

ENVIRONMENT | PLANNING | DEVELOPMENT SOLUTIONS, INC.

Date: October 20, 2023
Prepared by: Abby Pal, Maryam Javanmardi
To: City of Irwindale
Site: 14005 Live Oak Avenue, Irwindale
Subject: Trip Generation, Circulation and Project Driveway Queuing Memorandum

This technical memo examines trip generation and the necessity for a level of service (LOS) and vehicle miles traveled (VMT) study for the planned industrial development at 14005 Live Oak Avenue, in the City of Irwindale. Additionally, this document covers both access to and from the site, as well as internal traffic operations. Based on the site plan and the number of trucks identified from the trip generation analysis, a qualitative evaluation of truck queuing on the site was performed. The development plan involves demolishing the existing 56,000 square foot two stories office structure and constructing a 102,000 square-foot warehouse in its place. The site would have one access point for passenger vehicles on Live Oak Avenue, which would also be used for emergency vehicles. Trucks will be able to access the site from the northern driveway located on Rivergrade Road. The site plan for the project is shown in *Figure 1*.

Project Trip Generation

The project trip generation was prepared using trip rates from the Institute of Transportation Engineers (ITE)¹. The trip rates for the General Office Building (Land Use Code 710) were used to evaluate the existing land use and the rates for Warehousing (Land Use Code 150) were used to evaluate the proposed project. Project truck trips were determined using data from the Vehicle Mix from the SCAQMD Warehouse Truck Trip Study Data Results and Usage². A passenger car equivalent (PCE) factor was applied to project truck trips to account for the greater roadway capacity utilized by heavy trucks.

Table 1 presents the trip generation estimate for the proposed project. As shown in *Table 1*, the project is forecast to generate 360 fewer net daily PCE trips, including 60 net fewer PCE trips during the AM peak hour and 55 net fewer PCE trips during the PM peak hour when compared to the existing land use. The screening criteria provided in the *City of Irwindale Policy Guidelines for Traffic Impact Reports* state projects generating less than 25 peak hour trips screen from the requirement to prepare a level of service (LOS) analysis. The City of Irwindale has adopted guidelines for vehicle miles traveled (VMT) screening based on the OPR guidelines which screen projects generating less than 110 daily trips from the requirement of a VMT analysis. Per project trip generation as shown in *Table 1*, the project generates less than net 110 daily trips and less than net 25 peak hour trips. The decrease in the net trip generation is due to the change in the use associated with the proposed project. The existing use is considered a general office building which has a higher trip rate per square foot than a warehousing use. Because the project would generate fewer trips than the existing use, no further analysis of vehicle trips is warranted, and no LOS and VMT analyses would be required for the project.

Regional Access

Regional access to the project site will be facilitated via three major roadways: Interstate 605, Interstate 210, and California State Route 39. Interstate 605, a crucial north-south auxiliary Interstate Highway in Southern California's Greater Los Angeles area, spans 27 miles, running from I-405 and State Route 22 in

¹ *Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE). 2021.*

² *Vehicle Mix from the SCAQMD Warehouse Truck Trip Study Data Results and Usage, July 2014. Classification: Without Cold Storage.*

Seal Beach to I-210 in Duarte. Interstate 210, also known as the Foothill Freeway, stretches from the Sylmar district of Los Angeles to Redlands in the east. State Route 39 is a Californian state highway traversing through Orange and Los Angeles counties, beginning at the Pacific Coast Highway in Huntington Beach.

Truck Routes and Circulation

As per the *City's Municipal Code (Section 10.40.020)*, heavy vehicles, except public transportation buses, are only allowed to operate and park on streets designated as truck traffic routes. Figure 2 shows the designated truck routes within the City of Irwindale. Table 2 illustrates that there are 14 major designated Truck Routes within Irwindale including Foothill Boulevard, Arrow Highway, Live Oak Avenue, and Irwindale Avenue.

The proposed project is surrounded by three truck routes: Live Oak Avenue, Rivergrade Road, and Stewart Avenue. Notably, Live Oak Avenue and Rivergrade Road are recognized as significant designated truck routes within the City of Irwindale, where trucks are permitted to operate. It is expected that 25% of truck trips would approach the site from the east via Arrow Highway, 50% from the west and 25% from the north using the project driveway on Rivergrade Road.

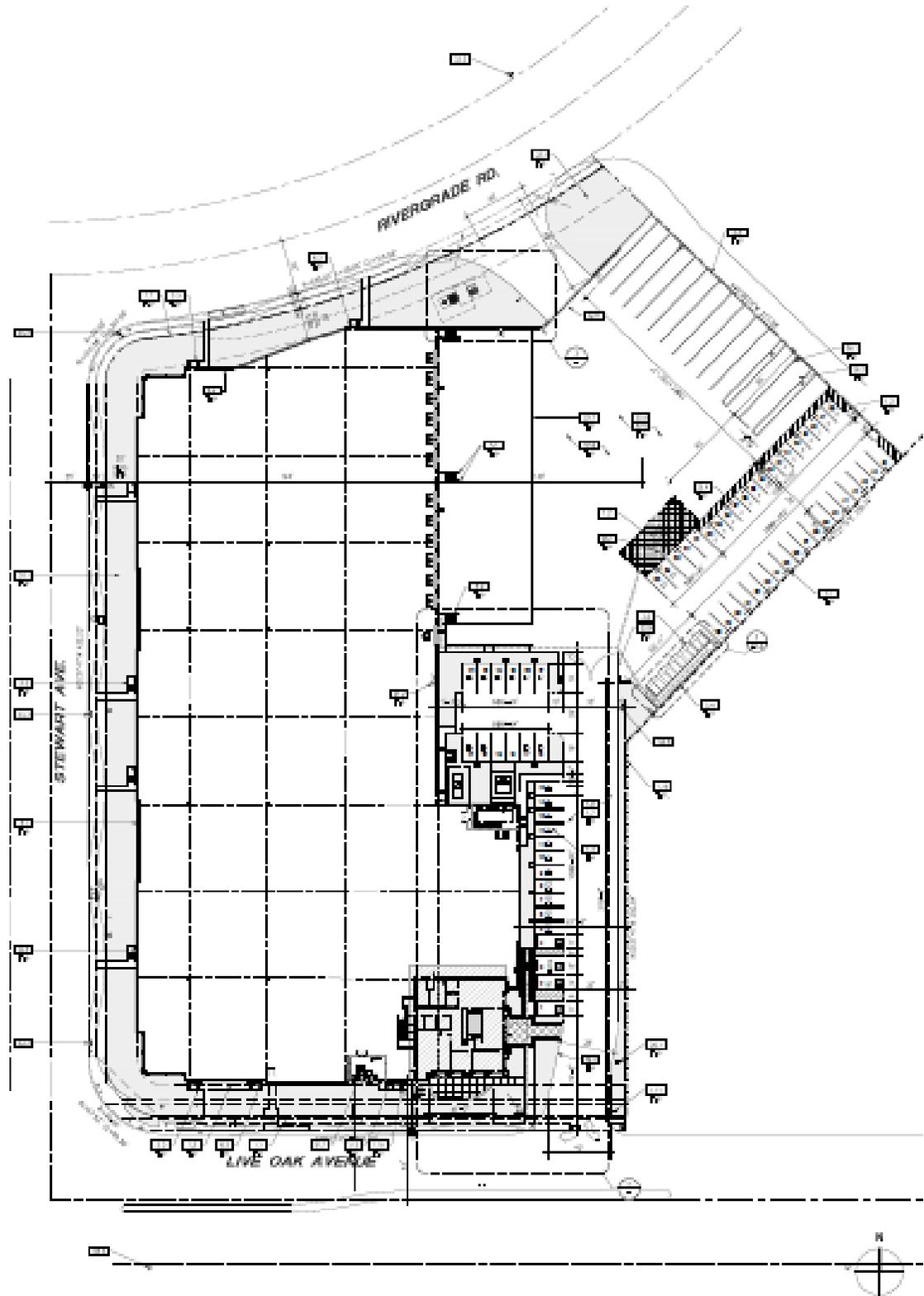
Project Access and Queueing

The project site will have a single access point for passenger vehicles on Live Oak Avenue, which will also serve as an entry for emergency vehicles. Live Oak Avenue is a Major Highway with four lanes and a median and therefore the southernly project driveway on Live Oak Avenue would allow right-in/right-out access only. Rivergrade Road is a four-lane Collector with a two-way left-turn lane (TWLTL) in the vicinity of the project. The northernly project driveway on Rivergrade Road will provide full access to trucks accessing the driveway. The northern driveway on Rivergrade Rd allows a driveway approach storage of approximately 74 feet in length, and a departure storage of approximately 65 feet.

The project allows for the queueing of one truck on site within the 74 feet approach storage for trucks that would make a left-in or a right-in into the project site from Rivergrade Road. As shown in *Table 1*, only one three-axle truck and two four-axle trucks would enter the project site, and one 4-axle truck would depart the project site during the AM peak hour. In the PM peak hour, it is expected that only one four-axle truck would enter the project site, and one three-axle truck and two four-axle trucks would exit the project site. It is to be noted that the project site gates would be open during business hours causing no impedance to trucks entering the site. The truck turning template for trucks entering Rivergrade Road is shown in *Figure 3*. Given the low project trip generation of four truck trips during the peak hours, and sufficient storage length provide on both the project's northern driveway along with the project gates being open during business hours, no truck queueing is expected such the truck queue would extend onto the public right-of-way past the intersection of Rivergrade Road and Live Oak Avenue.

If you have any questions about this information, please contact me at (412) 636-2713 or abby@epdsolutions.com.

Figure 1: Project Site Plan



Source: Rexford Industrial

Table 1: Project Trip Generation

Land Use	Units	Daily	AM Peak Hour			PM Peak Hour			
			In	Out	Total	In	Out	Total	
<u>Trip Rates</u>									
Warehouse ¹	TSF	1.71	0.13	0.04	0.17	0.05	0.13	0.18	
General Office Building ²	TSF	10.84	1.34	0.18	1.52	0.24	1.20	1.44	
<u>Existing Building</u>									
Office Building	56	TSF	607	75	10	85	14	67	81
<u>Proposed Building</u>									
Warehouse building	102	TSF	174	13	4	17	5	13	18
<u>Vehicle Mix³</u>		<u>Percent</u>							
Passenger Vehicles		72%	126	10	3	13	3	10	13
2-Axle Trucks		4.6%	8	1	0	1	0	1	1
3-Axle Trucks		5.7%	10	1	0	1	0	1	1
4+-Axle Trucks		17.2%	30	2	1	3	1	2	3
		100%	174	13	4	17	4	14	18
<u>PCE Trip Generation⁴</u>		<u>PCE Factor</u>							
Passenger Vehicles		1.0	126	10	3	13	3	10	13
2-Axle Trucks		1.5	12	1	0	1	0	1	1
3-Axle Trucks		2.0	20	2	0	2	1	1	2
4+-Axle Trucks		3.0	90	7	2	9	3	7	10
Total PCE Trip Generation			248	19	6	25	7	19	26
Total Vehicle Trip Generation			-360	-56	-5	-60	-7	-48	-55

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

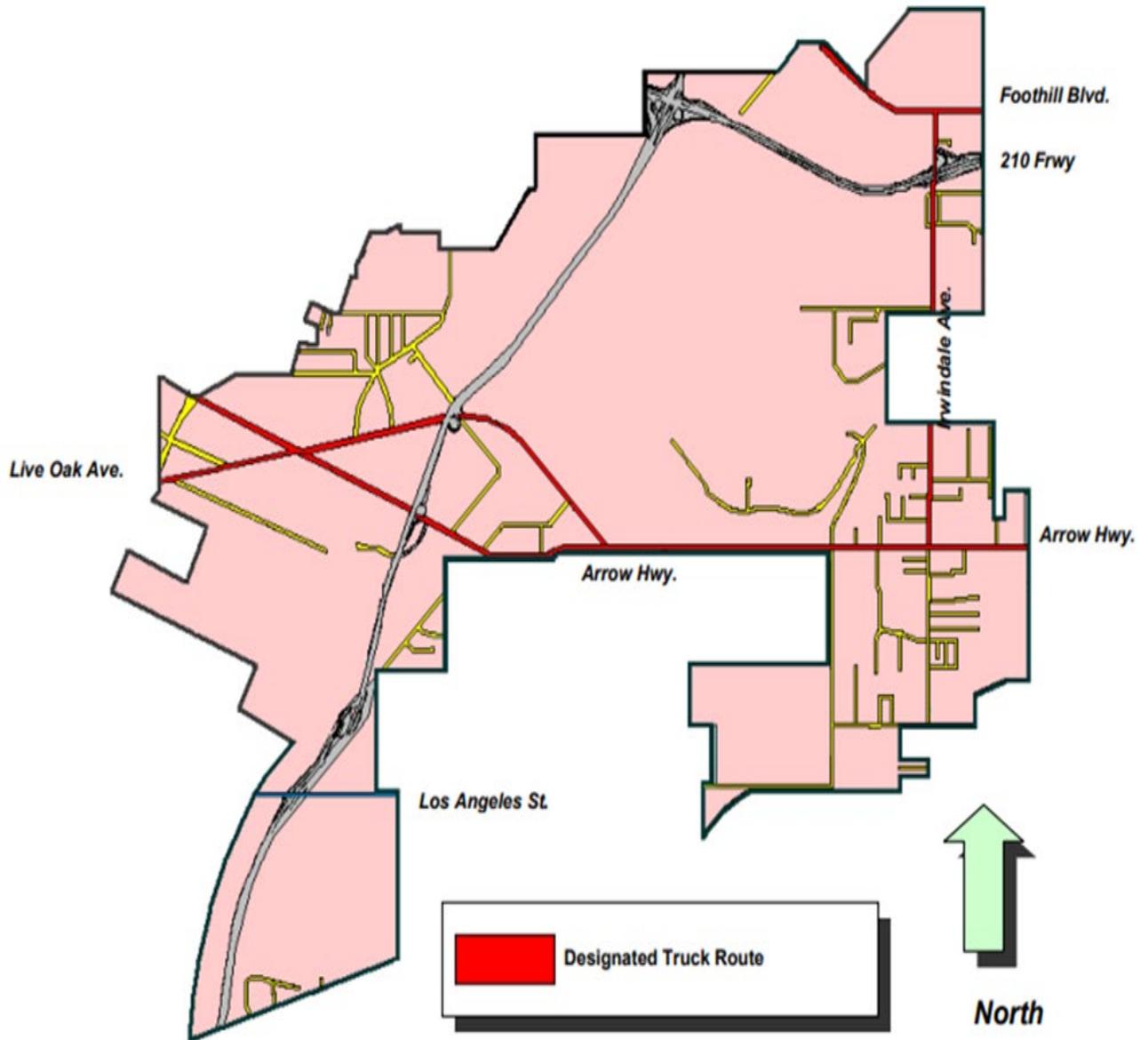
¹ Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 150 - Warehouse.

² Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 710 - General Office Building.

³ Vehicle Mix from the SCAQMD Warehouse Truck Trip Study Data Results and Usage, July 2014. Classification: Without Cold Storage

⁴ Passenger Car Equivalent (PCE) factors from San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

Figure 2: Designated Truck Routes in Irwindale



Source: City of Irwindale-2020 General Plan

Table 2: Major Designated Truck Routes in Irwindale

Truck Route	Truck Route	Truck Route
Irwindale Avenue	Peck Road	Lower Azusa Road
Arrow Highway	Vincent Avenue	Foothill Boulevard
Live Oak Avenue	Cypress Street	Myrtle Avenue
Los Angeles	Azusa Canyon Road	Azusa Canyon Road
Longden Avenue	Rivergrade Road	

Source: City of Irwindale Public Works Department

Figure 3: Rivergrade Road Project Driveway Truck Turning Template

