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8TH STREET INDUSTRIAL RAILROAD SAFETY EVALUATION

Megan Taggart,

Urban Crossroads, Inc. is pleased to provide the following Railroad Safety Evaluation for the 8th Street Industrial development (Project), which is located on the west of 8th Street and south of Rancho Vista Boulevard in the City of Palmdale. The purpose of this work effort is to provide a railroad safety evaluation for the proposed Project based on the California Public Utilities Commission (CPUC) guidelines.

PROPOSED PROJECT

Exhibit 1 depicts the location of the proposed Project in relation to the existing roadway network and the study area. A preliminary site plan for the proposed Project is shown on Exhibit 2. The Project is proposed to consist of a 384,800 square foot single warehouse building. For the purposes of this analysis, the Project will be evaluated assuming 384,800 square feet of high-cube fulfilment center (non-sort facility) use. As indicated on Exhibit 2, vehicular access will be provided via three driveways on 8th Street (all will have full access with no turn restrictions).

EXHIBIT 1: LOCATION MAP

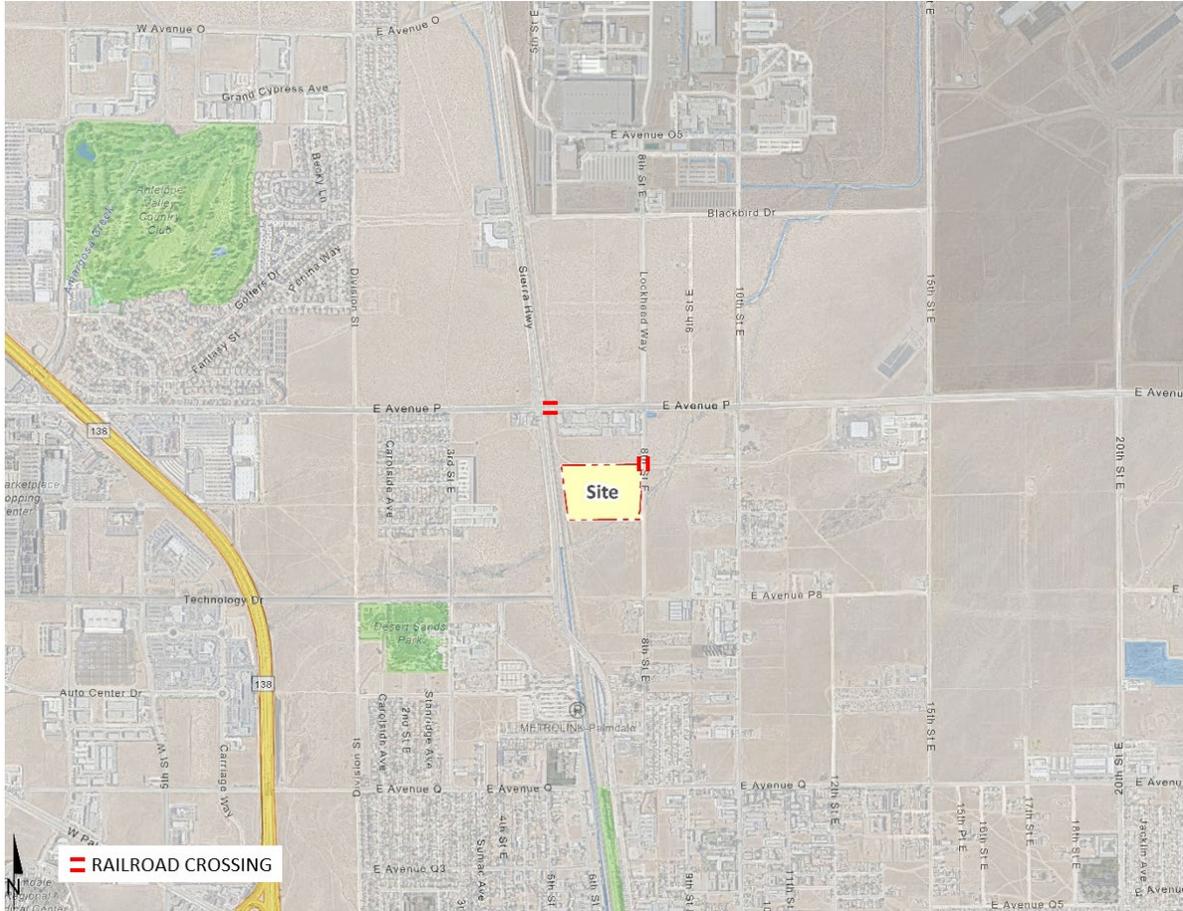


EXHIBIT 2: PRELIMINARY SITE PLAN



EXISTING CONDITIONS

As shown on Exhibit 1, the proposed Project is located immediately south of the 8th Street rail crossing and approximately 800' south of the Rancho Vista Boulevard rail crossing. According to the CPUC Crossing Inventory, the 8th Street rail crossing can be identified as CPUC No. 001B-412.53-C, DOT No. 750605F. Based on a review of field conditions (April 2022), existing signage states that the tracks are out of service (see Exhibit 3).

EXHIBIT 3: EXISTING 8TH STREET RAIL CROSSING



8th Street is located along the Project eastern frontage. The roadway is classified as a secondary arterial in the City of Palmdale Circulation Element. In the City of Palmdale Circulation Element, design standards for a secondary arterial typically call for a paved section of 64 feet within a 80-foot right-of-way width. When built to its full carrying capacity, this cross-section provides for either two lanes in each direction with a painted median left-turn lane, or one lane in each direction with a painted median left-turn lane and curb parking. Typically, secondary arterials do not have a raised median.

The Rancho Vista Boulevard (also known as Avenue P) crossing (CPUC No. 001B-412.20, 101VY-69.95; DOT 750643P) is located approximately 800 feet north of the proposed Project. The roadway is classified as a major arterial in the City of Palmdale Circulation Element. In the City of Palmdale Circulation Element, design standards for a major arterial typically call for a paved section of 84 feet within a 100-foot right-of-way which, when built to its full carrying capacity, provides for either three lanes of through traffic in each direction and a median for left-turning traffic, or two lanes in each direction, a left-turn median, and a curb lane for parking. In some portions of the City, the median is paved to create specific left- and U-turn bays; in other locations, painted medians with optional/dual left-turn lanes are used. The pavement width along the Rancho Vista Boulevard crossing is currently 84 feet. The City of Palmdale's Five Year Capital Improvement Projects (2022 – 2027) includes the following street improvement projects:

- **STR-019 Rancho Vista Grade Separation Project** – A six-lane grade separation (underpass) of Rancho Vista Blvd. at its intersection with the railroad tracks (e/o Sierra Hwy), to include access ramps to Sierra Highway. This project will include project study reports, environmental studies, project design, right-of-way acquisition, construction, and construction management. The Rancho Vista Grade Separation project is anticipated to commence in Fiscal Year (FY) 26-27.
- **STR-037 Rancho Vista Blvd at Sierra Highway Railroad Safety Crossing Improvements** – The CPUC has provided funding to obtain safety improvements at the railroad crossing at Rancho Vista Boulevard and Sierra Highway. The City of Palmdale approved a contract for design professional services on August 17, 2022 for the Rancho Vista Blvd at Sierra Highway Railroad Safety Crossing Improvements project.

PROPOSED PROJECT TRIP GENERATION

Trip generation represents the amount of traffic that is attracted and produced by a development and is based upon the specific land uses planned for a given project. In order to develop the traffic characteristics of the proposed project, trip-generation statistics published in the Institute of Transportation Engineers (ITE) [Trip Generation Manual](#) (11th Edition, 2021) was used to estimate the trip generation. Trip generation rates are summarized on Table 1 for actual vehicles and PCE. For purposes of the traffic study, the following ITE land use codes and vehicle mixes are proposed:

- High-Cube Fulfillment Center Warehouse (ITE Land Use Code 155) has been used to derive site specific trip generation estimates for up to 384,800 square feet of the proposed Project. The ITE [Trip Generation Manual](#) has trip generation rates for high-cube fulfillment center use for both non-sort and sort facilities (ITE land use code 155). As defined by ITE, a *high-cube warehouse is a*

building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical high-cube warehouse has a high level of on-site automation and logistics management. The automation and logistics enable highly-efficient processing of goods through the high-cube warehouse. The ITE Trip Generation Manual has two subcategories for the High-Cube Fulfillment Center use: sort and non-sort. ITE describes a sort facility as a fulfillment center that ships out smaller items, requiring extensive sorting, typically by manual means. In comparison, a non-sort facility is a fulfillment center that ships large box items that are processed primarily with automation rather than through manual means. Some limited assembly and repackaging may occur within the facility. Given this description, a non-sort facility has been assumed for the purposes of calculating trip generation for the Project. The vehicle mix (passenger cars versus trucks) has been obtained from the ITE's Trip Generation Manual. The truck percentages were further broken down by axle type per the following SCAQMD recommended truck mix: 2-Axle = 16.7%; 3-Axle = 20.7%; 4+-Axle = 62.6%.

TABLE 1: TRIP GENERATION RATES

Land Use ¹	Units ²	ITE LU Code	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Actual Vehicle Trip Generation Rates									
High-Cube Fulfillment Center (Non-Sort) ³	TSF	155	0.122	0.028	0.150	0.062	0.098	0.160	1.810
Passenger Cars			0.112	0.018	0.130	0.057	0.093	0.150	1.580
2-Axle Trucks			0.002	0.001	0.003	0.001	0.001	0.002	0.038
3-Axle Trucks			0.002	0.002	0.004	0.001	0.001	0.002	0.048
4+-Axle Trucks			0.006	0.007	0.013	0.003	0.003	0.006	0.144
Passenger Car Equivalent (PCE) Trip Generation Rates⁵									
High-Cube Fulfillment Center (Non-Sort) ³	TSF	155	0.122	0.028	0.150	0.062	0.098	0.160	1.810
Passenger Cars			0.112	0.018	0.130	0.057	0.093	0.150	1.580
2-Axle Trucks (PCE = 1.5)			0.003	0.002	0.005	0.002	0.001	0.003	0.058
3-Axle Trucks (PCE = 2.0)			0.005	0.005	0.010	0.003	0.003	0.005	0.119
4+-Axle Trucks (PCE = 3.0)			0.018	0.020	0.038	0.009	0.010	0.019	0.432

¹ Trip Generation & Vehicle Mix Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, Eleventh Edition (2021).

² TSF = thousand square feet

³ 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.

⁵ PCE factors: 2-axle = 1.5; 3-axle = 2.0; 4+-axle = 3.0.

Passenger car equivalent (PCE) factors were applied to the trip generation rates for heavy trucks (large 2-axes, 3-axes, 4+-axes). PCEs allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, to be used for the purposes of capacity and level of service analyses. The PCE factors are consistent with the recommended PCE factors in Appendix B of the San Bernardino County Congestion Management Program (CMP) (2016 Update). The operations analyses will utilize the PCE trip generation consistent with the City's guidelines and other traffic studies prepared in the City.

The trip generation summary illustrating daily and peak hour trip generation estimates for the proposed Project in actual vehicles and PCE are shown on Table 2. The proposed Project is anticipated to generate 698 two-way vehicle trip-ends per day with 59 AM peak hour trips and 60 PM peak hour (see Table 2). The Project is anticipated to generate 842 two-way PCE trip-ends per day with 71 PCE AM peak hour trips and 68 PCE PM peak hour trips (see Table 2).

TABLE 2: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity Units ¹	AM Peak Hour			PM Peak Hour			Daily
		In	Out	Total	In	Out	Total	
Actual Vehicles:								
High-Cube Fulfillment (Non-Sort)	384.800 TSF							
Passenger Cars:		43	7	50	22	36	58	608
2-axle Trucks:		1	1	1	0	0	1	16
3-axle Trucks:		1	1	2	0	0	1	18
4+-axle Trucks:		2	3	5	1	1	2	56
Total Truck Trips (Actual Vehicles):		4	5	9	1	1	2	90
Total Trips (Actual Vehicles)²		47	12	59	23	37	60	698
Passenger Car Equivalent (PCE):								
High-Cube Fulfillment (Non-Sort)	384.800 TSF							
Passenger Cars:		43	7	50	22	36	58	608
2-axle Trucks:		1	1	2	1	0	1	22
3-axle Trucks:		2	2	4	1	1	2	46
4+-axle Trucks:		7	8	14	3	4	7	166
Total Truck Trips (PCE):		10	11	21	5	5	10	234
Total Trips (PCE)²		53	18	71	27	41	68	842

¹ TSF = thousand square feet

² Total Trips = Passenger Cars + Truck Trips.

TRIP DISTRIBUTION

The Project trip distribution represents the directional orientation of traffic to and from the Project site. Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by Project traffic. The potential interaction between the planned land uses and surrounding regional access routes are considered, to identify the route where the Project traffic would distribute. In addition, truck routes for neighboring agencies have been taken into consideration in the development of the trip distribution patterns for heavy trucks. Exhibits 3 and 4 show the Project truck and passenger car trip distribution patterns, respectively.

EXHIBIT 3: PROJECT (TRUCK) TRIP DISTRIBUTION



EXHIBIT 4: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



Based on a review of the Project trip generation and trip distribution, the Project will add a nominal amount of passenger cars and trucks to 8th Street and Rancho Vista Boulevard/Avenue P. It is not anticipated that the addition of the proposed Project will result in a significant change in traffic patterns due to the number of trips generated or vehicle type (e.g. trucks). 8th Street will be able to adequately support Project volumes as a Secondary Arterial and Ranch Vista Boulevard/Avenue P will similarly be able to adequately support Project volumes as a Major Arterial. Vehicles travelling south on 8th Street are unlikely to queue on the main roadway due to the proposed access. The driveways are anticipated to be constructed with a stop sign only on the minor street. 8th Street is proposed to have unimpeded flow. In other words, vehicles turning right into the Project will not queue to the rail crossing.

COLLISION DATA

The collision data analysis is based on the collision data received from the California Highway Patrol (CHP) during a five-year period. The five-years of collision data from the CHP Statewide Integrated Traffic Records System (SWITRS) includes collision data for the City of Palmdale.

Analysis of the five-year records shows a total of 105 collisions at Sierra Highway & Rancho Vista Boulevard/Avenue P and a total of 31 collisions at Rancho Vista Boulevard/Avenue P & 8th Street. There were no recorded collisions adjacent to the Project frontage or the 8th Street crossing. It is not anticipated that the addition of the proposed Project will result in a significant change in collisions due to the number of trips generated or vehicle type (e.g. trucks).

TABLE 4: TYPE OF COLLISIONS SUMMARY

Head-On	Sideswipe	Rear-End	Broadside	Hit-Object	Overturn	Auto-Ped	Other	Not Stated
Sierra Highway & Rancho Vista Boulevard/Avenue P (Total: 105 Collisions)								
5 (4.7%)	23 (21.9%)	46 (43.8%)	20 (19.1%)	8 (7.6%)	0 (0.0%)	1 (1.0%)	2 (1.9%)	0 (0.0%)
8th Street & Rancho Vista Boulevard/Avenue P (Total: 31 Collisions)								
1 (3.2%)	2 (6.5%)	12 (38.7%)	14 (45.2%)	1 (3.2%)	0 (0.0%)	0 (0.0%)	1 (3.2%)	0 (0.0%)
8th Street & Project Driveways (Total: 0 Collisions)								
0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

CONCLUSION

Based upon our review of existing conditions and our experience in preparing hundreds of traffic studies for warehouse projects throughout California, we believe that the Project's circulation and driveway connections to the public street will accommodate Project traffic without negatively impacting the rail crossings on 8th Street and Rancho Vista Boulevard.

If you have any questions or comments, I can be reached at rvu@urbanxroads.com.

Respectfully submitted,

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