HARLEY KNOX BOULEVARD AT INDIAN AVENUE INDUSTRIAL WAREHOUSE PROJECT FOCUSED TRAFFIC STUDY

City of Perris
Case #20-00019
August 19, 2021

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

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prepared by

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Project No. 19368

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EXECUTIVE SUMMARY

The purpose of this study is to evaluate the potential for transportation impacts resulting from development of the proposed project both in the context of the City of Perris' discretionary authority for conformance with locally established operational standards and the California Environmental Quality Act (CEQA). Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

This study was prepared in consultation with City of Perris staff and in accordance with the procedures and methodologies for assessing transportation impacts established by the City of Perris. To assess the project's conformance with local operational standards, this study evaluates the project's effect on traffic operations and, if necessary, identifies recommended improvements or corrective measures to alleviate operational deficiencies substantially caused or worsened by the proposed project. For CEQA purposes, this study also evaluates the significance of project-related transportation impacts as measured by vehicle miles traveled (VMT) relative to thresholds established by the City of Perris as the lead agency and, if necessary, identifies any feasible mitigation measures to mitigate any significant impacts.

Project Description

The approximately 8.69-acre project site is located south of Harley Knox Boulevard and east of Indian Avenue in the City of Perris, California.

The currently vacant site is proposed to be developed with 3 industrial warehouse buildings with a total of 141,000 square feet of warehousing building area. The project site is proposed to provide 3 access driveways on Harley Know Boulevard. Project West Driveway (Driveway #1) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project Central Driveway (Driveway #2) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project East Driveway (Driveway #3) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. For purposes of this analysis, the proposed project is anticipated to be constructed and fully operational by year 2023.

Existing Conditions

The study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions.

Project Trip Generation

The proposed project is forecast to generate approximately 245 daily vehicle trips, including 24 vehicle trips during the AM peak hour and 27 vehicle trips during the PM peak hour. The proposed project is forecast to generate approximately 347 daily PCE trips, including 29 PCE trips during the AM peak hour and 34 PCE trips during the PM peak hour.

Levels of Service/Operational Analysis Findings (Non-CEQA)

The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions. Therefore, the proposed project is forecast to result in no substantial operational deficiencies at the study intersections for Existing Plus Project conditions and no off-site improvements or corrective measures are recommended.

The study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2023) With Project conditions. Therefore, the proposed project is forecast to

result in no substantial operational deficiencies at the study intersections for Opening Year (2023) With Project conditions and no off-site improvements or corrective measures are recommended.

VMT Analysis Findings (CEQA)

The proposed project is presumed to have a less than significant impact on VMT since it satisfies one or more of the VMT screening criteria established by the City of Perris (projects generating less than 500 ADT). No additional VMT modeling or mitigation measures are required.

1. INTRODUCTION

This section introduces the proposed project and the general scope of the analysis.

PROJECT DESCRIPTION

The approximately 8.69-acre project site is located south of Harley Knox Boulevard and east of Indian Avenue in the City of Perris, California. Figure 1 shows the project location map.

The currently vacant site is proposed to be developed with 3 industrial warehouse buildings with a total of 141,000 square feet of warehousing building area. The project site is proposed to provide 3 access driveways on Harley Know Boulevard. Project West Driveway (Driveway #1) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project Central Driveway (Driveway #2) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project East Driveway (Driveway #3) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. For purposes of this analysis, the proposed project is anticipated to be constructed and fully operational by year 2023. Figure 2 illustrates the project site plan.

SCOPE OF ANALYSIS

The scope of this analysis was determined in consultation with City of Perris staff as documented in the City-approved scoping agreement provided in Appendix B.

Study Area

Based on the study intersections identified in the approved scoping agreement (Appendix B), the study area consists of the following study intersections within City of Perris jurisdiction:

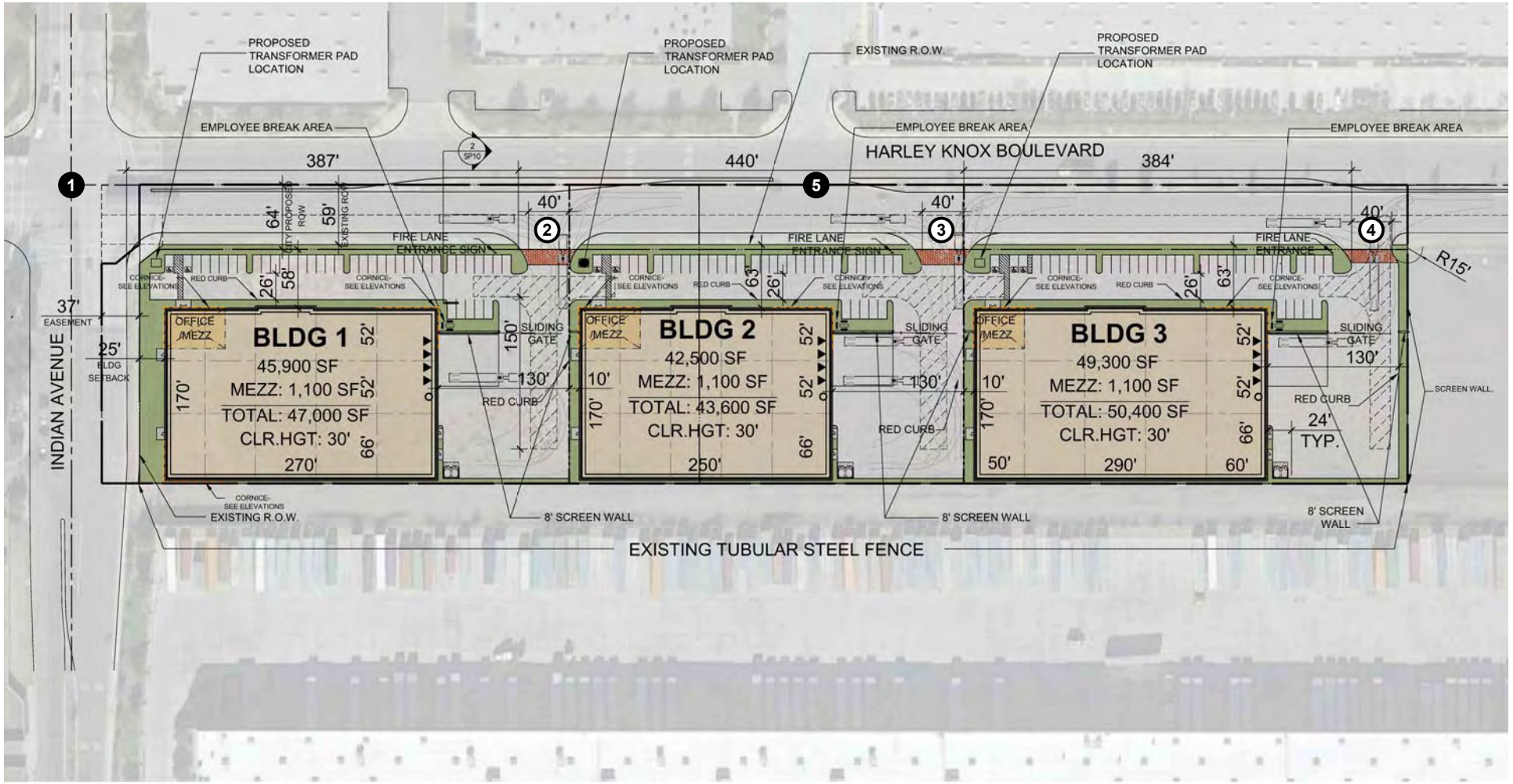
	Study Intersections[1]	Jurisdiction
1.	Indian Avenue (NS) at Harley Knox Boulevard (EW)	City of Perris
2.	Project West Driveway (NS) at Harley Knox Boulevard (EW)	City of Perris
3.	Project Central Driveway (NS) at Harley Knox Boulevard (EW)	City of Perris
4.	Project East Driveway (NS) at Harley Knox Boulevard (EW)	City of Perris
5.	400 Harley Knox Boulevard Driveway (NS) at Harley Knox Boulevard (EW)	City of Perris

Notes:
1. (NS) = north-south roadway; (EW) = east-west roadway

Analysis Scenarios

The following scenarios are analyzed for weekday AM and PM peak hour conditions:

- Existing Conditions
- Existing Plus Project Conditions
- Opening Year (2023) Without Project Conditions
- Opening Year (2023) With Project Conditions



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Legend

- # Study Intersection
- (#) Project Driveway

Figure 1
Project Location Map

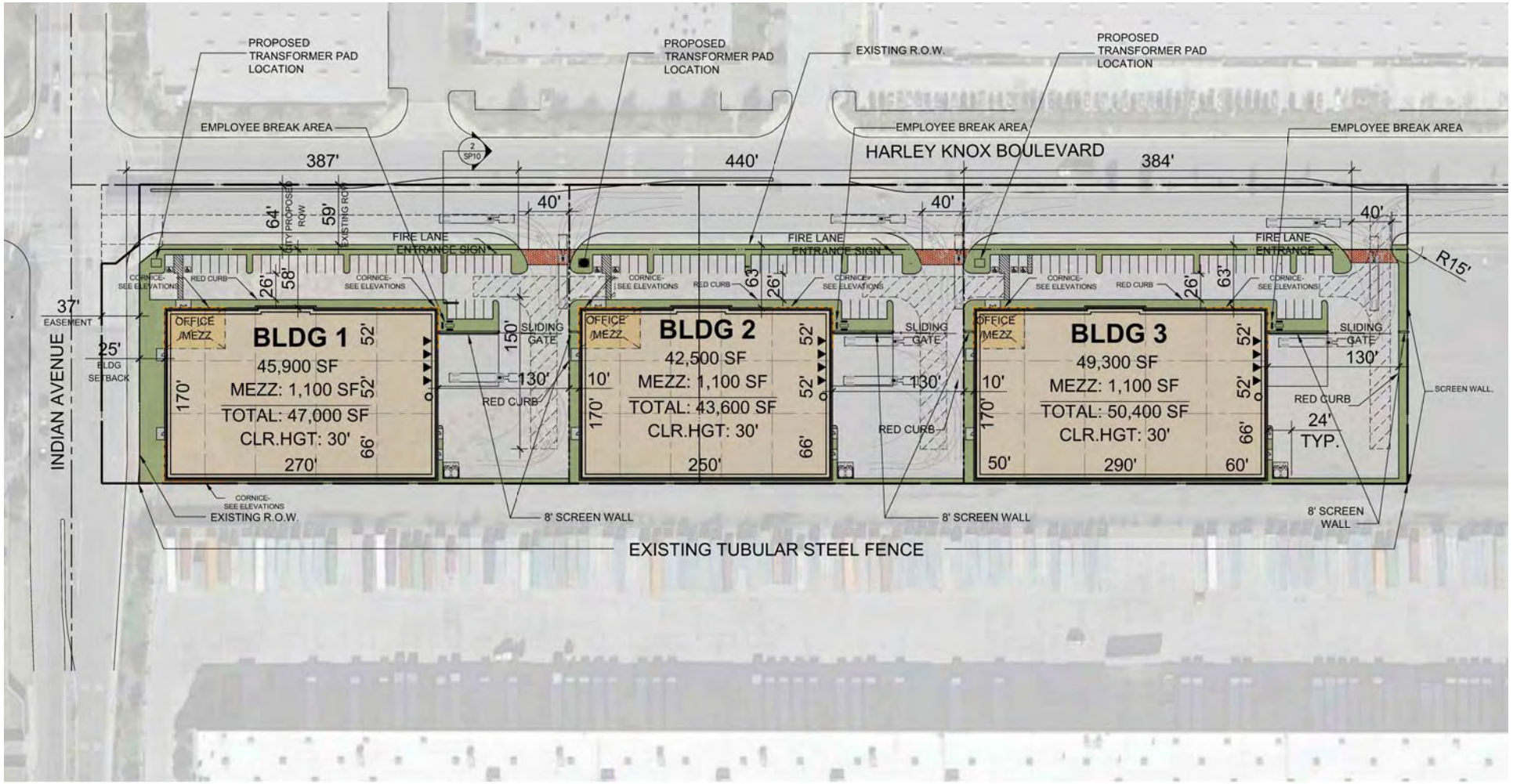

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Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

LEVEL OF SERVICE ANALYTICAL METHODOLOGY (NON-CEQA)

Level of Service analysis is performed for assessing conformance with General Plan and operational standards established by the applicable agencies. In accordance with current CEQA provisions, a project's effect on automobile delay (as measured by Level of Service) shall not constitute a significant environmental impact.

Intersection Delay Methodology

The technique used to assess the performance of intersections is known as the intersection delay methodology based on the procedures contained in the *Highway Capacity Manual* (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, Highway Capacity Manual (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane). Intersection delay and Level of Service calculations were performed using the Vistro software.

Performance Standards

The City of Perris has established Level of Service D as the minimum acceptable Level of Service along all City maintained roads (including intersections) and Level of Service D along I-215 and SR-74 (including intersections with local streets and roads). An exception to the local road standard is Level of Service E at intersections of any Arterials and Expressways with SR-74, the Ramona-Cajalco Expressway, or at I-215 freeway ramps. Level of Service E may be allowed within the boundaries of the Downtown Specific Plan Area

to the extent that it would support transit-oriented development and walkable communities. Increased congestion in this area will facilitate an increase in transit ridership and encourage development of a complementary mix of land uses within a comfortable walking distance from light rail stations.

Substantial Operational Deficiency Criteria

The following criteria are used to determine whether a project causes a substantial operational deficiency and should be required to provide improvements or corrective measures.

In the City of Perris, a project is considered to result in a substantial operational deficiency at a study intersection if one or more of the following conditions are satisfied:

- The addition of 50 or more peak hour project generated trips is forecast to cause an intersection to deteriorate from acceptable Level of Service (D or better) to unacceptable Level of Service (E or F); or,

- The addition of 50 or more peak hour project generated trips worsens the delay by 2 seconds or more at an intersection operating at an unacceptable Level of Service (E or F) in the baseline condition.

- A cumulative impact is considered significant when a study intersection is forecast to operate at an unacceptable Level of Service (E or F) with the addition of cumulative/background traffic and 50 or more peak hour project trips.

If a project is forecast to result in a substantial operational deficiency, recommended corrective measures are identified that would reduce the project's effect to a level that does not exceed the specified deficiency criteria. Corrective measures can be in many forms, including the construction of physical improvements (e.g., addition of travel lanes, traffic control modifications, etc.) or the implementation of transportation demand management measures.

VEHICLE MILES TRAVELED ANALYTICAL METHODOLOGY (CEQA)

The metric used to evaluate the transportation impact of land use and transportation projects under CEQA is known as vehicle miles traveled (VMT). In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. Additional information and a detailed project assessment is provided in the Vehicle Miles Traveled section presented later in this report.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project site is provided by the I-215 Freeway located approximately 1.5 miles west of the project site. Key roadways providing local circulation include Harley Knox Boulevard, Indian Avenue, Perris Boulevard, and Markham Street.

GENERAL PLAN CONTEXT

Figure 4 shows the City of Perris General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. The City of Perris standard roadway cross-sections are illustrated on Figure 5.

TRUCK ROUTES

The City of Perris General Plan truck routes are illustrated on Figure 6. Existing truck routes in the project vicinity are shown on Figure 6. There are currently designated truck routes along Harley Knox Boulevard, Indian Avenue, and Perris Boulevard near the project site.

TRANSIT SERVICE

Figure 7 shows Existing public transit facilities and routes in the project vicinity. As shown on Figure 7, the study area is currently served by the Riverside Transit Agency bus service. Route 19 runs along Perris Boulevard.

BICYCLE FACILITIES

The City of Perris bike paths are illustrated on Figure 8. Existing pedestrian facilities in the project vicinity are shown on Figure 9. There are currently existing bicycle lanes along Harley Knox Boulevard on the south side of the street adjacent to the project site. Sidewalks are not provided on Harley Knox Boulevard adjacent to the project site.

EXISTING ROADWAY VOLUMES

Figure 10 shows the Existing average daily traffic volumes. The Existing average daily traffic volumes have been factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

PM Peak Hour (Approach Volume + Exit Volume) x 12 = Leg Volume.

Figure 11 and Figure 12 show the Existing AM and PM peak hour intersection turning movement volumes. Existing peak hour intersection volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in July 2021 during typical weekday conditions. The weekday AM peak period was counted between 7:00 AM and 9:00 AM and the weekday PM peak period was counted between 4:00 PM and 6:00 PM; these periods generally capture the peak times for commuter traffic when the roadway system is typically experiencing peak demand. The actual peak hour within each two-hour count period is determined based on the sum of the four consecutive 15-minute periods with the highest total volume. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-

minute periods have the highest total volume and may vary at other intersections. Intersection turning movement count worksheets are provided in Appendix C.

EXISTING LEVEL OF SERVICE

The intersection Levels of Service for Existing conditions are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

As shown in Table 1, the study intersections currently operate within acceptable Levels of Service (D or better) during the peak hours for Existing conditions.

Table 1
Existing Intersection Levels of Service

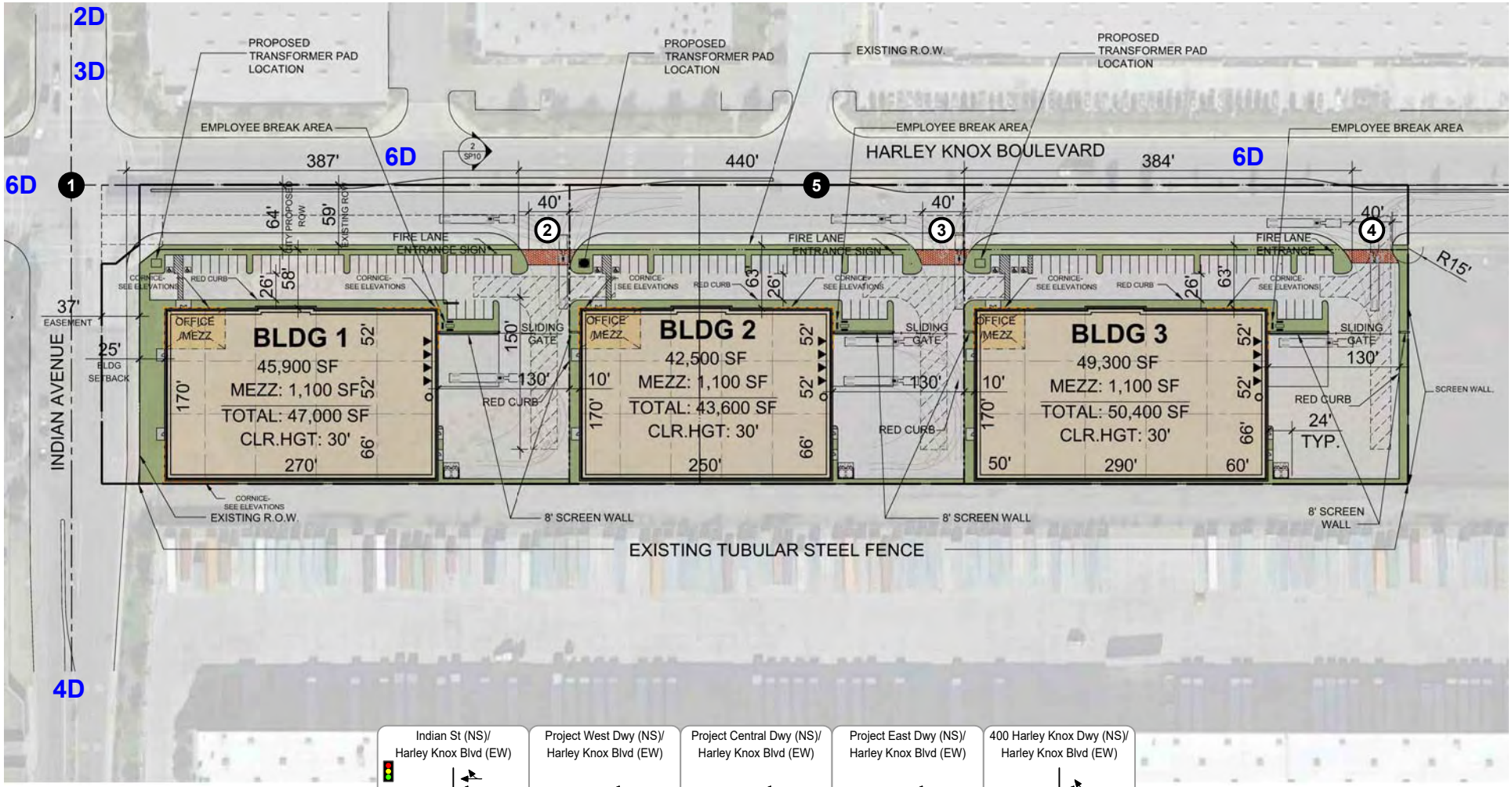
Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Indian St at Harley Knox Blvd	TS	31.2	C	35.6	D
2. Project West Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
3. Project Central Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
4. Project East Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
5. 400 Harley Knox Blvd Dwy at Harley Knox Blvd	CSS	11.7	B	12.3	B

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst approach.

(3) LOS = Level of Service



Legend

- Traffic Signal
- STOP Stop Sign
- #D #-Lane Divided Roadway
- Existing Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls

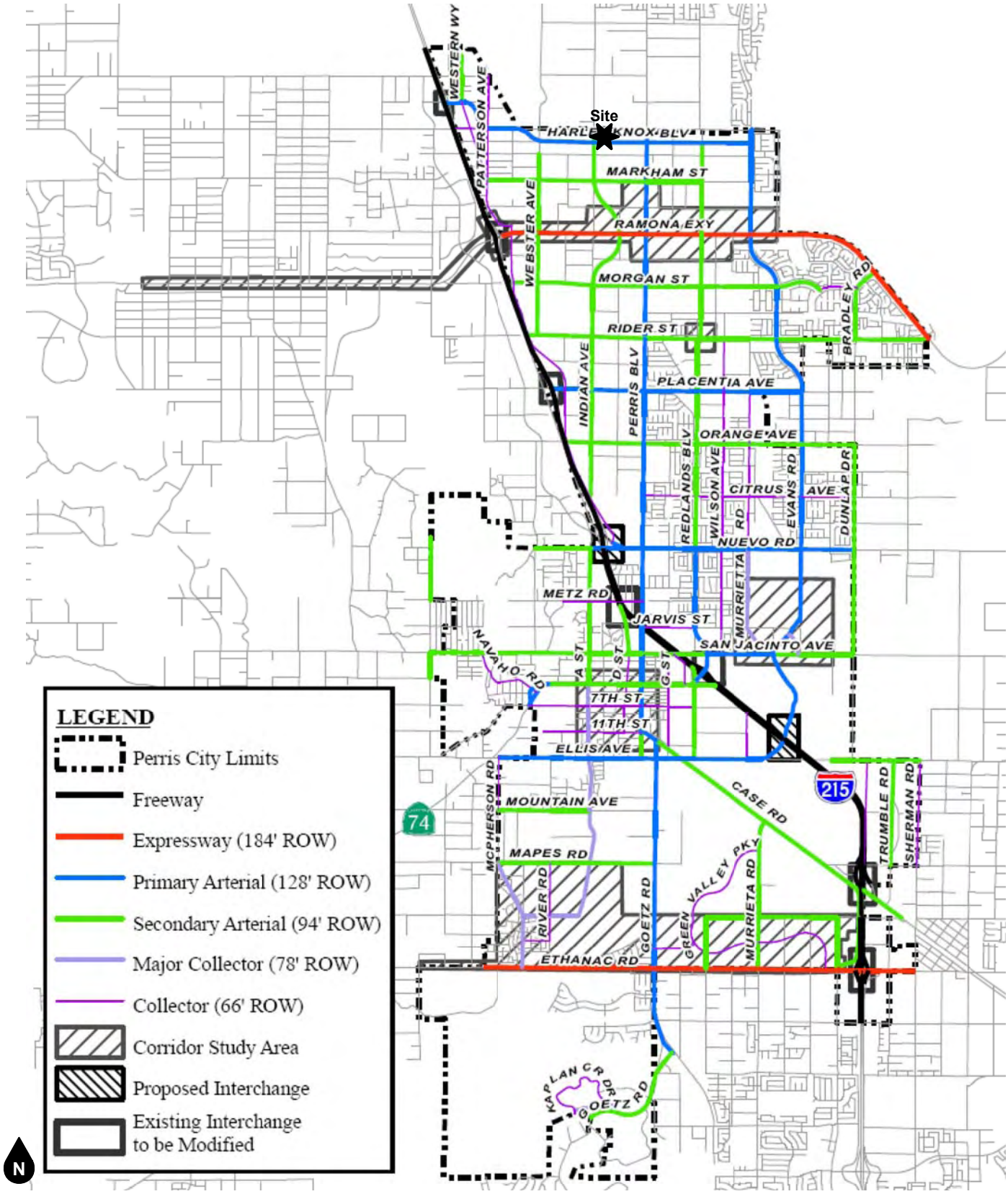


Figure 4
City of Perris General Plan Circulation Element

Source: City of Perris

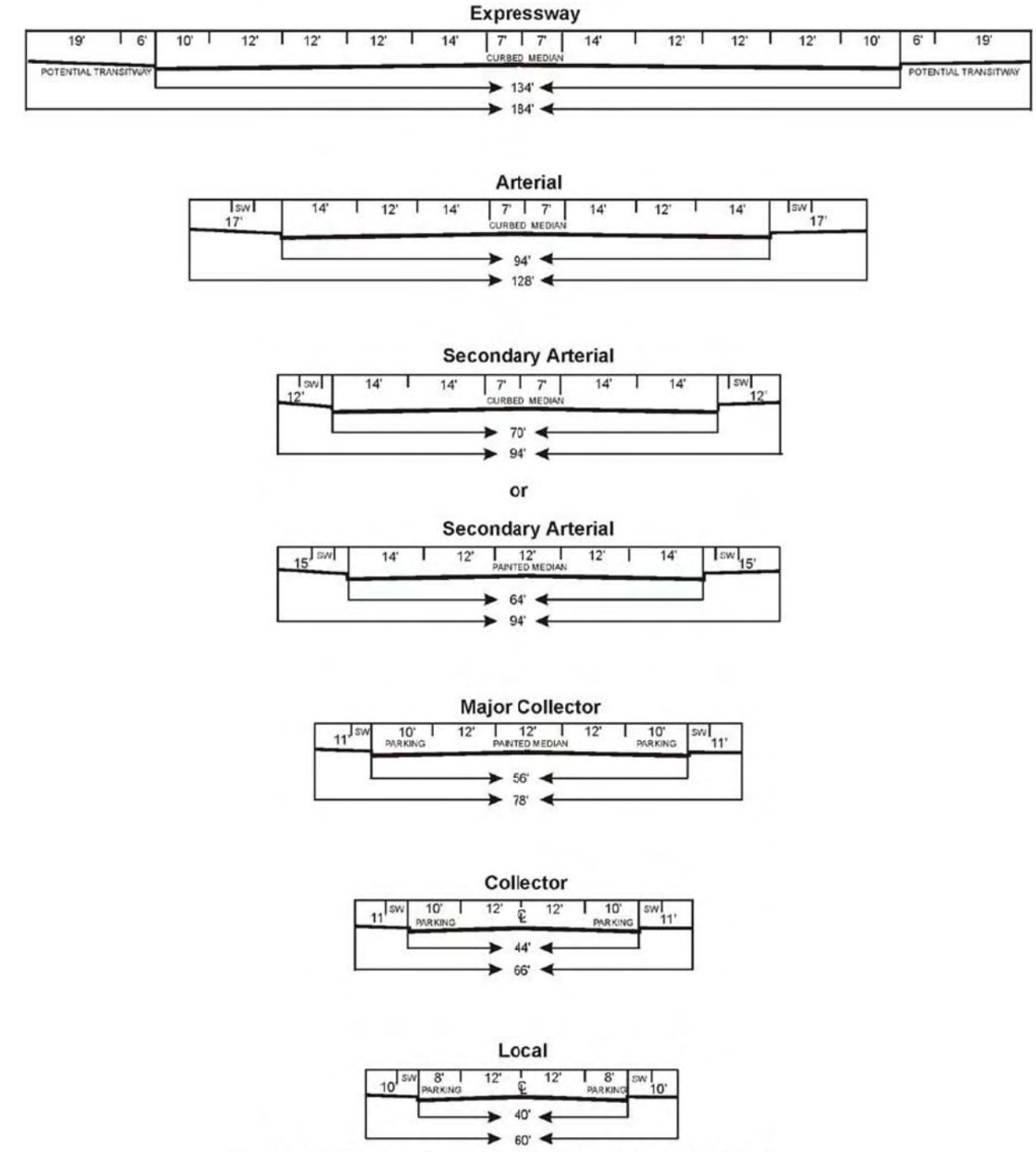
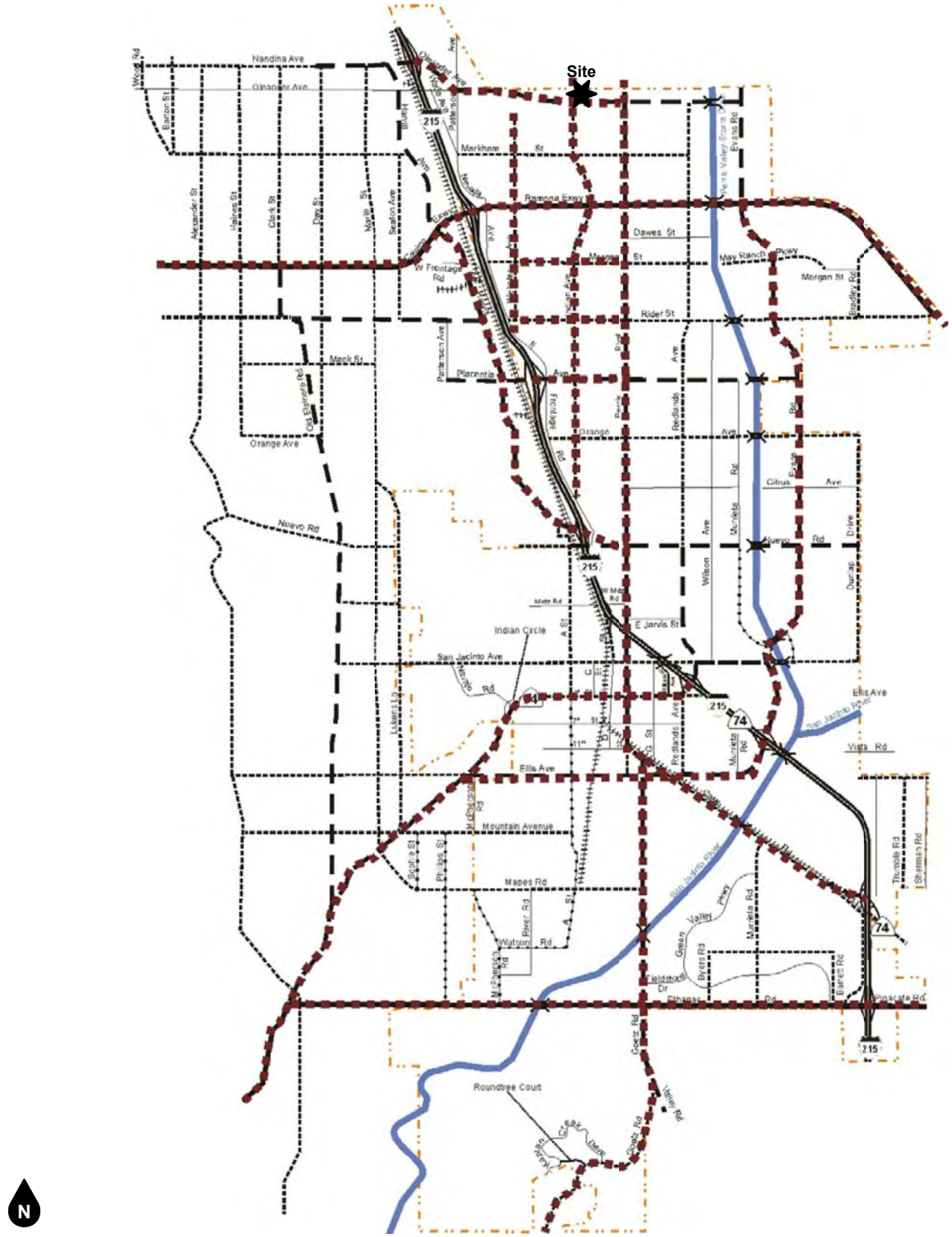


Figure 5
City of Perris General Plan Roadway Cross-Sections

Source: City of Perris



Source: City of Perris

Figure 6
City of Perris General Plan Truck Routes

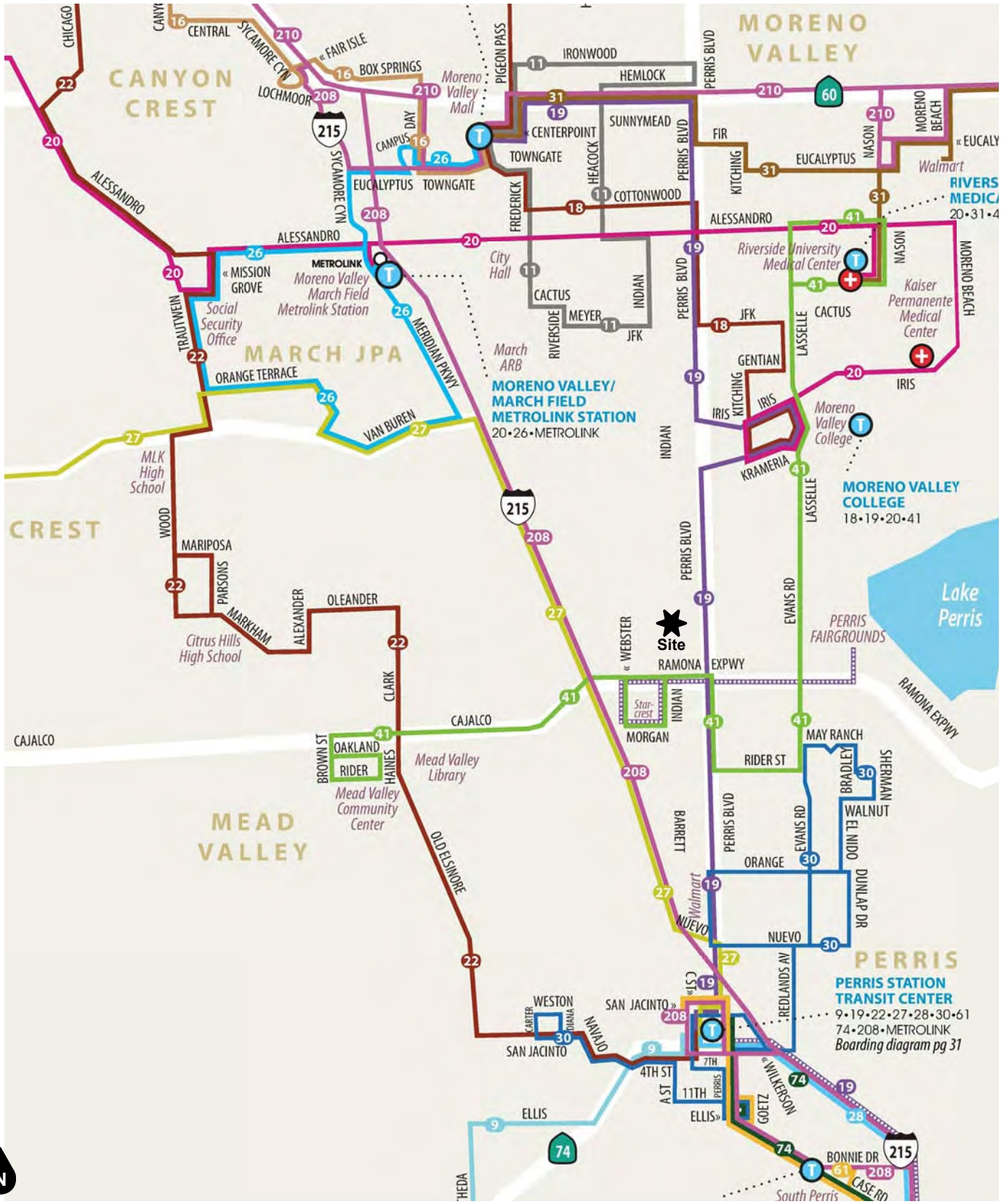


Figure 7
Existing Transit Routes

Source: Riverside Transit Agency

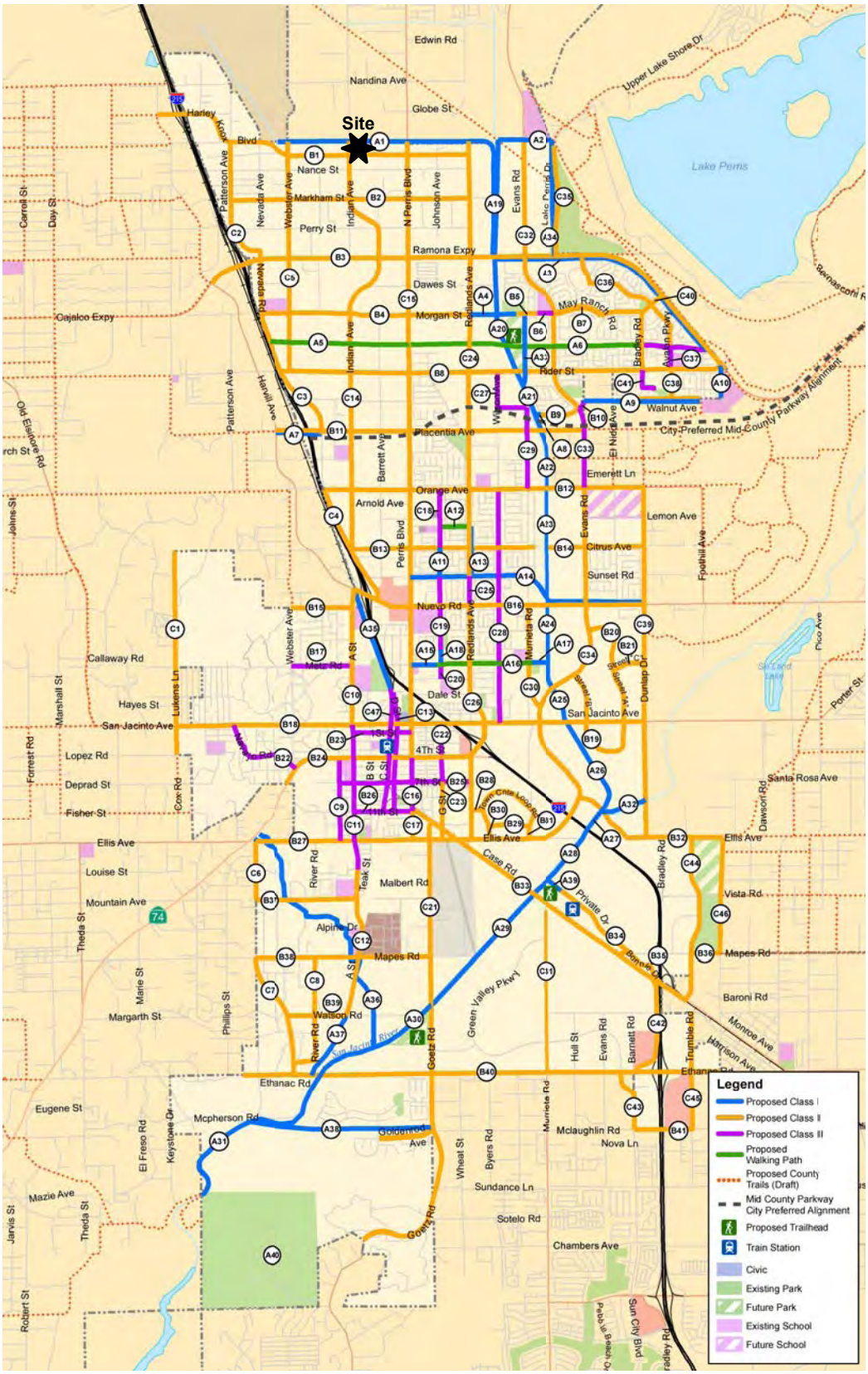
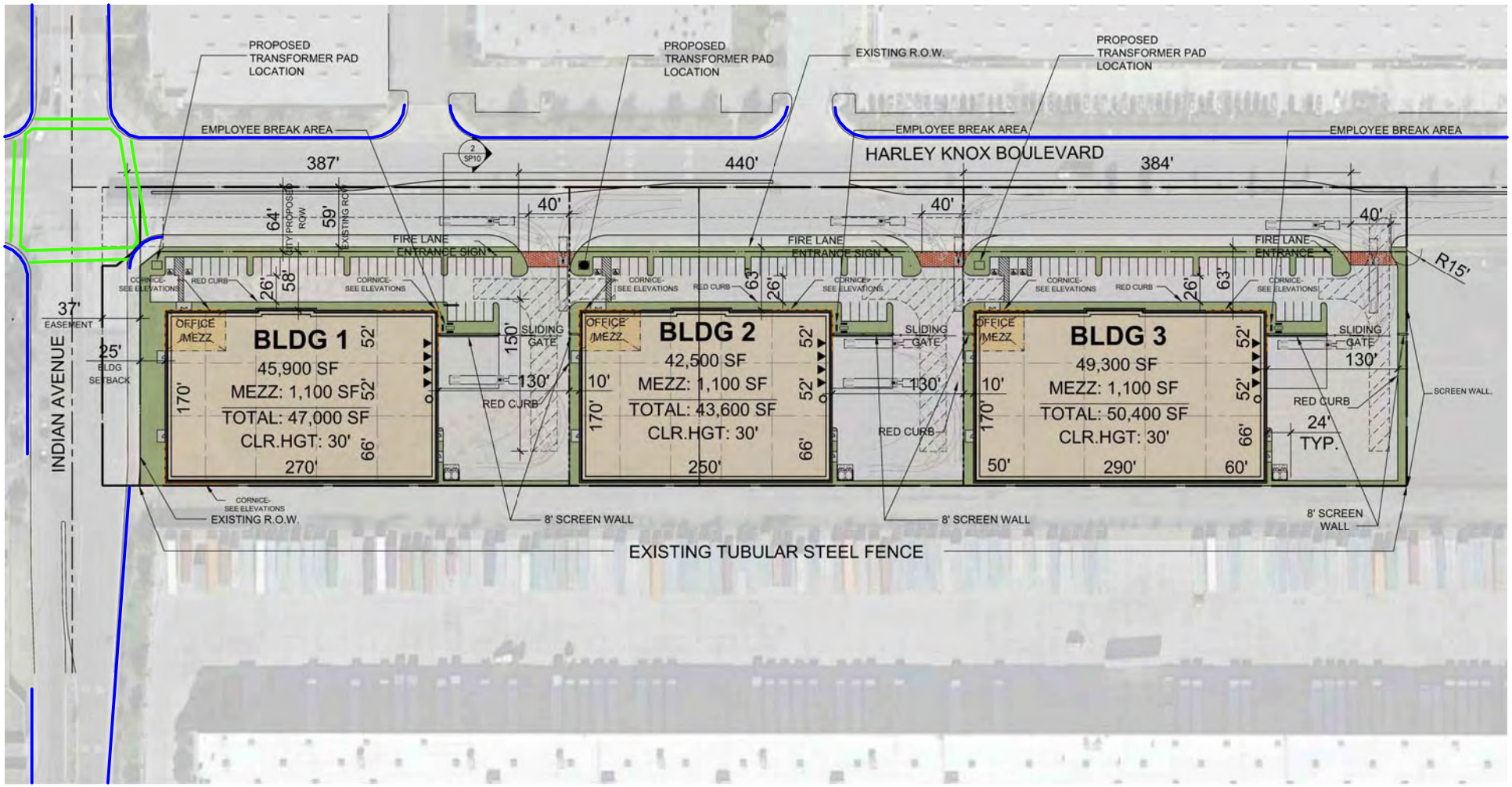


Figure 8
City of Perris General Plan Bike Routes

Source: City of Perris



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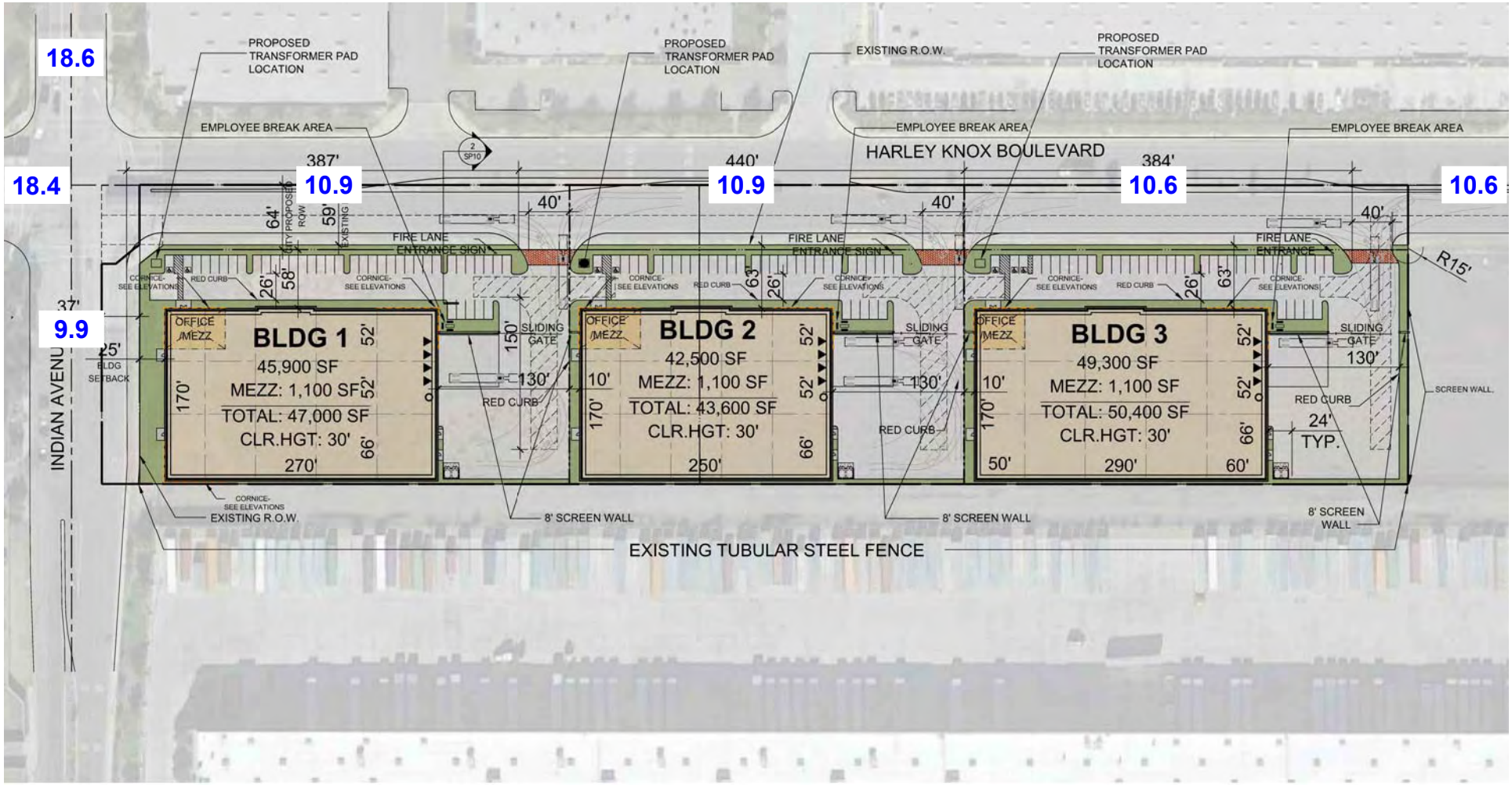
Legend
- Sidewalk
- Cross Walk

Figure 9
Existing Pedestrian Facilities



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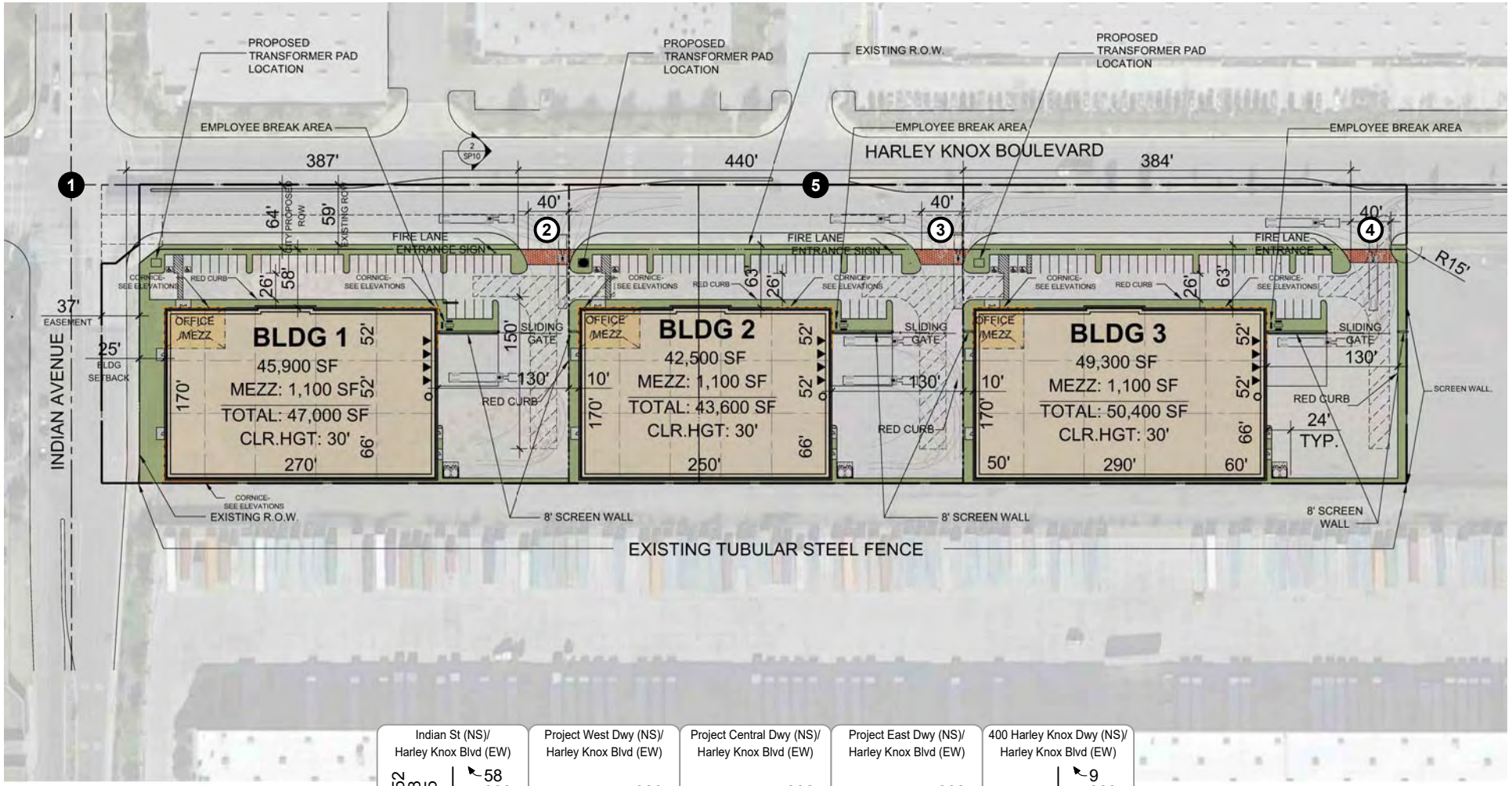
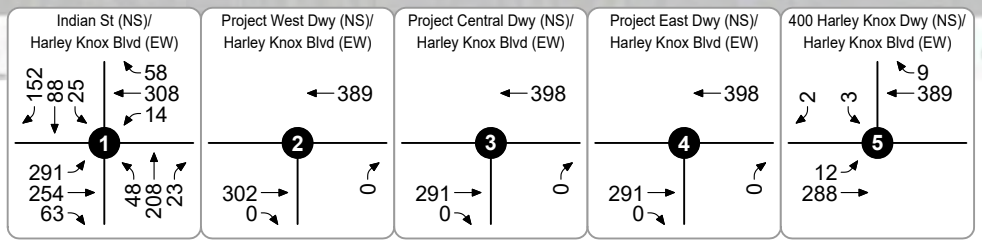
Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

Figure 10
Existing Average Daily Traffic (ADT) Volumes





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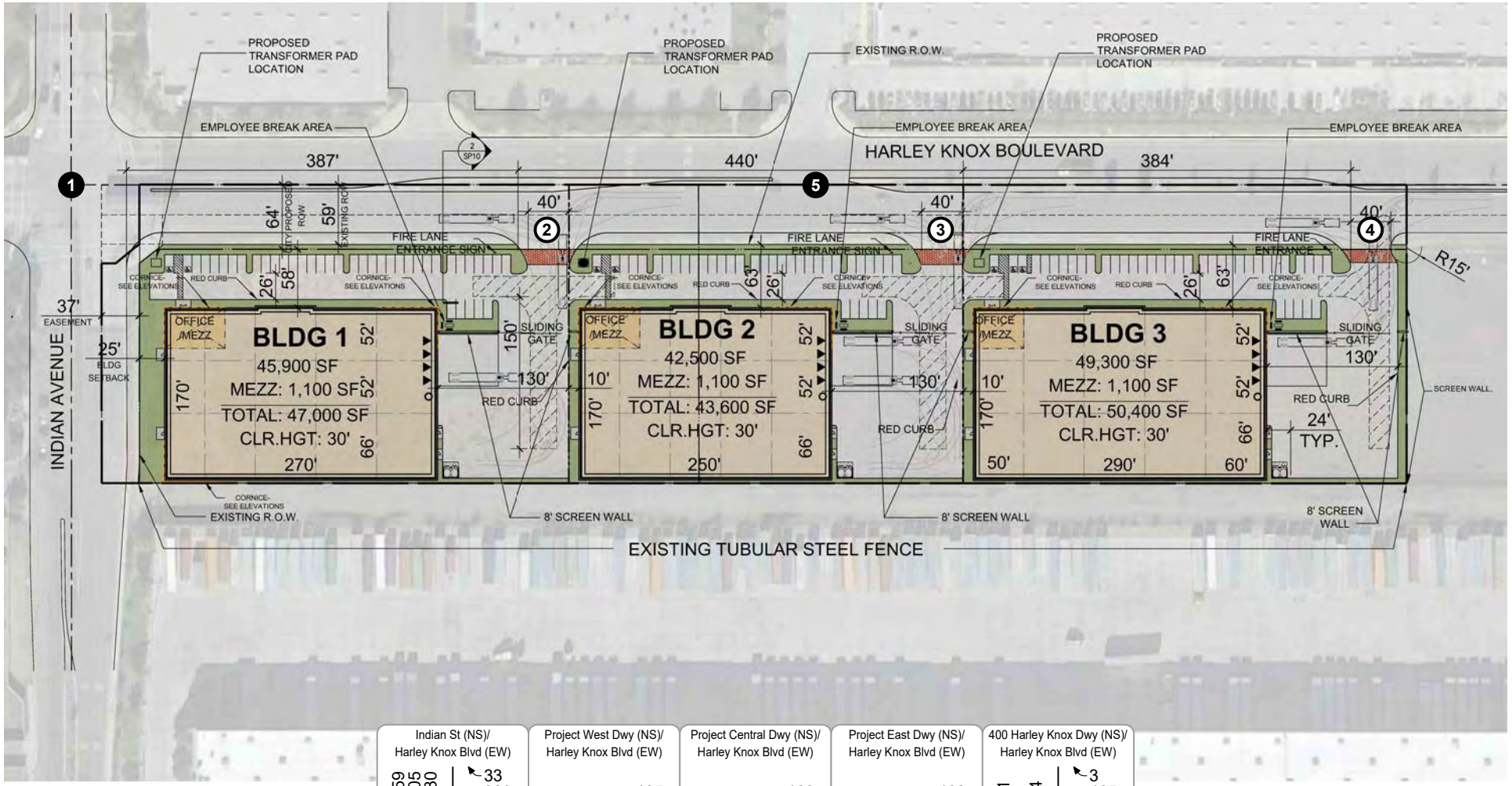
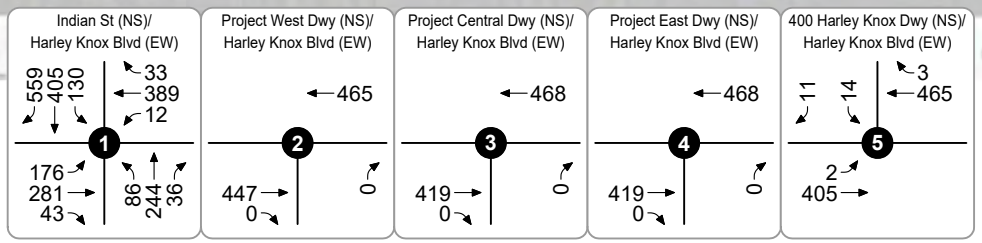
Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 11
Existing AM Peak Hour Intersection Turning Movement Volumes





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Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 12
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

PROJECT TRIP GENERATION

The approximately 8.69-acre project site is currently vacant, and it is proposed to be developed with three industrial warehouse buildings totaling 141,000 square feet of gross floor area.

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on review of the ITE land use description, trip generation rates for ITE Land Use Code 150 - Warehousing were determined to adequately represent the proposed use and were selected for calculation of the project trip generation forecast. The number of trips generated is determined by multiplying the trip generation rates and directional distributions by the land use quantity.

As shown in Table 2, the proposed project is forecast to generate approximately 245 daily vehicle trips, including 24 vehicle trips during the AM peak hour and 27 vehicle trips during the PM peak hour.

Truck Trips

The project trip generation was also calculated in terms of Passenger Car Equivalent (PCE) trips. The percentage of truck trips was obtained from the ITE *Trip Generation Manual Supplement* (10th Edition, 2020). The truck mix by axle type was determined based on South Coast Air Quality Management District (SCAQMD) recommendations for high-cube warehousing facilities without cold-storage. Truck trips were converted to PCE trips based on the following factors: 1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with four or more axles.

As also shown in Table 2, the proposed project is forecast to generate approximately 347 daily PCE trips, including 29 PCE trips during the AM peak hour and 34 PCE trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The project site is proposed to provide three access driveways on Harley Know Boulevard. Project West Driveway (Driveway #1) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project Central Driveway (Driveway #2) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project East Driveway (Driveway #3) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard.

Figure 13 to Figure 16 show the forecast directional distribution patterns for the project generated trips. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, designated truck routes, and the local and regional roadway facilities in the project vicinity.

Figure 13 and Figure 14 illustrate the forecast outbound and inbound directional distribution patterns of project generated trips for passenger cars. Figure 15 and Figure 16 show the outbound and inbound trip distribution patterns for truck traffic. Outbound truck trips are anticipated to make a loop maneuver around the block using Perris Boulevard, Markham Street, and Indian Avenue to get back on Harley Knox Boulevard to travel westbound to utilize the I-215 Interchange at Harley Knox Boulevard. As shown in Figure 14, truck trips are anticipated to exit the project site to go eastbound on Harley Knox Boulevard, turn right on Perris Boulevard to go southbound, turn right on Markham Street to go westbound, turn right on Indian Avenue to go northbound, and then turn left on Harley Knox Boulevard to travel to westbound to reach the I-215

Interchange at Harley Knox Boulevard. Harley Knox Boulevard (Major Arterial), Perris Boulevard (Major Arterial) and Indian Avenue (Major Arterial) are designed as truck routes on the City's Circulation Element. Markham Street is designated as a Secondary Arterial with several developments with truck access on the roadway.

Based on the identified project trip generation and distributions, project average daily traffic volumes are shown on Figure 17. Project AM and PM peak hour intersection turning movement volumes are shown on Figure 18 and Figure 19.

SITE ACCESS

This analysis assumes the following improvements will be constructed by the project to provide project site access:

- Project West Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #2]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

- Project Central Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #3]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

- Project East Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #4]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

Dedicated right turn deceleration lanes at the three project driveways on Harley Knox Boulevard are not anticipated to be necessary, since both project driveways are expected to operate at acceptable Levels of Service during the peak hours for all analyzed scenarios. Shared through/right turn lanes at both project driveways on Harley Knox Boulevard are anticipated to provide adequate ingress.

Table 2
Project Trip Generation

Land Use: Warehousing
Size: 141.000 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			Daily
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Rate
All Vehicles	ITE 150	77%	23%	0.170	27%	73%	0.190	1.740
Passenger Cars (87.0% AM, 85.0% PM, 73.0% Daily)	TGMS 150	0.114	0.034	0.148	0.044	0.118	0.162	1.270
Trucks (13.0% AM, 15.0% PM, 27.0% Daily)	TGMS 150	0.017	0.005	0.022	0.008	0.021	0.029	0.470
Truck Mix:	SCAQMD							
2-Axle Trucks (16.7%)		0.003	0.001	0.004	0.001	0.003	0.004	0.078
3-Axle Trucks (20.7%)		0.004	0.001	0.005	0.002	0.004	0.006	0.097
4+ Axle Trucks (62.6%)		0.011	0.003	0.014	0.005	0.013	0.018	0.294

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	16	5	21	6	17	23	179
Trucks							
2-Axle Trucks	0	0	0	0	0	0	11
3-Axle Trucks	1	0	1	0	1	1	14
4+ Axle Trucks	2	0	2	1	2	3	41
Subtotal	3	0	3	1	3	4	66
Total Vehicle Trips Generated	**19**	**5**	**24**	**7**	**20**	**27**	**245**

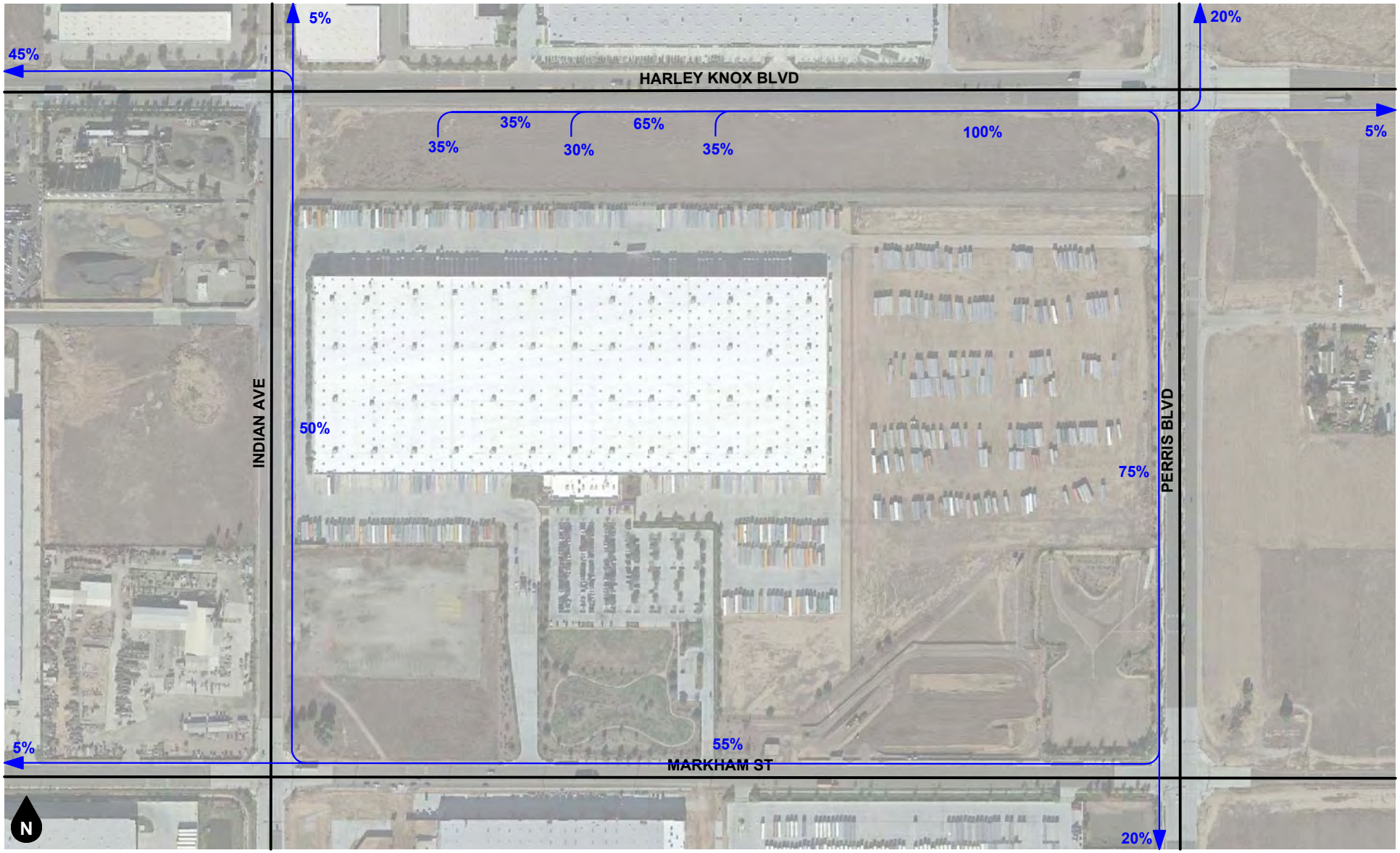
PCE[3] TRIPS GENERATED								
	PCE	AM Peak Hour			PM Peak Hour			
Vehicle Type	Factor[4]	In	Out	Total	In	Out	Total	Daily
Passenger Cars	1.0	16	5	21	6	17	23	179
Trucks								
2-Axle Trucks	1.5	0	0	0	0	0	0	17
3-Axle Trucks	2.0	2	0	2	0	2	2	28
4+ Axle Trucks	3.0	6	0	6	3	6	9	123
Subtotal		8	0	8	3	8	11	168
Total PCE Trips Generated		**24**	**5**	**29**	**9**	**25**	**34**	**347**

Notes:
(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, February 2020); ### = ITE Land Use Code.
SCAQMD = South Coast Air Quality Management District recommendations for non-cold storage high-cube warehouse.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016).



Legend

10% Percent From Project

Figure 13
Passenger Car Project Outbound Trip Distribution

Legend

10% Percent From Project

Figure 14
Passenger Car Project Inbound Trip Distribution

Legend

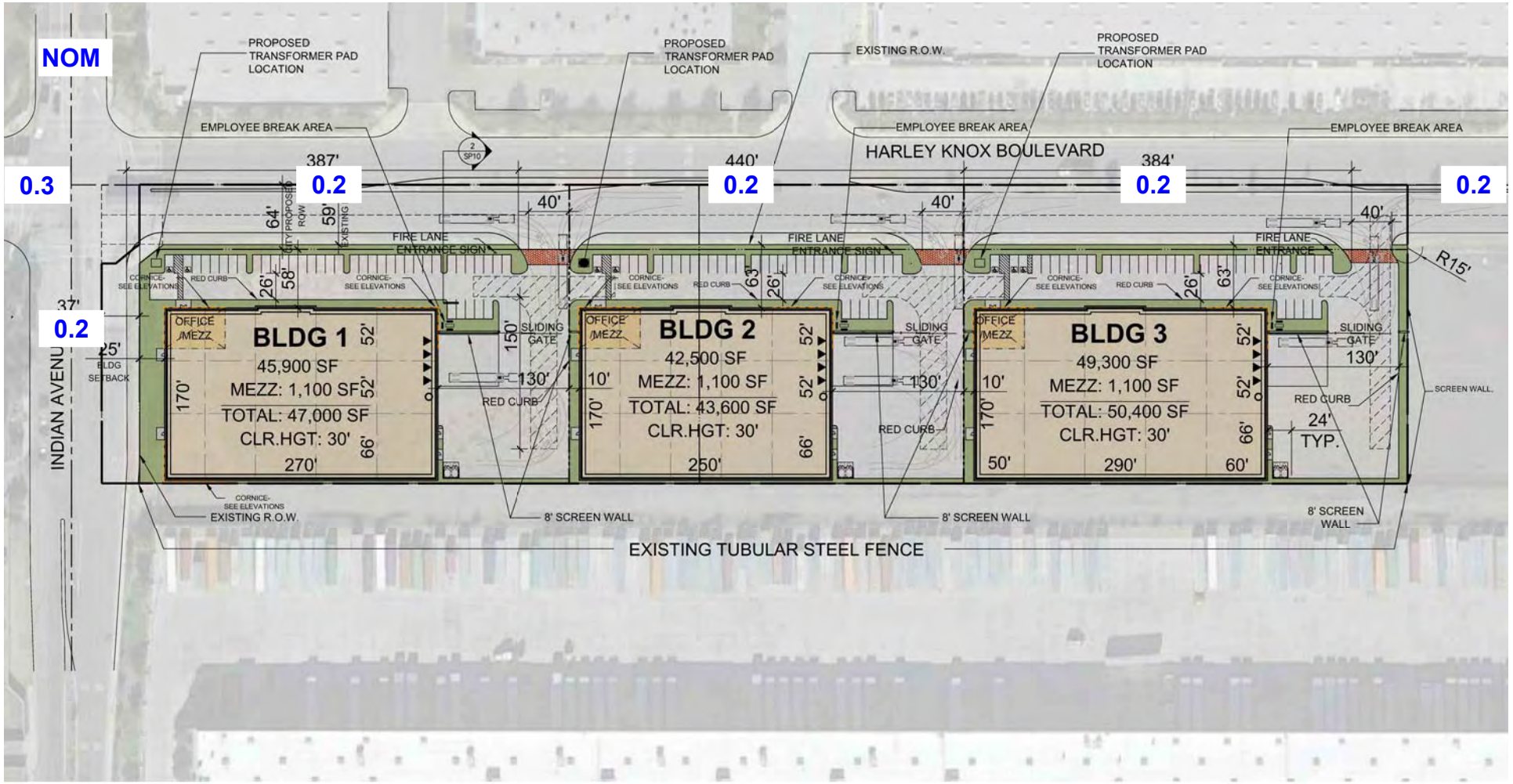
10% Percent From Project

Figure 15
Truck Project Outbound Trip Distribution

Legend

10% Percent From Project

Figure 16
Truck Project Inbound Trip Distribution



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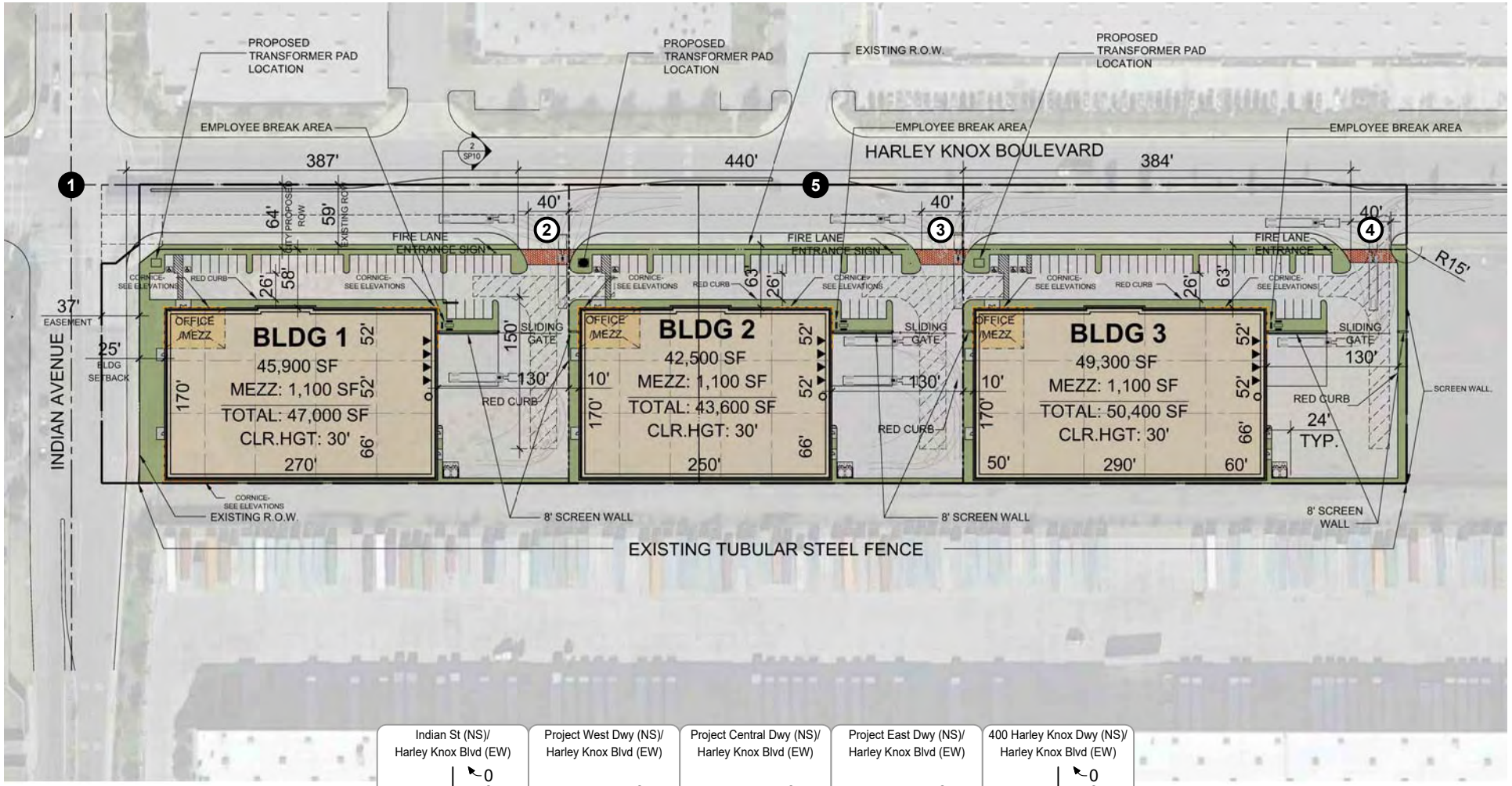
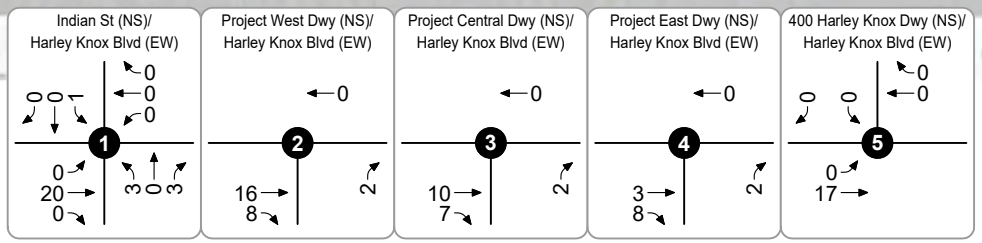
Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

NOM Nominal Less Than 50 Vehicles Per Day in PCE (Passenger Car Equivalent)

Figure 17
Project Average Daily Traffic (ADT) Volumes





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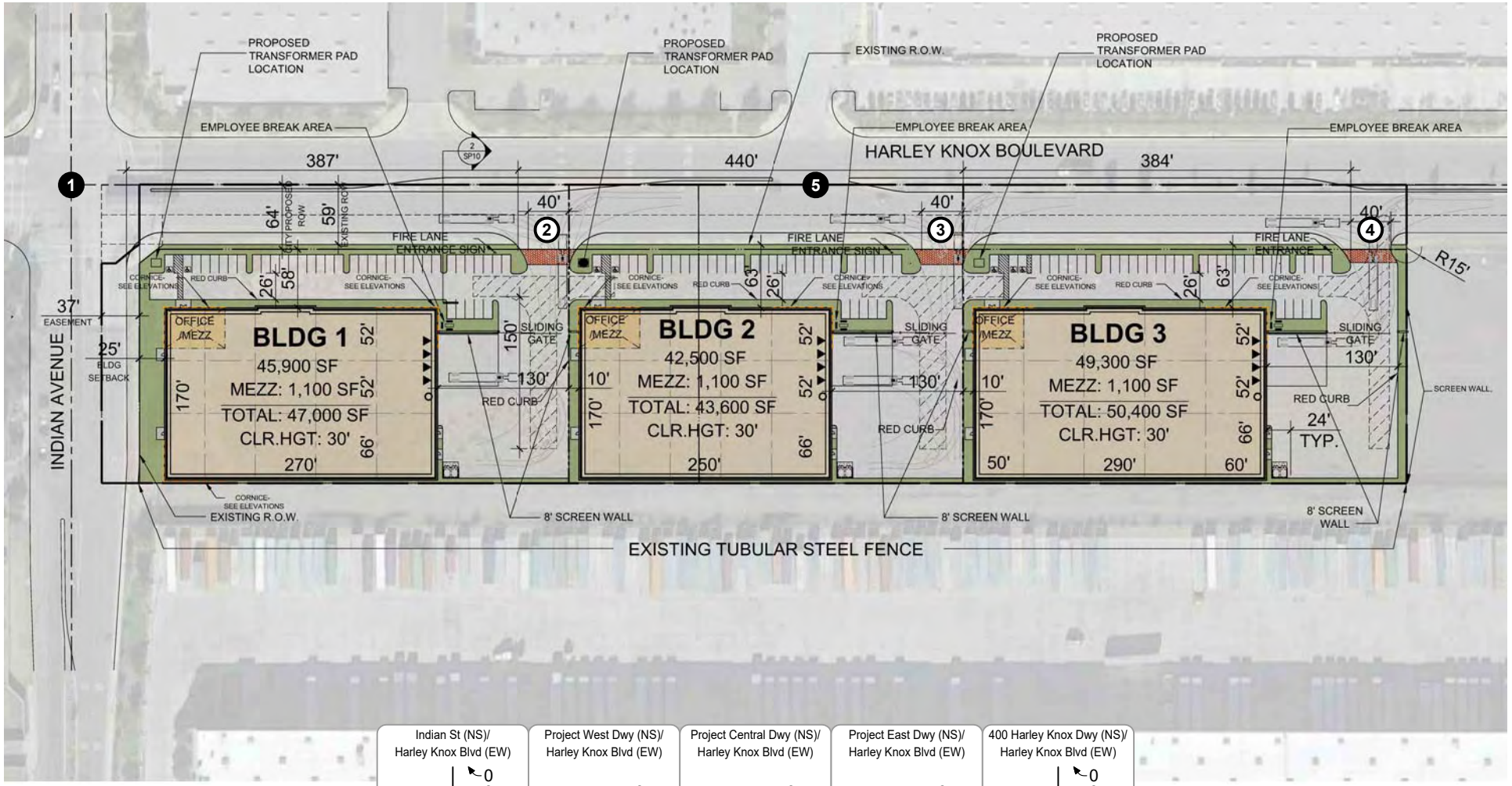
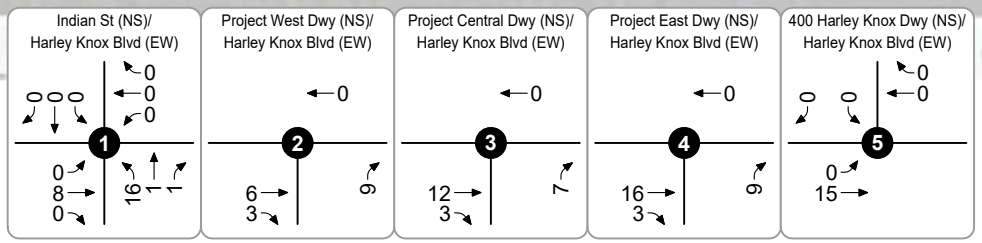
Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 18
Project AM Peak Hour Intersection Turning Movement Volumes





N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 19
Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated on figures contained in this section.

CUMULATIVE TRIPS

Ambient Growth Rate

To account for ambient growth on roadways, existing 2021 roadway volumes were increased by a growth rate of three percent (3%) per year over two years for Opening Year (2023) conditions. This equates to a total growth factor of approximately 1.06. The ambient growth rate was conservatively applied to all movements at the study intersections.

Other Development

To account for trips generated by future development, trips generated by pending or approved other development projects in the City of Perris and City of Moreno Valley were added to the study area. A list of pending and approved cumulative development projects has been obtained from the City of Perris (see Appendix B, part of the approved scoping). Table 3 shows the other development trip generation and Figure 20 exhibits the other development location map.

Figure 21 shows the forecast average daily traffic volumes for the other development. Figure 22 and Figure 23 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by other developments.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project Traffic

Existing Plus Project volume forecasts were developed by adding the project generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 24. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 25 and Figure 26.

Opening Year (2023) Without Project Traffic

To develop Opening Year (2023) Without Project volume forecasts, Existing volumes were combined with ambient growth and trips generated by other pending and approved developments. Opening Year (2023) Without Project average daily traffic volumes are shown on Figure 27. Opening Year (2023) Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 28 and Figure 29.

Opening Year (2023) With Project Traffic

Opening Year (2023) With Project volume forecasts were developed by adding project generated trips to the Opening Year (2023) Without Project forecast. Opening Year (2023) With Project daily traffic volumes are shown on Figure 30. Opening Year (2023) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 31 and Figure 32.

Table 3 (1 of 4)
Other Development Trip Generation

Trip Generation Rates											
				AM Peak Hour			PM Peak Hour				
No.	Land Use	Source[1]	Unit[2]	% In	% Out	Rate	% In	% Out	Rate	Daily
1	General Light Industrial	ITE 110	TSF	88%	12%	0.70	13%	87%	0.63	4.96
2	Manufacturing	ITE 140	TSF	77%	23%	0.62	31%	69%	0.67	3.93
3	Warehousing	ITE 150	TSF	77%	23%	0.17	27%	73%	0.19	1.74
4	High-Cube Parcel Hub Warehouse	ITE 156	TSF	50%	50%	0.70	68%	32%	0.64	7.75
5	Single-Family Detached Housing	ITE 210	DU	25%	75%	0.74	63%	37%	0.99	9.44
6	Multi-Family (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32
7	Senior Adult Housing - Attached	ITE 252	DU	35%	65%	0.20	55%	45%	0.26	3.70
8	Residential Planned Unit Development	ITE 270	DU	22%	78%	0.57	65%	35%	0.69	7.38
9	Office Park	ITE 750	TSF	89%	11%	1.44	7%	93%	1.07	11.07
10	Hotel	ITE 310	RM	59%	41%	0.47	51%	49%	0.60	8.36
11	Shopping Center	ITE 820	TSF	62%	38%	0.94	48%	52%	3.81	37.75
12	Pharmacy/Drugstore (Without Drive-Thru)	ITE 880	TSF	65%	35%	2.94	49%	51%	8.51	90.08
13	Pharmacy/Drugstore (With Drive-Thru)	ITE 881	TSF	53%	47%	3.84	50%	50%	10.29	109.16
14	Fast-Food Restaurant (Without Drive-Thru)	ITE 933	TSF	60%	40%	25.10	50%	50%	28.34	346.23
15	Fast-Food Restaurant (With Drive-Thru)	ITE 934	TSF	51%	49%	40.19	52%	48%	32.67	470.95
16	Automated Car Wash	Survey[3]	Site	55%	45%	64.00	50%	50%	134.00	944.00

Trips Generated												
					AM Peak Hour			PM Peak Hour				
TAZ	Other Development Project	Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
City of Perris Industrial Projects[4]											
1	AAA	General Light Industrial	2.000	TSF	1	0	1	0	1	1	10
9	Burge Indus 1[5]	General Light Industrial	18.000	TSF	11	1	12	1	10	11	89
9	Burge Indus 2[5]	General Light Industrial	19.000	TSF	12	2	14	2	10	12	94
9	Pulliam Indus[5]	General Light Industrial	16.000	TSF	10	1	11	1	9	10	79
9	Western Industrial/ DRP 19-00003[5]	High-Cube Parcel Hub Warehouse	250.000	TSF	88	88	176	110	50	160	1,938
1	Canyon Steel[5]	General Light Industrial	25.000	TSF	16	2	18	2	14	16	124
9	Duke @Perry	General Light Industrial	144.000	TSF	89	12	101	12	79	91	714
2	IDI @Romona	High-Cube Parcel Hub Warehouse	426.000	TSF	149	149	298	187	85	272	3,302
9	IDI -Site 3	High-Cube Parcel Hub Warehouse	2300.000	TSF	805	805	1,610	1,012	460	1,472	17,825
2	Westcoast Textile/ DPR 16-00001[5]	Warehousing	180.000	TSF	23	7	30	9	25	34	313
9	Rados/DPR 070119[5]	High-Cube Parcel Hub Warehouse	1200.000	TSF	420	420	840	528	240	768	9,300
1	Integra - Expansion (IT-E)/ MMOD 17-00003[5]	High-Cube Parcel Hub Warehouse	273.000	TSF	96	96	192	120	55	175	2,116
1	Marijuana Manufacturing	Manufacturing	1.000	TSF	0	0	0	0	0	0	4
9	Rider 2 & 4[5]	High-Cube Parcel Hub Warehouse	1373.449	TSF	481	481	962	604	275	879	10,644
1	Harley Knox 25k	General Light Industrial	25.000	TSF	16	2	18	2	14	16	124
9	Dedeaux Walnut Warehouse[5]	Warehousing	205.000	TSF	27	8	35	10	29	39	357
3	Perris and Ramona Warehouse[6] Expressway Industrial	High-Cube Parcel Hub Warehouse	347.938	TSF	122	122	244	153	70	223	2,697
9	C5 Rental	General Light Industrial	17.400	TSF	11	1	12	1	10	11	86
9	First Indus (Goodwin)	High-Cube Parcel Hub Warehouse	338.000	TSF	118	118	236	149	68	217	2,620

Table 3 (2 of 4)
Other Development Trip Generation

Trips Generated												
					AM Peak Hour			PM Peak Hour			
TAZ	Other Development Project	Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
9	Patriot Ind	High-Cube Parcel Hub Warehouse	286.000	TSF	100	100	200	126	57	183	2,217
9	Wilson Industrial/ DPR 19-00007[5]	High-Cube Parcel Hub Warehouse	303.000	TSF	106	106	212	133	61	194	2,348
9	Wilson Industrial/ DPR 20-00011	High-Cube Parcel Hub Warehouse	248.000	TSF	87	87	174	109	50	159	1,922
9	Natwar Ind	High-Cube Parcel Hub Warehouse	420.000	TSF	147	147	294	185	84	269	3,255
1	Serrao Ind	General Light Industrial	3.500	TSF	2	0	2	0	2	2	17
9	Lakecreek East	High-Cube Parcel Hub Warehouse	256.000	TSF	90	90	180	113	51	164	1,984
9	Lakecreek West	High-Cube Parcel Hub Warehouse	300.000	TSF	105	105	210	132	60	192	2,325
9	Chartwell Ind	General Light Industrial	141.000	TSF	87	11	98	11	78	89	699
9	IDI - Site 1	High-Cube Parcel Hub Warehouse	784.000	TSF	274	274	548	345	157	502	6,076
9	IDI - Site 2	High-Cube Parcel Hub Warehouse	3448.734	TSF	1,207	1,207	2,414	1,517	690	2,207	26,728
9	Marjuana Manufacturing/ DPR 18-00005	Warehousing	50.000	TSF	7	2	9	3	7	10	87
9	Marjuana Manufacturing/ DPR 18-00004	Warehousing	12.000	TSF	2	0	2	1	2	3	21
9	Marjuana Manufacturing/ Cul/DPR 18-00010	Warehousing	30.000	TSF	4	1	5	2	4	6	52
9	Perez Indus	General Light Industrial	2.500	TSF	2	0	2	0	1	1	12
2	Duke @Perry/Duke 2 - Forever 21	High-Cube Parcel Hub Warehouse	669.000	TSF	234	234	468	294	134	428	5,185
3	First Perry - Moret Group	High-Cube Parcel Hub Warehouse	240.000	TSF	84	84	168	106	48	154	1,860
9	Gateway - Kenco	High-Cube Parcel Hub Warehouse	400.000	TSF	140	140	280	176	80	256	3,100
1	OLC 2 - H&M	High-Cube Parcel Hub Warehouse	1037.000	TSF	363	363	726	456	207	663	8,037
2	Markham Industrial/MI - Retrospec Bicycle	Warehousing	170.000	TSF	22	7	29	9	24	33	296
2	Indian/Ramona Warehouse/ DPR 18-00002	High-Cube Parcel Hub Warehouse	428.730	TSF	150	150	300	189	86	275	3,323
2	Pheland Indus	General Light Industrial	81.000	TSF	50	6	56	6	45	51	402
1	Duke at Patterson/ DPR 17-00001	High-Cube Parcel Hub Warehouse	811.000	TSF	284	284	568	357	162	519	6,285
4	Harley Knox Commerce Park/ DPR 16-004	High-Cube Parcel Hub Warehouse	386.278	TSF	135	135	270	170	77	247	2,994
4	Circle Industrial III	Warehousing	211.000	TSF	27	8	35	11	30	41	367
3	Duke @Perris Blvd	High-Cube Parcel Hub Warehouse	1070.000	TSF	375	375	750	471	214	685	8,293
City of Moreno Valley Industrial Project[4]											
6	IDS	High-Cube Parcel Hub Warehouse	701.000	TSF	245	245	490	308	140	448	5,433
5	First Industrial	High-Cube Parcel Hub Warehouse	1380.000	TSF	483	483	966	607	276	883	10,695
6	Pheland Development	High-Cube Parcel Hub Warehouse	98.210	TSF	34	34	68	43	20	63	761
6	Nandina Industrial Center	High-Cube Parcel Hub Warehouse	335.970	TSF	118	118	236	148	67	215	2,604
5	Indian Street Commerce Center	High-Cube Parcel Hub Warehouse	433.920	TSF	152	152	304	191	87	278	3,363
March JPA Industrial Project[4]											
9	VIP 25	High-Cube Parcel Hub Warehouse	2219.850	TSF	777	777	1,554	977	444	1,421	17,204
Riverside County Industrial Projects[4]											
9	Majestic Freeway Business Center	General Light Industrial	6200.000	TSF	3,844	496	4,340	496	3,410	3,906	30,752
9	Oleander Business Park	High-Cube Parcel Hub Warehouse	728.650	TSF	255	255	510	321	146	467	5,647

Table 3 (3 of 4)
Other Development Trip Generation

Trips Generated											
					AM Peak Hour			PM Peak Hour			
TAZ	Other Development Project	Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
City of Perris Commerical Projects[5]											
10	Aldi Market Center	Shopping Center	27.000	TSF	16	10	26	49	53	102	1,019
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-17	-18	-35	-346
		Subtotal			16	10	26	32	35	67	673
7	March Plaza/CUP16-05165[5]	Shopping Center	47.253	TSF	27	17	44	86	94	180	1,784
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-29	-32	-61	-607
		Subtotal			27	17	44	57	62	119	1,177
10	Perris Common	Shopping Center	35.000	TSF	20	13	33	64	69	133	1,321
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-22	-23	-45	-449
		Subtotal			20	13	33	42	46	88	872
10	Perris Plaza - Build-out[5]	Shopping Center	173.000	TSF	100	62	162	317	343	660	6,531
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-108	-117	-224	-2,221
		Subtotal			100	62	162	209	226	436	4,310
10	Quick Quack Carwash	Automated Car Wash	1	Site	35	29	64	67	67	134	944
10	Arco Expansion[5]	Shopping Center	3.869	TSF	2	1	3	7	8	15	146
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-2	-3	-5	-50
		Subtotal			2	1	3	5	5	10	96
8	Cali Express Carwash/ CUP 16-05258[5]	Automated Car Wash	1	Site	35	29	64	67	67	134	944
10	Motte Town Center (MTC)	Shopping Center	484.300	TSF	281	174	455	886	959	1,845	18,282
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-301	-326	-627	-6,216
		Subtotal			281	174	455	585	633	1,218	12,066
10	Perris Venue	Shopping Center	643.000	TSF	373	231	604	1,177	1,273	2,450	24,273
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-400	-433	-833	-8,253
		Subtotal			373	231	604	777	840	1,617	16,020
10	Gas Station & Carwash	Shopping Center	7.000	TSF	4	3	7	13	14	27	264
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-4	-5	-9	-90
		Subtotal			4	3	7	9	9	18	174
10	Commerical Retail - Spectrum	Shopping Center	7.400	TSF	4	3	7	14	15	29	279
		Pass-By Trips: 0%/34%/AM+PM[6]			0	0	0	-5	-5	-10	-95
		Subtotal			4	3	7	9	10	19	184
10	Tommy's Carwash	Automated Car Wash	1	Site	35	29	64	67	67	134	944
10	Pharmacy	Pharmacy/Drugstore (With Drive-Th	15.000	TSF	31	27	58	77	77	154	1,637
8	JM Realty	Hotel	125	RM	35	24	59	39	36	75	1,045
City of Perris Residential Projects[4]											
11	DTSP Mixed Use	Multi-Family (Low-Rise)	15	DU	2	5	7	5	3	8	110
11	Pacific Ave	Multi-Family (Low-Rise)	131	DU	14	46	60	46	28	74	959
11	Faith Circle	Single-Family Detached Housing	20	DU	4	11	15	12	7	19	189
11	GVSP/Tract 36988	Single-Family Detached Housing	169	DU	32	95	127	105	63	168	1,595
11	Tract 31659	Single-Family Detached Housing	161	DU	31	90	121	100	60	160	1,520
11	Tract 32041	Single-Family Detached Housing	122	DU	23	68	91	76	45	121	1,152
11	Village Walk	Single-Family Detached Housing	129	DU	25	72	97	80	48	128	1,218
11	Tract 31912	Single-Family Detached Housing	8	DU	2	4	6	5	3	8	76
11	Senior Housing	Multi-Family (Low-Rise)	429	DU	47	150	197	150	90	240	3,140

Table 3 (4 of 4)
Other Development Trip Generation

Trips Generated											
					AM Peak Hour			PM Peak Hour			
TAZ	Other Development Project	Land Use	Quantity	Unit[2]	In	Out	Total	In	Out	Total	Daily
11	Stratford Ranch/36648	Single-Family Detached Housing	270	DU	51	151	202	167	100	267	2,549
11	Barrett Apt	Multi-Family (Low-Rise)	228	DU	25	80	105	80	48	128	1,669
11	Tract 33199	Single-Family Detached Housing	26	DU	5	15	20	16	10	26	245
11	Richland	Single-Family Detached Housing	198	DU	38	111	149	123	73	196	1,869
11	Tract 33973	Single-Family Detached Housing	384	DU	73	215	288	238	142	380	3,625
11	Tract 34260	Single-Family Detached Housing	22	DU	4	12	16	14	8	22	208
11	Tract 36797	Multi-Family (Low-Rise)	76	DU	8	27	35	27	16	43	556
11	Citrus Court	Multi-Family (Low-Rise)	111	DU	12	39	51	39	23	62	813
11	Villa Verona Apt	Multi-Family (Low-Rise)	360	DU	40	126	166	126	76	202	2,635
11	Senior Housing	Senior Adult Housing - Attached	141	DU	10	18	28	20	17	37	522
12	Stratford Ranch/Tract 36647	Single-Family Detached Housing	90	DU	17	50	67	56	33	89	850
12	GVSP/Tract 37223	Single-Family Detached Housing	235	DU	45	132	177	146	87	233	2,218
12	GVSP/Tract 37262	Single-Family Detached Housing	191	DU	36	107	143	118	71	189	1,803
12	GVSP/Tract 37716	Multi-Family (Low-Rise)	97	DU	11	34	45	34	20	54	710
12	GVSP/Tract 37722	Single-Family Detached Housing	116	DU	22	65	87	72	43	115	1,095
12	GVSP/Tract 37817	Multi-Family (Low-Rise)	228	DU	25	80	105	80	48	128	1,669
12	GVSP/Tract 37818	Multi-Family (Low-Rise)	138	DU	15	48	63	48	29	77	1,010
12	GVSP/Tract 37818	Multi-Family (Low-Rise)	236	DU	26	83	109	83	50	133	1,728
12	Graham PUD	Multi-Family (Low-Rise)	33	DU	4	12	16	12	7	19	242
12	Tract 37803	Single-Family Detached Housing	145	DU	28	81	109	90	54	144	1,369
8	Tract 38071	Single-Family Detached Housing	197	DU	37	110	147	122	73	195	1,860
Total Other Development Trips					**6,320**	**7,152**	**13,472**	**9,739**	**6,193**	**15,932**	**177,537**

Notes:

(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code

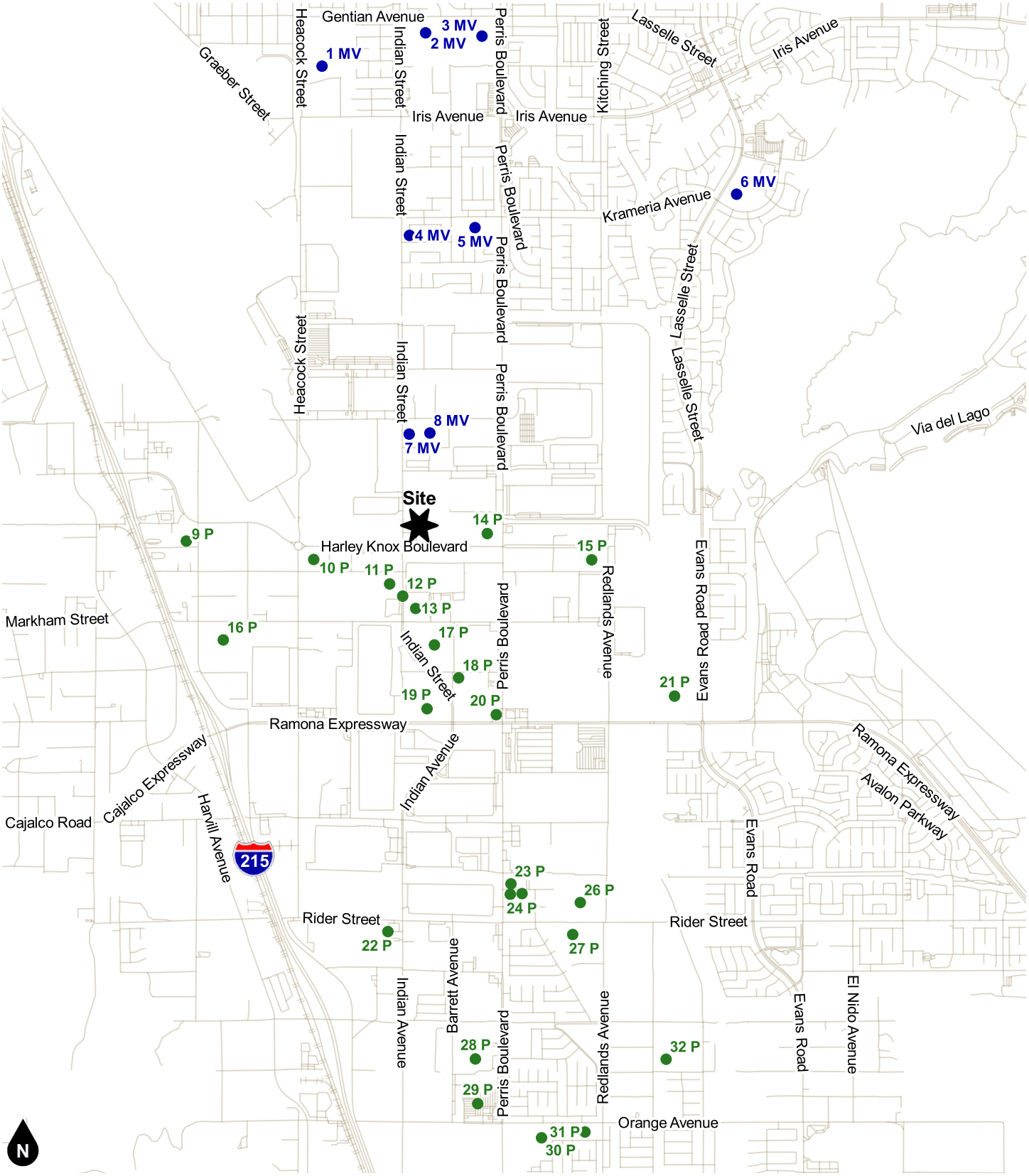
(2) DU = Dwelling Units; TSF = Thousand Square Feet; RM = Rooms

(3) Source: 3100 Florence Avenue Car Wash Project Traffic Impact Analysis (March 25, 2021), Ganddini Group Inc

(4) Sources: City of Perris Pllanning Public Documents North Perris/ South Perris Development Project April 2021. City of Perris Project Tracking Summary Matrix for Commerical, Industrial, and residential development Project May 2021. Cumulative Development Land Use Summary 13835-02 TA Scope REV, Urban

(5) Source: Walnut Avenue and Indian Avenue Industrial Project (May 28, 2020), Urban Crossroads

(6) ITE Trip Generation Handbook (3rd Edition, 2017). Pass-By peak hour trips per handbook average Pass-By trip percentages. Daily Pass-By trip is the sum of the Pass-By peak hour trips when no daily rate is available.

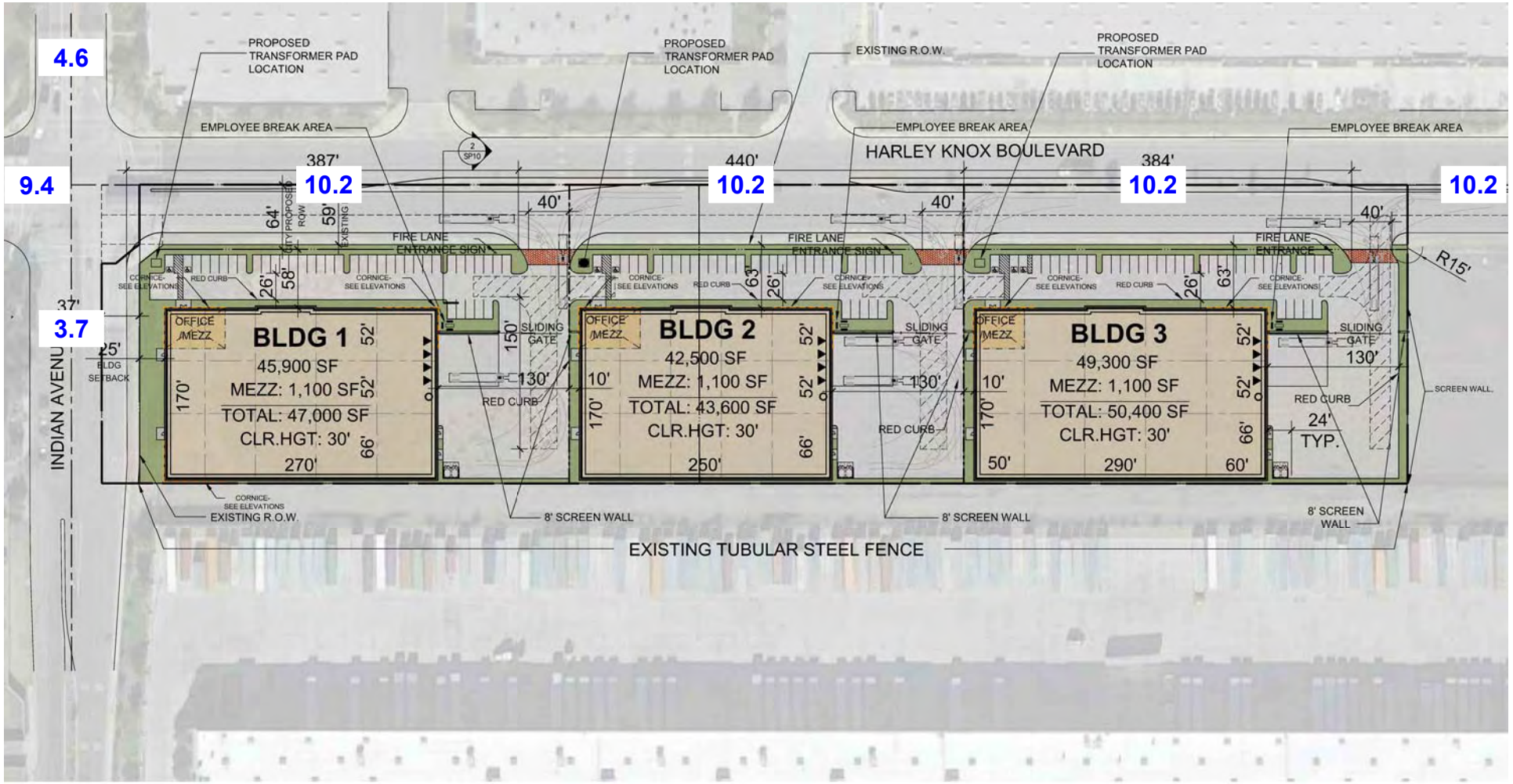


Legend

\# Other Development ID in:

- City of Moreno Valley (MV)
- City of Perris (P)

Figure 20
Other Development Location Map



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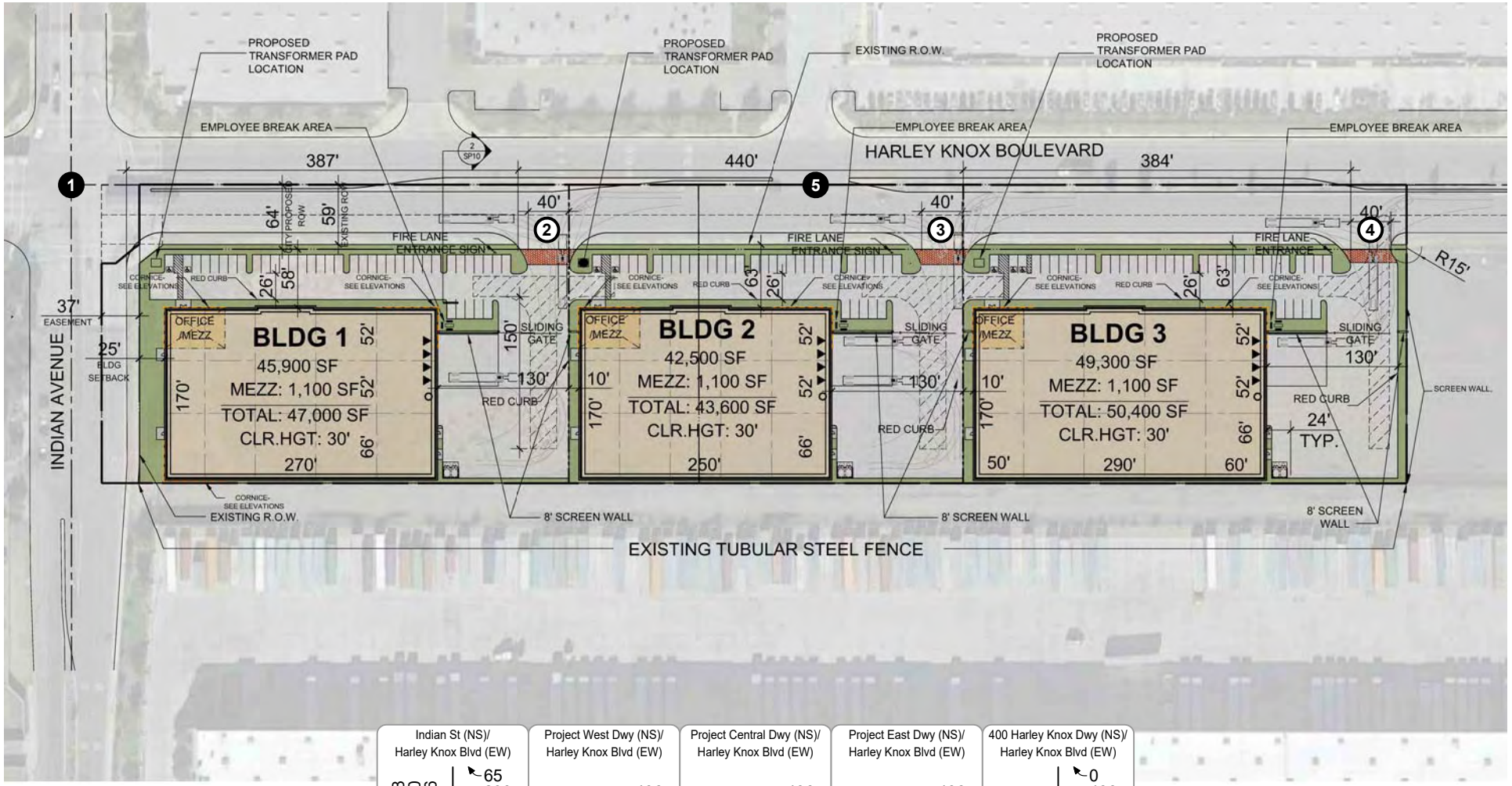
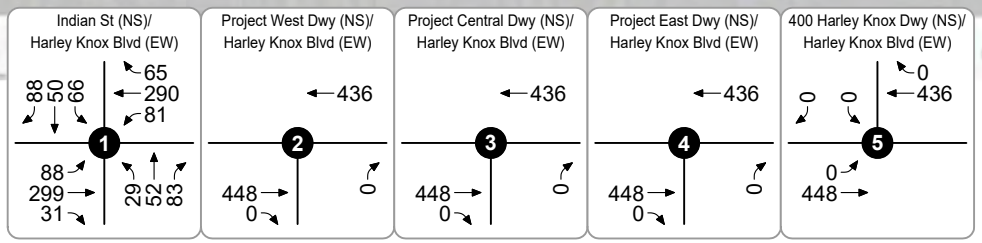
Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

Figure 21
Other Development Average Daily Traffic (ADT) Volumes



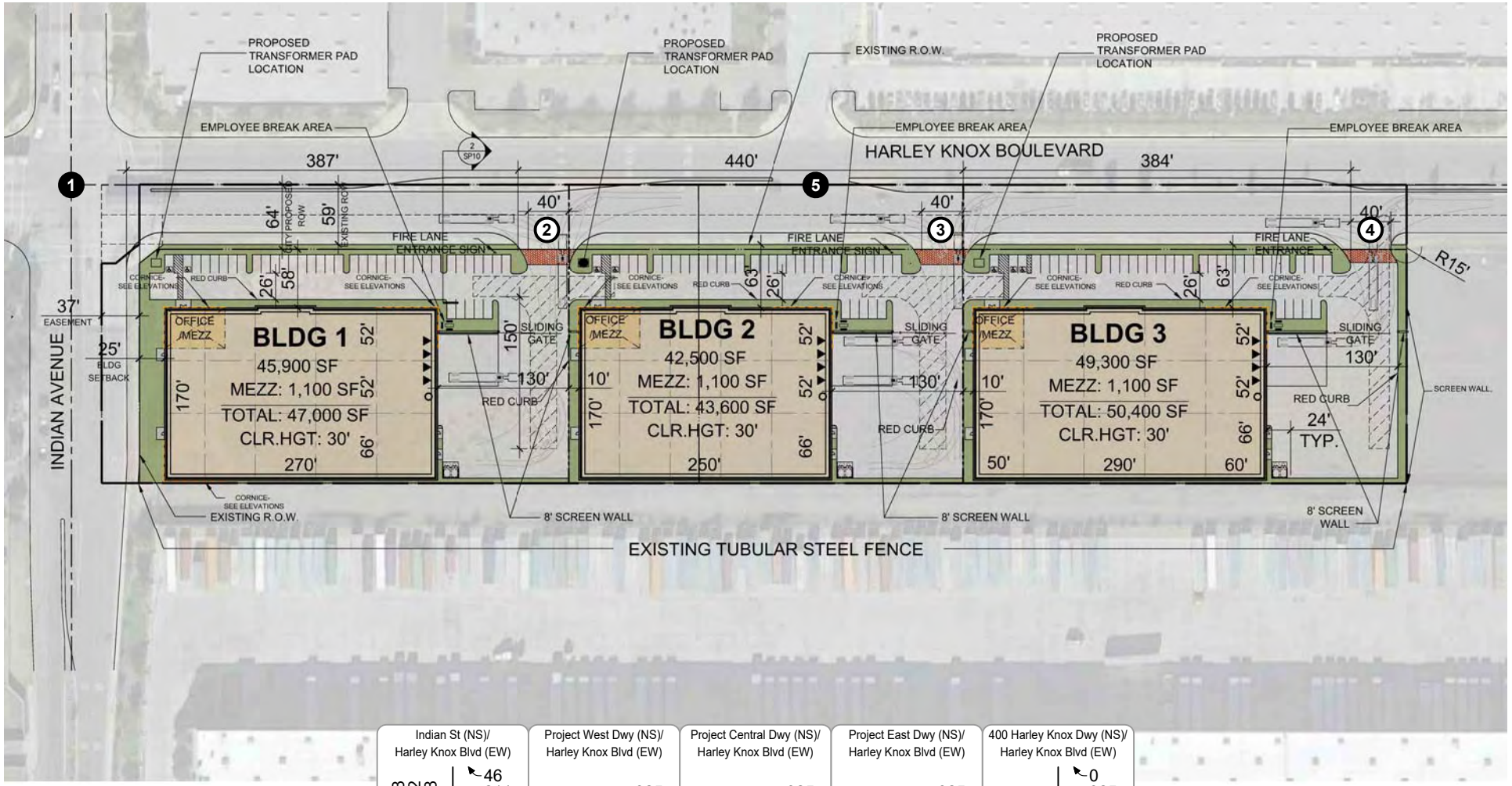


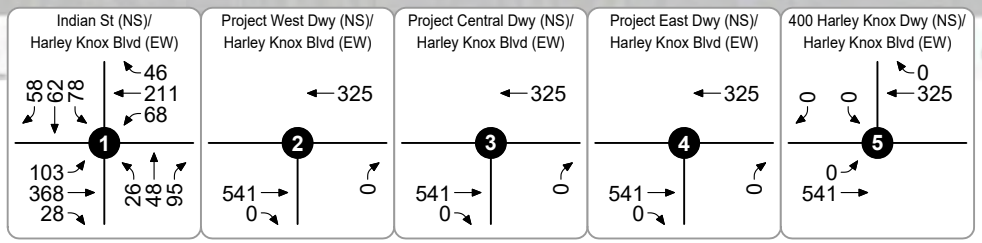
N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 22
Other Development
AM Peak Hour Intersection Turning Movement Volumes



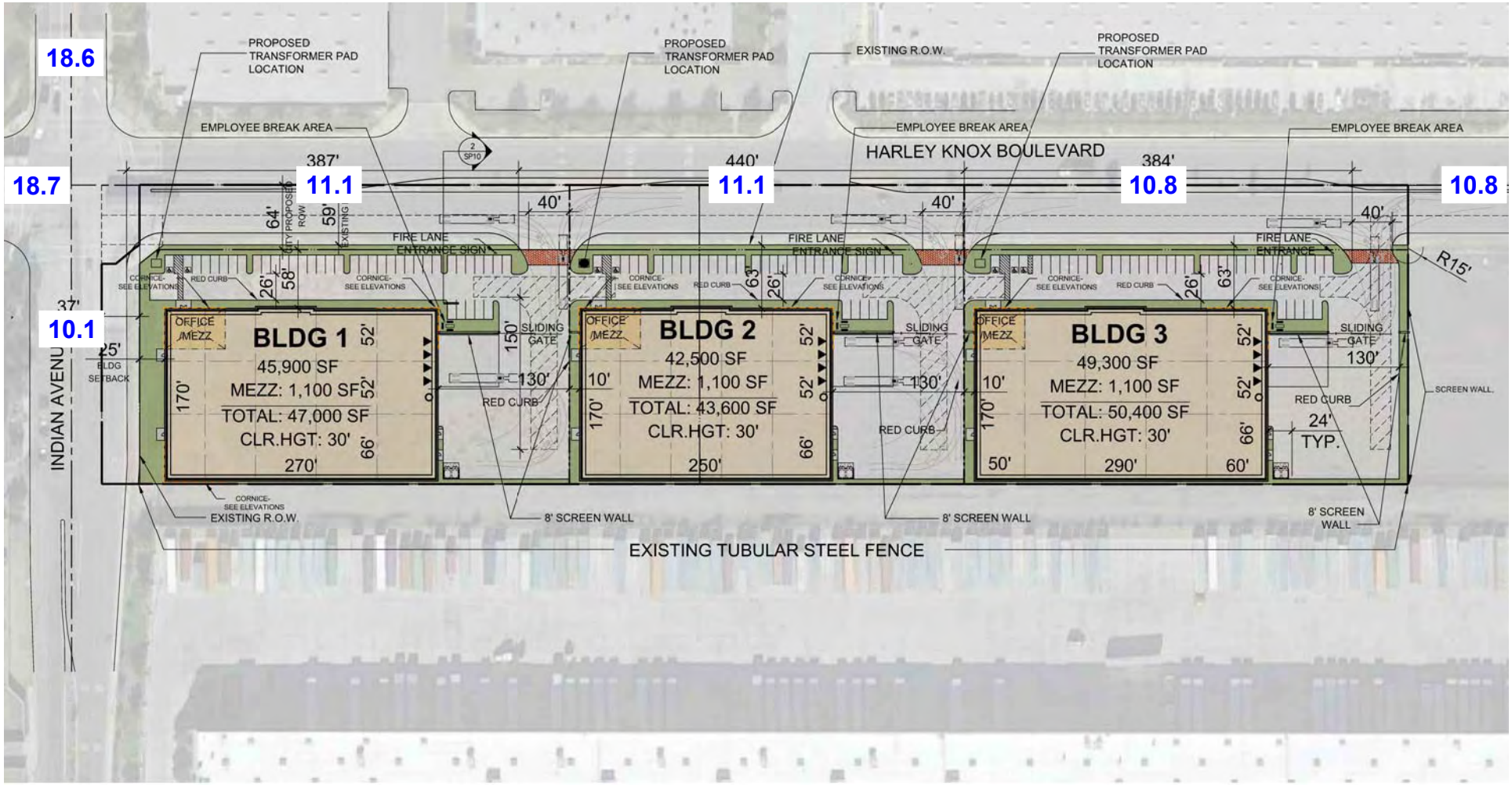


N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 23
Other Development
PM Peak Hour Intersection Turning Movement Volumes

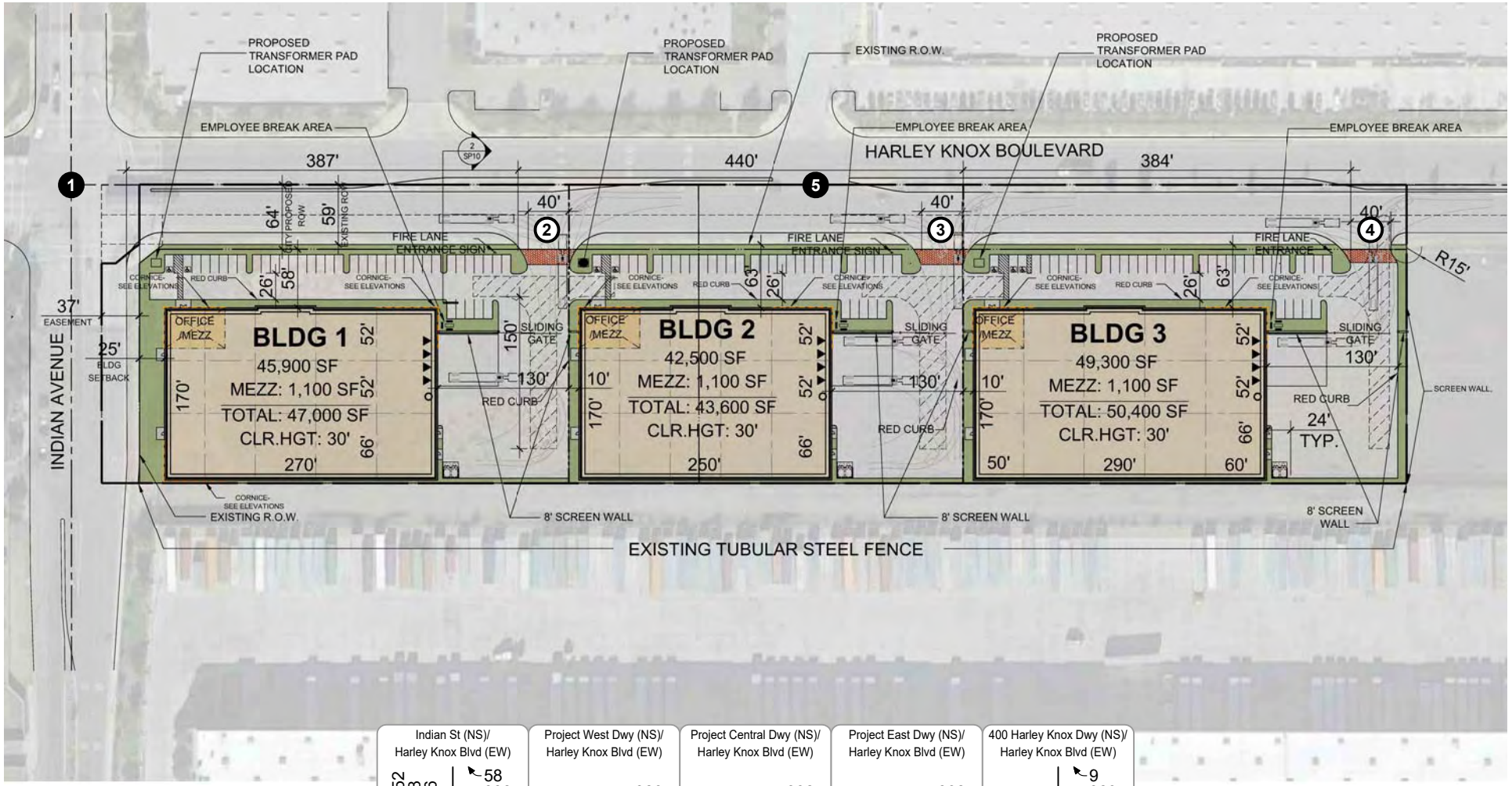


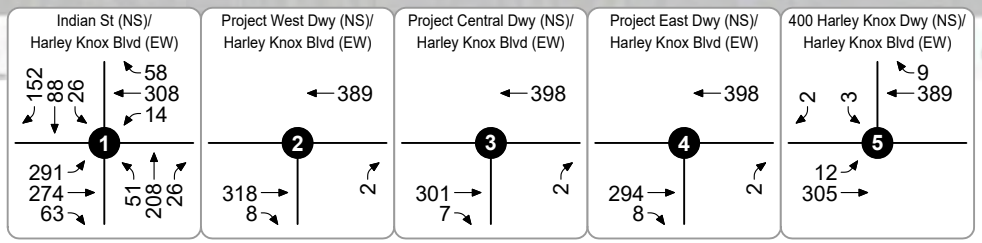
N

Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

Figure 24
Existing Plus Project Average Daily Traffic (ADT) Volumes



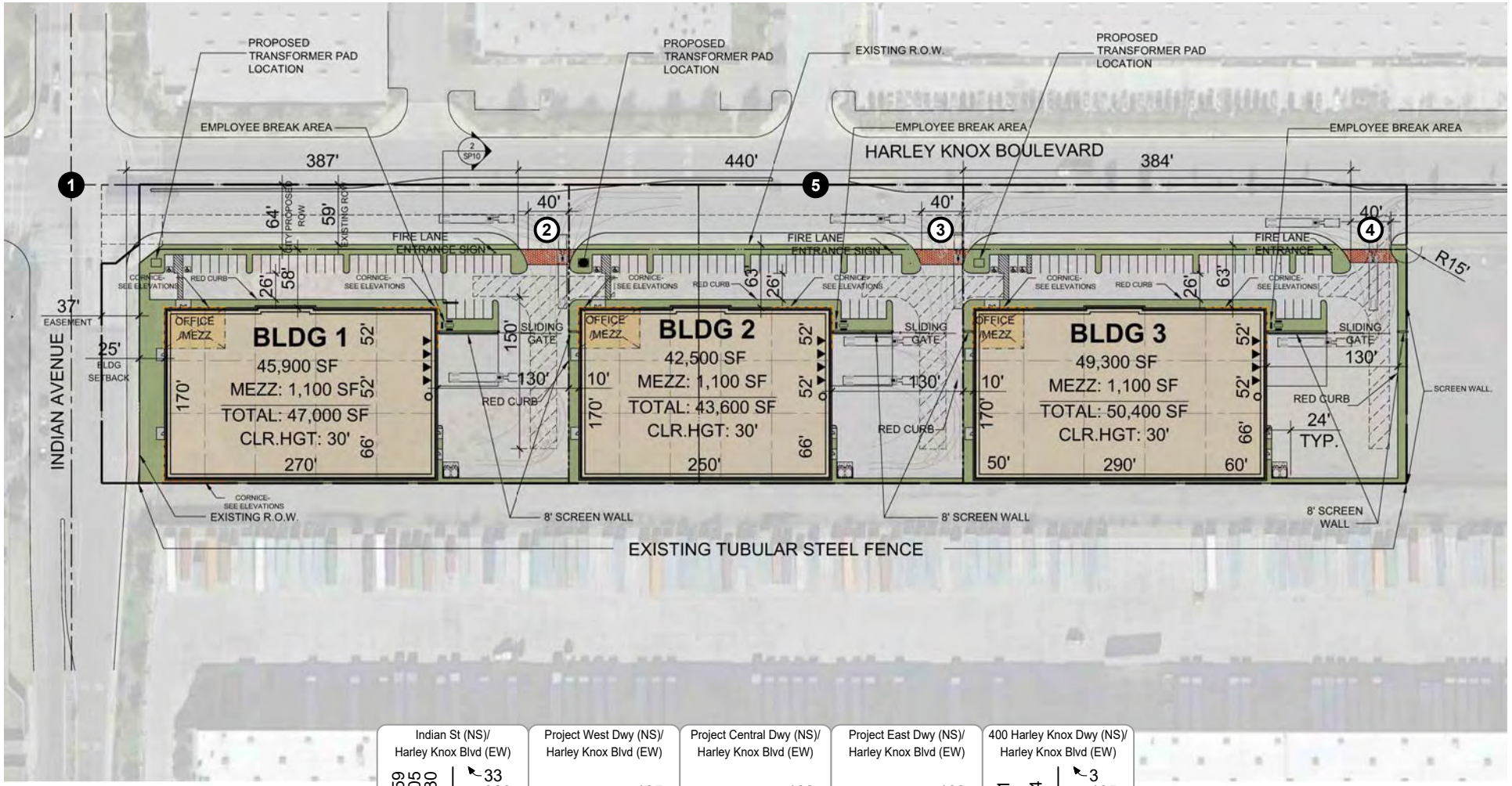


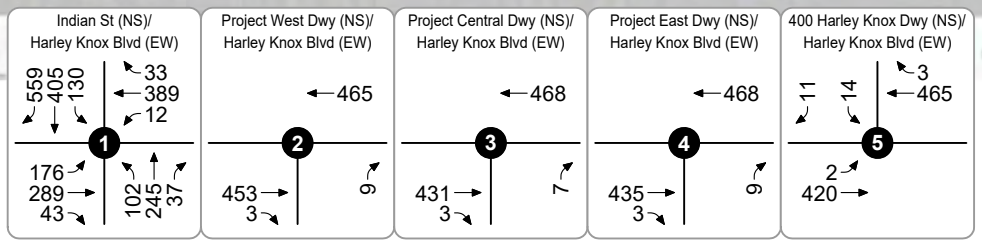
N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 25
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



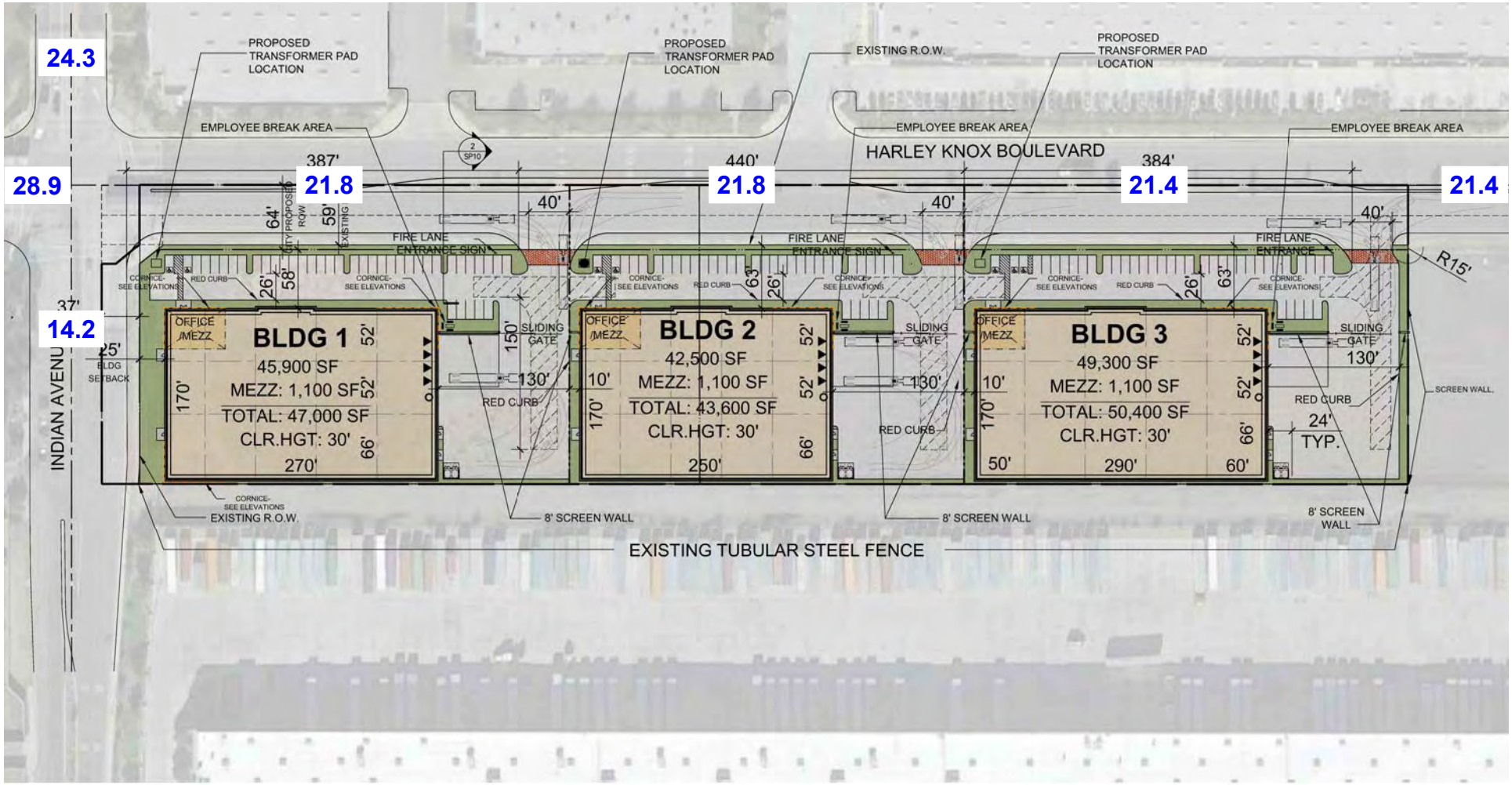


N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

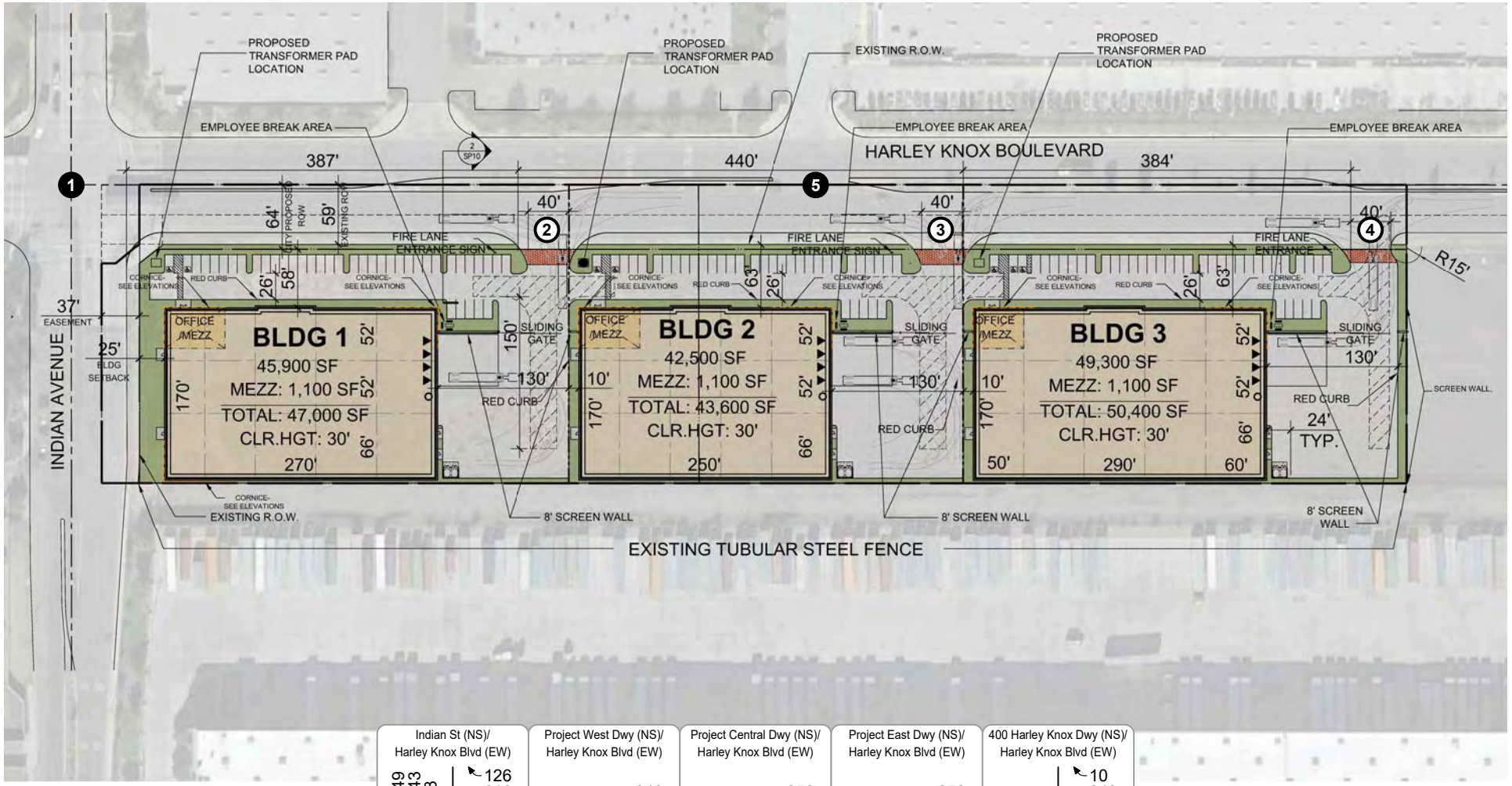
Figure 26
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes

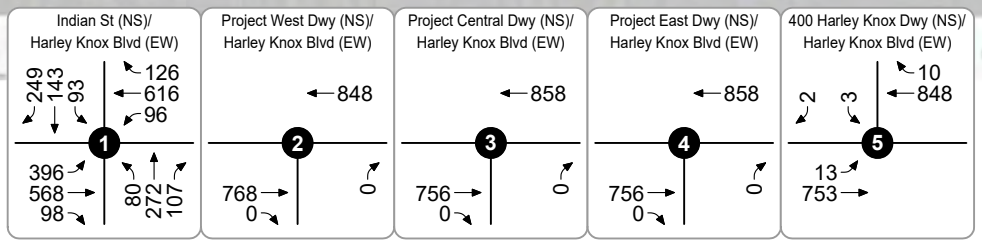


Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

Figure 27
Opening Year (2023) Without Project
Average Daily Traffic (ADT) Volumes



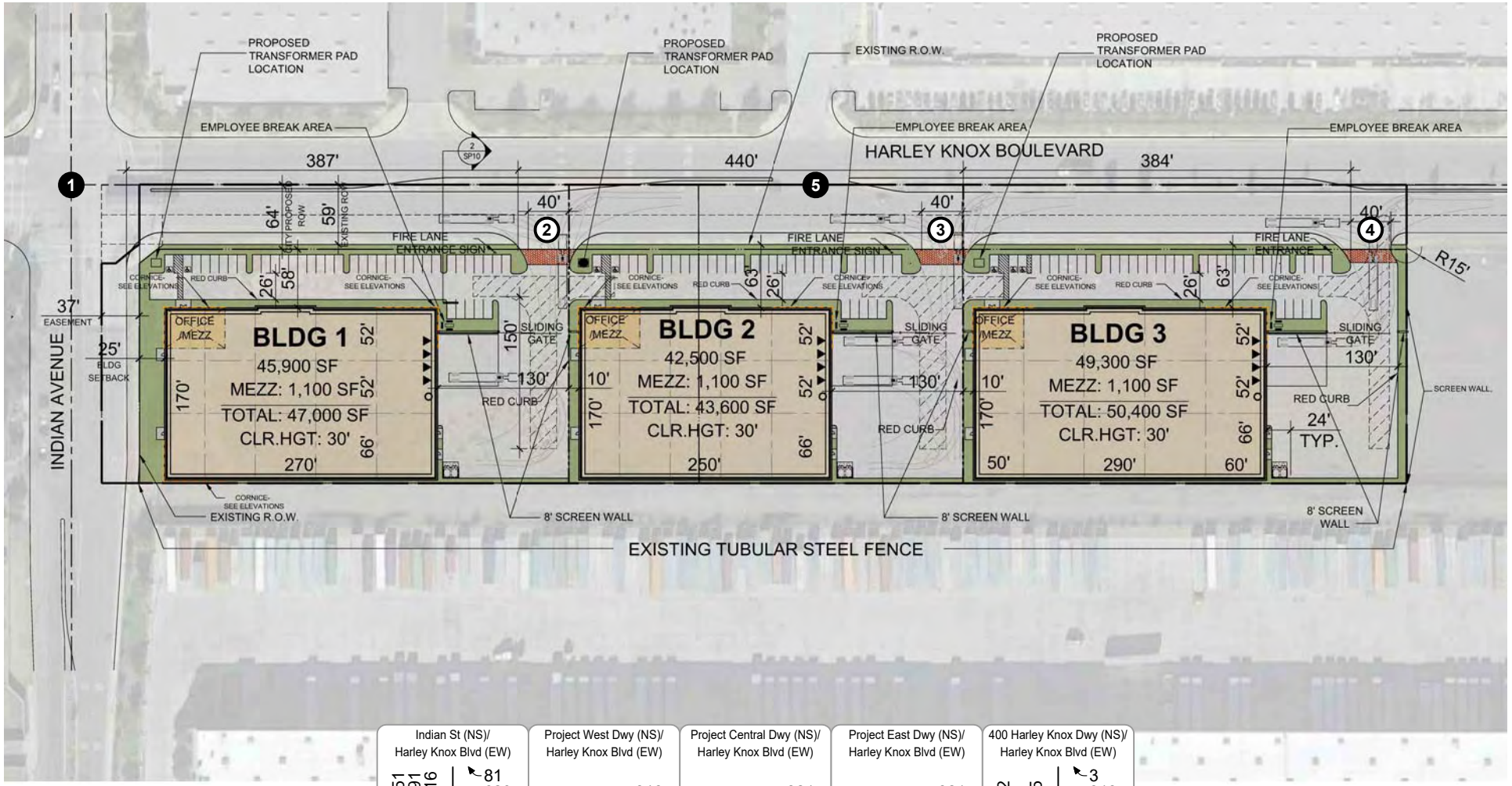


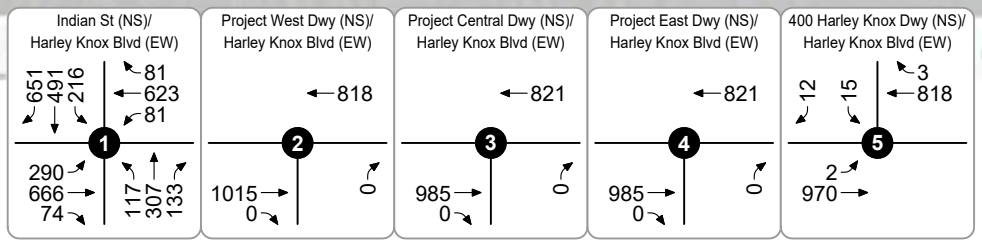
N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 28
Opening Year (2023) Without Project
AM Peak Hour Intersection Turning Movement Volumes



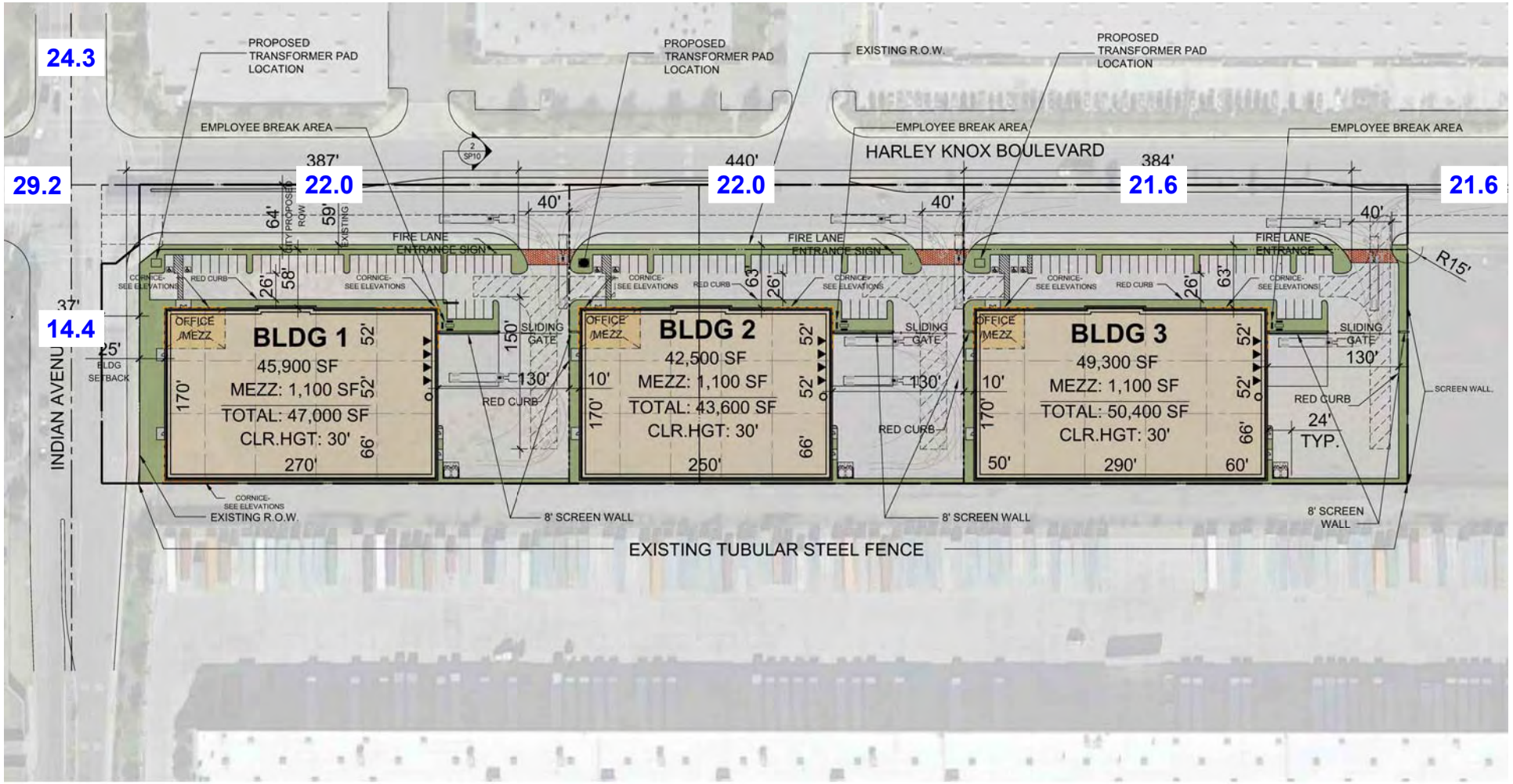


N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 29
Opening Year (2023) Without Project
PM Peak Hour Intersection Turning Movement Volumes

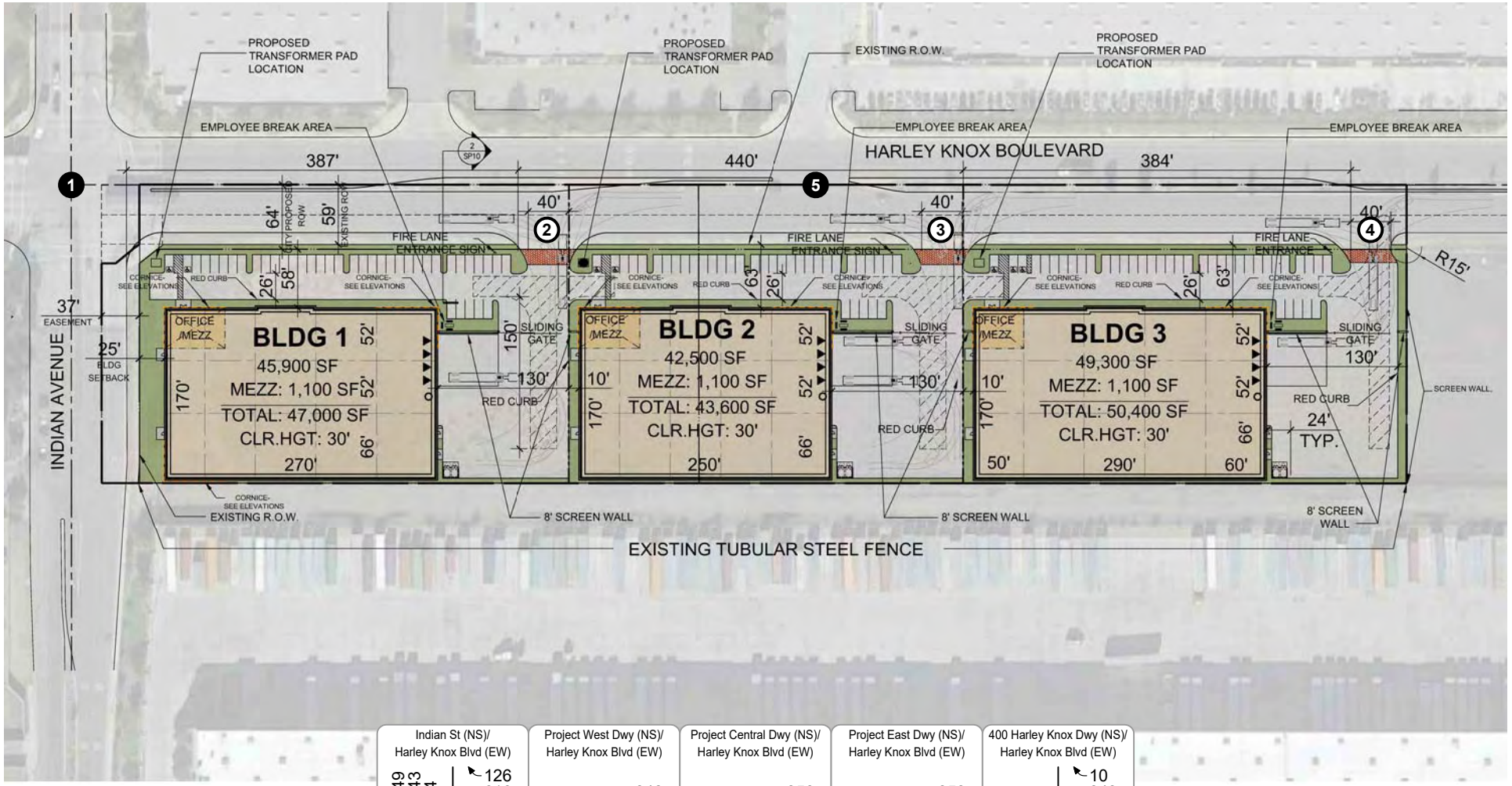


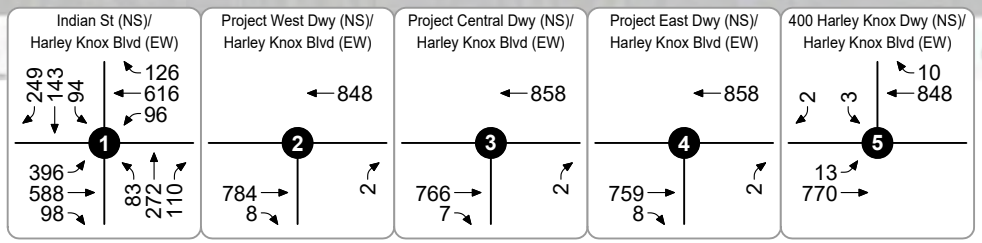
N

Legend

●## Vehicles Per Day (1,000's) in PCE (Passenger Car Equivalent)

Figure 30
Opening Year (2023) With Project
Average Daily Traffic (ADT) Volumes



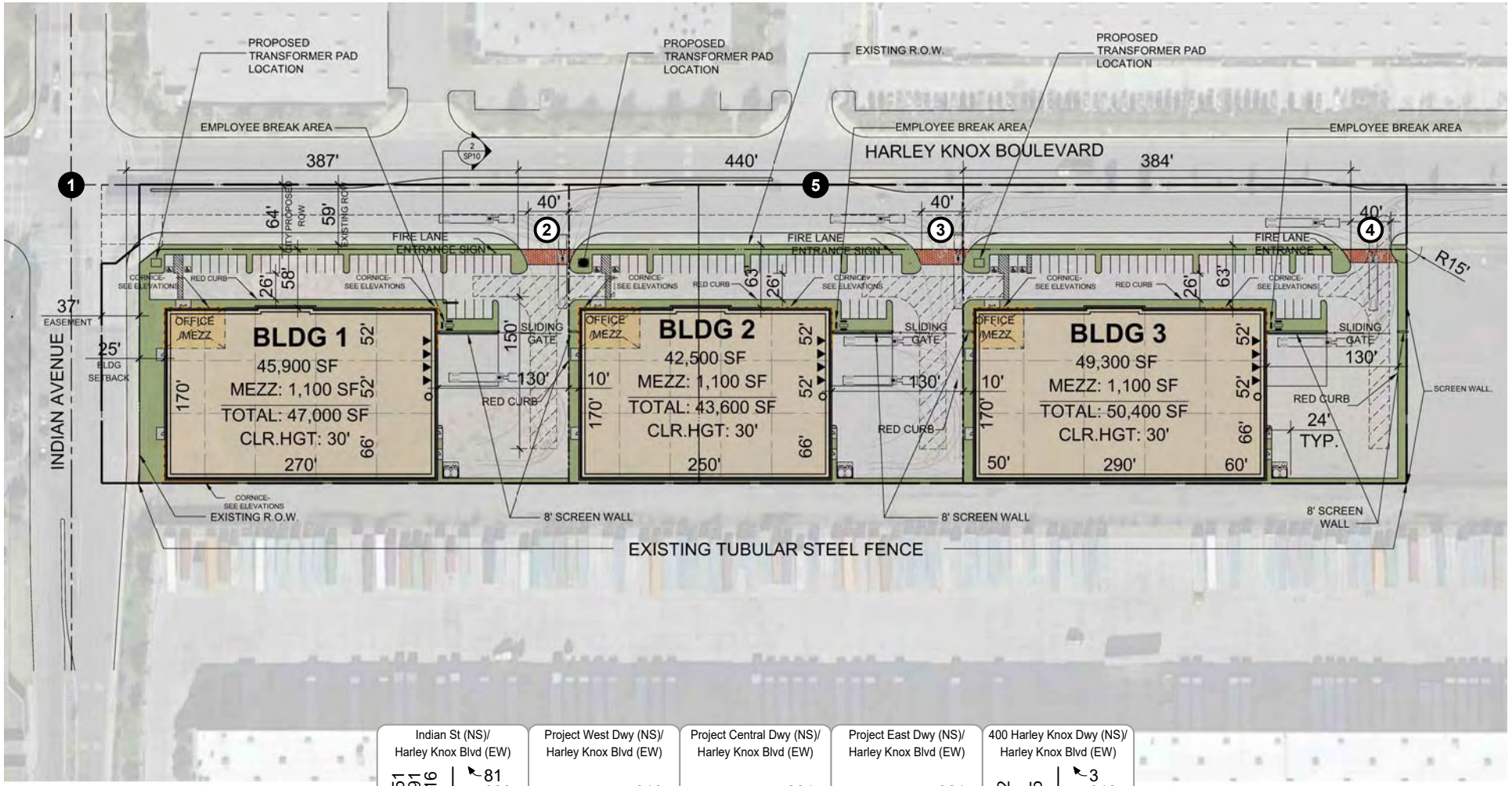


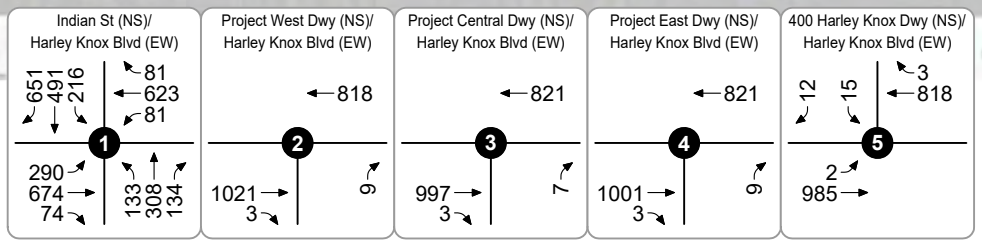
N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 31
Opening Year (2023) With Project
AM Peak Hour Intersection Turning Movement Volumes





N

Legend

- # Study Intersection
- (#) Project Driveway
- ## Traffic Volumes in PCE (Passenger Car Equivalent)

Figure 32
Opening Year (2023) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE OPERATIONAL ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

EXISTING PLUS PROJECT

The intersection Levels of Service for Existing Plus Project conditions are shown in Table 4. As shown in Table 4, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions. Therefore, the proposed project is forecast to result in no substantial operational deficiencies at the study intersections for Existing Plus Project conditions and no off-site improvements or corrective measures are recommended.

OPENING YEAR (2023) WITHOUT PROJECT

The intersection Levels of Service for Opening Year (2023) Without Project conditions are shown in Table 5. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2023) Without Project conditions.

OPENING YEAR (2023) WITH PROJECT

The intersection Levels of Service for Opening Year (2023) With Project conditions are shown in Table 6. As shown in Table 6, the study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2023) With Project conditions. Therefore, the proposed project is forecast to result in no substantial operational deficiencies at the study intersections for Opening Year (2023) With Project conditions and no off-site improvements or corrective measures are recommended.

Table 4
Existing Plus Project Intersection Levels of Service

Study Intersection	Traffic Control[1]	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Project Change	Deficient LOS?	Without Project		With Project		Project Change	Deficient LOS?
		Delay[2]	LOS[3]	Delay[2]	LOS[3]			Delay[2]	LOS[3]	Delay[2]	LOS[3]		
1. Indian St at Harley Knox Blvd	TS	31.15	C	33.16	C	+2.01	No	35.64	D	35.87	D	+0.23	No
2. Project West Dwy at Harley Knox Blvd	CSS	0.00	A	10.04	B	+10.04	No	0.00	A	10.63	B	+10.63	No
3. Project Central Dwy at Harley Knox Blvd	CSS	0.00	A	9.97	A	+9.97	No	0.00	A	10.52	B	+10.52	No
4. Project East Dwy at Harley Knox Blvd	CSS	0.00	A	9.94	A	+9.94	No	0.00	A	10.55	B	+10.55	No
5. 400 Harley Knox Blvd Dwy at Harley Knox Blvd	CSS	11.66	B	11.70	B	+0.04	No	12.28	B	12.32	B	+0.04	No

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst approach.

(3) LOS = Level of Service

Table 5
Opening Year (2023) Without Project Intersection Levels of Service

Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
		Delay[2]	LOS[3]	Delay[2]	LOS[3]
1. Indian St at Harley Knox Blvd	TS	38.0	D	50.8	D
2. Project West Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
3. Project Central Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
4. Project East Dwy at Harley Knox Blvd	CSS	0.0	A	0.0	A
5. 400 Harley Knox Blvd Dwy at Harley Knox Blvd	CSS	18.7	C	18.4	C

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst approach.

(3) LOS = Level of Service

Table 6
Opening Year (2023) With Project Intersection Levels of Service

Study Intersection	Traffic Control[1]	AM Peak Hour						PM Peak Hour					
		Without Project		With Project		Project Change	Deficient LOS?	Without Project		With Project		Project Change	Deficient LOS?
		Delay[2]	LOS[3]	Delay[2]	LOS[3]			Delay[2]	LOS[3]	Delay[2]	LOS[3]		
1. Indian St at Harley Knox Blvd	TS	38.01	D	39.94	D	+1.93	No	50.84	D	51.01	D	+0.17	No
2. Project West Dwy at Harley Knox Blvd	CSS	0.00	A	12.23	B	+12.23	No	0.00	A	13.83	B	+13.83	No
3. Project Central Dwy at Harley Knox Blvd	CSS	0.00	A	12.12	B	+12.12	No	0.00	A	13.61	B	+13.61	No
4. Project East Dwy at Harley Knox Blvd	CSS	0.00	A	12.09	B	+12.09	No	0.00	A	13.69	B	+13.69	No
5. 400 Harley Knox Blvd Dwy at Harley Knox Blvd	CSS	18.70	C	18.79	C	+0.09	No	18.35	C	18.42	C	+0.07	No

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds/vehicle. For intersections with traffic signal, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst approach.

(3) LOS = Level of Service

7. SITE ACCESS AND CIRCULATION

This section includes a description of project improvements necessary to provide site access and an evaluation of site access and circulation.

PROJECT DESIGN FEATURES

As previously noted, this analysis assumes the following improvements will be constructed by the project to provide project site access:

- Project West Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #2]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

- Project Central Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #3]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

- Project East Driveway (NS) at Harley Knox Boulevard (EW) [Study Intersection #4]
  - Construct one inbound lane and one outbound lane with a northbound stop-control
  - Northbound: one right turn lane
  - Eastbound: two through lanes and one shared through/right turn lane
  - Westbound: three through lanes

Dedicated right turn deceleration lanes at the three project driveways on Harley Knox Boulevard are not anticipated to be necessary, since both project driveways are expected to operate at acceptable Levels of Service during the peak hours for all analyzed scenarios. Shared through/right turn lanes at both project driveways on Harley Knox Boulevard are anticipated to provide adequate ingress.

This analysis also assumes the project shall comply with the following conditions as part of the City of Perris standard development review process:

- A construction work site traffic control plan shall comply with State standards set forth in the California Manual of Uniform Traffic Control Devices and shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

- All on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable State/Federal engineering standards and to the satisfaction of the City of Perris.

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Perris.

- Adequate emergency vehicle access shall be provided to the satisfaction of the Riverside County Fire Authority.

- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance requirements are met in accordance with applicable City of Perris/California Department of Transportation sight distance standards.

TRUCK ACCESS POINTS AND TURNING TEMPLATES

The project site plan (see Figure 2) shows the truck turning templates for both inbound and outbound movements for driveways where trucks are expected to enter and exit the site. All three proposed project driveways are expected to be used by trucks. The project applicant provided the truck turning templates superimposed onto the site plan.

DRIVEWAY SPACING

Even though the three proposed driveways on Harley Knox Boulevard do not meet the standard driveway spacing criteria of the Perris Valley commerce Center Specific Plan, the proposed driveway design is appropriate based on physical site constraints and existing roadway conditions. Harley Knox Boulevard is classified as an Arterial in the City of Perris General Plan Circulation Element and the Perris Valley Commerce Center Specific Plan states that the appropriate driveway spacing for an Arterial is 1,320 feet. As shown on the site plan, the driveway spacing for Project West Driveway will be 387 feet east of Indian Avenue, Project Center Driveway will be 360 feet east of Project West Driveway, and Project East Driveway will be 384 feet east of Project Center Driveway. Since the project site has a boundary length of only 1,251 feet along Harley Knox Boulevard, the project access driveways cannot meet the standard driveway spacing criteria of 1,320 feet due to the physical constraints of the project site. Furthermore, since all three project driveways will be limited right-in/right-out only access driveways and Harley Knox Boulevard has a raised center median, it is appropriate that proposed project driveway spacing deviates from the standard driveway spacing criteria of the Perris Valley Commerce Center Specific Plan. It should also be noted that the two existing driveways on the north side of Harley Knox Boulevard also do not meet the standard driveway criteria of 1,320 feet.

The three new project driveways are proposed to be aligned where it will not conflict with the existing turning movements of the two existing driveways on the north side of Harley Knox Boulevard. The proposed Project West Driveway [Intersection #2] will be located 387 feet east of Indian Avenue and it will align with the existing driveway located on the north side of Harley Knox Boulevard. The proposed Project Center Driveway [Intersection #3] will be located 387 feet east of Project West Driveway [Intersection #2], or 787 feet east of Indian Avenue [Intersection #1], and it will align with the existing driveway located on the north side of Harley Knox Boulevard which has an existing eastbound left turn pocket so that it will not conflict with their existing turning movements. The proposed Project East Driveway [Intersection #4] will be located 384 feet east of Project Center Driveway [Intersection #3] or 1,211 feet east of Indian Avenue [Intersection #1], which will be the one with the most driveway spacing available.

The applicant had discussed with the City's Planning Department regarding the project's need for three project driveways on Harley Knox Boulevard. It is our understanding that the City's Planning Department has reviewed the site plan and has concurred with design of three project driveways for the proposed project. Appendix B (approve scoping) includes correspondence with the City regarding the driveway design.

8. VEHICLES MILES TRAVELED (VMT)

BACKGROUND

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, recommend the use of Vehicle Miles Travelled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. All agencies and projects State-wide are required to utilize the updated CEQA guidelines recommending use of VMT for evaluating transportation impacts as of July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (State of California, December 2018) ["OPR Technical Advisory"] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

VMT ASSESSMENT AND SCREENING

The project VMT impact has been assessed in accordance with guidance from the *City of Perris Transportation Impact Analysis Guidelines for CEQA* (May 12, 2020) ["the City TIA Guidelines"]. The City TIA Guidelines provide a framework for "screening thresholds" for when a project is expected to cause a less than significant impact without conducting a detailed VMT study.

The project requirements for evaluation of transportation impacts under CEQA was assessed using the City of Perris VMT Scoping Form for Land Use Projects as appended to the City of Perris TIA Guidelines and included in Appendix B of this report.

As shown in the project scoping form, the project satisfies VMT screening criteria E because the project's net daily trips is less than 500 average daily trips (ADT). As shown in Table 2, the project is anticipated to generate 347 daily PCE trips. Therefore, the proposed project is presumed to have a less than significant impact on VMT since it satisfies one or more of the VMT screening criteria established by the City of Perris (projects generating less than 500 ADT). No additional VMT modeling or mitigation measures are required.

9. CONCLUSIONS

This section summarizes the findings and recommended improvements or mitigation measures (if any) identified in previous sections of this study.

PROJECT TRIP GENERATION

The proposed project is forecast to generate approximately 245 daily vehicle trips, including 24 vehicle trips during the AM peak hour and 27 vehicle trips during the PM peak hour. The proposed project is forecast to generate approximately 347 daily PCE trips, including 29 PCE trips during the AM peak hour and 34 PCE trips during the PM peak hour.

LEVELS OF SERVICE/OPERATIONAL ANALYSIS FINDINGS (NON-CEQA)

The study intersections are forecast to operate within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions. Therefore, the proposed project is forecast to result in no substantial operational deficiencies at the study intersections for Existing Plus Project conditions and no off-site improvements or corrective measures are recommended.

The study intersections are projected to operate within acceptable Levels of Service (D or better) during the peak hours for Opening Year (2023) With Project conditions. Therefore, the proposed project is forecast to result in no substantial operational deficiencies at the study intersections for Opening Year (2023) With Project conditions and no off-site improvements or corrective measures are recommended.

VMT ANALYSIS FINDINGS (CEQA)

The proposed project is presumed to have a less than significant impact on VMT since it satisfies one or more of the VMT screening criteria established by the City of Perris (projects generating less than 500 ADT). No additional VMT modeling or mitigation measures are required.

APPENDICES

Appendix A Glossary
Appendix B Scoping Agreement
Appendix C Volume Count Worksheets
Appendix D Level of Service Worksheets

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

SCOPING AGREEMENT

TRAFFIC STUDY SCOPING

TO: Candida Neal, Interim Development Services Director | CITY OF PERRIS

FROM: Tom Huang, Senior Traffic Engineer | GANDDINI GROUP, INC.

DATE: July 15, 2021

SUBJECT: Harley Knox Boulevard at Indian Avenue Industrial Warehouse Project Traffic Study Scoping 20-00019

INTRODUCTION

The purpose of this traffic study scoping document is to outline the proposed traffic analysis parameters and assumptions for review/concurrence by City of Perris staff.

PROJECT DESCRIPTION

Figure 1 shows the project location map. The project site is located south of Harley Knox Boulevard and east of Indian Avenue in the City of Perris.

The site plan is show in Appendix A. The 8.69 acre project site is proposed to include 3 industrial warehouse buildings with a total of 141,000 square feet of warehousing building area. The proposed project is anticipated to be constructed and fully operational by year 2023.

The project site is proposed to provide 3 access driveways on Harley Know Boulevard. Project West Driveway (Driveway #1) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project Central Driveway (Driveway #2) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard. Project East Driveway (Driveway #3) is proposed to be a stop-controlled right-in/right-out only access driveway on Harley Knox Boulevard.

VMT SCOPING FORM

Appendix B shows the City of Perris VMT Scoping Form for Land Use Project based on the City of Perris TIA Guidelines, dated May 12, 2020. The project is presumed to have a less than significant impact on VMT because the project satisfies at least one (1) of the VMT screening criteria. As shown in Appendix B, the project satisfies VMT screening criteria E because the project's net daily trips is less than 500 ADT. As shown in Table 1, the project is anticipated to generate 347 daily PCE trips.

PROJECT TRIP GENERATION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). ITE land use code 150 (Warehousing) has been used to estimate the site specific trip generation estimates for up to 141,000 square feet of industrial warehouse use.

The project vehicle trips are converted to Passenger Car Equivalent (PCE) trips based on truck rates (as a percentage of a total vehicle trips) from the ITE Trip Generation Manual Supplement (10th Edition, 2020) and truck axle mix data recommended by the South Coast Air Quality Management District (SCAQMD). As shown in Table 1, the proposed project is forecast to generate approximately 347 daily PCE trips, including 29 PCE trips during the AM peak hour and 34 PCE trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION

Figure 2 and Figure 3 illustrate the forecast outbound and inbound directional distribution patterns of project-generated trips for passenger cars.

Figures 4 and 5 shows the outbound and inbound trip distribution patterns for truck traffic. The outbound truck traffic will make a loop maneuver around the block using Perris Boulevard, Markham Street and Indian Avenue to get back on Harley Knox Boulevard to travel westbound to utilize the I-215 Interchange at Harley Knox Boulevard. As shown in Figure 4, the truck traffic will exit the project site to go eastbound on Harley Knox Boulevard, turning right on Perris Boulevard to go southbound, turning right on Markham Street to go westbound, turning right on Indian Avenue to go northbound, and then turning left on Harley Knox Boulevard to travel to westbound to reach the I-215 Interchange at Harley Knox Boulevard. Harley Knox Boulevard (Major Arterial), Perris Boulevard (Major Arterial) and Indian Avenue (Major Arterial) are designed as truck routes on the City's Circulation Element. Markham Street is designated as a Secondary Arterial with several developments with truck access on the roadway.

STUDY AREA

Based on the City of Perris TIA Guidelines for CEQA (May 12, 2020), a TIS (Traffic Impact Study) for LOS (Level of Service) evaluation is required for projects which exceed 500 daily trips or 50 peak hour trip for project approval purposes. Since the project is anticipated to generate less than 500 daily trips and also less than 50 peak hour trips, a full TIA (Traffic Impact Analysis) is not required. A traffic study should be prepared to review access, on-site circulation and parking. Appendix C includes the City of Perris Level of Service Standards and Significance Criteria.

Intersections identified for analysis typically include signalized intersections at which a project is forecast to contribute 50 or more trips during the AM or PM peak hours. The study area is proposed to consist of the following four (4) study intersections, even if the project may not contribute 50 or more trips during either the AM or PM peak hours, but are the adjacent or primary intersections impacted by the proposed project.

Study Intersections (Figure 1)

1. Indian Avenue (NS) at Harley Knox Boulevard (EW)
2. Project West Driveway (NS) at Harley Knox Boulevard (EW)
3. Project Central Driveway (NS) at Harley Knox Boulevard (EW)
4. Project East Driveway (NS) at Harley Knox Boulevard (EW)
5. 400 Harley Knox Boulevard Driveway (NS) at Harley Knox Boulevard (EW)

TRAFFIC COUNTS

Intersection turning movement counts will be used at the study intersections during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday).

ANALYSIS SCENARIOS

The traffic study shall evaluate the following analysis scenarios for weekday AM and PM peak hour conditions:

- Existing [2021]
- Existing Plus Project (2021)
- Opening Year without Project (2023)
- Opening Year with Project (2023)

FORECASTING METHODOLOGY

Ambient Growth Rate

To account for area-wide ambient growth, the Opening Year 2023 will included a 3% annual growth for 2 years (total growth factor = 1.06) over the 2021 base volumes. The 3% annual growth rate is consistent to other traffic studies conducted in the area.

Other Cumulative Projects

A list of pending and approved cumulative development projects has been obtained from the City of Perris staff (see Appendix D). Trip forecasts for other development projects within the project study area will be determined based on the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017 and will be added to existing roadway volumes for the applicable analysis scenarios. Table 2 shows the other development trip generation.

SPECIAL ISSUES

Truck Turning Templates

The site plan shows the truck turning templates for both inbound and outbound movements for driveways where trucks are expected to enter and exit the site. All 3 proposed project driveways are expected to be used by trucks.

Driveway Spacing Criteria

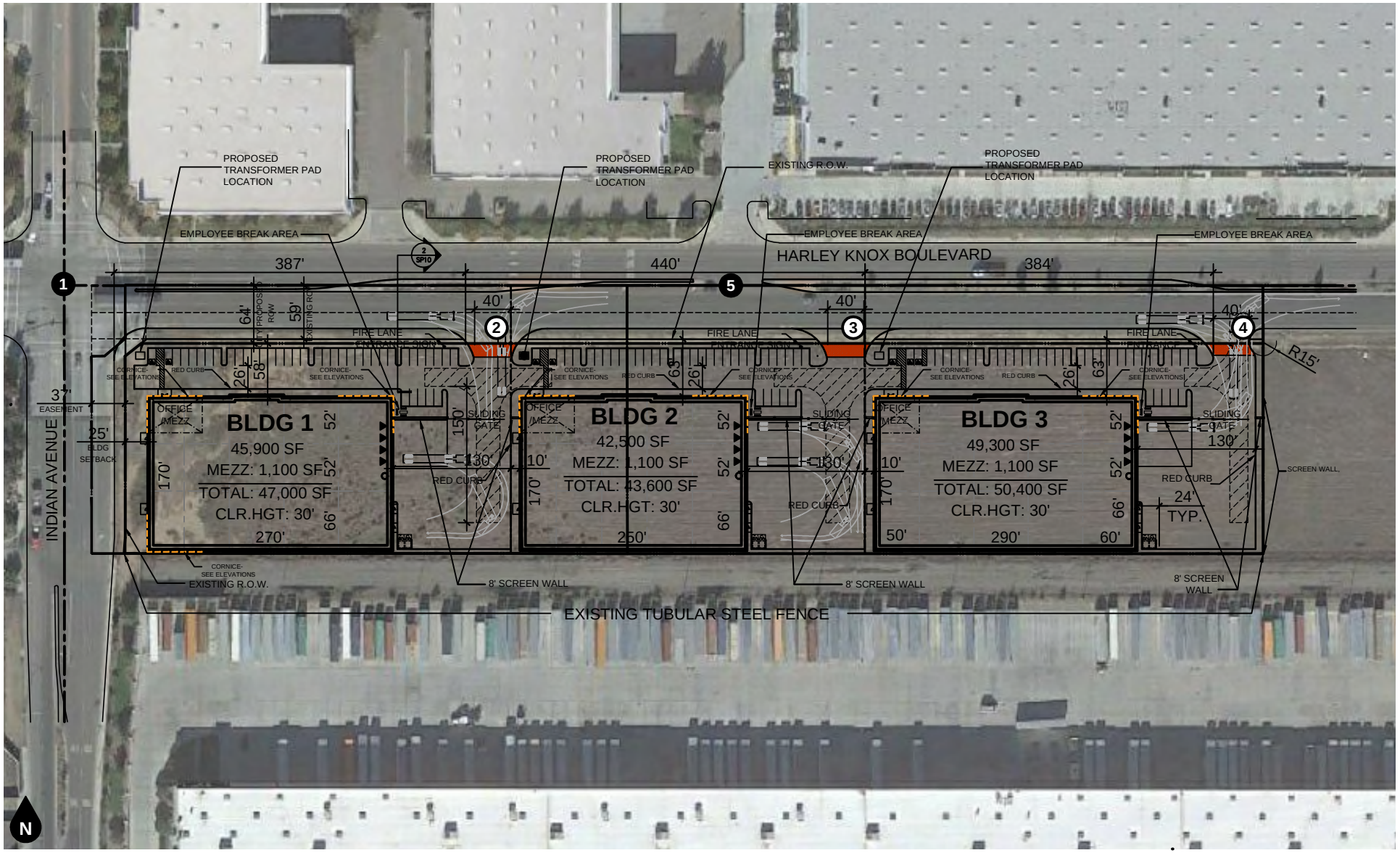
Even though the 3 proposed driveways on Harley Knox Boulevard do not meet the standard driveway spacing criteria of the Perris Valley commerce Center Specific Plan, the proposed driveway design is appropriate based on site physical constraint and existing roadway conditions. Harley Knox Boulevard is classified as an Arterial in the City of Perris General Plan Circulation Element, and the Perris Valley commerce Center Specific Plan states that the appropriate driveway spacing for an Arterial is 1,320 feet. As shown on the site plan, the driveway spacing for Project West Driveway will be 387 feet east of Indian Avenue, Project Center Driveway will be 360 feet east of Project West Driveway, and Project East Driveway will be 384 feet east of Project Center Driveway. Since the project site has a boundary length of only 1,251 feet along Harley Knox Boulevard, the project access driveways cannot meet the standard driveway spacing criteria of 1,320 feet due to the physical constraint of the project site. Furthermore, since all 3 project driveways will be limited right-in/right-out only access driveways and Harley Knox Boulevard has a raised center median, it is appropriate that proposed project driveway spacing deviates from the standard driveway spacing criteria of the Perris Valley commerce Center Specific Plan. It should also be noted that the two existing driveways on the north side of Harley Knox Boulevard also do not meet the standard driveway criteria of 1,320 feet.

The 3 new project driveways are proposed to be aligned where it will not conflict with the existing turning movements of the two existing driveways on the north side of Harley Knox Boulevard. The proposed Project West Driveway will be located 387 feet east of Indian Avenue, and it will align with the existing driveway located on the north side of Harley Knox Boulevard. The proposed Project Center Driveway will be located 387 feet east of Project West Driveway or 787 feet east of Indian Avenue, and it will align with the existing driveway located on the north side of Harley Knox Boulevard which has an existing eastbound left turn pocket so that it will not conflict with their existing turning movements. The proposed Project East Driveway will be located 384 feet east of Project Center Driveway or 1,211 feet east of Indian Avenue, which will be the most driveway spacing available.

The applicant had discussed with the City's Planning Department regarding the project's need for 3 project driveways on Harley Knox Boulevard. It is our understanding that the City's Planning Department has reviewed the site plan and has concurred with design of 3 project driveways for the proposed project. Appendix E includes a correspondence with the City regarding the driveway design.

CONCLUSION

We appreciate the opportunity to provide this scoping document for your review. Should you have any questions or comments regarding the proposed scope, please contact Tom Huang at (714) 795-3100 x 102 or tom@ganddini.com.

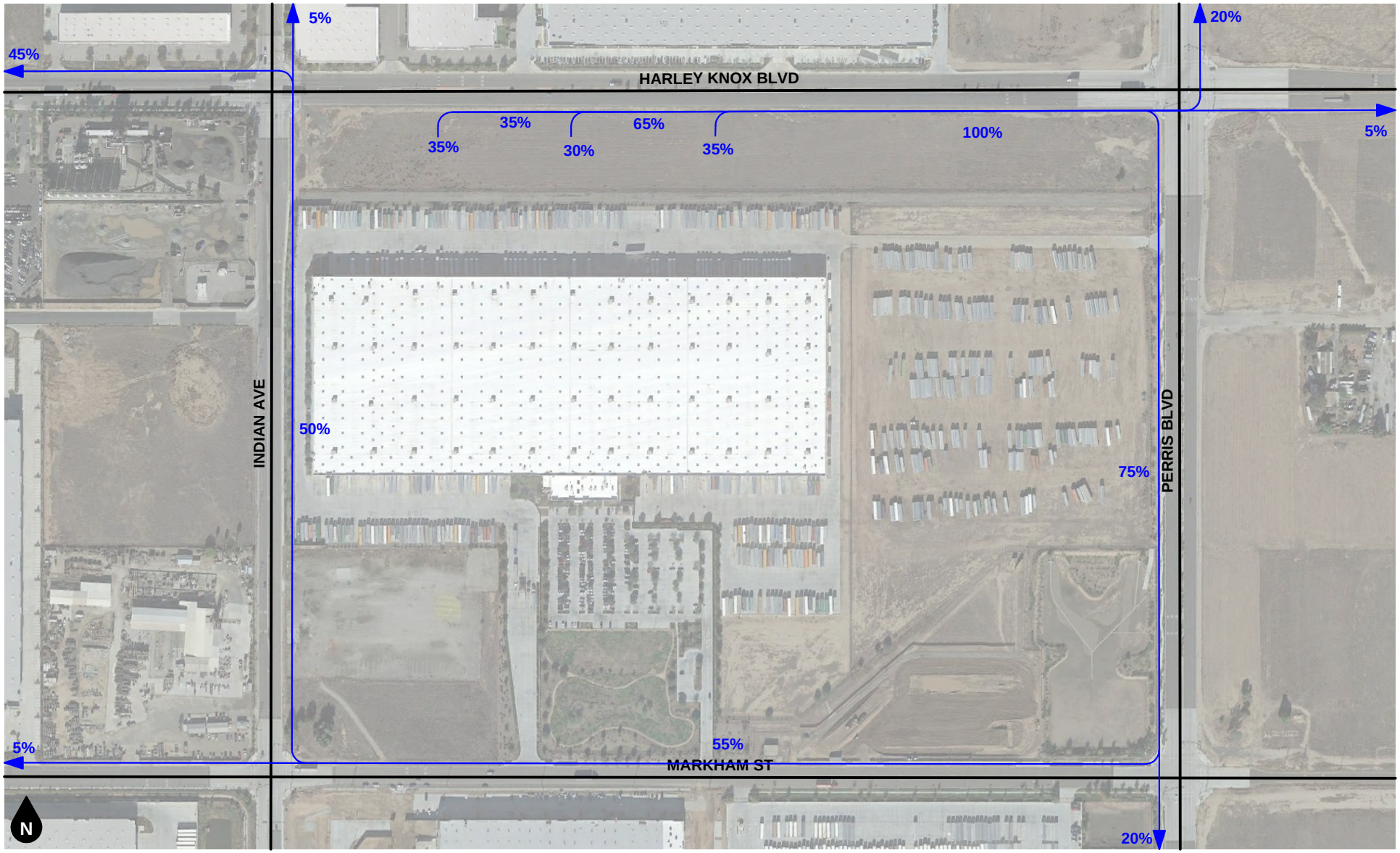


Legend

Study Intersection

(#) Project Driveway

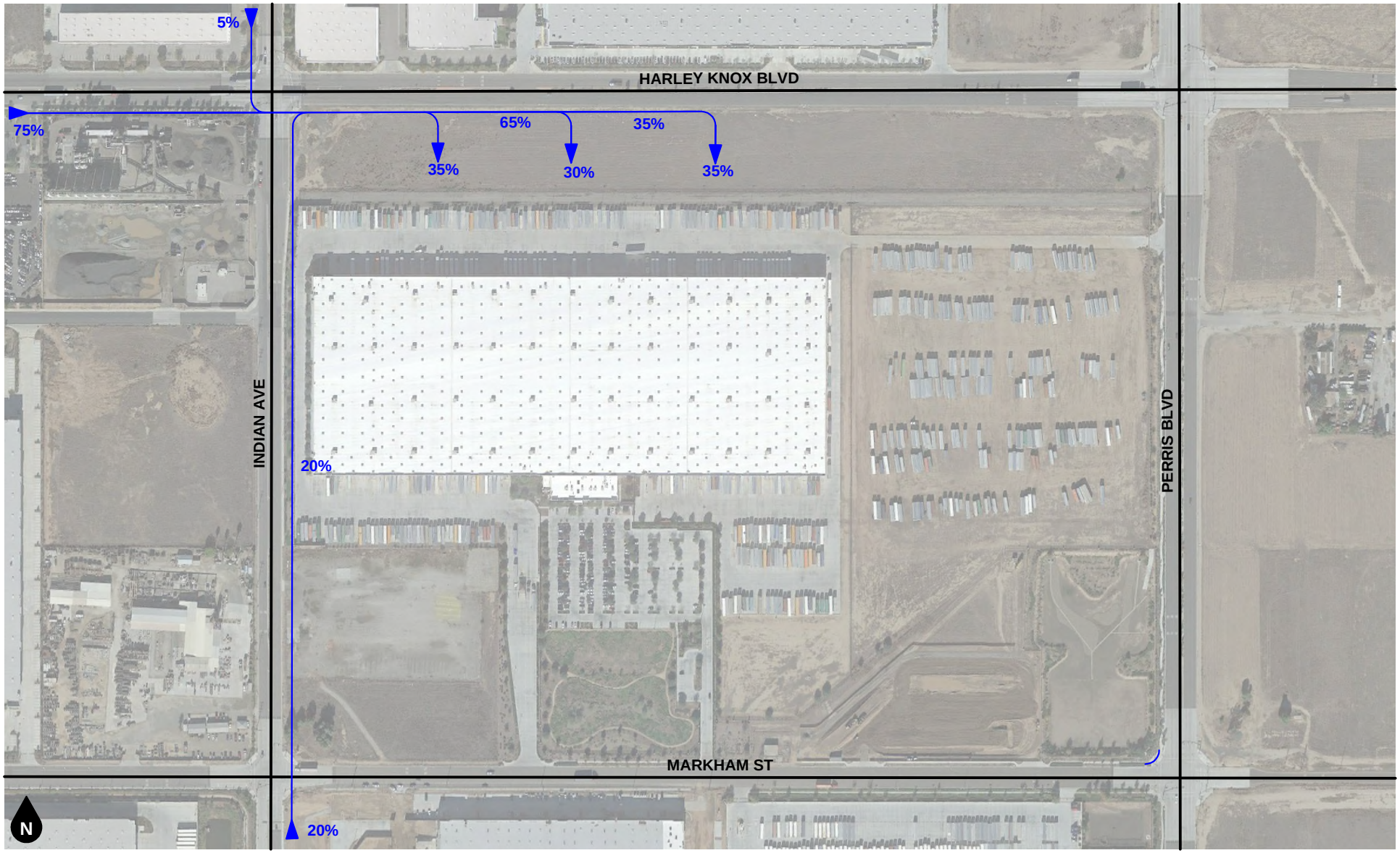
Figure 1
Project Location Map



Legend

10% Percent From Project

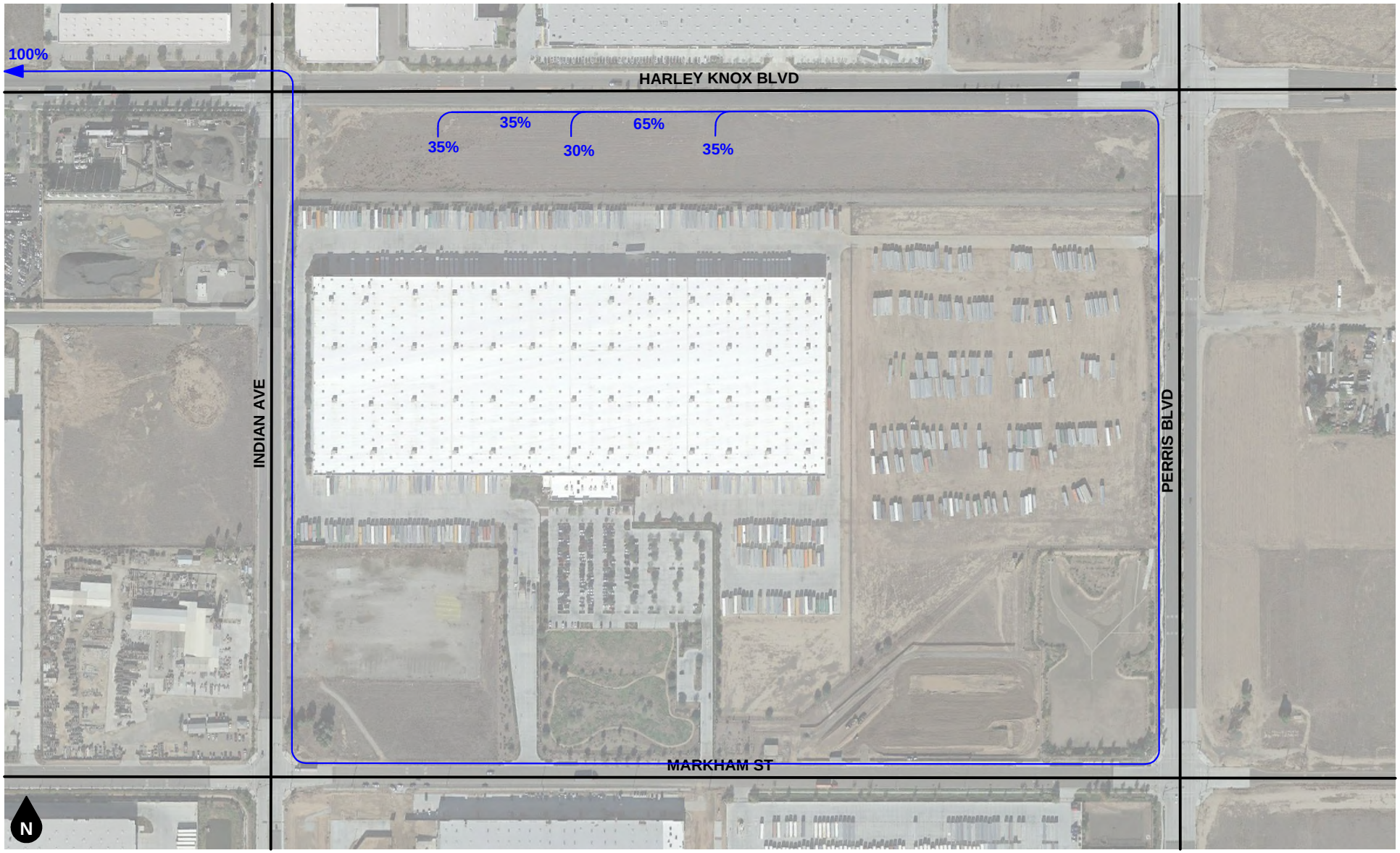
Figure 2
Passenger Car Project Outbound Trip Distribution



Legend

10% Percent From Project

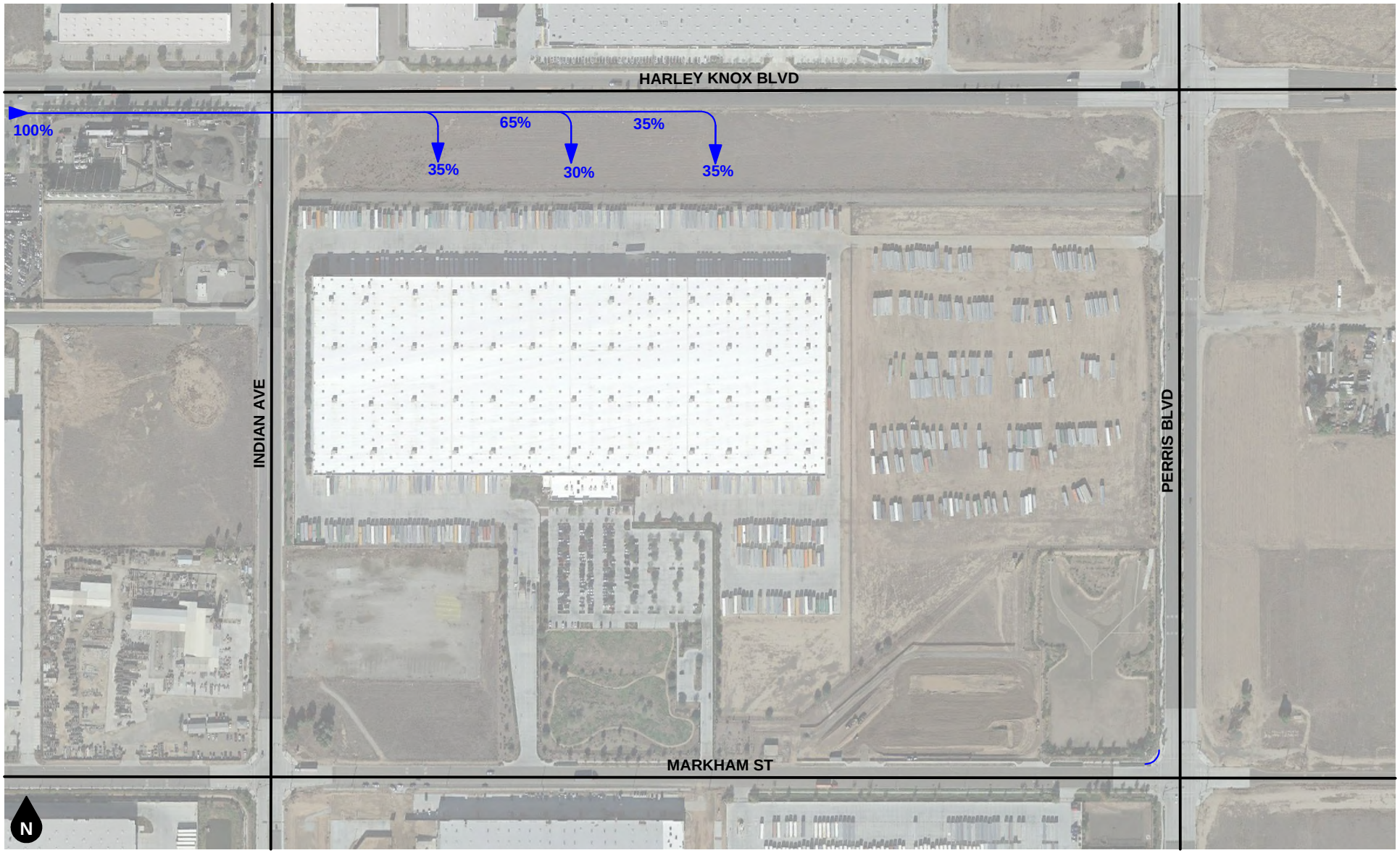
Figure 3
Passenger Car Project Inbound Trip Distribution



Legend

10% Percent From Project

Figure 4
Truck Project Outbound Trip Distribution



Legend

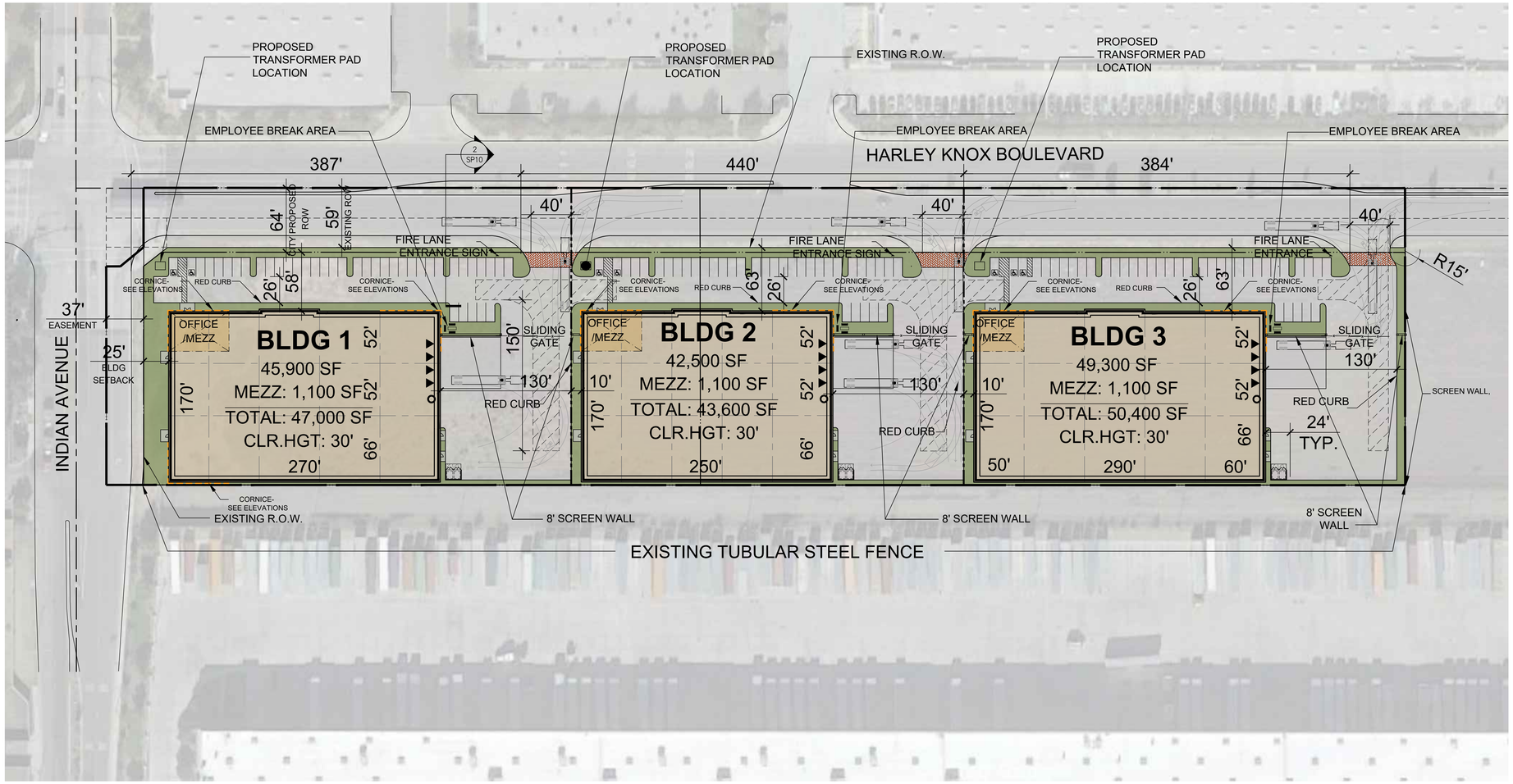
10% Percent From Project

Figure 5
Truck Project Inbound Trip Distribution

Appendix A

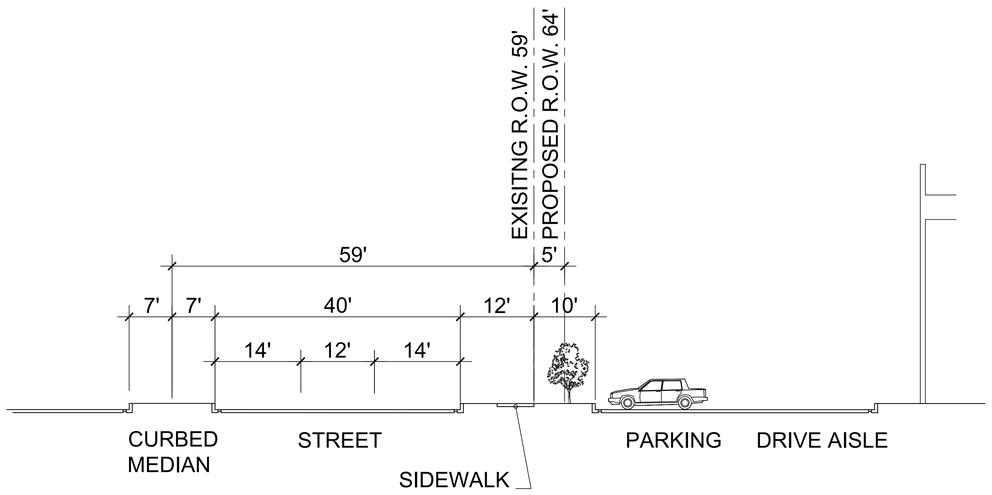
Site Plan

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT



1" =50'
0 25 50 100 250

SITE PLANNING
SCALE: 1"=50'



DEVELOPMENT STANDARDS:

ZONING:	PVCC SP (LI)	
MAX. F.A.R.:	0.75	
MAX. COVERAGE:	50%	
MAX. HEIGHT:	50 FT	1
BUILDING SETBACKS:		
FRONT:	15 FT	6 8
SIDE:	0 FT	7
REAR:	0 FT	7
LANDSCAPE SETBACKS:		
FRONT:	0 FT	
SIDE:	0 FT	
REAR:	0 FT	
LANDSCAPE REQ.:	12%	4
OFF-STREET PARKING:		
STANDARD:	9X19	3
COMPACT:	8X16	
COMPACT %:	25%	
DRIVE AISLE:	24 FT	
FIRE LANE:	26 FT	
OVERHANG:	2 FT	
TREE WELL:	8 FT	
REQ. PARKING RATIO BY USE:		
WAREHOUSE:	1/1000 SF	5
OFFICE:	1/300 SF	

NOTES:

1 Structure heights may be increased to a maximum of 100 feet above grade, provided that the front and street side yards are increase at least one foot for every one foot of height increase beyond the standard set forth and provided that side and rear yard setbacks are increased by one foot for every two feet in increase beyond the standard set forth.

2

3 End stalls shall be 11 feet wide.

4 One tree for every 6 parking stalls.

5 One space per 1,000 square feet of gross floor area for the first 20,000 square feet and one space per 2,000 square feet for that portion over 20,000 square feet.

6 Setback requirements are for structure 20 feet or less in height on the public right of way. Front setback: 10 feet at local/collector street; 15 feet along Arterials; 20 feet along expressway and Freeway

7 None or 20 feet adjoining residential

8 Front yards for structure shall be increased by 5 feet for each 10 feet of structure height greater than setback from the property line/Right-of-way to maximum structure height

PROJECT DATA:

SITE AREA:			
GROSS:			8.69 AC 378,404 SF
R.O.W. EASEMENTS:			82,430 SF
NET:			6.79 AC 295,974 SF
BUILDING AREA:	MEZZ(future):	FOOTPRINT:	TOTAL AREA:
BUILDING 1	1,100 SF	45,900 SF	47,000 SF
BUILDING 2	1,100 SF	42,500 SF	43,600 SF
BUILDING 3	1,100 SF	49,300 SF	50,400 SF
TOTAL:	3,300 SF	137,700 SF	141,000 SF
BUILDING USE:			
WAREHOUSE			130,200 SF
OFFICE			7,500 SF
MEZZANINE	@ 8%		3,300 SF
FAR:			
GROSS:			0.37
NET:			0.48
COVERAGE:			
GROSS:			36%
NET:			47%

BUILDING 1

▲ DOCK-HIGH DOORS		4
O GRADE-LEVEL DOORS		1
PARKING REQUIRED:		
WAREHOUSE		
1st 20k	1/1000 SF	20 STALLS
Over 20k	1/2000 SF	12 STALLS
OFFICE	1/300 SF	12 STALLS
TOTAL		44 STALLS

PARKING COUNT WILL REQUIRE A MODIFICATION REDUCTION OF +/- 11%

PARKING PROVIDED:		40 STALLS @0.85/1000 SF
REQ. ACCESSIBLE		*2 STALLS*

BUILDING 2

▲ DOCK-HIGH DOORS		4
O GRADE-LEVEL DOORS		1
PARKING REQUIRED:		
WAREHOUSE		
1st 20k	1/1000 SF	20 STALLS
Over 20k	1/2000 SF	11 STALLS
OFFICE	1/300 SF	12 STALLS
TOTAL		43 STALLS

PARKING COUNT WILL REQUIRE A MODIFICATION REDUCTION OF +/- 11%

PARKING PROVIDED:		36 STALLS @0.83/1000 SF
REQ. ACCESSIBLE		*2 STALLS*

BUILDING 3

▲ DOCK-HIGH DOORS		4
O GRADE-LEVEL DOORS		1
PARKING REQUIRED:		
WAREHOUSE		
1st 20k	1/1000 SF	20 STALLS
Over 20k	1/2000 SF	14 STALLS
OFFICE	1/300 SF	12 STALLS
TOTAL		46 STALLS

PARKING COUNT WILL REQUIRE A MODIFICATION REDUCTION OF +/- 11%

PARKING PROVIDED:		39 STALLS @0.77/1000 SF
REQ. ACCESSIBLE		*2 STALLS*
LANDSCAPE PROVIDED	@ 13%	38,960 SF

SITE LEGEND

FIRE LANE (HATCHED)

FIRE HYDRANT (VERIFY LOCATION WITH CIVIL DRAWINGS)

WARE MALCOMB
Leading Design for Commercial Real Estate
architecture
planning
interiors
graphics
civil engineering
250 University Ave, Suite #235
Toronto, Ontario, Canada M5H 3E5
P 437.537.5200

OPERON HKI - PERRIS

EAST HARLEY KNOX & INDIAN AVENUE
PERRIS,CA 92571

CONCEPTUAL SITE PLAN

DATE	REMARKS

PA/PM:	-
DRAWN BY.:	
JOB NO.:	IRV20-0063-00

SHEET
SP 11

Appendix B

VMT Scoping Form for Land Use Projects

City of Perris
www.cityofperris.org

CITY OF PERRIS
VMT SCOPING FORM FOR LAND USE PROJECTS

This Scoping Form acknowledges the City of Perris requirements for the evaluation of transportation impacts under CEQA. The analysis provided in this form should follow the City of Perris TIA Guidelines, dated May 12, 2020.

I. Project Description

Tract/Case No. 20-00019

Project Name: Harley Knox Boulevard at Indian Avenue Industrial Warehouse Project (OPERON HKI-PERRIS)

Project Location: East Harley Knox Boulevard & Indian Avenue

Project Description: Three industrial warehouse buildings with a total of 141,000 SF.

(Please attach a copy of the project Site Plan)

Current GP Land Use: Light Industrial **Proposed GP Land Use:** Industrial Warehouse

Current Zoning: PVCC SP; MARB Airport Overlay **Proposed Zoning:** PVCC SP; MARB Airport Overlay

If a project requires a General Plan Amendment or Zone change, then additional information and analysis should be provided to ensure the project is consistent with RHNA and RTP/SCS Strategies.

II. VMT Screening Criteria

A. Is the Project 100% affordable housing?	**YES**		**NO**	✓	Attachments:	
B. Is the Project within 1/2 mile of qualifying transit?	**YES**		**NO**	✓	Attachments:	
C. Is the Project a local serving land use?	**YES**		**NO**	✓	Attachments:	
D. Is the Project in a low VMT area?	**YES**		**NO**	✓	Attachments:	
E. Are the Project's Net Daily Trips less than 500 ADT?	**YES**	✓	**NO**		Attachments:	Table 1

Low VMT Area Evaluation:

Citywide VMT Averages[1]		
Citywide Home-Based VMT =	15.05	VMT/Capita
Citywide Employment-Based VMT =	11.62	VMT/Employee

WRCOG VMT MAP

Project TAZ	VMT Rate for Project TAZ[1]		Type of Project	
3,754		VMT/Capita	Residential:	
	12.19	VMT/Employee	Non-Residential:	✓

[1] Base year (2012) projections from RIVTAM.

Trip Generation Evaluation:

Source of Trip Generation: ITE 10th Edition, 2017. Warehousing (ITE 150)

Project Trip Generation: 245 ADT **Average Daily Trips (ADT)**

Internal Trip Credit:	YES		NO	✓	% Trip Credit:	
Pass-By Trip Credit:	YES		NO	✓	% Trip Credit:	
Affordable Housing Credit:	YES		NO	✓	% Trip Credit:	
Existing Land Use Trip Credit:	YES		NO	✓	Trip Credit:	

Net Project Daily Trips: 347 PCE **Average Daily Trips (ADT)** Attachments: A

Does project trip generation warrant an LOS evaluation outside of CEQA? **YES** ✓ **NO**

III. VMT Screening Summary

A. Is the Project presumed to have a less than significant impact on VMT?

A Project is presumed to have a less than significant impact on VMT if the Project satisfies at least one (1) of the VMT screening criteria.

Yes. Criteria E.

B. Is mitigation required?

If the Project does not satisfy at least one (1) of the VMT screening criteria, then mitigation is required to reduce the Project's impact on VMT.

No

C. Is additional VMT modeling required to evaluate Project impacts?

YES		NO	✓

If the Project requires a zone change and/or General Plan Amendment AND generates 2,500 or more net daily trips, then additional VMT modeling using RIVTAM/RIVCOM is required. If the project generates less than 2,500 net daily trips, the Project TAZ VMT Rate can be used for mitigation purposes.

IV. MITIGATION

A. Citywide Average VMT Rate (Threshold of Significance) for Mitigation Purposes:

B. Unmitigated Project TAZ VMT Rate:

C. Percentage Reduction Required to Achieve the Citywide Average VMT: %

D. VMT Reduction Mitigation Measures:

Source of VMT Reduction Estimates:	
Project Location Setting	

	VMT Reduction Mitigation Measure:	Estimated VMT Reduction (%)
1.		0.00%
2.		0.00%
3.		0.00%
4.		0.00%
5.		0.00%
6.		0.00%
7.		0.00%
8.		0.00%
9.		0.00%
10.		0.00%
Total VMT Reduction (%)		**0.00%**

(Attach additional pages, if necessary, and a copy of all mitigation calculations.)

E. Mitigated Project TAZ VMT Rate:

F. Is the project pressumed to have a less than significant impact with mitigation?

If the mitigated Project VMT rate is below the Citywide Average Rate, then the Project is presumed to have a less than significant impact with mitigation. If the answer is no, then additional VMT modeling may be required and a potentially significant and unavoidable impact may occur. All mitigation measures identified in Section IV.D. are subject to become Conditions of Approval of the project. Development review and processing fees should be submitted with, or prior to the submittal of this Form. The Planning Department staff will not process the Form prior to fees being paid to the City.

Prepared By		Developer/Applicant	
Company:	Ganddini Group, Inc.	**Company:**	Lilburn Corporation
Contact:	Tom Huang	**Contact:**	Cheryl Tubbs
Address:	550 Parkcenter Dr, Ste 202, Santa Ana 92705	**Address:**	1905 Business Center Drive
Phone:	714-795-3100	**Phone:**	San Bernardino, CA 92408
Email:	tom@ganddini.com	**Email:**	cheryl@lilburncorp.com
Date:	July 15, 2021	**Date:**	July 15, 2021

Approved by:

Perris Development Serivces Dept.	Date	Perris Public Works Dept.	Date

Table 1
Project Trip Generation

Land Use: Warehousing
Size: 141.000 TSF

TRIP GENERATION RATES PER TSF[1]								
		AM Peak Hour			PM Peak Hour			
Vehicle Type	Source[2]	In	Out	Rate	In	Out	Rate	Daily Rate
All Vehicles	ITE 150	77%	23%	0.170	27%	73%	0.190	1.740
Passenger Cars (87.0% AM, 85.0% PM, 73.0% Daily)	TGMS 150	0.114	0.034	0.148	0.044	0.118	0.162	1.270
Trucks (13.0% AM, 15.0% PM, 27.0% Daily)	TGMS 150	0.017	0.005	0.022	0.008	0.021	0.029	0.470
Truck Mix:	SCAQMD							
2-Axle Trucks (16.7%)		0.003	0.001	0.004	0.001	0.003	0.004	0.078
3-Axle Trucks (20.7%)		0.004	0.001	0.005	0.002	0.004	0.006	0.097
4+ Axle Trucks (62.6%)		0.011	0.003	0.014	0.005	0.013	0.018	0.294

VEHICLE TRIPS GENERATED							
	AM Peak Hour			PM Peak Hour			
Vehicle Type	In	Out	Total	In	Out	Total	Daily
Passenger Cars	16	5	21	6	17	23	179
Trucks							
2-Axle Trucks	0	0	0	0	0	0	11
3-Axle Trucks	1	0	1	0	1	1	14
4+ Axle Trucks	2	0	2	1	2	3	41
Subtotal	3	0	3	1	3	4	66
Total Vehicle Trips Generated	**19**	**5**	**24**	**7**	**20**	**27**	**245**

PCE[3] TRIPS GENERATED								
		AM Peak Hour			PM Peak Hour			
Vehicle Type	PCE Factor[4]	In	Out	Total	In	Out	Total	Daily
Passenger Cars	1.0	16	5	21	6	17	23	179
Trucks								
2-Axle Trucks	1.5	0	0	0	0	0	0	17
3-Axle Trucks	2.0	2	0	2	0	2	2	28
4+ Axle Trucks	3.0	6	0	6	3	6	9	123
Subtotal		8	0	8	3	8	11	168
Total PCE Trips Generated		**24**	**5**	**29**	**9**	**25**	**34**	**347**

Notes:
(1) TSF = Thousand Square Feet

(2) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = ITE Land Use Code.
TGMS = ITE Trip Generation Manual Supplement (10th Edition, February 2020); ### = ITE Land Use Code.
SCAQMD = South Coast Air Quality Management District recommendations for non-cold storage high-cube warehouse.

(3) PCE = Passenger Car Equivalent

(4) Source: San Bernardino County Congestion Management Program (2016).

Appendix C

City of Perris Level of Service Standards and Significance Criteria

City of Perris LOS Standards and Significance Criteria for Traffic Studies

LOS Standards

Maintain the following target Levels of Service:

- LOS "D" along all City maintained roads (including intersections) and LOS "D" along I-215 and SR 74 (including intersections with local streets and roads). An exception to the local road standard is LOS "E", at intersections of any Arterials and Expressways with SR 74, the Ramona-Cajalco Expressway or at I-215 freeway ramps.

- LOS "E" may be allowed within the boundaries of the Downtown Specific Plan Area to the extent that it would support transit-oriented development and walkable communities. Increased congestion in this area will facilitate an increase in transit ridership and encourage development of a complementary mix of land uses within a comfortable walking distance from light rail stations.

Thresholds of Significance

To determine whether the addition of project-generated trips (or alternative-generated trips) results in a significant impact, and thus requires mitigation, the analysis shall evaluate significant impacts based on the following criteria:

- A project-related impact is considered direct and significant when a study intersection operates at an acceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection to operate at an unacceptable Level of Service for existing plus project conditions.

- A project-related impact is considered direct and significant when a study intersection operates at an unacceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more.

- A cumulative impact is considered significant when a study intersection is forecast to operate at an unacceptable Level of Service with the addition of cumulative/background traffic and 50 or more a.m. or p.m. peak hour project trips.

Appendix D

Other Cumulative Projects

Projects completed

	Commercial	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	Planner
1	Perris Crossing	387,993	27	E of I-215 btw Watson and Ethanac Rd	Entitled 2006.4.11	Partially completed (2009)	DPR 04-0621	DS
11	DTSP Mixed Use	10,834	1	SW corner of Tenth and D	Entitled 2017.11.5	Grading	DPR 16-00014	BM
12	7-Eleven	3,000	1	NE corner of Ethanac and Case	Entitled 2017.1.18	Completed (November 2018)	CUP 16-05074	NP
13	Autozone	19,000	2	NE corner of Perris Crossing Center	Entitled 2017.10.4	Completed (December 2018)	ADPR 16-05074	DS
5	Partial MTC	10,000	2.4	SE corner of Ethanac and Trumble	Entitled 2017.3.15	Completed 2020	CUP 16-05168	KP
9	Weinerschnitzel	2,000	1	W side of Perris Blvd & S. of Placentia	Entitled 2017.11.15	Completed (October 2019)	CUP 17-05083	DS
10	Behavioral Health Clinic	37,000	4	NW San Jacinto & Redlands	Entitled 2017.7.19	Completed (June 2019)	CUP 16-05189	BM
	Total	**469,827**						

Projects that have started construction

	Commercial	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	Planner
	Aldi Market Center	27,000	4.6	West of Perris Blvd and Citrus	Entitled 2020.3.4	Grading	ADPR 19-05039; CUP 1	NP
3	March Plaza	47,253	8	NW corner of Perris Blvd & Harley Knox	Entitled 2017.3.15	Grading	CUP 16-05165	DS
6	Perris Common	35,000	5.5	SW corner San Jacinto and Redlands	Entitled 2018.4.10	Vertical construction	MAJ MOD 18-05004	NP
7	Perris Plaza - Build-out	173,000	42	NE of Nuevo and Frontage	Entitled	Vertical construction	MIN MOD 17-05178	NP
	Total	**255,253**	**56**					

Project in Plan Check

	Commercial	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	Planner
2	Quick Quack Carwash	3,600	1	E of Case Rd north of Ethanac Rd	Entitled 2018.7.18	Prep for Plan Check	CUP 18-05045	DS
	Total	**3,600**	**1**					

In Process and Entitled Projects that are Dormant

	Commercial	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	Planner
	Arco Expansion	3,869	1.4	289 Old Nuevo Road & I-215	Entitled 2015.2.18	Prep for Plan Check	CUP 14-09-0001	DS
14	Cali Express Carwash	5,600	1	NW corner of Ramona and Perris	Entitled 2018.10.18	Prep for Plan Check	CUP 16-05258	DS
4	Motte Town Center (MTC)	484,300	59	SE corner of Ethanac and Trumble	Entitled 2008.5.13	Dormant	DPR 06-0337	DS
8	Perris Venue	643,000	68	SE corner of San Jacinto and Redlands	Entitled 2009.8.13	Dormant	DPR 08-04-0015	KP
	Gas Station & Carwash	7,000	1.8	4th St and Navajo Rd	Submitted 2019.11.13	In process	CUP 19-05295	AG
	Commercial Retail - Spectrum	7,400	2	W of Perris Blvd north of Orange	Submitted 2019.11.18	In process	CUP 19-05301	AG
	Tommy's carwash	8,500		E. side of Perris Blvd	Submitted 2020.12.23	In process	CUP 20-05217	RG
	Pharmacy	15,000	1.3	S. side of 4th St west of Park St	Submitted 2021.1.7	In process	DPR 20-00022	AG
	Total	**1,719,375**						

DPR 20-00022 15K Pharmacy on 4th

PROJECTS THAT HAVE STARTED CONSTRUCTION

TRACT	DEVELOPER	PROJECT	LOCATION	DU	COMMERCIAL SF	TYPE	ACRE(S)	Approval Date	Status	Planner
16-00014	Talat Dib	DTSP Mixed Use	SW of "D" Street and 10th Street.	15	7,544	APT	0.95	10/15/2017	Vertical construction in process	BM
31226	Pacific Communities	Pacific Heritage 1	SW Nuevo & McKimball	82		SFD		10/15/2003	Vertical construction in process	DS
31650	Sunwest Enterprises		SW Van Wy & De Lines	61		SFD		7/13/2004	FTM approved 6-13-2006 - Architecture review MDPR 20-05143	DS
32406	Sunwest Enterprises		SE Bowen & Windflower	15		SFD		1/5/2005	FTM approved 11-28-2006 - Architecture review MDPR 20-05143	AG/DS
32497	Pacific Communities	Pacific Ave	SW Orange & Medical	131		PDO	12.15	10/31/2006	Vertical construction in process	NP
32769	CBM Consulting & Dev, Inc.	Faith Circle	West side of "B" Street, south of 11th St	20		SFD		4/20/2006	Final Home Sales 2021	RZ
36988	Richmond	GVSP	N of Ethanac Rd & W of Murrieta Rd	169		SFD		8/29/2017	Final Home Sales 2021	KP
				493		**Total Units**				

PROJECTS IN PLAN CHECK

TRACT	DEVELOPER	PROJECT	LOCATION	DU		TYPE	ACRE	Approval Date	Status	Planner
31659	Jason Keller/John Ford		NEC Citrus & Evans	161		SFD		7/27/2004	Initiate Plan Check 2nd Quarter 2021 FTM approved 2/28/2006	
32041	Jason Keller/John Ford		NWC Citrus & Dunlap	122		SFD		4/24/2007	Initiate Plan Check 2nd Quarter 2021 FTM approved 5/24/2007 Right below Schoo	NP
33549	Perris Investment Group	Village Walk	NE Perris & Commercial	129		SFD		1/30/2007	Initiate Plan Check 2nd Quarter 2021 FTM approved 7/27/2011	SC
31912	TKC		7th & Clayton vacant land	8		SFD			FTM approved 4/24/2007 Plan Check	RG
35062	Sterling Villa	Senior Housing	SE corner of Nuevo and Murrieta	429		APT	18.54	2/13/2006	Expires 8/4/2022 with AB 1561 (aka DPR 06-0378)	KP
36648	John Abel	Stratford Ranch	W of Evans Road @ northern City Limits	270		SFD		8/29/2017	EOT 19-05151 for 1-year extension	NP
37014	JD Pierce	Barrett Apt	Btw Barrett & Perris Blvd	228		APT	13.49	10/25/2016	Plan check; grading anticipated 4th quarter 2019 - Major Mod 18-05211; DPR 15-000	KP
				1347		**Total Units**				

FINAL MAP RECORDED OR DA WITH NO FURTHER NEED FOR EXTENSION

TRACT	DEVELOPER	PROJECT	LOCATION	DU		TYPE	ACRE	Approval Date	Status	Planner
31157	Palin Enterprises	Parkwest SP	S of Nuevo Road & E. PVSD	529		SFD		1/3/2018	Dormant (DA extension until 1/27/2028)	KP
31651	Sunwest Enterprises		SEC Nuevo & Wilson	57		SFD		7/27/2004	FTM approved 4/10/17. **No Construction Started**	DS
32666	WSI Mojave Inv/ Richland	Riverwood SP	Mapes & Ethanac	663		SFD		12/14/2004	Final Map recorded with option in increase to 750 lots; Ex)TTM 33042	BE
33338	Rastogi Family LTD /John Ford		NWC Nuevo & Evans	75		SFD		4/11/2006	FTM approved 4/24/2007 **No Construction Started**	NP
				1324		**Total Units**				

ENTITLED RESIDENTIAL DEVELOPMENTS

TRACT	DEVELOPER	PROJECT	LOCATION	DU		TYPE	ACRE	Approval Date	Status	Planner
33199	MR-10, LLC		NW of Metz and Webster Ave	26		SFD		8/30/2005	EOT18-05220 is proposing to Expire 08/30/2019	RZ
33900	WSI Mojave Inv	Richland	SE Ethanac & McPherson	198		SFD		4/29/2008	Has received various 1 year extensions. Valid until 5/8/2020. EOT19-05029	RZ
33973	County Lands PIP IV		W McPherson & S Ethanac	384		SFD		5/27/2008	Has received various 1 year extensions. Valid until 5/27/2019. New EOT 19-05071 sul	RZ
34260	Tristone/David Jeffers		Flame Avenue	22		SFD		10/28/2014	Has received various 1 year extensions. Valid until 10/28/2019. EOT18-05252	KP
36797	Nova Homes		NEC Wilson & Water	76		PDO	19.9	10/28/2014	Has received various 1 year extensions. Valid until 10/25/2019. EOT18-05254	IL
37038	Kile Investment Trust	Citrus Court	SW Orange & Dunlap	111		PDO	14.5	2/28/2017	EOT 19-05325	KP/RG
37181	Metz and A LLC	Villa Verona Apt	NE A & Metz	360		APT	16.9	8/29/2017	Dormant - DPR 16-00002	NP
N/A	Lansing Properties	Senior Housing	NW of A & Ellis	141		APT	4.21	3/26/2019	Dormant - DPR 17-00005	MB
36647	John Abel	Stratford Ranch	W of Evans Road and N of Ramona Exp	90		SFD		9/29/2020	Approve	NP
37223	Raintree Investments GVSP	GVSP	Watson & Murrieta	235		SFD	37.37	2/9/2021	Approve	NP
37262	Raintree Investments GVSP	GVSP	Ethanac & Goetz	191		SFD	37.36	2/9/2021	Approve	NP
37716	Raintree Investments GVSP	GVSP	730' E of the NW of Goetz & Ethanac	97		PDO	10.97	2/9/2021	Approve	NP
37722	Raintree Investments GVSP	GVSP	NW Green Valley Pkwy & Murrieta Rd	116		SF	19.4	2/9/2021	Approve	NP
37817	Raintree Investments GVSP	GVSP	NEC of GV Pky & Ethanac 1,500' N of Etha	228		PDO	25.3	2/9/2021	Approve	NP
37818	Raintree Investments GVSP	GVSP	NWC of GV Pky and Ethanac	138		PDO	14.7	2/9/2021	Approve	NP
37818	Raintree Investments GVSP	GVSP	NWC of GV Pky and Ethanac	236		APT	14.1	2/9/2021	Approve	NP
			Total	**2649**		**Total Units**				

IN PROCESS RESIDENTIAL DEVELOPMENTS

TRACT	DEVELOPER	PROJECT	LOCATION	DU		TYPE	ACRE	Approval Date	Status	Planner
37441	Julio Arias	Graham PUD	W of Graham St btw Metz & Weston	33		PDO		In process	Entitlement Phase	AG
37803	UCI Prop		SWC Metz & A St	145		SFD		In process	Entitlement Phase (submitted 2019.8)	NP
38071	Stratford Ranch		NE Ramona and Evans	197		SFD		In process	Entitlement Phase (submitted 2021.3.1)	NP
			Total	**375**		**Total Units**				

PVCC SP - Projects Completed

Industrial Projects	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	Planner
BI - Accent Décor	173,000	9	Btw Harely Knox & Nance W of Webster	Entitled 2008.11.25	Completed (April 2018)	DPR 07-09-0018	KP
Circle Industrial - Tech Style Fashion	600,000	31	NW corner of Markham & Redlands	Entitled 2013.11.12	Completed (March 2017)	DPR 13-02-00005	NP
Circle Industrial III - Vacant	211,000	10	NW corner of Nance & Redlands	Entitled 2018.10.17	Completed (2020)	DPR 17-00006	NP
Duke 2 - Forever 21	669,000	31	SE corner of Indian & Markham	Entitled 2017.10.18	Completed (April 2019)	DPR 16-00008	NP
Duke @ Perris Blvd - Amazon	1,070,000	54	E of Perris Blvd btw Markham & Perry	Entitled 2017.8.28	Completed (August 2020)	DPR 17-00002 & CUP 1	CP
Duke @ Patterson - Amazon	811,000	37	SE corner of Patterson & Markham	Entitled 2019.1.29	Completed (2020)	DPR 17-00001	KP
First Perry - Moret Group	240,000	11	SW corner of Perry & Redlands	Entitled 2017.11.15	Completed (December 2019)	DPR 16-00013	NP
Gateway - Kenco	400,000	22	SE corner of I-215 & Harley Knox	Entitled 2017.1.31	Completed (December 2018)	DPR 16-00003	KP
General Mills	1,600,000	70	Btw Markham and Ramona W of Indian	Entitled 2009.12.8	Completed (November 2016)	DPR 07-07-0029	KP
Home Depot (IDI)	1,750,000	90	Btw Nance & Markham W of Perris Blvd	Entitled	Completed (March 2014)	DPR 05-0113	
Home Depot & Essendant	1,700,000	91	E of Redlands north of Perry	Entitled 2012.11.27	Completed (May 2017)	DPR 11-12-0004	
Indian Palms	39,000	2	W of Indian bt Rider and Walnut	Entitled 2016.1.31	Completed (2009)	DPR 05-0285	
Integra - Amazon	864,000	43	Btw Markham & Nance E of Webster	Entitled 2015.1.27	Completed (December 2018)	DPR 14-02-0014	DS
Lowes	1,200,000	120	Btw Ramona & Morgan W of Indian	Entitled	Completed (2001)	DPR 99-0167	
Markham East - Geodis	460,000	22	NW corner of Redlands & Perry	Entitled 2007.6.20	Completed	DPR 05-0477	
MI - Retrospec Bicycle	170,000	9	NE corner of Indian & Markham	Entitled 2017.8.16	Vertical Constructin	DPR 16-00015	KP
OLC 1 - Ferguson & Penske	1,455,000	69	NW corner of Webster & Ramona	Entitled 2016.1.12	Completed (December 2018)	DPR 12-10-0005	KP
OLC 2 - H&M	1,037,000	49	NE corner of Patterson & Markham	Entitled 2016.1.12	Completed (December 2019)	DPR 14-01-0015	KP
Phelan Indus - FlexSpot	81,000	4	N. Side of Markham btw Webster & Perris	Entitled 2017.10.10	Complete (2020)	ADPR 16-05202	NP
Ridge - Hanes	1,900,000	90	NW corner of Perris & Morgan	Entitled 2007.3.27	Completed (2012)	DPR 05-0493	
Rider 1 -	350,000	16	SW corner of Rider & Redlands	Entitled 2007.6.20	Completed (2020)	DPR 06-0365	KP
Rider 3 - Sketchers	640,000	30	NW corner of Rider & Redlands	Entitled 2009.3.31	Completed (2020)	DPR 06-0432	KP
Ross (Oakmont 2)	700,000	37	SW corner of Perris & Markham	Entitled 2007.3.27	Completed (2013)	DPR 05-0192	
Ross	1,600,000	83	SW corner of Indian & Morgan	Entitled date ?	Completed (2002)	?	
Wayfair (Duke 1)	2,000,000	96	NE corner of Indian & Rider	Entitled 2009.8.25	Completed (October 2017)	DPR 06-0417	DS
Western Brass (Multi-tenants)	494,000	24	NE corner of Harley Knox and Indian	Entitled 2004.7.3	Completed (2007)	DPR 03-0388	KP
Whirlpool (IDS)	1,700,000	80	NE corner of Perris & Morgan	Entitled 2005.8.17	Completed (2006)	DPR 04-0464	
Total	**23,914,000**	1,230					

PVCC SP - Projects that have started construction

Industrial Projects	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	
AAA	2,000	10	SE Corner of Harley Knox & Webster	Entitled 2018.3.7	Vertical Constructin	DPR 16-00012	
Burge Indus 1	18,000	2.5	E. of Perris Blvd. & N of Commerce Dr	Entitled 2019.8.7	Vertical Constructin	DPR 18-00001	CP
Burge Indus 2	19,000	3	E. Perris Blvd. and S of Commerce Dr	Entitled 2019.8.7	Vertical Constructin	DPR 18-00007	CP
Pulliam Indus	16,000	0.5	Lots 10 & 12 on Commerce Dr, E of Perris	Entitled 2018.6.20	Vertical Constructin	DPR 17-00007 & 9	CP
Western Ind	250,000	25	E. Side of Western Way & City limits	Entitled 2019.12.18	Grading	DPR 19-00003	NP
Total	**305,000**	**40.6**					

PVCC SP - Projects in Plan Check

Industrial Projects	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	
Canyon Steel (CS)	25,000	4	NWC of Patterson and California	Entitled 2019.2.20	Plan Check	DPR 18-00006	KP
Duke @ Perry	144,000	7	SE Corner of Perrty and Barrett	Entitled 2019.11.6	Plan check	DPR 18-00011	CP
IDI @ Ramona	426,000	24	NW corner of Ramona and Indian	Entitled 2019.11.20	Plan check	DPR 18-00002	CP
IDI - Site 3	2,300,000	217	NE corner of Redlands and Ellis	Entitled 2010.7.13	Plan Check	DPR 08-01-0007	DS/CP
WT (Westcoast Textile)	180,000	9	SW corner of Indian & Nance	Entitled 2016.7.20	Plan check	DPR 16-00001	KP
Rados	1,200,000	83	SW corner of Rider & Indian	Entitled 2011.7.12	Plan Check	MMOD 18-05204; DPR	NP
Total	**4,275,000**	**344**					

PVCC SP - In Process and Entitled Projects

Industrial Projects	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	
Integra - Expansion (IT-E)	273,000	10	NE corner of Markham and Webster	Entitled 2019.4.17	In process	MMOD 17-05075	DS
Marijuana Manufacturing (MM)	1,000	0.5	NW corner of Webster and Washington	Not entitled	In process	DPR 18-00008	MD
Rider 2 & 4	1,373,000	73	NE corner of Rider & Redlands	Not entitled	In process	DPR 19-00004	MB
Harley Knox 25k	25,000	1	S of Harley Knox btw Patterson & Nevada	Not entitled	In process	DPR 19-00005	NP
Walnut Indu	205,000	11	N. Side Walnut St, btw Indian & Barnett	Not entitled	In process	DPR 19-00014	MD
Truck Terminal	0	9.5	N. side of Markham & E of Perris Blvd	Not entitled	In process	CUP 20-05100	AG
Expressway Industrial	347,000	16	SW corner of Ramona and Perris	Not entitled	In process	DPR 19-00012	AG
C5 Rental	17,400	15.6	4783 Wade Avenue	Not entitled	In process	CUP 19-05128	AG
First Indus (Goodwin)	338,000	15	SE Corner of Rider and Redlands	Not entitled	In process	DPR 19-00016	AG
Patriot Ind	286,000	15	SW Perris and Morgan	Not entitled (9/29/20)	In process	DPR 20-00013	CP
Wilson Ind	303,000	16	E. Side of Wilson S. of Rider St	Not entitled	In process	DPR 19-00007	AG
Wilson Ind	248,000		SW corner of Rider and Wilson	Not entitled (8/26/20)	In process	DPR 20-00011	CP
Natwar Ind	420,000	23	W. Side of Natwar 300' N. of Nandina	Not entitled	In process	DPR 20-00004	NP
Natwar Ind Truck Lot	0	5	E. Side of Natwar. 300' N. of Nandina	Not enttitled	In process	DPR 20-00009	CP
Serrao Ind	3,500	0.17	N. Side of Nance Street 660' E. of Webster	Not entitled	In process	DPR 20-00010	RG
Lakecreek East	256,000	11	E. Side of Redlands S. of Rider St	Not entitled (1/7/21)	In process	DPR 20-00021	CP
Lakecreek West	300,000	20	W. Side of Reldands S. of Rider St	Not entitled (1/7/21)	In process	DPR 20-00020	CP
Chartwell Ind	141,000	6	SW corner of Redlands and Rider	Not entitled (2/18/21)	In process	DPR 21-00003	KP
Total	**4,536,900**						

South Perris - In Process and Entitled Projects

Industrial Projects	Sq. Ft.	Acreage	Location	Entitlement Status	Status	Case Number(s)	
IDI - Site 1	784,000	36	SW corner of Mountain & Goetz	Entitled 2010.7.13	Dormant	DPR 07-0130	DS
IDI - Site 2	3,448,734	205	SW of Mapes and Goetz	Entitled 2010.7.13	Dormant	DPR 08-04-0006	DS
Marijuana Manufacturing	50,000	2	N. side of Malbert St & W. of Goetz Rd	Not entitled	In process	DPR 18-00005	MB
Marijuana Manufacturing	12,000	1	S. side of Illnois & E. I-215 Freeway	Not entitled	In process	DPR 18-00004	
Marijuana Manufacturing/Cul	30,000	6	N. side of Mapes btw Goetz & Alpine	Not entitled	In process	DPR 18-00010	
Perez Indus	2,500	0.5	E. side of G St N of Case Rd	Entitled 2018.12.19	In process	DPR 16-00016	
Total	**4,327,234**						

Appendix E

Correspondence Regarding Driveway Design

OPERON GROUP

MEMO

TO: Alfredo Garcia, Associate Planner
City of Perris

CC: Stuart E. McKibbin
Kenneth Phung

FROM: Chris Kwasizur, Operon Group

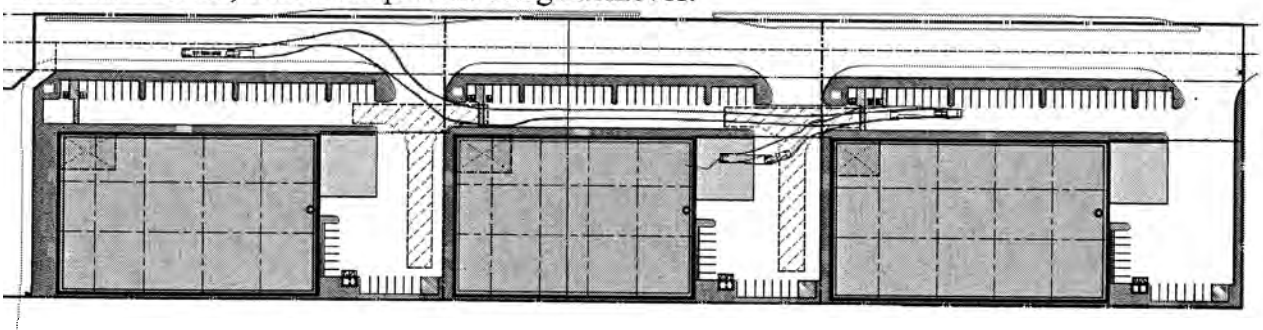
DATE: November 19, 2020

RE: PR 20-05168 - Proposed Development in the City of Perris (the "City")

Thank you for providing the Memorandum (the "Memo") from the city engineer dated November 3, 2020 concerning the proposed development (HKI "Scheme 10") on Harley Knox Blvd. and Indian Ave. We appreciate the opportunity to work with you and your team on this project.

Development of the site has its challenges. This is due to the extraordinary circumstances applicable to the property, namely the narrow parcel shape. The dimensions of the land are driving the design, as is the setback requirement on Harley Knox (ie, 25 feet), which in combination result in severe constraints not found elsewhere. Our first version of the site plan contemplated two buildings spread over the entire site, but this would have resulted in long, skinny structures, rendering them immediately non-functional. The final version ("Scheme 10") is the best design possible, and it requires three entrances on Harley Knox. (No access is available on Indian Ave., thus the only access is via Harley Knox.)

Of concern to us is the comment in the Memo stating that the site is limited to two driveways on Harley Knox. Three entrances are crucial to the site because without them, the trucking becomes unfunctional, as you will see in the path-of-travel diagram below. If, for example, the middle entrance is removed, the trucks would have to enter through the first entrance from the outside lane on Harley Knox, then once onsite, take a sharp turn east, continue along the driveway meant for cars and pedestrians, pass the truck court and office pod, and finally enter the truck court in reverse gear through a wiggle movement. Please note that Section 4.2.2.2 of the PVCC specific plans calls for trucks, cars and pedestrians to minimize interactions and avoid vehicular conflict, which our present design achieves.

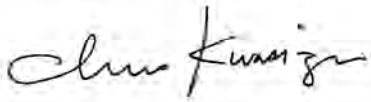


Trucking like this for industrial business parks would be cumbersome and hurt the project's leasing and operations and harm the economics of the development.

Note further, the project is designed so that each building will sit on its own lot according to a new parcel map to be filed with the city by the developer. Each building should have its own entrance so that the trucks can enter the courts straight from the street.

Therefore it is absolutely necessary to keep the three proposed entrances.

Thank you.



APPENDIX C

VOLUME COUNT WORKSHEETS

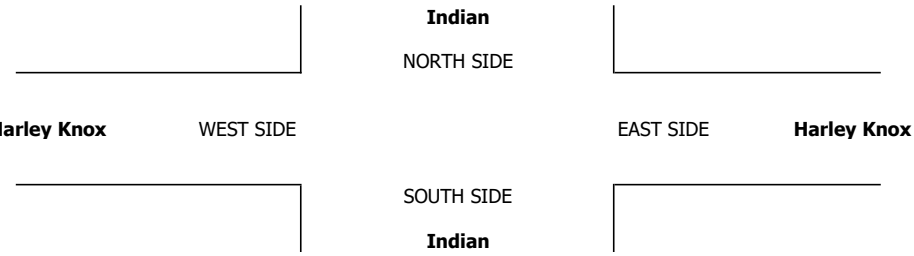
INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC2991
7/20/21	NORTH & SOUTH:	Indian	LOCATION #:	1
TUESDAY	EAST & WEST:	Harley Knox	CONTROL:	SIGNAL

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6			AM	▲ N	
	Factor	1	1.5	2	3	2	2			PM MD	◄ W E ►	
										OTHER	S ▼	
										OTHER		

		NORTHBOUND Indian			SOUTHBOUND Indian			EASTBOUND Harley Knox			WESTBOUND Harley Knox			
	LANES:	NL 2	NT 2	NR 1	SL 1	ST 1.5	SR 0.5	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL
AM	7:00 AM	7	62	5	11	18	31	80	36	10	9	77	14	359
	7:15 AM	17	61	0	7	28	25	65	56	11	6	73	18	363
	7:30 AM	11	55	8	7	13	44	70	82	15	0	66	14	383
	7:45 AM	13	31	11	1	29	53	77	80	27	0	93	12	425
	8:00 AM	26	37	3	5	27	51	59	57	21	3	76	9	372
	8:15 AM	28	45	3	4	21	46	58	53	24	5	70	7	363
	8:30 AM	8	33	9	2	9	60	55	49	26	7	59	8	323
	8:45 AM	38	29	5	7	22	72	47	55	24	6	55	8	367
	VOLUMES	148	351	43	43	167	380	509	467	158	34	567	89	2,953
	APPROACH %	27%	65%	8%	7%	28%	65%	45%	41%	14%	5%	82%	13%	
	APP/DEPART	541	/	948	589	/	358	1,133	/	552	690	/	1,095	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	48	208	23	25	88	152	291	254	63	14	308	58	1,529
	APPROACH %	17%	75%	8%	9%	33%	57%	48%	42%	10%	4%	81%	15%	
	PEAK HR FACTOR		0.898			0.797			0.827			0.907		0.899
	APP/DEPART	279	/	556	265	/	164	607	/	302	379	/	508	0
PM	04:00 PM	11	34	4	24	102	155	47	89	14	4	77	5	565
	4:15 PM	23	46	9	37	96	145	29	68	7	2	89	3	552
	4:30 PM	28	83	11	32	91	153	53	62	10	2	111	4	636
	4:45 PM	25	81	13	38	116	106	47	63	13	4	113	21	638
	5:00 PM	17	61	4	25	93	119	32	70	8	7	90	8	533
	5:15 PM	25	39	2	21	71	62	52	80	15	3	136	16	520
	5:30 PM	18	43	2	12	78	70	41	81	3	12	81	7	446
	5:45 PM	12	45	8	26	75	86	45	66	10	1	74	7	454
	VOLUMES	157	431	52	214	721	894	345	577	78	35	769	71	4,342
	APPROACH %	24%	67%	8%	12%	39%	49%	34%	58%	8%	4%	88%	8%	
	APP/DEPART	639	/	846	1,829	/	834	1,000	/	843	875	/	1,820	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	86	244	36	130	405	559	176	281	43	12	389	33	2,391
	APPROACH %	23%	67%	10%	12%	37%	51%	35%	56%	9%	3%	90%	8%	
	PEAK HR FACTOR		0.757			0.972			0.834			0.786		0.937
	APP/DEPART	365	/	452	1,093	/	459	499	/	447	434	/	1,033	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Perris	PROJECT #:	SC2991
7/20/21	NORTH & SOUTH:	400 Harley Knox Dwy	LOCATION #:	2
TUESDAY	EAST & WEST:	Harley Knox	CONTROL:	STOP S

	NOTES:											
PCE Adjusted	Class	1	2	3	4	5	6			AM		▲ N
	Factor	1	1.5	2	3	2	2			PM	◄ W	E ►
										MD		
										OTHER		S ▼
										OTHER		

		NORTHBOUND 400 Harley Knox Dwy			SOUTHBOUND 400 Harley Knox Dwy			EASTBOUND Harley Knox			WESTBOUND Harley Knox			
	LANES:	NL X	NT X	NR X	SL 0	ST X	SR 0	EL 1	ET 3	ER X	WL X	WT 3	WR 0	TOTAL
AM	7:00 AM	0	0	0	1	0	1	5	47	0	0	102	2	158
	7:15 AM	0	0	0	0	0	0	1	61	0	0	95	3	160
	7:30 AM	0	0	0	1	0	0	3	93	0	0	97	2	195
	7:45 AM	0	0	0	1	0	1	3	88	0	0	96	3	191
	8:00 AM	0	0	0	0	0	2	4	61	0	0	87	1	155
	8:15 AM	0	0	0	0	0	2	2	57	0	0	87	1	148
	8:30 AM	0	0	0	0	0	0	6	57	0	0	64	2	129
	8:45 AM	0	0	0	3	0	0	1	65	0	0	66	0	134
	VOLUMES	0	0	0	6	0	6	24	527	0	0	692	13	1,268
	APPROACH %	0%	0%	0%	52%	0%	48%	4%	96%	0%	0%	98%	2%	
	APP/DEPART	0	/	37	12	/	0	551	/	533	705	/	698	0
	BEGIN PEAK HR		7:00 AM											
	VOLUMES	0	0	0	3	0	2	12	288	0	0	389	9	703
	APPROACH %	0%	0%	0%	60%	0%	40%	4%	96%	0%	0%	98%	2%	
	PEAK HR FACTOR		0.000			0.625			0.784			0.957		0.903
	APP/DEPART	0	/	21	5	/	0	300	/	291	398	/	391	0
PM	04:00 PM	0	0	0	1	0	0	1	113	0	0	107	0	222
	4:15 PM	0	0	0	3	0	1	0	114	0	0	97	0	215
	4:30 PM	0	0	0	3	0	5	0	104	0	0	104	1	217
	4:45 PM	0	0	0	4	0	3	1	103	0	0	120	1	232
	5:00 PM	0	0	0	4	0	0	0	101	0	0	111	0	216
	5:15 PM	0	0	0	3	0	3	1	98	0	0	130	1	235
	5:30 PM	0	0	0	3	0	0	0	95	0	0	95	0	193
	5:45 PM	0	0	0	0	0	2	0	100	0	0	73	0	175
	VOLUMES	0	0	0	21	0	14	3	827	0	0	836	3	1,703
	APPROACH %	0%	0%	0%	60%	0%	40%	0%	100%	0%	0%	100%	0%	
	APP/DEPART	0	/	6	35	/	0	830	/	848	839	/	850	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	0	0	0	14	0	11	2	405	0	0	465	3	900
	APPROACH %	0%	0%	0%	56%	0%	44%	0%	100%	0%	0%	99%	1%	
	PEAK HR FACTOR		0.000			0.781			0.978			0.896		0.957
	APP/DEPART	0	/	5	25	/	0	407	/	419	468	/	476	0

400 Harley Knox Dwy

NORTH SIDE

Harley Knox WEST SIDE EAST SIDE **Harley Knox**

SOUTH SIDE

400 Harley Knox Dwy

APPENDIX D

LEVEL OF SERVICE WORKSHEETS

Existing

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	31.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	48	208	23	0	25	88	152	291	254	63	0	14	308	58
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	48	208	23	0	25	88	152	291	254	63	0	14	308	58
Peak Hour Factor	1.00	0.89	0.89	0.89	1.00	0.89	0.89	0.89	0.8990	0.8990	0.8990	1.00	0.89	0.89	0.89
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	13	58	6	0	7	24	42	81	71	18	0	4	86	16
Total Analysis Volume [veh/h]	0	53	231	26	0	28	98	169	324	283	70	0	16	343	65
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	26	0	0	11	26	0	42	52	0	0	11	21	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	22	22	7	22	22	38	48	48	7	17	17
g / C, Green / Cycle	0.07	0.22	0.22	0.07	0.22	0.22	0.38	0.48	0.48	0.07	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.02	0.02	0.05	0.11	0.18	0.07	0.07	0.01	0.08	0.08
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1683	1774	3547	1719
c, Capacity [veh/h]	241	780	348	124	410	348	674	1702	808	124	603	292
d1, Uniform Delay [s]	43.92	32.54	30.93	43.94	32.11	34.05	23.51	14.49	14.52	43.64	37.30	37.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.09	0.97	0.42	4.17	1.37	4.77	2.45	0.17	0.37	2.13	2.42	5.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

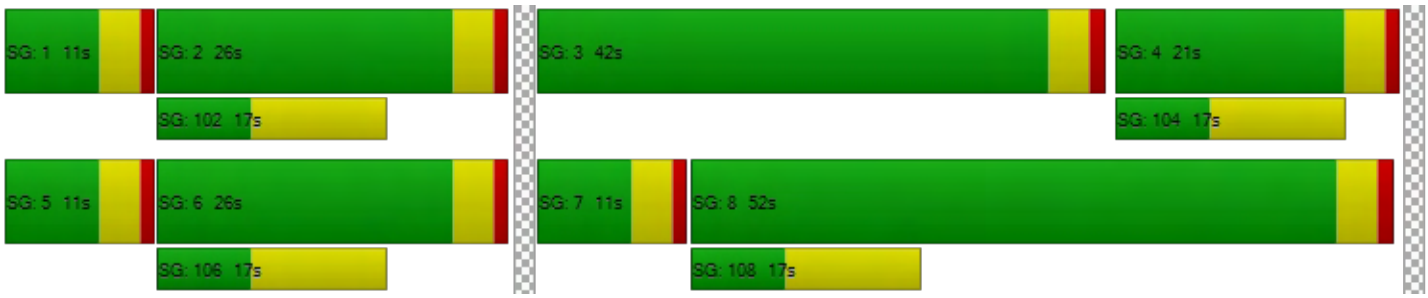
X, volume / capacity	0.22	0.30	0.07	0.23	0.24	0.49	0.48	0.14	0.14	0.13	0.45	0.47
d, Delay for Lane Group [s/veh]	46.01	33.51	31.34	48.11	33.48	38.83	25.96	14.66	14.89	45.77	39.72	42.73
Lane Group LOS	D	C	C	D	C	D	C	B	B	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.68	2.37	0.52	0.78	2.05	3.93	5.87	1.42	1.44	0.43	3.06	3.33
50th-Percentile Queue Length [ft/ln]	16.89	59.23	13.12	19.60	51.31	98.24	146.79	35.58	35.91	10.83	76.62	83.16
95th-Percentile Queue Length [veh/ln]	1.22	4.26	0.94	1.41	3.69	7.07	9.85	2.56	2.59	0.78	5.52	5.99
95th-Percentile Queue Length [ft/ln]	30.40	106.62	23.62	35.27	92.36	176.82	246.14	64.05	64.63	19.49	137.91	149.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.0	46.0	33.5	31.3	48.1	48.1	33.4	38.8	25.96	14.70	14.89	45.7	45.7	40.3	42.7
Movement LOS	D	D	C	C	D	D	C	D	C	B	B	D	D	D	D
d_A, Approach Delay [s/veh]	35.46				37.93				20.11			40.92			
Approach LOS	D				D				C			D			
d_I, Intersection Delay [s/veh]	31.15														
Intersection LOS	C														
Intersection V/C	0.400														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	3	2	12	288	389	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	12	288	389	9
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	3	80	108	2
Total Analysis Volume [veh/h]	3	2	13	319	431	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

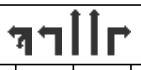
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.46	10.46	10.08	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.69	0.69	1.37	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.66		0.39		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	86	244	36	0	130	405	559	176	281	43	0	12	389	33
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	86	244	36	0	130	405	559	176	281	43	0	12	389	33
Peak Hour Factor	1.00	0.93	0.93	0.93	1.00	0.93	0.93	0.93	0.9370	0.9370	0.9370	1.00	0.93	0.93	0.93
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	23	65	10	0	35	108	149	47	75	11	0	3	104	9
Total Analysis Volume [veh/h]	0	92	260	38	0	139	432	597	188	300	46	0	13	415	35
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	45	0	0	24	58	0	20	30	0	0	11	21	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	41	41	20	54	54	16	26	26	7	17	17
g / C, Green / Cycle	0.06	0.37	0.37	0.18	0.49	0.49	0.15	0.24	0.24	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.07	0.02	0.08	0.23	0.38	0.11	0.06	0.07	0.01	0.08	0.09
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1741	1774	3547	1790
c, Capacity [veh/h]	219	1322	590	323	914	777	258	838	411	113	548	277
d1, Uniform Delay [s]	49.55	23.35	22.17	39.95	18.56	22.88	44.92	34.30	34.36	48.58	42.91	42.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.81	0.33	0.21	4.16	1.75	7.18	16.50	0.81	1.71	2.06	3.82	7.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

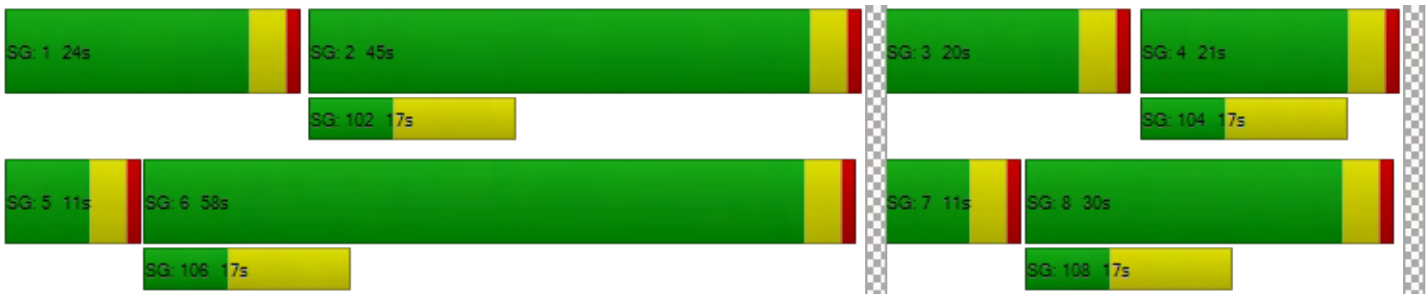
X, volume / capacity	0.42	0.20	0.06	0.43	0.47	0.77	0.73	0.27	0.28	0.12	0.54	0.55
d, Delay for Lane Group [s/veh]	55.35	23.69	22.38	44.11	20.31	30.06	61.42	35.11	36.07	50.64	46.73	50.71
Lane Group LOS	E	C	C	D	C	C	E	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.37	2.28	0.65	3.64	7.32	13.26	5.92	2.53	2.65	0.39	3.90	4.31
50th-Percentile Queue Length [ft/ln]	34.28	57.04	16.27	90.99	182.91	331.46	148.09	63.14	66.28	9.82	97.56	107.85
95th-Percentile Queue Length [veh/ln]	2.47	4.11	1.17	6.55	11.75	19.23	9.91	4.55	4.77	0.71	7.02	7.72
95th-Percentile Queue Length [ft/ln]	61.71	102.68	29.28	163.78	293.80	480.74	247.87	113.66	119.30	17.67	175.61	193.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.3	55.3	23.6	22.3	44.1	44.1	20.3	30.0	61.42	35.33	36.07	50.6	50.6	47.8	50.7
Movement LOS	E	E	C	C	D	D	C	C	E	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	31.03				28.12				44.58			48.15			
Approach LOS	C				C				D			D			
d_I, Intersection Delay [s/veh]	35.64														
Intersection LOS	D														
Intersection V/C	0.618														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	14	11	2	405	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	11	2	405	465	3
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	1	106	121	1
Total Analysis Volume [veh/h]	15	11	2	423	486	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.26	10.95	10.27	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.94	3.94	0.22	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.28		0.05		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	B					

Existing Plus Project

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	33.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	48	208	23	0	25	88	152	291	254	63	0	14	308	58
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	0	3	0	1	0	0	0	20	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	51	208	26	0	26	88	152	291	274	63	0	14	308	58
Peak Hour Factor	1.00	0.89	0.89	0.89	1.00	0.89	0.89	0.89	0.8990	0.8990	0.8990	1.00	0.89	0.89	0.89
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	14	58	7	0	7	24	42	81	76	18	0	4	86	16
Total Analysis Volume [veh/h]	0	57	231	29	0	29	98	169	324	305	70	0	16	343	65
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	29	0	0	11	29	0	47	59	0	0	11	23	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	25	25	7	25	25	43	55	55	7	19	19
g / C, Green / Cycle	0.06	0.23	0.23	0.06	0.23	0.23	0.39	0.50	0.50	0.06	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.02	0.02	0.05	0.11	0.18	0.07	0.07	0.01	0.08	0.08
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1693	1774	3547	1719
c, Capacity [veh/h]	219	806	360	113	423	360	693	1773	847	113	613	297
d1, Uniform Delay [s]	49.03	35.13	33.45	49.02	34.66	36.77	24.96	14.80	14.83	48.66	40.76	40.90
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.86	0.89	0.44	5.42	1.28	4.35	2.25	0.17	0.36	2.62	2.31	5.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

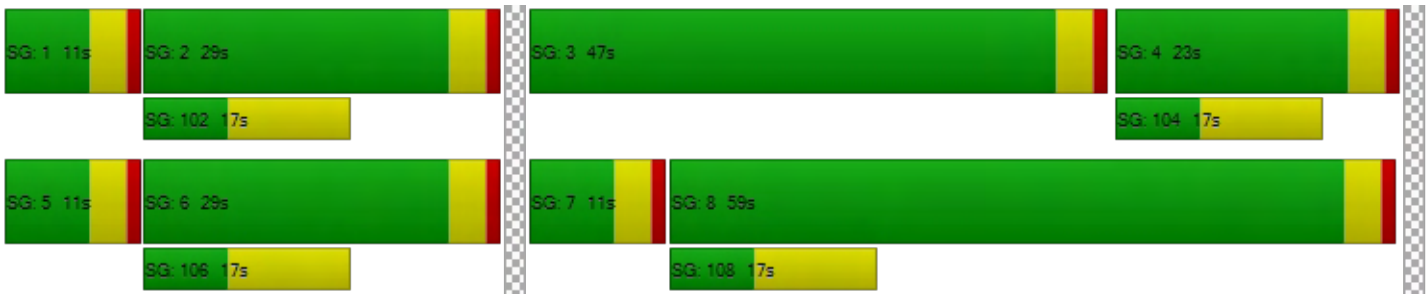
X, volume / capacity	0.26	0.29	0.08	0.26	0.23	0.47	0.47	0.14	0.15	0.14	0.44	0.46
d, Delay for Lane Group [s/veh]	51.89	36.02	33.89	54.45	35.94	41.12	27.22	14.97	15.19	51.28	43.07	45.97
Lane Group LOS	D	D	C	D	D	D	C	B	B	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.82	2.60	0.64	0.92	2.25	4.27	6.40	1.63	1.64	0.49	3.39	3.64
50th-Percentile Queue Length [ft/ln]	20.49	65.12	16.07	22.88	56.18	106.76	159.96	40.71	41.04	12.16	84.63	91.11
95th-Percentile Queue Length [veh/ln]	1.48	4.69	1.16	1.65	4.04	7.66	10.55	2.93	2.96	0.88	6.09	6.56
95th-Percentile Queue Length [ft/ln]	36.88	117.22	28.92	41.18	101.12	191.49	263.67	73.28	73.88	21.89	152.34	164.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.8	51.8	36.0	33.8	54.4	54.4	35.9	41.1	27.22	15.01	15.19	51.2	51.2	43.6	45.9
Movement LOS	D	D	D	C	D	D	D	D	C	B	B	D	D	D	D
d_A, Approach Delay [s/veh]	38.68				40.71				20.69			44.32			
Approach LOS	D				D				C			D			
d_I, Intersection Delay [s/veh]	33.16														
Intersection LOS	C														
Intersection V/C	0.400														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Project West Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	302	0	0	389
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	16	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	318	8	0	389
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	84	2	0	102
Total Analysis Volume [veh/h]	0	2	335	8	0	409
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.04	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.21	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.04		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Project Central Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	291	0	0	398
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	10	7	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	301	7	0	398
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	79	2	0	105
Total Analysis Volume [veh/h]	0	2	317	7	0	419
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	9.97	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.21	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.97		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 4: Project East Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	291	0	0	398
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	3	8	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	294	8	0	398
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	77	2	0	105
Total Analysis Volume [veh/h]	0	2	309	8	0	419
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	9.94	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.21	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.94		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	3	2	12	288	389	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	17	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	12	305	389	9
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	3	84	108	2
Total Analysis Volume [veh/h]	3	2	13	338	431	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

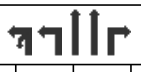
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.53	10.46	10.08	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.70	0.70	1.37	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.70		0.37		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.24					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.623

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	86	244	36	0	130	405	559	176	281	43	0	12	389	33
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	16	1	1	0	0	0	0	0	8	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	102	245	37	0	130	405	559	176	289	43	0	12	389	33
Peak Hour Factor	1.00	0.93	0.93	0.93	1.00	0.93	0.93	0.93	0.9370	0.9370	0.9370	1.00	0.93	0.93	0.93
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	27	65	10	0	35	108	149	47	77	11	0	3	104	9
Total Analysis Volume [veh/h]	0	109	261	39	0	139	432	597	188	308	46	0	13	415	35
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	45	0	0	24	58	0	20	30	0	0	11	21	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	41	41	20	54	54	16	26	26	7	17	17
g / C, Green / Cycle	0.06	0.37	0.37	0.18	0.49	0.49	0.15	0.24	0.24	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.03	0.07	0.02	0.08	0.23	0.38	0.11	0.07	0.07	0.01	0.08	0.09
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1743	1774	3547	1790
c, Capacity [veh/h]	219	1322	590	323	914	777	258	838	412	113	548	277
d1, Uniform Delay [s]	49.80	23.36	22.19	39.95	18.56	22.88	44.92	34.35	34.42	48.58	42.91	42.98
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.85	0.33	0.22	4.16	1.75	7.18	16.50	0.84	1.76	2.06	3.82	7.73
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

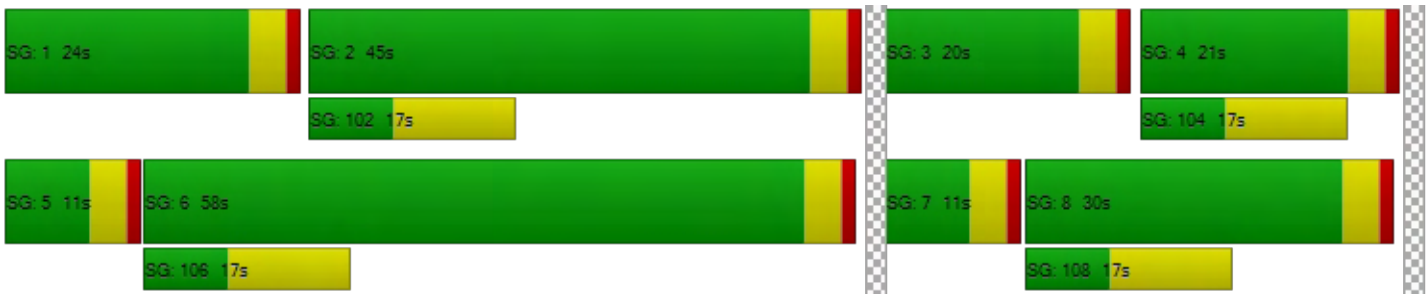
X, volume / capacity	0.50	0.20	0.07	0.43	0.47	0.77	0.73	0.28	0.29	0.12	0.54	0.55
d, Delay for Lane Group [s/veh]	57.64	23.69	22.40	44.11	20.31	30.06	61.42	35.19	36.17	50.64	46.73	50.71
Lane Group LOS	E	C	C	D	C	C	E	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.66	2.29	0.67	3.64	7.32	13.26	5.92	2.59	2.72	0.39	3.90	4.31
50th-Percentile Queue Length [ft/ln]	41.53	57.28	16.71	90.99	182.91	331.46	148.09	64.71	67.97	9.82	97.56	107.85
95th-Percentile Queue Length [veh/ln]	2.99	4.12	1.20	6.55	11.75	19.23	9.91	4.66	4.89	0.71	7.02	7.72
95th-Percentile Queue Length [ft/ln]	74.76	103.10	30.07	163.78	293.80	480.74	247.87	116.48	122.34	17.67	175.61	193.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	57.6	57.6	23.6	22.4	44.1	44.1	20.3	30.0	61.42	35.42	36.17	50.6	50.6	47.8	50.7
Movement LOS	E	E	C	C	D	D	C	C	E	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	32.62				28.12				44.50			48.15			
Approach LOS	C				C				D			D			
d_I, Intersection Delay [s/veh]	35.87														
Intersection LOS	D														
Intersection V/C	0.623														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Project West Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	447	0	0	465
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	6	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	9	453	3	0	465
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	119	1	0	122
Total Analysis Volume [veh/h]	0	9	477	3	0	489
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.63	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.06	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.63		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Project Central Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.5
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	419	0	0	468
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	12	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	431	3	0	468
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	113	1	0	123
Total Analysis Volume [veh/h]	0	7	454	3	0	493
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.52	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.03	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.80	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.52		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Project East Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	419	0	0	468
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	16	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	9	435	3	0	468
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	114	1	0	123
Total Analysis Volume [veh/h]	0	9	458	3	0	493
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	10.55	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.04	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.55		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.10					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	14	11	2	405	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	15	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	11	2	420	465	3
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	1	110	121	1
Total Analysis Volume [veh/h]	15	11	2	439	486	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.32	10.96	10.27	0.00	0.00	0.00
Movement LOS	B	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.96	3.96	0.22	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.32		0.05		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	B					

Opening Year (2023) Without Project

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	38.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.632

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	48	208	23	0	25	88	152	291	254	63	0	14	308	58
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.06	1.00	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	29	52	83	0	66	50	88	88	299	31	0	81	290	65
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	80	272	107	0	93	143	249	396	568	98	0	96	616	126
Peak Hour Factor	1.00	0.89	0.89	0.89	1.00	0.89	0.89	0.89	0.8990	0.8990	0.8990	1.00	0.89	0.89	0.89
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	22	76	30	0	26	40	69	110	158	27	0	27	171	35
Total Analysis Volume [veh/h]	0	89	303	119	0	103	159	277	440	632	109	0	107	685	140
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	24	0	0	14	27	0	37	48	0	0	14	25	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	20	20	10	23	23	33	44	44	10	21	21
g / C, Green / Cycle	0.07	0.20	0.20	0.10	0.23	0.23	0.33	0.44	0.44	0.10	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.09	0.08	0.06	0.09	0.17	0.25	0.14	0.14	0.06	0.16	0.16
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1726	1774	3547	1707
c, Capacity [veh/h]	241	709	317	177	428	364	585	1561	759	177	745	358
d1, Uniform Delay [s]	44.39	34.99	34.60	43.00	32.41	35.93	29.85	18.24	18.25	43.10	36.99	37.07
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.30	1.88	3.38	13.13	2.46	13.91	8.64	0.54	1.11	14.28	6.68	13.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

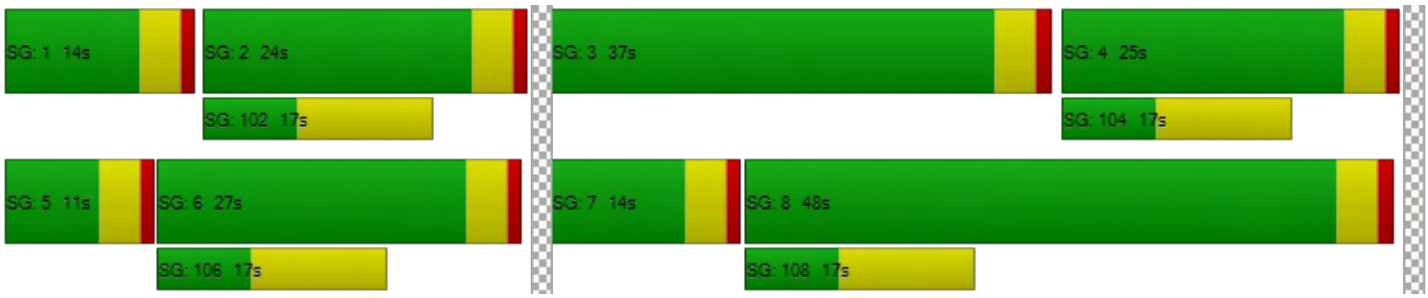
X, volume / capacity	0.37	0.43	0.38	0.58	0.37	0.76	0.75	0.32	0.32	0.60	0.75	0.75
d, Delay for Lane Group [s/veh]	48.69	36.87	37.98	56.13	34.87	49.84	38.48	18.78	19.36	57.38	43.67	50.73
Lane Group LOS	D	D	D	E	C	D	D	B	B	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.17	3.31	2.73	3.02	3.43	7.47	10.21	3.59	3.63	3.14	6.74	7.26
50th-Percentile Queue Length [ft/ln]	29.29	82.83	68.18	75.40	85.76	186.69	255.20	89.75	90.64	78.61	168.43	181.39
95th-Percentile Queue Length [veh/ln]	2.11	5.96	4.91	5.43	6.17	11.95	15.45	6.46	6.53	5.66	10.99	11.67
95th-Percentile Queue Length [ft/ln]	52.72	149.10	122.73	135.71	154.37	298.73	386.20	161.56	163.16	141.50	274.85	291.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.6	48.6	36.8	37.9	56.1	56.1	34.8	49.8	38.48	18.90	19.36	57.3	57.3	45.0	50.7
Movement LOS	D	D	D	D	E	E	C	D	D	B	B	E	E	D	D
d_A, Approach Delay [s/veh]	39.19				46.63				26.24			47.29			
Approach LOS	D				D				C			D			
d_I, Intersection Delay [s/veh]	38.01														
Intersection LOS	D														
Intersection V/C	0.632														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.4
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	3	2	12	288	389	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	448	436	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	13	753	848	10
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	208	235	3
Total Analysis Volume [veh/h]	3	2	14	834	939	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.42	13.11	14.01	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.42	1.42	2.62	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.70		0.23		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	50.8
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.822

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	86	244	36	0	130	405	559	176	281	43	0	12	389	33
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.06	1.00	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	48	95	0	78	62	58	103	368	28	0	68	211	46
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	117	307	133	0	216	491	651	290	666	74	0	81	623	81
Peak Hour Factor	1.00	0.93	0.93	0.93	1.00	0.93	0.93	0.93	0.9370	0.9370	0.9370	1.00	0.93	0.93	0.93
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	31	82	35	0	58	131	174	77	178	20	0	22	166	22
Total Analysis Volume [veh/h]	0	125	328	142	0	231	524	695	309	711	79	0	86	665	86
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	37	0	0	28	54	0	24	33	0	0	12	21	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	33	33	24	50	50	20	29	29	8	17	17
g / C, Green / Cycle	0.06	0.30	0.30	0.22	0.45	0.45	0.18	0.26	0.26	0.07	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.09	0.13	0.28	0.44	0.17	0.15	0.15	0.05	0.14	0.14
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1769	1774	3547	1756
c, Capacity [veh/h]	219	1064	475	387	847	720	323	935	466	129	548	271
d1, Uniform Delay [s]	50.04	29.70	29.61	38.65	22.77	29.17	44.58	35.02	35.04	49.70	45.77	45.85
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.34	0.75	1.61	6.64	3.39	26.14	40.50	2.45	4.89	24.04	22.07	37.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

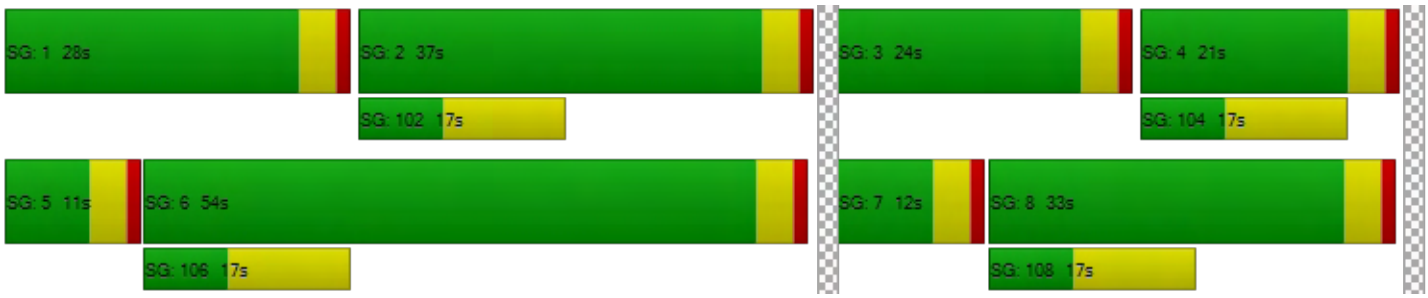
X, volume / capacity	0.57	0.31	0.30	0.60	0.62	0.97	0.96	0.56	0.56	0.67	0.91	0.92
d, Delay for Lane Group [s/veh]	60.38	30.45	31.21	45.29	26.15	55.30	85.08	37.47	39.93	73.74	67.84	83.75
Lane Group LOS	E	C	C	D	C	E	F	D	D	E	E	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.95	3.37	3.03	6.17	10.51	21.74	11.65	6.17	6.49	3.10	8.17	9.36
50th-Percentile Queue Length [ft/ln]	48.85	84.33	75.70	154.30	262.86	543.42	291.22	154.31	162.37	77.50	204.22	234.07
95th-Percentile Queue Length [veh/ln]	3.52	6.07	5.45	10.25	15.83	29.38	17.25	10.25	10.67	5.58	12.86	14.38
95th-Percentile Queue Length [ft/ln]	87.92	151.79	136.26	256.16	395.80	734.57	431.15	256.17	266.85	139.50	321.41	359.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.3	60.3	30.4	31.2	45.2	45.2	26.1	55.3	85.08	38.11	39.93	73.7	73.7	71.7	83.7
Movement LOS	E	E	C	C	D	D	C	E	F	D	D	E	E	E	F
d_A, Approach Delay [s/veh]	36.92				43.17				51.45			73.21			
Approach LOS	D				D				D			E			
d_I, Intersection Delay [s/veh]	50.84														
Intersection LOS	D														
Intersection V/C	0.822														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.2
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.071

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	14	11	2	405	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	541	325	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	12	2	970	818	3
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	1	253	214	1
Total Analysis Volume [veh/h]	16	13	2	1014	855	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.18	13.63	12.89	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.99	7.99	0.33	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.35		0.03		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	C					

Opening Year (2023) With Project

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	39.9
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	48	208	23	0	25	88	152	291	254	63	0	14	308	58
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.06	1.00	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	32	52	86	0	67	50	88	88	319	31	0	81	290	65
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	83	272	110	0	94	143	249	396	588	98	0	96	616	126
Peak Hour Factor	1.00	0.89	0.89	0.89	1.00	0.89	0.89	0.89	0.8990	0.8990	0.8990	1.00	0.89	0.89	0.89
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	23	76	31	0	26	40	69	110	164	27	0	27	171	35
Total Analysis Volume [veh/h]	0	92	303	122	0	105	159	277	440	654	109	0	107	685	140
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	26	0	0	15	30	0	41	54	0	0	15	28	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	22	22	11	26	26	37	50	50	11	24	24
g / C, Green / Cycle	0.06	0.20	0.20	0.10	0.24	0.24	0.34	0.45	0.45	0.10	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.03	0.09	0.08	0.06	0.09	0.17	0.25	0.14	0.14	0.06	0.16	0.16
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1730	1774	3547	1707
c, Capacity [veh/h]	219	709	317	177	440	374	597	1612	786	177	774	372
d1, Uniform Delay [s]	49.55	38.49	38.14	47.35	35.07	38.87	32.21	19.13	19.13	47.41	39.85	39.94
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.81	1.88	3.52	13.69	2.29	12.39	7.94	0.52	1.07	14.28	5.65	11.66
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

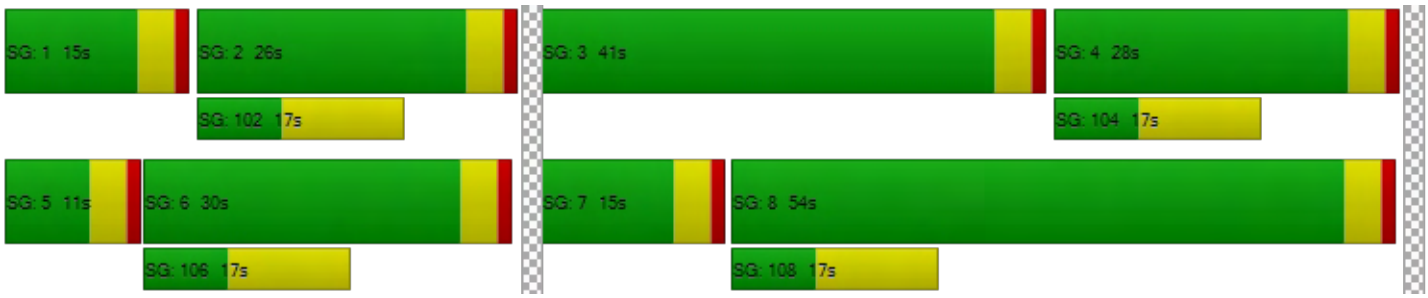
X, volume / capacity	0.42	0.43	0.39	0.59	0.36	0.74	0.74	0.32	0.32	0.60	0.72	0.73
d, Delay for Lane Group [s/veh]	55.35	40.37	41.66	61.05	37.36	51.26	40.15	19.65	20.20	61.69	45.50	51.59
Lane Group LOS	E	D	D	E	D	D	D	B	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.37	3.68	3.10	3.37	3.76	8.00	11.09	4.04	4.07	3.43	7.29	7.72
50th-Percentile Queue Length [ft/ln]	34.28	92.04	77.49	84.29	93.91	200.03	277.36	101.01	101.77	85.73	182.33	193.11
95th-Percentile Queue Length [veh/ln]	2.47	6.63	5.58	6.07	6.76	12.64	16.56	7.27	7.33	6.17	11.72	12.28
95th-Percentile Queue Length [ft/ln]	61.71	165.67	139.47	151.71	169.04	316.00	413.92	181.82	183.19	154.31	293.05	307.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	55.3	55.3	40.3	41.6	61.0	61.0	37.3	51.2	40.15	19.77	20.20	61.6	61.6	46.6	51.5
Movement LOS	E	E	D	D	E	E	D	D	D	B	C	E	E	D	D
d_A, Approach Delay [s/veh]	43.34				49.07				27.26			49.13			
Approach LOS	D				D				C			D			
d_I, Intersection Delay [s/veh]	39.94														
Intersection LOS	D														
Intersection V/C	0.631														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Project West Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	302	0	0	389
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	464	8	0	436
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	784	8	0	848
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	206	2	0	223
Total Analysis Volume [veh/h]	0	2	825	8	0	893
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.23	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.23		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Project Central Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	291	0	0	398
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	458	7	0	436
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	766	7	0	858
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	202	2	0	226
Total Analysis Volume [veh/h]	0	2	806	7	0	903
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.12	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.12		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Project East Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	291	0	0	398
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	451	8	0	436
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	759	8	0	858
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	200	2	0	226
Total Analysis Volume [veh/h]	0	2	799	8	0	903
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	12.09	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.30	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.09		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.01					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.6
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	3	2	12	288	389	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	465	436	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	2	13	770	848	10
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	213	235	3
Total Analysis Volume [veh/h]	3	2	14	853	939	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.58	13.11	14.01	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.43	1.43	2.62	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.79		0.23		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: Indian St (NS) at Harley Knox Blvd (EW)

Control Type:	Signalized	Delay (sec / veh):	51.0
Analysis Method:	HCM 2010	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name															
Approach	Northbound				Southbound				Eastbound			Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0
No. of Lanes in Pocket	2	0	0	0	1	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	206.	100.	100.	100.	424.	100.	100.	100.	357.00	100.00	100.00	198.	100.	100.	100.
Speed [mph]	40.00				40.00				45.00			45.00			
Grade [%]	0.00				0.00				0.00			0.00			
Crosswalk	Yes				Yes				Yes			Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	86	244	36	0	130	405	559	176	281	43	0	12	389	33
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.06	1.00	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	42	49	96	0	78	62	58	103	376	28	0	68	211	46
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	133	308	134	0	216	491	651	290	674	74	0	81	623	81
Peak Hour Factor	1.00	0.93	0.93	0.93	1.00	0.93	0.93	0.93	0.9370	0.9370	0.9370	1.00	0.93	0.93	0.93
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	35	82	36	0	58	131	174	77	180	20	0	22	166	22
Total Analysis Volume [veh/h]	0	142	329	143	0	231	524	695	309	719	79	0	86	665	86
Presence of On-Street Parking	No			No	No			No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0				0				0			0			
Bicycle Volume [bicycles/h]	0				0				0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	4.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm
Signal group	0	5	2	0	0	1	6	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	-	Lead	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	7	7	0	0	7	7	0	7	7	0	0	7	7	0
Maximum Green [s]	0	30	30	0	0	30	30	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	11	37	0	0	28	54	0	24	33	0	0	12	21	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	7	0	0	0	7	0	0	7	0	0	0	7	0
Pedestrian Clearance [s]	0	0	10	0	0	0	10	0	0	10	0	0	0	10	0
Rest In Walk			No				No			No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No			No	No		No	No			No	No	
Maximum Recall		No	No			No	No		No	No			No	No	
Pedestrian Recall		No	No			No	No		No	No			No	No	
Detector Location [ft]	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	0.0	0.0
Detector Length [ft]	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	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	110	110	110	110	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	33	33	24	50	50	20	29	29	8	17	17
g / C, Green / Cycle	0.06	0.30	0.30	0.22	0.45	0.45	0.18	0.26	0.26	0.07	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.09	0.09	0.13	0.28	0.44	0.17	0.15	0.15	0.05	0.14	0.14
s, saturation flow rate [veh/h]	3445	3547	1583	1774	1863	1583	1774	3547	1770	1774	3547	1756
c, Capacity [veh/h]	219	1064	475	387	847	720	323	935	467	129	548	271
d1, Uniform Delay [s]	50.30	29.71	29.63	38.65	22.77	29.17	44.58	35.08	35.10	49.70	45.77	45.85
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.88	0.76	1.62	6.64	3.39	26.14	40.50	2.51	4.99	24.04	22.07	37.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

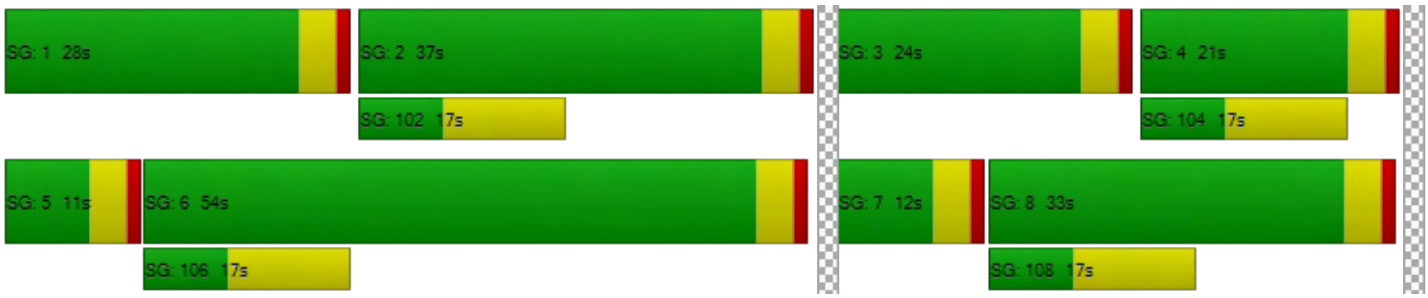
X, volume / capacity	0.65	0.31	0.30	0.60	0.62	0.97	0.96	0.57	0.57	0.67	0.91	0.92
d, Delay for Lane Group [s/veh]	64.17	30.46	31.25	45.29	26.15	55.30	85.08	37.59	40.09	73.74	67.84	83.75
Lane Group LOS	E	C	C	D	C	E	F	D	D	E	E	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.29	3.38	3.05	6.17	10.51	21.74	11.65	6.25	6.58	3.10	8.17	9.36
50th-Percentile Queue Length [ft/ln]	57.35	84.62	76.30	154.30	262.86	543.42	291.22	156.22	164.49	77.50	204.22	234.07
95th-Percentile Queue Length [veh/ln]	4.13	6.09	5.49	10.25	15.83	29.38	17.25	10.35	10.79	5.58	12.86	14.38
95th-Percentile Queue Length [ft/ln]	103.24	152.31	137.33	256.16	395.80	734.57	431.15	258.70	269.66	139.50	321.41	359.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.1	64.1	30.4	31.2	45.2	45.2	26.1	55.3	85.08	38.24	40.09	73.7	73.7	71.7	83.7
Movement LOS	E	E	C	C	D	D	C	E	F	D	D	E	E	E	F
d_A, Approach Delay [s/veh]	38.44				43.17				51.45			73.21			
Approach LOS	D				D				D			E			
d_I, Intersection Delay [s/veh]	51.01														
Intersection LOS	D														
Intersection V/C	0.827														

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Project West Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	447	0	0	465
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	547	3	0	325
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	9	1021	3	0	818
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	1.0000	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	269	1	0	215
Total Analysis Volume [veh/h]	0	9	1075	3	0	861
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.83	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.07	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.65	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.83		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Project Central Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	419	0	0	468
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	7	553	3	0	325
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	7	997	3	0	821
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	262	1	0	216
Total Analysis Volume [veh/h]	0	7	1049	3	0	864
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.61	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.25	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.61		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Project East Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	419	0	0	468
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.06	1.06	1.06	1.00	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	557	3	0	325
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	9	1001	3	0	821
Peak Hour Factor	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	263	1	0	216
Total Analysis Volume [veh/h]	0	9	1054	3	0	864
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	13.69	0.00	0.00	0.00	0.00
Movement LOS		B	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.07	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.63	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	13.69		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 5: 400 Harley Knox Blvd Dwy (NS) at Harley Knox Blvd (EW)

Control Type:	Two-way stop	Delay (sec / veh):	22.3
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.071

Intersection Setup

Name						
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	14	11	2	405	465	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	556	325	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	12	2	985	818	3
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	1	257	214	1
Total Analysis Volume [veh/h]	16	13	2	1029	855	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.03	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.31	13.64	12.89	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.01	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.04	8.04	0.33	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.42		0.03		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	C					

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