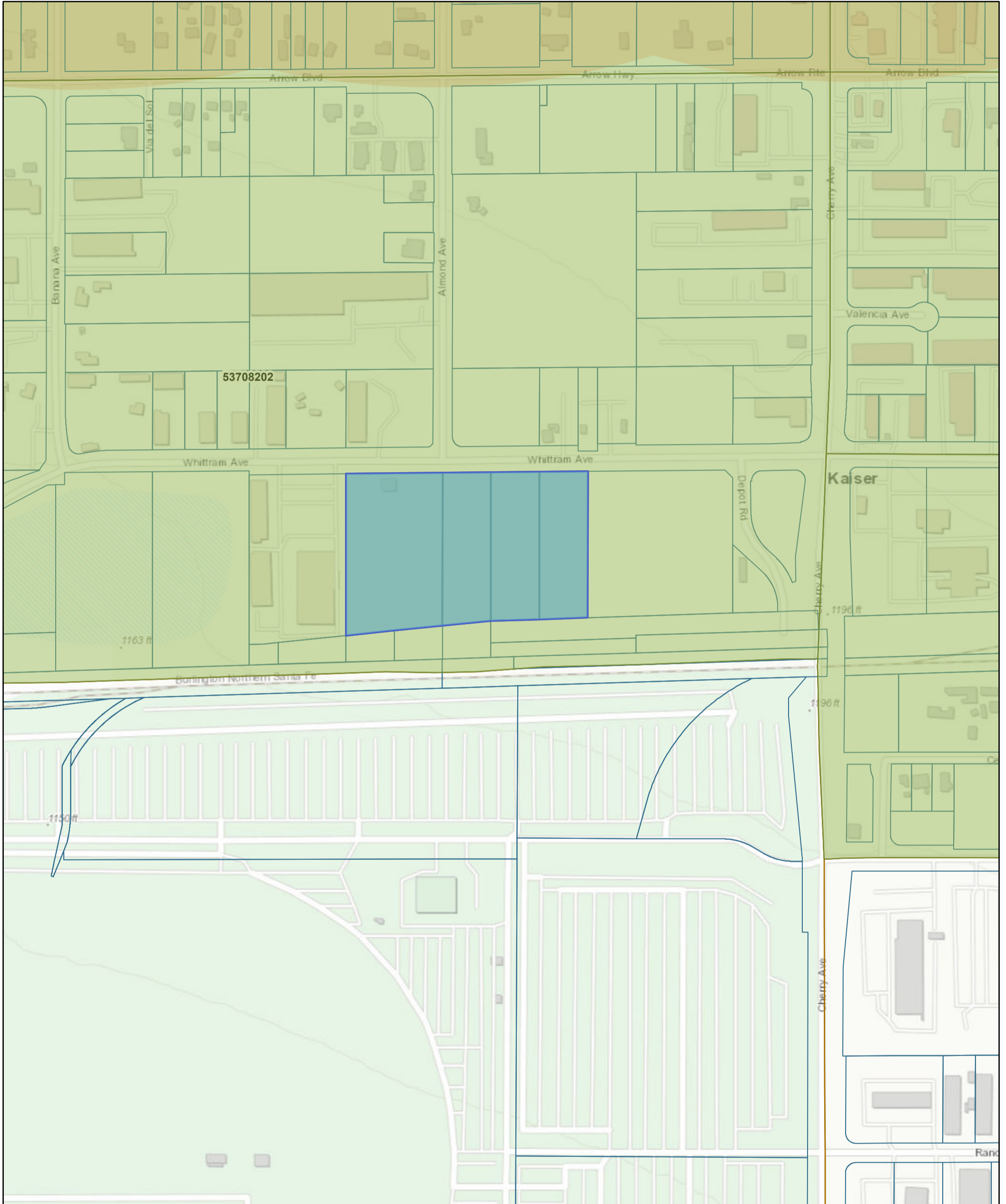
Assessor Parcel Number (APN)	023012219
Traffic Analysis Zone (TAZ)	53708202
TAZ VMT	15.6
Jurisdiction VMT	17
% Difference	-8.4%
VMT Metric	PA VMT Per Worker
Threshold	17

Assessor Parcel Number (APN)	023013223
Traffic Analysis Zone (TAZ)	53708202
TAZ VMT	15.6
Jurisdiction VMT	17
% Difference	-8.4%
VMT Metric	PA VMT Per Worker
Threshold	17

Assessor Parcel Number (APN)	023013213
Traffic Analysis Zone (TAZ)	53708202
TAZ VMT	15.6
Jurisdiction VMT	17
% Difference	-8.4%
VMT Metric	PA VMT Per Worker
Threshold	17

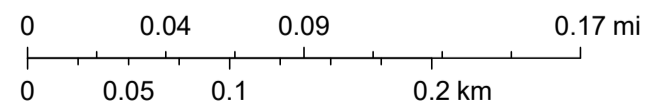
Assessor Parcel Number (APN)	023013214
Traffic Analysis Zone (TAZ)	53708202
TAZ VMT	15.6
Jurisdiction VMT	17
% Difference	-8.4%
VMT Metric	PA VMT Per Worker
Threshold	17

# SBCTA VMT Screening Tool Results



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- Project Area VMT
- Screening Results
- Low VMT Generating TAZs
- Parcels
- San Bernardino County Line
- TAZ
- Transit Priority Area

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community