September 26, 2022

Mr. Matt Simons
City of Lancaster
44933 Fern Avenue
Lancaster, CA 93534

FORBES & MARKET WAREHOUSES TRAFFIC ANALYSIS SCOPING AGREEMENT

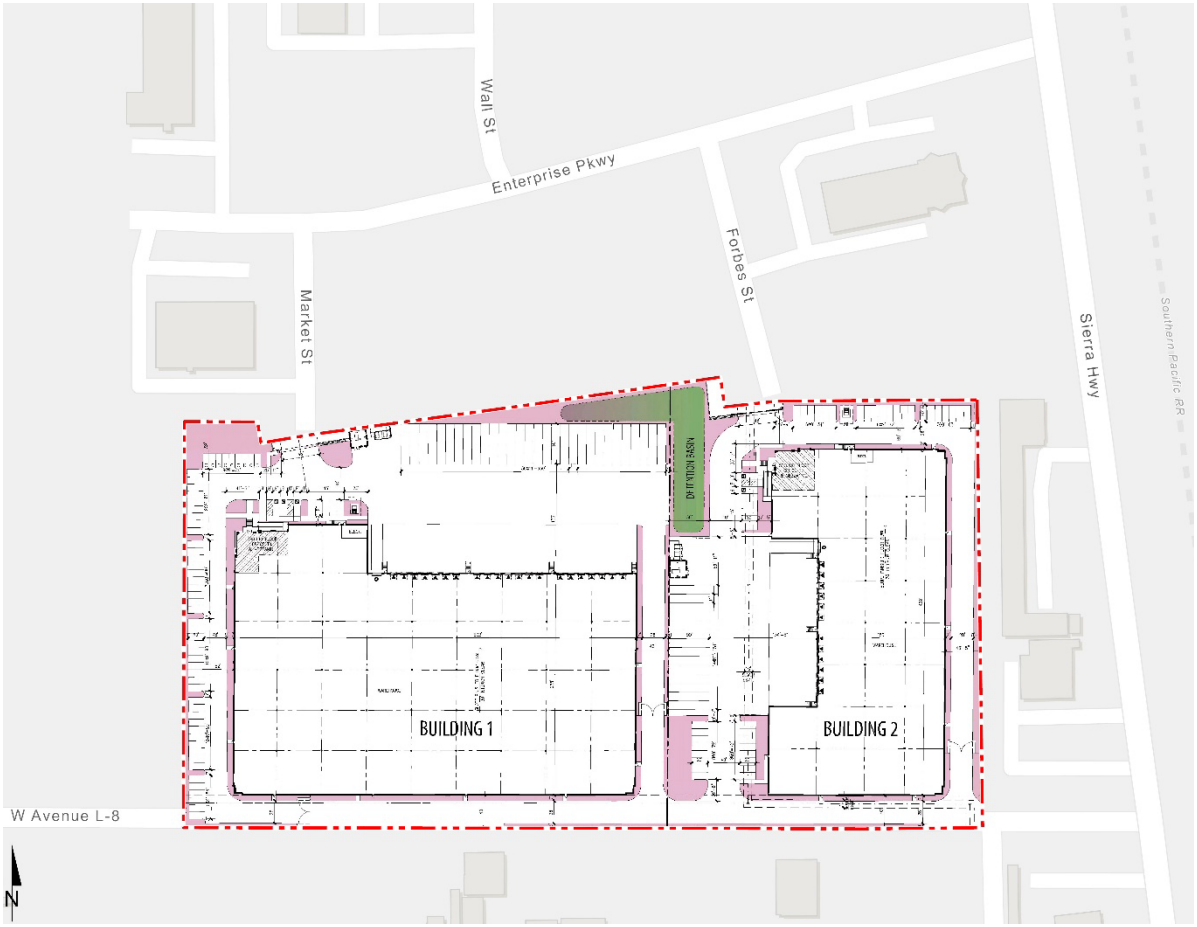
Mr. Matt Simons,

The firm of Urban Crossroads, Inc. is pleased to submit this scoping letter regarding the traffic analysis for Forbes & Market Warehouses development (**Project**), which is located at the southern terminus of both Market Street and Forbes Street in the City of Lancaster. This letter describes the proposed Project trip generation, trip distribution, and analysis methodology, which have been used to establish the draft proposed Project study area and analysis locations. The following scope of work is based on the City of Lancaster Department of Public Works Local Transportation Assessment Guidelines (dated January 5, 2021) (**City Guidelines**).

PROPOSED PROJECT

The Project is proposed to consist of two warehouse buildings totaling 233,600 square feet (see Exhibit 1). Building 1 is 149,700 square feet and Building 2 is 83,900 square feet. For the purposes of this analysis, the Project will be evaluated assuming 35,040 square feet of general light industrial use (15% of the overall square footage) and 198,560 square feet of general warehousing use. Building 1 is proposed to have passenger car and truck access to both Market Street and L 8 Avenue. Building 2 would have access to Forbes Street and L 8 Avenue. All driveways are assumed to allow for full access (no left turn access restrictions).

EXHIBIT 1: PRELIMINARY SITE PLAN



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. For purposes of the traffic study, the following ITE land use codes and vehicle mixes are proposed:

- ITE land use code 110 (General Light Industrial) has been used to derive site specific trip generation estimates for up to 35,040 square feet of the proposed Project (15% of the overall building square footage). A light industrial facility is a free-standing facility devoted to a single use that has an emphasis on activities other than manufacturing. Typically, there is minimum office space. The vehicle mix 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%.
- ITE land use code 150 (Warehousing) has been used to derive site specific trip generation estimates for up to 198,560 square feet of the proposed Project (remaining 85% of the overall building square

footage). A warehouse is primarily devoted to the storage of materials but may also include office and maintenance areas. The vehicle mix 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 In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates									
General Light Industrial[3]	TSF	110	0.651	0.089	0.740	0.091	0.559	0.650	4.870
Passenger Cars (AM=98.6%, PM=99.4%, Daily=94.9%)			0.645	0.085	0.730	0.086	0.554	0.640	4.620
2-Axle Trucks			0.001	0.001	0.002	0.001	0.001	0.002	0.042
3-Axle Trucks			0.001	0.001	0.002	0.001	0.001	0.002	0.052
4+-Axle Trucks			0.004	0.002	0.006	0.003	0.003	0.006	0.157
Warehousing[3]	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%)			0.120	0.030	0.150	0.034	0.116	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

[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.

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 514 two-way vehicle trip-ends per day with 58 AM peak hour trips and 59 PM peak hour (see Table 2).

Passenger car equivalent (PCE) factors were applied to the trip generation rates for heavy trucks (large 2-axles, 3-axles, 4+-axles). 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 following PCE factors have been used: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for 4+-axle trucks. The Project is anticipated to generate 708 two-way PCE trip-ends per day with 66 PCE AM peak hour trips and 67 PCE PM peak hour trips (see Table 2).

TABLE 2: PROJECT TRIP GENERATION SUMMARY

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicles:									
General Light Industrial (15%)	35.040	TSF							
Passenger Cars:			23	3	26	3	19	22	162
2-axle Trucks:			0	0	0	0	0	0	2
3-axle Trucks:			0	0	0	0	0	0	2
4+-axle Trucks:			0	0	0	0	0	0	6
Total Truck Trips (Actual Vehicles):			0	0	0	0	0	0	10
Total Trips (Actual Vehicles)[2]			23	3	26	3	19	22	172
Warehousing (85%)	198.560	TSF							
Passenger Cars:			24	6	30	7	23	30	220
2-axle Trucks:			0	0	0	1	0	1	20
3-axle Trucks:			0	0	0	1	1	2	26
4+-axle Trucks:			1	1	2	2	2	4	76
Total Truck Trips (Actual Vehicles):			1	1	2	4	3	7	122
Total Trips (Actual Vehicles)[2]			25	7	32	11	26	37	342
Passenger Cars			47	9	56	10	42	52	382
Trucks			1	1	2	4	3	7	132
Total Trips (Actual Vehicles)[2]			**48**	**10**	**58**	**14**	**45**	**59**	**514**
Passenger Car Equivalent (PCE):									
General Light Industrial (15%)	35.040	TSF							
Passenger Cars:			23	3	26	3	19	22	162
2-axle Trucks:			0	0	0	0	0	0	2
3-axle Trucks:			0	0	0	0	0	0	4
4+-axle Trucks:			0	0	1	0	0	1	16
Total Truck Trips (PCE):			0	0	0	0	0	0	22
Total Trips (PCE)[2]			23	3	26	3	19	22	184
Warehousing (85%)	198.560	TSF							
Passenger Cars:			24	6	30	7	23	30	220
2-axle Trucks:			1	0	1	1	1	2	30
3-axle Trucks:			1	1	2	1	1	2	50
4+-axle Trucks:			4	3	7	6	5	11	224
Total Truck Trips (PCE):			6	4	10	8	7	15	304
Total Trips (PCE)[2]			30	10	40	15	30	45	524
Passenger Cars			47	9	56	10	42	52	382
Trucks			6	4	10	8	7	15	326
Total Trips (PCE)[2]			**53**	**13**	**66**	**18**	**49**	**67**	**708**

[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 2 and 3 show the Project truck and passenger car trip distribution patterns, respectively.

EXHIBIT 2: PROJECT (TRUCK) TRIP DISTRIBUTION

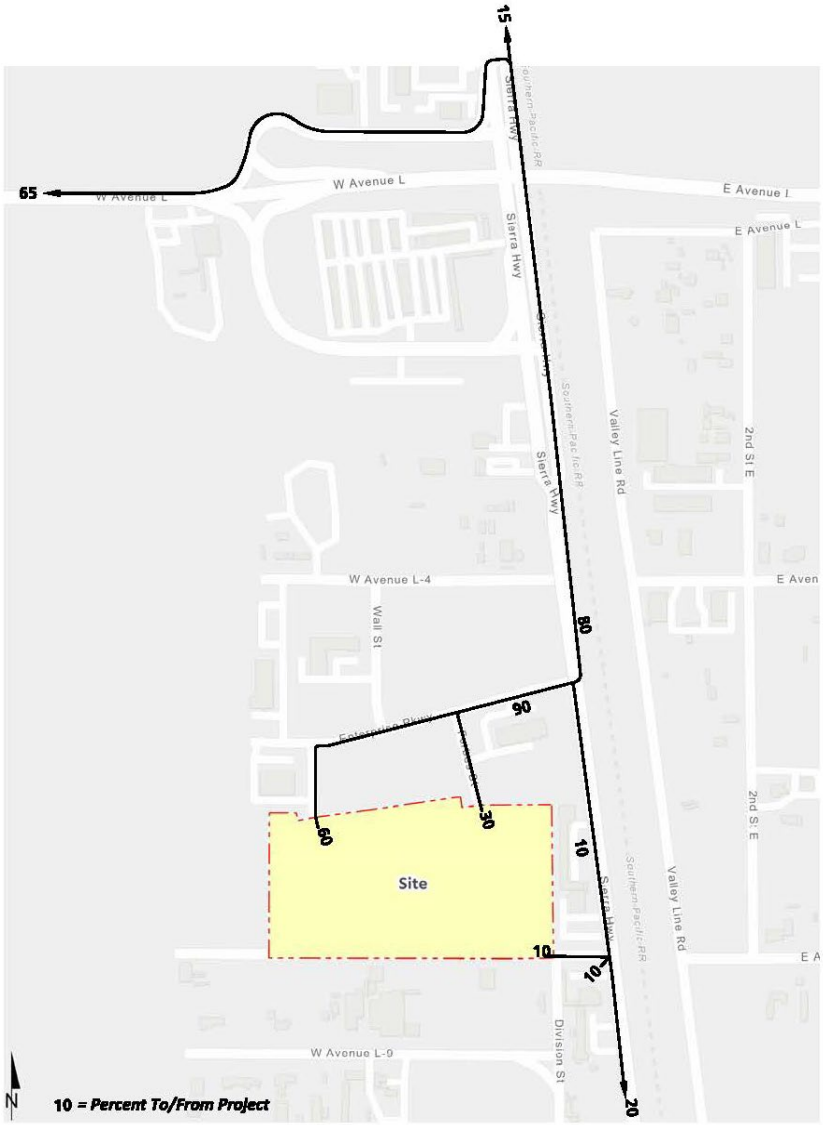
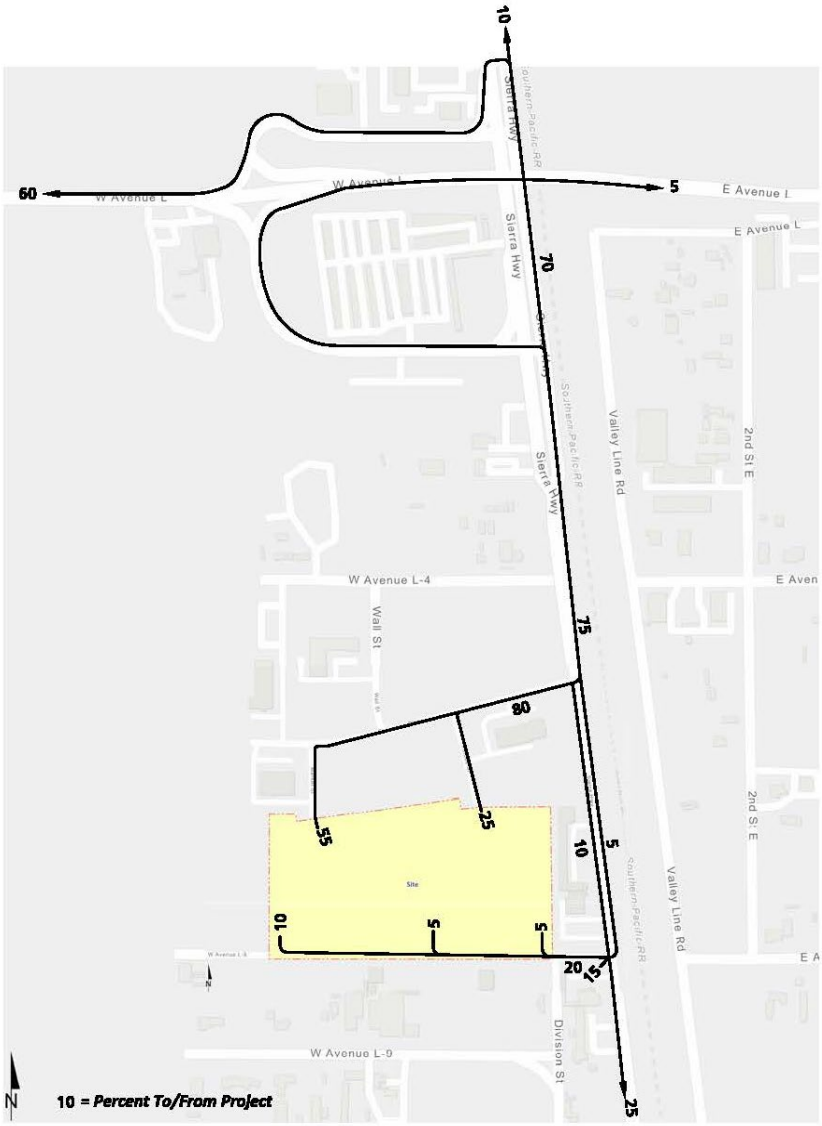


EXHIBIT 3: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



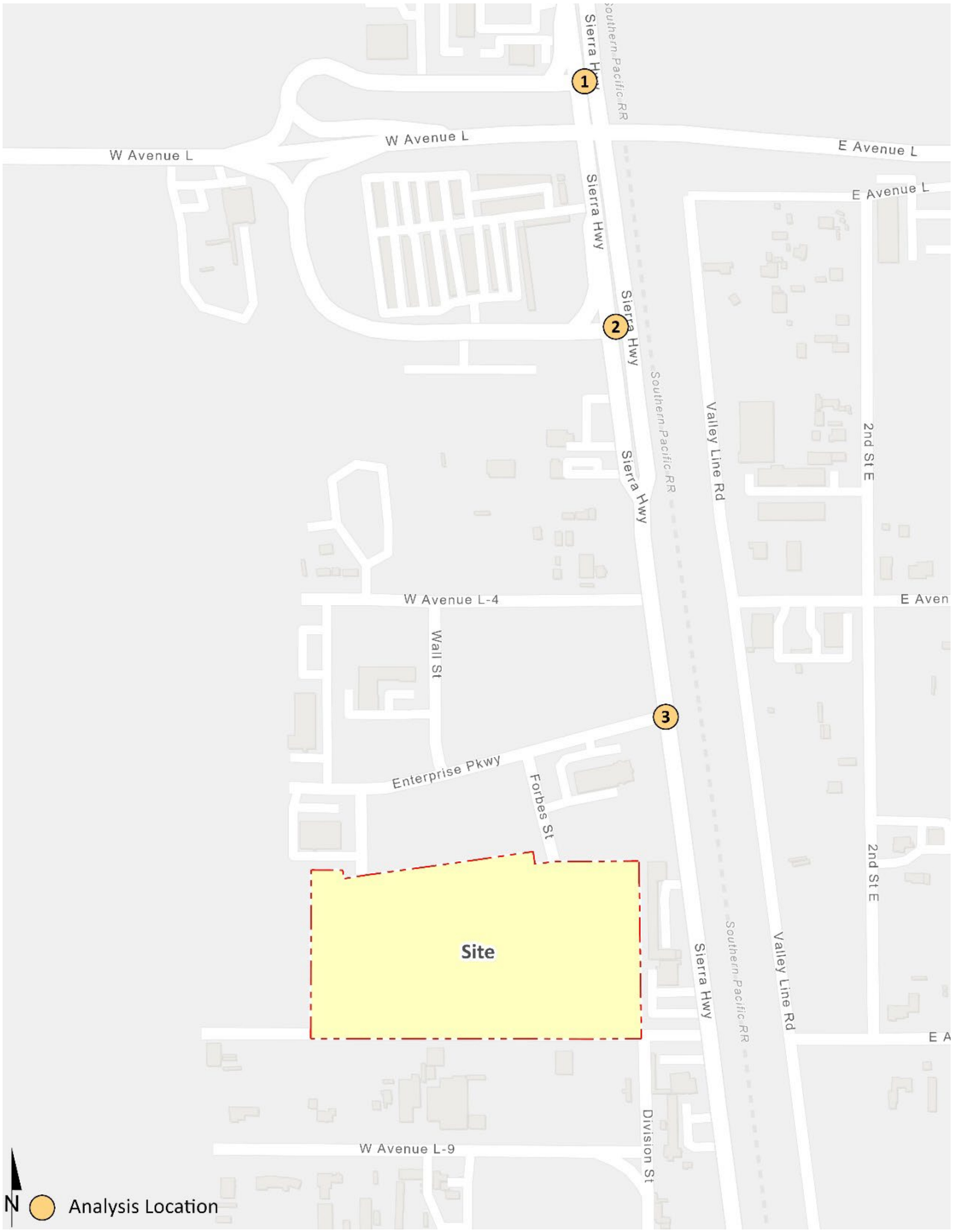
ANALYSIS SCENARIOS

Intersection analysis will be provided for the following analysis scenarios:

- Existing (2022) Conditions
- Existing plus Ambient Growth (2024) Conditions
- Existing plus Ambient Growth plus Project (2024) Conditions
- Existing plus Ambient Growth plus Cumulative (2024) Conditions
- Existing plus Ambient Growth plus Project plus Cumulative (2024) Conditions

All study area intersections will be evaluated using the Highway Capacity Manual (HCM) 6th Edition analysis methodology. The study area that is proposed to be evaluated is shown on Exhibit 4.

EXHIBIT 4: STUDY AREA



AMBIENT GROWTH

An ambient growth rate of 2% per year is proposed for the study area intersection to approximate background growth not identified by nearby cumulative development projects. As such, a total of 4.04% will be applied to the baseline.

EXISTING COUNT DATA

New traffic counts were collected in May 2022 on a typical weekday when local schools were open and operating on normal bell schedules (with in-person instruction). As such, no additional adjustments are proposed for the purposes of establishing the existing baseline conditions. The following peak hours will be evaluated:

- Weekday AM Peak Hour (7-9 AM)
- Weekday PM Peak Hour (4-6 PM)

CUMULATIVE PROJECTS

It is requested that the City provide a list of cumulative projects with applicable land use and intensity information for inclusion in our traffic study. We will also coordinate to include any other projects in adjacent agencies that may send traffic through the study area intersections.

SPECIAL ISSUES

The following special issues will also be addressed:

- *Peak Hour Operations Analysis*: Peak hour intersection operations (level of service or LOS) analysis will be conducted for all study area intersections for all analysis scenarios.
- *Traffic Signal Warrant Analysis*: Traffic signal warrant analysis will be performed for all full-access unsignalized study area intersections utilizing the California MUTCD peak-hour warrants for existing intersections, and the Caltrans daily (Planning level) warrant for new intersections (only the intersection of Sierra Highway and Enterprise Parkway).
- *Truck Turns*: Evaluate truck turns at applicable Project driveways to ensure driveways are designed to accommodate site access (to be prepared also at the intersection of Sierra Highway and Enterprise Parkway).
- *Site Access Evaluation*: The turn pocket lengths will be determined through peak hour traffic simulations developed using Synchro and SimTraffic software in an effort to identify the required storage capacity for turn lanes at the intersection of Sierra Highway and Enterprise Parkway.
- *City of Palmdale*: The scoping agreement will also be shared with the City of Palmdale. In addition, we will reach out to the City of Palmdale to obtain cumulative development projects within their City for inclusion in our Traffic Study.

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

Respectfully submitted,

URBAN CROSSROADS, INC.

Charlene So

Charlene So, PE
Principal