PARK PLAZA REDEVELOPMENT

Traffic Impact Analysis

July 2016

Updated from April 2016

Prepared By:

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Park Plaza Redevelopment

TRAFFIC IMPACT ANALYSIS

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Contents

Exhibits

Tables

EXECUTIVE SUMMARY

This report documents a traffic impact analysis performed for the proposed Park Plaza redevelopment located on the west side of Hillcrest Avenue between Daniel Avenue and Haynie Avenue in the City of University Park, Texas. Based on information provided by Strode Property Company, the redevelopment is proposed to include 85,900 square feet of general office, 27,285 square feet of shopping center, and 19,595 square feet of restaurant. The redevelopment is anticipated to be completed by 2018. Access will be provided via a parking garage anticipated to have two project access driveways, one along Daniel Avenue and one along Haynie Avenue. Additional consideration was given to parking requirements and operations of the parking garage as well as other components of the site plan.

Traffic Impact Analysis

The purpose of the traffic impact analysis was to quantify the impacts that the proposed redevelopment will have on the surrounding roadway network, and to identify any mitigation measures needed to ensure that the roadways and intersections will operate at an acceptable level of service at the project build-out.

The traffic evaluation was comprised of three (3) scenarios for which both AM and PM peak hour level of service analyses were performed. For both signalized and unsignalized intersections, analysis was accomplished via *Synchro 9*™ software. The scenarios are detailed in **Table A** below.

TABLE A: ANALYSIS SCENARIOS

Scenario	Roadway Conditions	Development Assumptions	Traffic Volumes
Existing (2016)	Existing	Existing	Existing
Build Out (2018)	Existing + Parking Garage Access Driveways	Existing + Removal of Existing Building + Build Out (85,900 ft² of General Office, 27,285 ft² of Shopping Center, 19,595 ft² of Restaurant)	Existing + 2 years of Background Growth at 3% per year + Build Out Site Traffic
Improved Build Out (2018)	Existing + Parking Garage Access Driveways + Signal Timing Improvements	Existing + Removal of Existing Building + Build Out (85,900 ft² of General Office, 27,285 ft² of Shopping Center, 19,595 ft² of Restaurant)	Existing + 2 years of Background Growth at 3% per year + Build Out Site Traffic

Intersection Capacity Analysis

Based on the results of the intersection analysis, it is recommended to implement signal timing improvements to the traffic signal at Daniel Avenue and Hillcrest Avenue based on field conditions observed within the first few weeks of the opening of the Park Plaza redevelopment.

For analysis purposes, signal timings were altered slightly to maximize intersection efficiency and improve overall level of service. This was accomplished by extending green time for the northbound/southbound movements in the AM peak hour and the eastbound/westbound movements in the PM peak hour.

Roadway Capacity Analysis

Based upon the results of the roadway capacity analysis, Daniel Avenue, west of Hillcrest Avenue, operates in a tolerable condition in the Build Out (2018) scenario. The westbound direction during the PM peak hour approaches capacity and should be monitored.

Other Considerations

Neighborhood Impacts

The Park Plaza redevelopment impact on the surrounding neighborhoods is expected to be minimal. 75% of traffic is anticipated to access the site via Hillcrest Avenue and Daniel Avenue with the other 25% circulating through the neighborhood streets to the west. This 25% is expected to have the impact on the neighborhood. This additional traffic is only anticipated to add a total of 72 vehicles in the AM peak hour and 90 vehicles in the PM peak hour at the intersection of Daniel Avenue and Dickens Avenue (split between four movements). An additional 30 vehicles in the AM peak hour and 39 vehicles in the PM peak hour (split between three movements) at the Haynie Avenue and Dickens Avenue intersection are projected as well. Of this 25%, the majority is anticipated to be current residents attempting to access the shopping center or restaurants. Due to this, and the minimal affect at the two intersections along Dickens Avenue, the neighborhood impact is not anticipated to be an observable issue.

Parking

Based upon the two parking requirement analyses, the anticipated supply of 714 spaces well exceeds requirements set forth by both The City and ULI. In addition, it is anticipated that the garage will be reserved specifically for Park Plaza visitors. For this reason, the traffic impacts of potential shared parking demand from Snider Plaza visitors was not analyzed.

With the proposed location of the North Garage access driveway, the on-street parking provided along Daniel Avenue to the north may need to be removed.

Truck Traffic and Loading Zones

One service dock is anticipated to be provided on site. The location is on the south side of the site along Haynie Avenue. Truck traffic will be directed along Hillcrest Avenue when attempting to access the site. These directions are in agreement with designated truck routes outlined by The City. It is also to be stressed that trucks serving the development are anticipated to be comparable to an SU-30 (single unit 2-axle or similar) and that large trailer trucks with three or more axles are not expected to be attempting to access the site.

Pedestrian Crossing

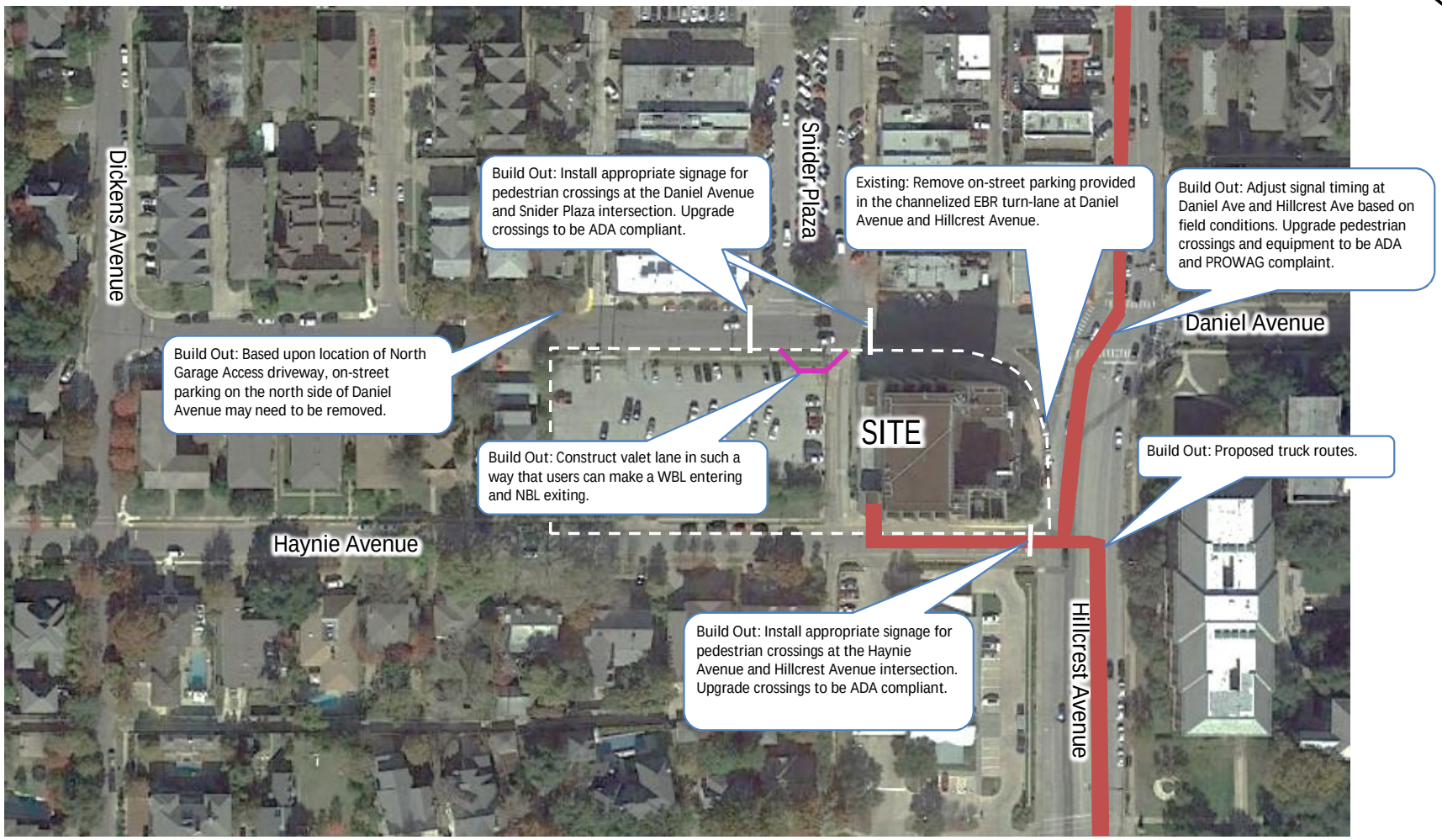
Three pedestrian crossings are indicated on the current site plan. Two will be provided at the Daniel Avenue and Snider Plaza intersection, one on the east and one on the west legs. The third is to be provided at the stop control at the intersection of Haynie Avenue and Hillcrest Avenue. Appropriate signage is recommended to be installed to make drivers well aware of these pedestrian crossings. In addition to signage, accessibility of pedestrian crossings should be reviewed and upgraded where necessary to ensure compliance with the Americans with Disabilities Act (ADA) standards. Furthermore, at the signalized intersection of Daniel Avenue and Hillcrest Avenue, pedestrian equipment should be reviewed for compliance with ADA and Public Rights-of-Way Accessibility Guidelines (PROWAG) standards.

Additional consideration should be given to the removal of the on-street parking provided in the channelized eastbound right-turn lane at the Daniel Avenue and Hillcrest Avenue intersection due to driver expectancy considerations as well as sight distance concerns for pedestrians.

Valet Drop-off

A turning simulation was carried out to check the feasibility of westbound left-turns entering the valet area of the site. The analysis was carried out using a design vehicle that simulates a large passenger car. From the simulation, it is recommended that the valet lane be constructed so it cut further into the site, by about three feet, while not impacting the location of the proposed building. With this change, it is projected that users should be able to make a left-turn into the valet area travelling westbound on Daniel Avenue and that the valet can exit turning left to access the parking garage.

Exhibit A summarizes the recommendations made.



North

Not To Scale

EXHIBIT A

Recommendations
Park Plaza TIA

Kimley»Horn

INTRODUCTION

PURPOSE

Kimley-Horn and Associates, Inc. was retained by Strode Property Company to perform a traffic impact analysis for the proposed Park Plaza redevelopment, located on the west side of Hillcrest Avenue between Daniel Avenue and Haynie Avenue in the City of University Park, Texas.

The purpose of this study is to address the traffic impacts of the proposed development on surrounding streets and intersections, and to determine if any mitigation is necessary. This traffic impact study was prepared based on criteria set forth by the City of University Park staff.

METHODOLOGY

The traffic evaluation was comprised of three (3) scenarios for which AM and PM peak hour level of service analysis were performed. All intersection analyses were completed using *Synchro 9™* software. **Table 1** provides a summary of the assumptions used in each scenario.

Table 1: Analysis Scenario

Scenario	Roadway Conditions	Development Assumptions	Traffic Volumes
Existing (2016)	Existing	Existing	Existing
Build Out (2018)	Existing + Parking Garage Access Driveways	Existing + Removal of Existing Building + Build Out (85,900 ft^2 of General Office, 27,285 ft^2 of Shopping Center, 19,595 ft^2 of Restaurant)	Existing + 2 years of growth at 3% per year, + Build Out Site Traffic
Improved Build Out (2018)	Existing + Parking Garage Access Driveways + Signal Timing Improvements	Existing + Removal of Existing Building + Build Out (85,900 ft^2 of General Office, 27,285 ft^2 of Shopping Center, 19,595 ft^2 of Restaurant)	Existing + 2 years of growth at 3% per year, + Build Out Site Traffic

A list of the intersections analyzed within the study area and their existing control can be seen below, in addition to the roadway segments analyzed:

Signalized

- Daniel Avenue & Hillcrest Avenue

Unsignalized

- Daniel Avenue & Snider Plaza
- Daniel Avenue & Dickens Avenue
- Daniel Avenue & Parking Garage North (future)
- Haynie Avenue & Parking Garage South (future)
- Haynie Avenue & Dickens Avenue
- Haynie Avenue & Hillcrest Avenue

Roadway Segments

- Hillcrest Avenue south of Daniel Avenue
- Daniel Avenue west of Hillcrest Avenue

EXISTING AND PROPOSED LAND USE

SITE LOCATION / STUDY AREA

The Park Plaza redevelopment is located on the west side of Hillcrest Avenue between Daniel Avenue and Haynie Avenue in the City of University Park, Texas. A vicinity map is provided in **Exhibit 1.**

EXISTING DEVELOPMENT

Currently, the site consists of a vacant bank/general office building and parking lot and as such does not generate traffic. Note this existing building is 27,000 square feet.

PROPOSED DEVELOPMENT

The proposed Park Plaza redevelopment includes approximately 27,285 square feet of shopping center, 85,900 square feet of general office, and 19,595 square feet of restaurant. The development is expected to be completed by 2018.

North

Not To Scale

EXHIBIT 1

Vicinity Map
Park Plaza TIA

Kimley»Horn

TRANSPORATION SYSTEM

THOROUGHFARE SYSTEM

Exhibit 2 displays the existing thoroughfares and lane assignments within the study area. The following is a general description of the major thoroughfares within the study area as they exist today.

HILLCREST AVENUE is a four (4) lane undivided arterial running generally in a north-south direction east of the site. North of the study area, Hillcrest Avenue connects to Lovers Lane, and to the south of the study area, it connects to Mockingbird Lane. On-street parking is provided in the channelized right-turn from Daniel Avenue onto Hillcrest Avenue.

DANIEL AVENUE is currently a two (2) lane undivided residential type road that runs in an east-west direction. Daniel Avenue is anticipated to provide one project access driveway to the proposed parking garage. Daniel Avenue provides access to Hillcrest Avenue to the east and Dickens Avenue to the west. On-street parking is provided along Daniel Avenue in the study area.

HAYNIE AVENUE is currently a two (2) lane undivided residential type road that runs in an east-west direction. Haynie Avenue is anticipated to provide one project access driveway to the proposed parking garage. Haynie Avenue runs parallel to Daniel Avenue and provides access to Hillcrest Avenue to the east and Dickens Avenue to the west as well. On-street parking is provided along Haynie Avenue in the study area.

DICKENS AVENUE is currently a two (2) lane undivided local type road that runs in a north-south direction. Dickens Avenue runs parallel to Hillcrest Avenue and provides access to Lovers Lane to the north and McFarlin Boulevard to the south.

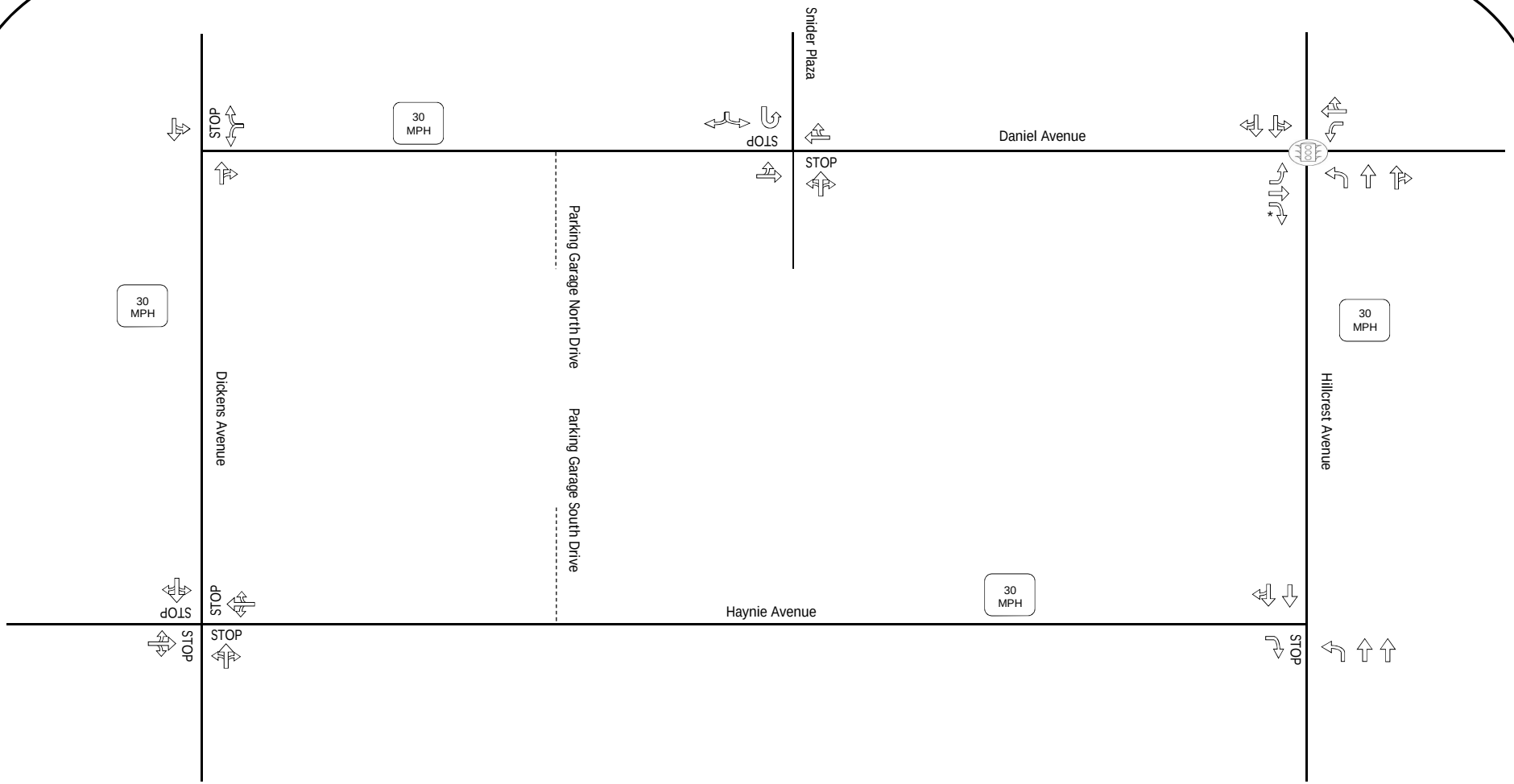
SNIDER PLAZA is currently a two (2) lane divided roadway that runs in a north-south direction. Snider Plaza provides two rows of parking in the median as well as a row on both the east and west sides. Snider Plaza provides access to Lovers Lane to the north and terminates at Daniel Avenue to the south.

During field observations, no posted speed limits were seen in the study area with the exception of a school speed zone north of the site. For this reason, it was assumed in the analysis that all roadways have an operating speed of 30 mph.

ANTICIPATED BUILD OUT YEAR (2018) ROADWAY NETWORK

Near the study area, six Hillcrest Avenue traffic signals will be replaced from Binkley Avenue to Milton Avenue. The traffic signal at Daniel Avenue is not expected to be one of these six to be replaced. No roadway improvements are anticipated within the next two years in the study area.

Exhibit 3 displays the proposed thoroughfares and lane assignments within the study area with the addition of the two garage access driveways.



LEGEND:

= Signalized Intersection

STOP = Stop-Controlled Approach

= Travel Lane

= Future Road

* = Channelized

North

Not To Scale

EXHIBIT 2

Existing Lane Use and Traffic Control
Park Plaza TIA

Kimley»Horn

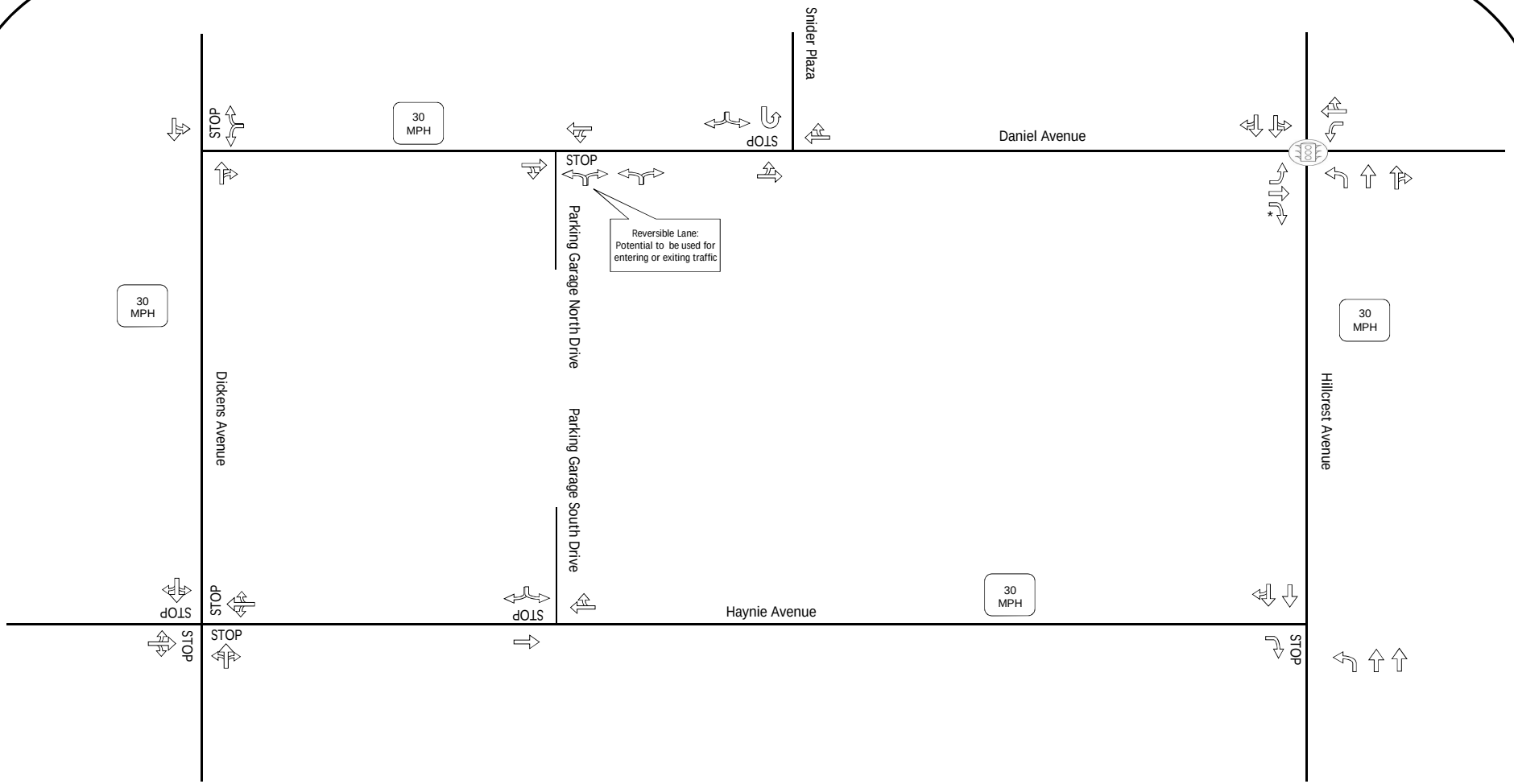


EXHIBIT 3

Proposed Lane Use and Traffic Control
Park Plaza TIA

Kimley»Horn

EXISTING TRAFFIC VOLUMES

Turning movement counts were collected during the AM and PM peak periods at the following study area intersections on Wednesday January 20th, 2016 when SMU was in session:

- Daniel Avenue & Hillcrest Avenue
- Daniel Avenue & Snider Plaza
- Daniel Avenue & Dickens Avenue
- Haynie Avenue & Dickens Avenue
- Haynie Avenue & Hillcrest Avenue

Machine tube counts were recorded for a 24 hour period on Wednesday January 20th, 2016 at the following locations:

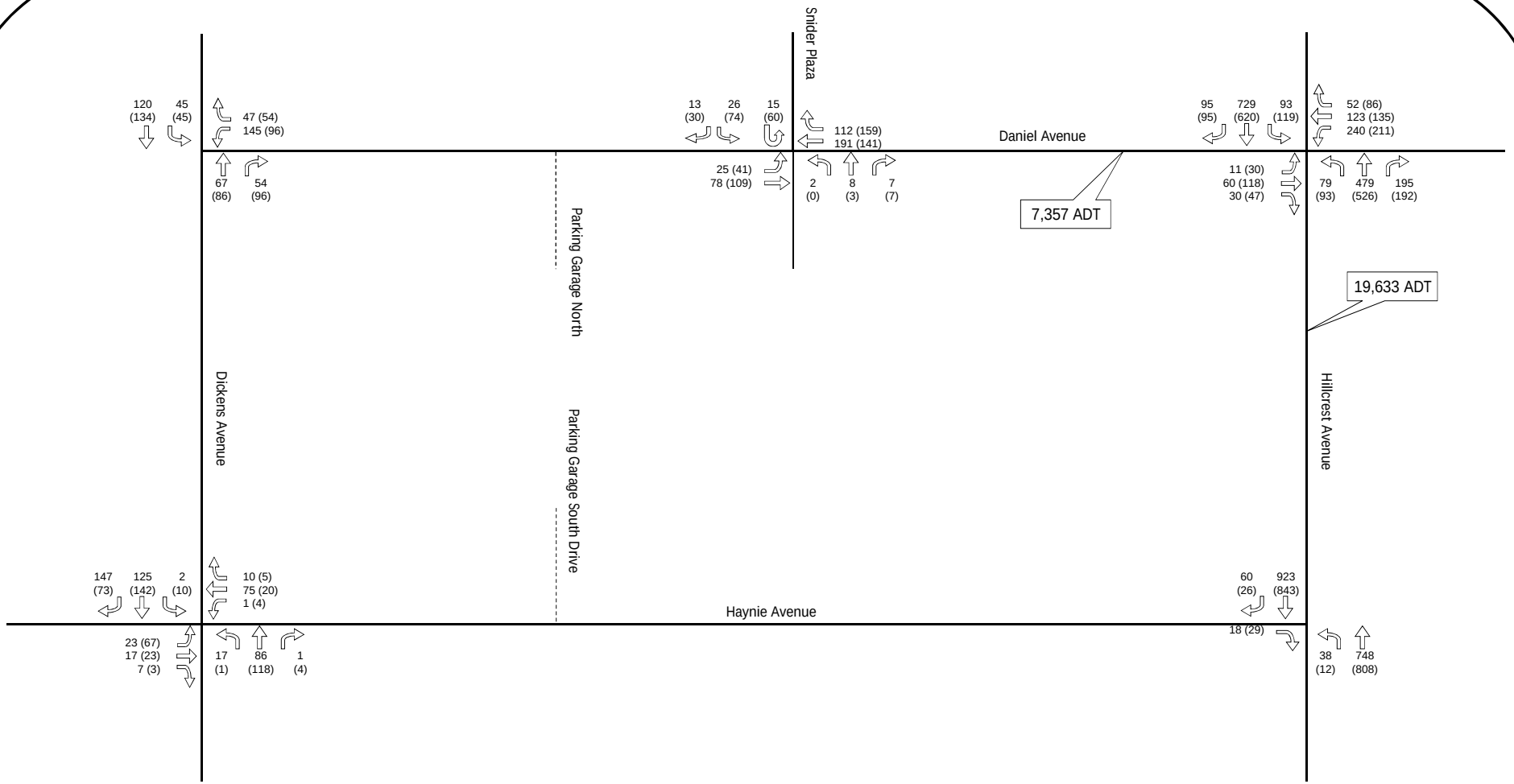
- Hillcrest Avenue south of Daniel Avenue
- Daniel Avenue west of Hillcrest Avenue

Exhibit 4 represents the collected AM and PM peak hour intersection turning movement volumes, which were used for the existing conditions analysis. This count data has been included in the **Appendix**.

ANTICIPATED BUILD OUT (2018) BACKGROUND TRAFFIC VOLUMES

Due to limited access to historic data, a generally accepted growth rate of 3% was used. This annual growth rate was used to grow existing traffic counts for two (2) years to determine the background growth for the Build Out scenario.

Exhibit 5 represents the Build Out (2018) Background turning movement volumes for the study intersections.



LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North

Not To Scale

EXHIBIT 4

Existing Traffic Volumes
Park Plaza TIA

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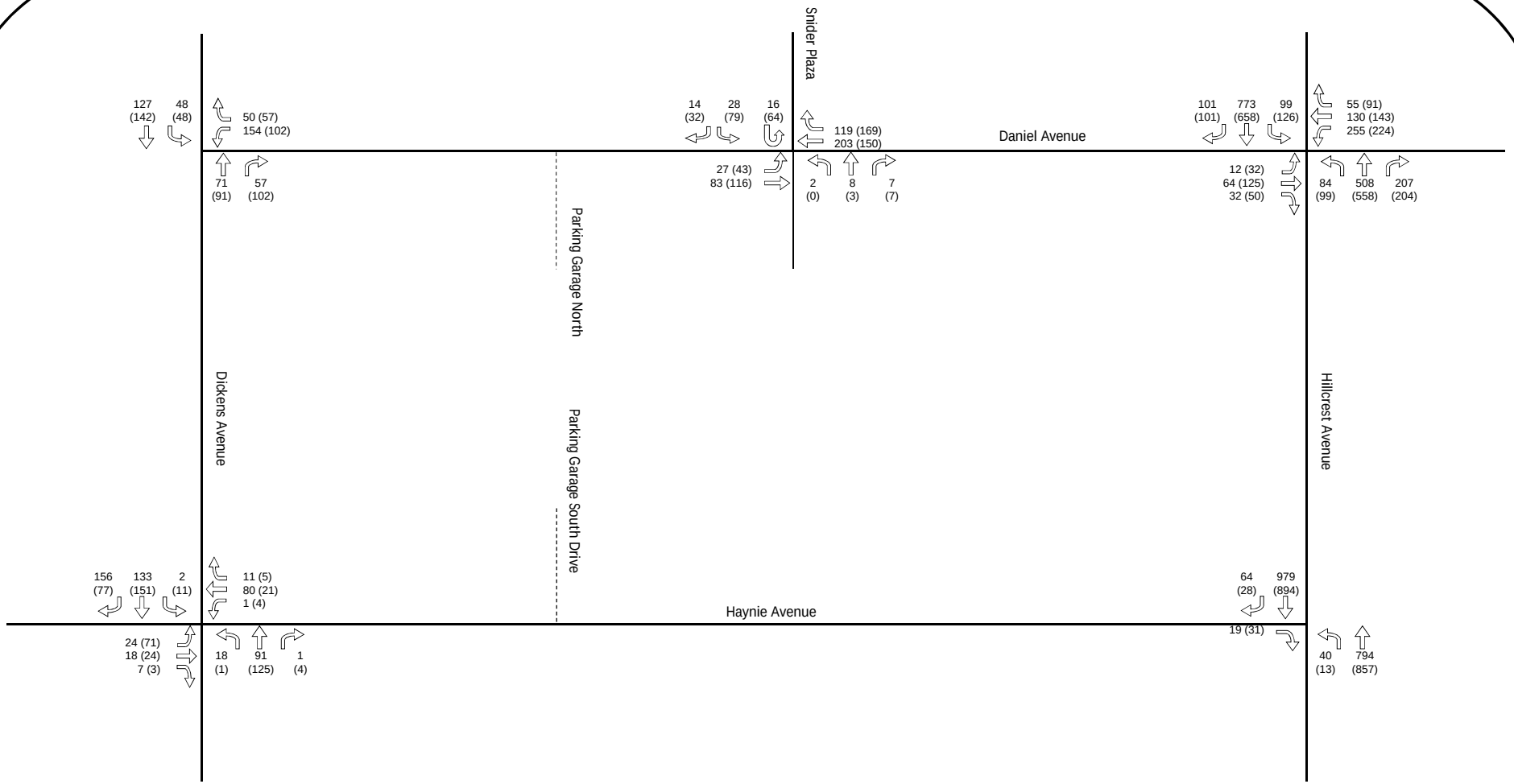


LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North

Not To Scale

EXHIBIT 5

Background Traffic Volumes
Park Plaza TIA

Kimley»Horn

SITE TRAFFIC CHARACTERISTICS

PROPOSED SITE TRIP GENERATION

Traffic projections were prepared for the Park Plaza redevelopment based on the trip generation rates and equations found in the *Institute of Transportation Engineers (ITE)* publication entitled *Trip Generation,* 9th Edition. This recognized standard for trip generation is based on actual surveys (traffic counts) of existing types of development. **Table 2** provides the rates and equations included in the ITE *Trip Generation Manual* in addition to the entering and exiting distribution splits for the redevelopment's specific land uses.

Table 2: Site Trip Generation Equations/Rates

Land Use Description	Variable	Daily		AM Peak Hour		PM Peak Hour	
		Equation/Rate	Split	Equation/Rate	Split	Equation/Rate	Split
Shopping Center (ITE #820)	1,000 Square Feet	Ln(T) = 0.65*Ln(X) + 5.83	50% In 50 % Out	Ln(T) = 0.61*Ln(X) + 2.24	62% In 38% Out	Ln(T) = 0.67*Ln(X) + 3.31	48% In 52% Out
General Office (ITE #710)	1,000 Square Feet	Ln(T) = 0.76*Ln(X) + 3.68	50% In 50 % Out	Ln(T) = 0.80*Ln(X) + 1.57	88% In 12% Out	T = 1.12*(X) + 78.45	17% In 83% Out
High-Turnover (Sit-Down) Restaurant (ITE #932)	1,000 Square Feet	127.15 * (X)	50% In 50 % Out	10.81 * (X)	55% In 45% Out	9.85 * (X)	60% In 40% Out
Number of trips generated = Trip Rate (Development Unit); X = 1,000 square feet							

Table 3 provides the total number of trips that are projected to be generated by the proposed development during the AM and PM peak hours which includes:

- 85,900 square feet of general office
- 27,285 square feet of shopping center
- 19,595 square feet of restaurant

The number of trips generated represents the number of vehicles entering and exiting the proposed development to and from the adjacent street system. Reductions to the base trip generation estimates are sometimes applied due to internal capture, pass-by trips, or mode share. Internal capture is the tendency for customers or residents to visit retail, office, or residential sections of a site in one trip, but can be counted multiple times in the trip generation since the methodology assumes developments are isolated. Internal capture reductions were performed, consistent with the procedures from ITE's *Trip Generation Manual*. Once internal capture was accounted for, pass-by trip reduction could be considered. Pass-by capture rates of 34% and 43% were used for the PM peak hour for shopping center and restaurant land uses, respectively. Pass-by capture rates were based on information provided in ITE's *Trip Generation Handbook*.

Worksheets summarizing the internal capture anticipate to occur on site can be found in the **Appendix**.

Table 3: Proposed Trip Generation

Land Use Description	ITE Code	Intensity / Units	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Build Out (2018) External Trips									
General Office	710	85,900 SF	1,170	149	20	169	30	145	175
Shopping Center	820	27,285 SF	2,919	44	27	71	120	131	251
Restaurant*	932	19,595 SF	2,492	58	48	106	116	77	193
Build Out (2018) Internal Capture Trips									
General Office	710	85,900 SF	189	2	4	6	6	4	10
Shopping Center	820	27,285 SF	825	14	9	23	17	27	44
Restaurant*	932	19,595 SF	810	10	13	23	25	17	42
EXTERNAL BUILD OUT (2018) TRIPS			**4,757**	**225**	**69**	**294**	**218**	**305**	**523**
Build Out (2018) Pass-By Trips									
Shopping Center (34% Reduction in PM)	820	27,285 SF	n/a	0	0	0	34	36	70
Restaurant (43% Reduction in PM)	932	19,595 SF	n/a	0	0	0	39	26	65
NET NEW EXTERNAL BUILD OUT (2018) TRIPS			**4,757**	**225**	**69**	**294**	**145**	**243**	**388**

*Average Rates Used When Equations are not Available. For AM peak it is assumed that only 50% of the restaurant space will be open.

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

The distribution and assignment of site traffic to the study area roadway network was based on existing traffic patterns, the locations of the proposed driveway access to/from the site, and the anticipated local traffic patterns.

Based on a review of recent traffic data and an examination of the existing roadway network, reasonable assumptions for the trip distribution were made. The following percentages of trip distribution were assumed on the surrounding roadway network:

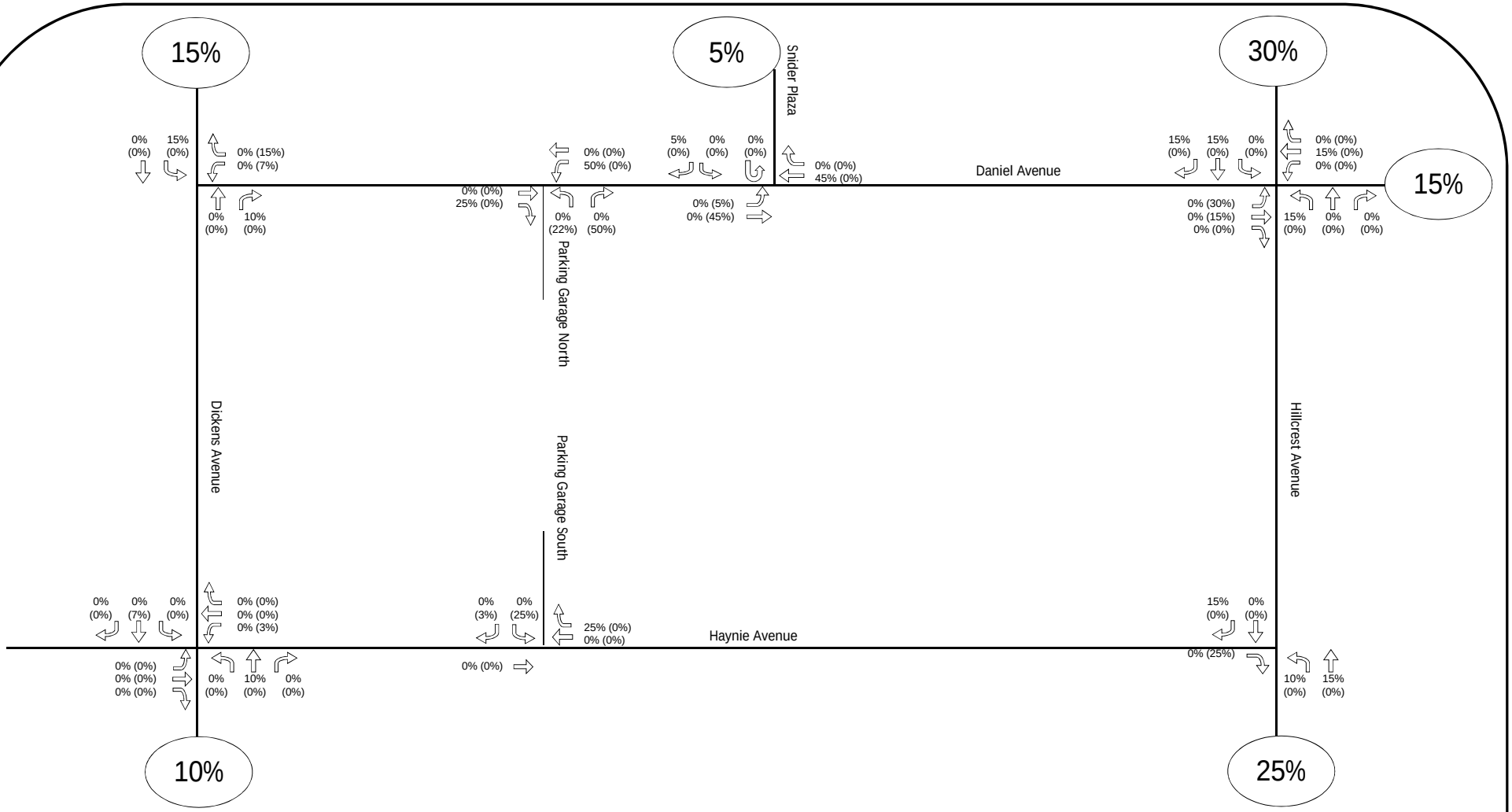
- 30% - Hillcrest Avenue, north of Daniel Avenue
- 25% - Hillcrest Avenue, south of Haynie Avenue
- 15% - Daniel Avenue, east of Hillcrest Avenue
- 15% - Dickens Avenue, north of Daniel Avenue
- 10% - Dickens Avenue, south of Haynie Avenue
- 5% - Snider Plaza, north of Daniel Avenue

The site trip distribution used for Build Out (2018) is shown in **Exhibit 6**.

The anticipated turning movement volumes were computed based on the trip generation information and directional distribution assumptions. Multiplying the trip generation by the traffic assignment percentages results in the turning movements at each intersection. **Exhibit 7** shows the projected trip assignment for the site. Pass-by distribution percentages are included in **Exhibit 8**. These percentages were applied to the pass-by trip generation numbers to obtain pass-by trip assignment (**Exhibit 9**). **Exhibit 10** combines site trip assignment (**Exhibit 7**) and pass-by trip assignment (**Exhibit 9**) to obtained total site traffic volumes.

Build Out total traffic volumes for the AM and PM peak hours are presented in **Exhibit 11**. These volumes were estimated by combining the anticipated Build Out site traffic volumes (**Exhibit 10**) with the projected Build Out Background traffic volumes (**Exhibit 5**).

It should be noted that the existing northbound traffic at Daniel Avenue and Snider Plaza was rerouted through the study area intersections for the Build Out scenario.



LEGEND:
X% (Y%)
X% = Percentage of Inbound Site-Generated Traffic
Y% = Percentage of Outbound Site-Generated Traffic

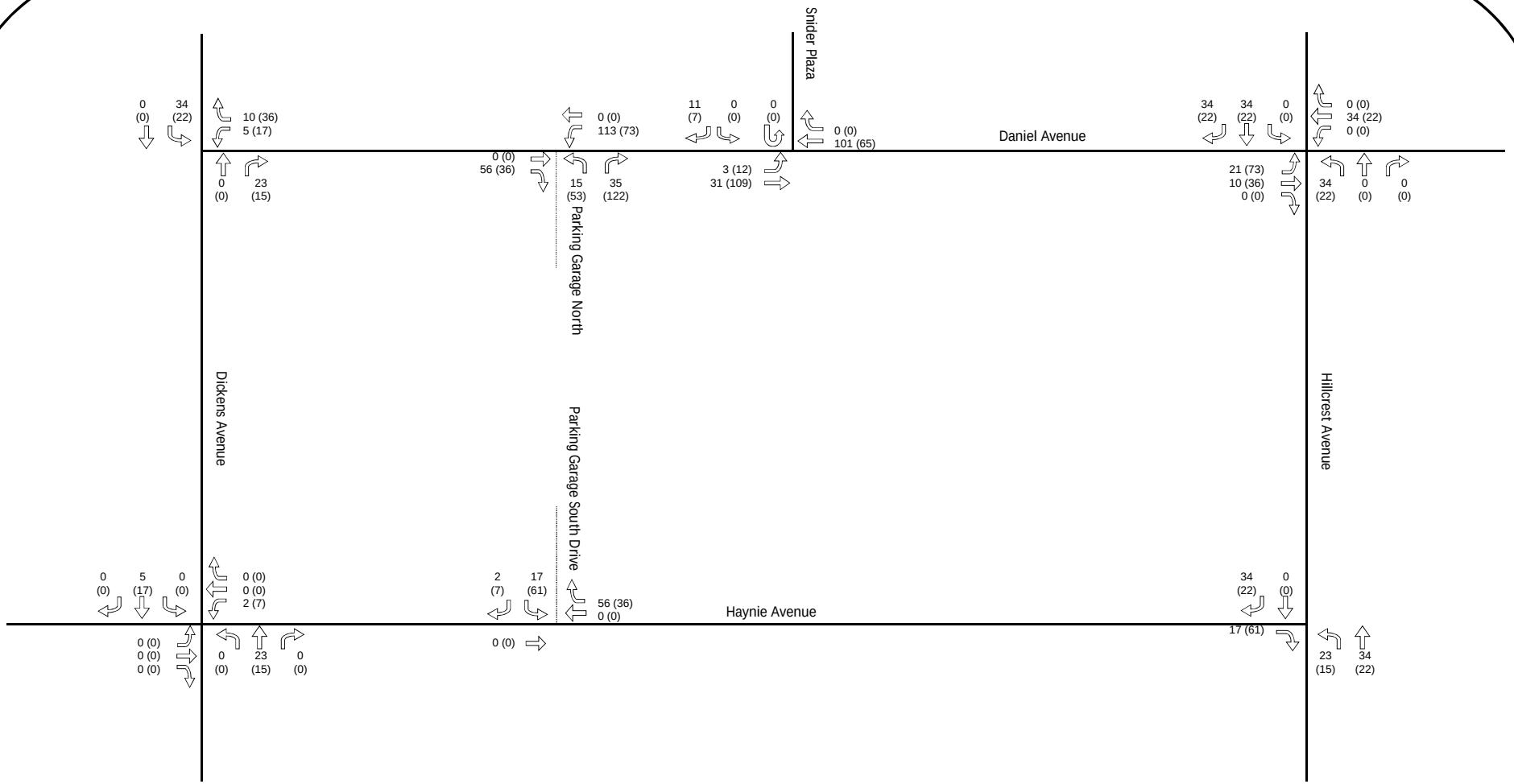
North

Not To Scale

EXHIBIT 6

Trip Distribution
Park Plaza TIA

Kimley»Horn



LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North

Not To Scale

EXHIBIT 7

Trip Assignment
Park Plaza TIA

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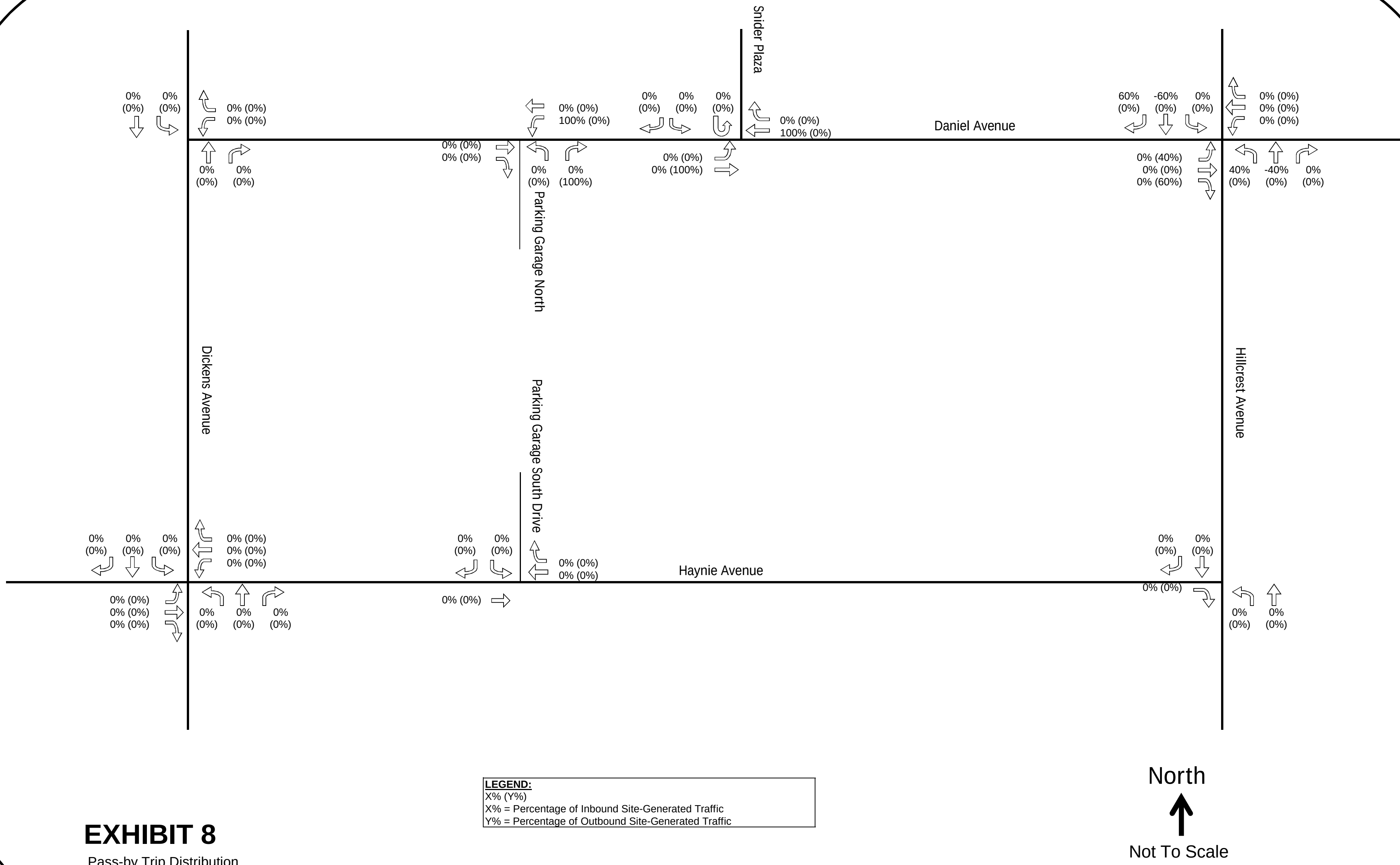
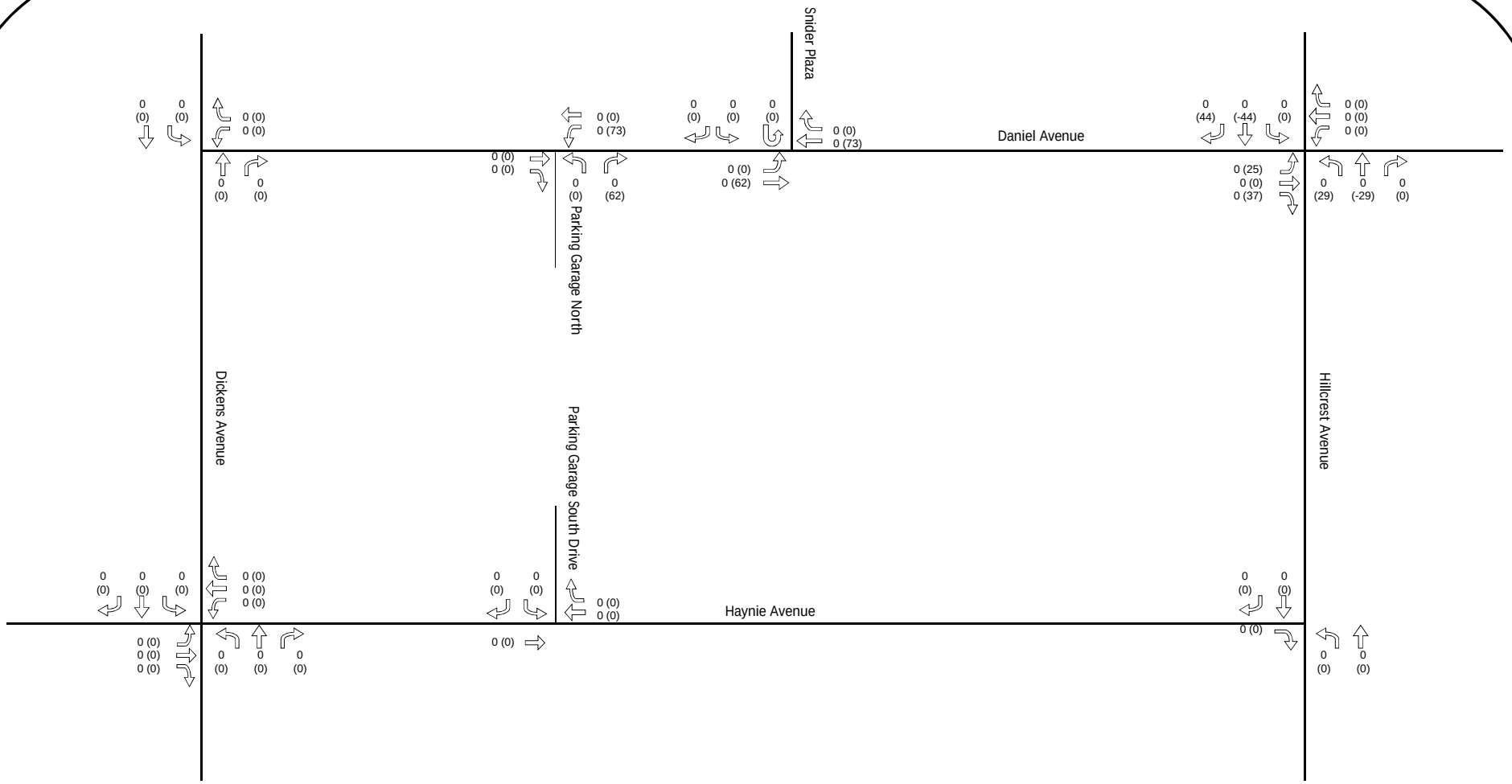


LEGEND:
X% (Y%)
X% = Percentage of Inbound Site-Generated Traffic
Y% = Percentage of Outbound Site-Generated Traffic

EXHIBIT 8

Pass-by Trip Distribution
Park Plaza TIA

Kimley»Horn



LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

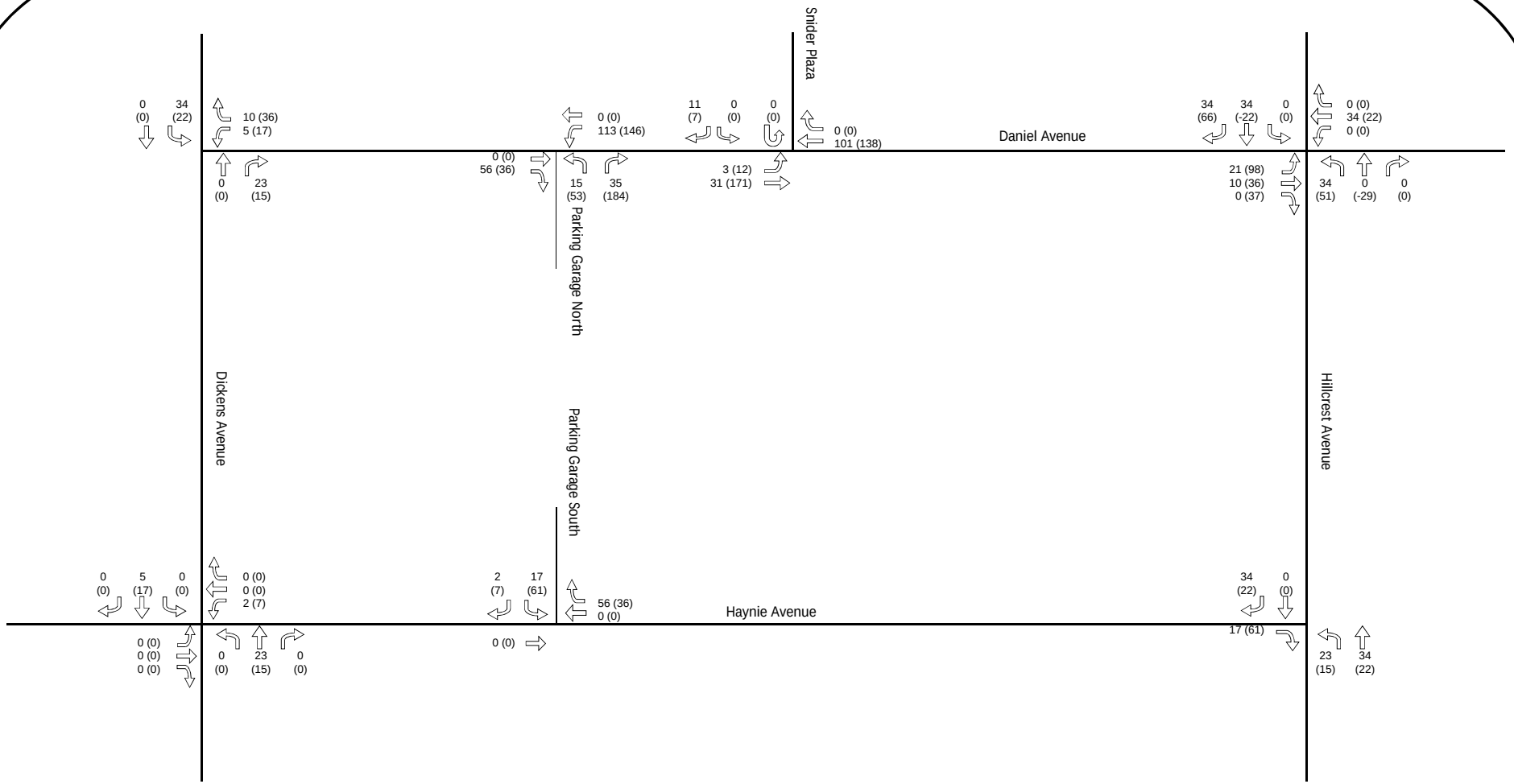
North

Not To Scale

EXHIBIT 9

Pass-by Trip Assignment
Park Plaza TIA

Kimley»Horn



LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North

Not To Scale

EXHIBIT 10

Total Site Traffic Volumes
Park Plaza TIA

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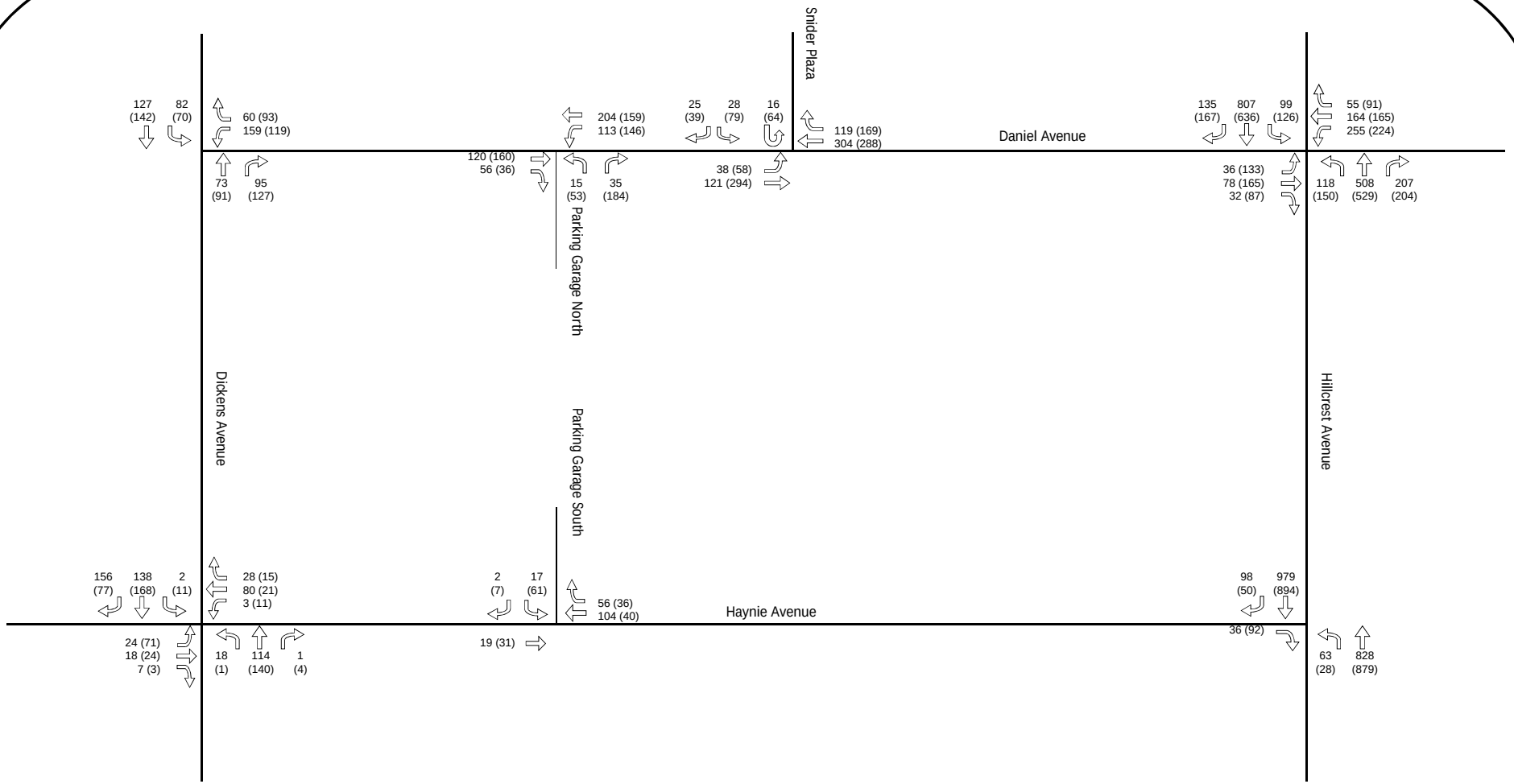


LEGEND:
X (Y)
X = AM Peak Hour Turning Movements
Y = PM Peak Hour Turning Movements
Volumes may not sum from point to point due to rounding and presence of smaller driveways not included in analysis.

North

Not To Scale

EXHIBIT 11

Build Out Total Traffic Volumes
Park Plaza TIA

Kimley»Horn

SITE DRIVEWAY ACCESS

Access to the Park Plaza redevelopment is provided via a parking garage anticipated to have two (2) project access locations, one (1) along Daniel Avenue (Garage North) and one (1) along Haynie Avenue (Garage South). The Parking Garage South access driveway is planned to be right-in, left-out. Due to the difficulties anticipated in prohibiting right-outs, some site traffic was assigned to make this movement out of the Parking Garage South gate onto Haynie Avenue. However, eastbound left-turns can be physically restricted by the design of the driveway. The distribution and assignment of site traffic at the driveway locations can be seen in **Exhibits 6** and **7**. It should be noted that the on-street parking provided on the north side of Daniel Avenue may need to be removed based on the proposed location of the Parking Garage North access driveway.

The conceptual site plan provided in the **Appendix** shows the anticipated access to the parking garage.

SIGHT DISTANCE

Based on field observations the proposed driveways are expected to have adequate sight distance. Some vegetation may need to be trimmed west of the anticipated Parking Garage North access driveway along Daniel Avenue to provide a clear line of sight.

AUXILIARY LANE ANALYSIS

Right-Turn Deceleration Lanes

The City of University Park defaults to criteria for auxiliary lanes set forth in TxDOT's *Access Management Manual*. Per Table 2.3 (Auxiliary Lane Thresholds), a right-turn deceleration lane should be considered on roads with a posted speed of 45 mph or less if the projected right-turn volume into a driveway is greater than 60 vehicles per hour (vph). As shown in **Table 4**, the right-turn deceleration lane threshold is not projected to be exceeded in the AM or PM peak hour at either Parking Garage access location.

Table 4: Build Out Right-Turn Deceleration Lane Analysis

INTERSECTION	Posted Speed	Volume Threshold	AM Peak Hour		PM Peak Hour	
			Turn Volume	Warranted?	Turn Volume	Warranted?
Daniel Ave & North Garage Access	30 mph	60	56	No	36	No
Daniel Ave & South Garage Access	30 mph	60	56	No	36	No

Left-Turn Deceleration Lanes

The Park Plaza North Garage access driveway was analyzed to determine the need for a left-turn deceleration lane. *A Policy on Geometric Design of Highways and Streets* by AASHTO outlines criteria for consideration of a left-turn deceleration lane. This criteria is based on the advancing and opposing volumes, as well as the left-turn percentage. The advancing volume is 317 vph, with 36% being left turns, and the opposing volume is 176 vph in the AM peak hour. Based upon these values and Table 2-1 in the *NCHRP Report 780* (referencing AASHTO), a left-turn deceleration lane is not warranted in the AM peak hour. This is also the case in the PM peak hour with 305 vph as the advancing volume with 48% being left-turns and 196 vph in the opposing volume. Based on the results of this analysis, a left-turn deceleration lane is not recommended at the Park Plaza North Garage access driveway.

SITE DRIVEWAY ACCESS

Access to the Park Plaza redevelopment is provided via a parking garage anticipated to have two (2) project access locations, one (1) along Daniel Avenue (Garage North) and one (1) along Haynie Avenue (Garage South). The Parking Garage South access driveway is planned to be right-in, left-out. Due to the difficulties anticipated in enforcing this, some site traffic was assigned to make a southbound right-turn out of the Parking Garage South gate and this can be seen in **Exhibits 6** and **7**. It should be noted that the on-street parking provided on the north side of Daniel Avenue may need to be removed based on the proposed location of the Parking Garage North access driveway.

The conceptual site plan provided in the **Appendix** shows the anticipated access to the parking garage.

SIGHT DISTANCE

Based on field observations the proposed driveways are expected to have adequate sight distance. Some vegetation may need to be trimmed west of the anticipated Parking Garage North access driveway along Daniel Avenue to provide a clear line of sight.

AUXILIARY LANE ANALYSIS

Right-Turn Deceleration Lanes

The City of University Park defaults to criteria for auxiliary lanes set forth in TxDOT's *Access Management Manual*. Per Table 2.3 (Auxiliary Lane Thresholds), a right-turn deceleration lane should be considered on roads with a posted speed of 45 mph or less if the projected right-turn volume into a driveway is greater than 60 vehicles per hour (vph). As shown in **Table 4**, the right-turn deceleration lane threshold is not projected to be exceeded in the AM or PM peak hour at either Parking Garage access location.

Table 4: Build Out Right-Turn Deceleration Lane Analysis

INTERSECTION	Posted Speed	Volume Threshold	AM Peak Hour		PM Peak Hour	
			Turn Volume	Warranted?	Turn Volume	Warranted?
Daniel Ave & North Garage Access	30 mph	60	56	No	36	No
Daniel Ave & South Garage Access	30 mph	60	56	No	36	No

Left-Turn Deceleration Lanes

The Park Plaza North Garage access driveway was analyzed to determine the need for a left-turn deceleration lane. *A Policy on Geometric Design of Highways and Streets* by AASHTO outlines criteria for consideration of a left-turn deceleration lane. This criteria is based on the advancing and opposing volumes, as well as the left-turn percentage. The advancing volume is 317 vph, with 36% being left turns, and the opposing volume is 176 vph in the AM peak hour. Based upon these values and Table 2-1 in the *NCHRP Report 780* (referencing AASHTO), a left-turn deceleration lane is not warranted in the AM peak hour. This is also the case in the PM peak hour with 305 vph as the advancing volume with 48% being left-turns and 196 vph in the opposing volume. Based on the results of this analysis, a left-turn deceleration lane is not recommended at the Park Plaza North Garage access driveway.

Warrant spreadsheets for left-turn deceleration lanes can be found in the **Appendix** for the AM and PM peak hours.

INTERSECTION CAPACITY ANALYSIS

LEVEL OF SERVICE METHODOLOGY

The evaluation of traffic operations in the study area was comprised of peak hour level of service analyses for each of the peak hours using the Synchro 9™ software. The previously referenced **Exhibit 2** details the lane assignments assumed for the existing conditions analysis. The purpose of this analysis was to determine if any deficiencies exist or are anticipated within the network short term so that recommendations for improvements can be made.

Capacity defines the volume of traffic that can be accommodated by a roadway at a specified "level of service." Capacity is affected by various geometric factors including roadway type (e.g. divided or undivided), number of lanes, lane widths, and grades. Level of service (LOS), which is a measure of the degree of congestion, ranges from LOS "A" (free flowing) to LOS "F" (a congested, forced flow condition). A description of each operational state for both signalized and unsignalized intersections is presented in **Table 5.**

Table 5: Level of Service Definitions

Level of Service	Average Control Delay per Vehicle (sec/veh)		Description
	Signalized	Unsignalized	
A and B	≤ 10 (A) > 10 and ≤ 20 (B)	≤ 10 (A) > 10 and ≤ 15 (B)	No delays at intersections with continuous flow traffic. Uncongested operations; high frequency of long gaps available for all left and right-turning traffic; no observable queues.
C	> 20 and ≤ 35	> 15 and ≤ 25	Moderate delays at intersections with satisfactory to good traffic flow. Light congestion; infrequent backups on critical approaches.
D	> 35 and ≤ 55	> 25 and ≤ 35	Increased probability of delays along every approach. Significant congestion on critical approaches, but intersection functional. No long standing lines formed.
E	> 55 and ≤ 80	> 35 and ≤ 50	Heavy traffic flow condition. Heavy delays probable. No available gaps for cross-street traffic or main street turning traffic. Limit of stable flow.
F	> 80	> 50	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Average delays greater than one minute highly probable. Total breakdown.

EXISTING (2016) TRAFFIC ANALYSIS

The existing conditions analysis is shown in **Table 6** below; the level of service (LOS) minimum threshold is LOS D. Synchro 9™ output sheets are provided in the **Appendix.** The analysis was performed with existing signal operations and controller timings observed in the field. Peak hour factors observed during the turning movement counts were used for existing conditions.

Table 6: Existing (2016) Intersection Capacity Analysis

INTERSECTION	APPROACH	AM Peak Hour		PM Peak Hour	
		DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
UNSIGNALIZED INTERSECTIONS					
Hillcrest Ave & Haynie Ave	EB	9.5	A	9.5	A
Daniel Ave & Snider Plz	NB	10.8	B	10.1	B
	SB	11.1	B	12.7	B
Dickens Ave & Haynie Ave	EB	9.0	A	8.7	A
	WB	9.4	A	8.1	A
	NB	9.2	A	8.4	A
	SB	11.3	B	8.9	A
Daniel Ave & Dickens Ave	WB	14.9	B	12.5	B
SIGNALIZED INTERSECTIONS					
Daniel Ave & Hillcrest Ave	*Overall*	*21.8*	*C*	*22.7*	*C*
	EB	33.0	C	43.4	D
	WB	27.7	C	33.7	C
	NB	22.8	C	18.6	B
	SB	17.0	B	16.0	B

Based on the capacity analysis for the AM and PM peak hours, all study intersections are operating at LOS D or better, and as such, no recommendations are made based upon the Existing intersection capacity analysis.

BUILD OUT (2018) TRAFFIC ANALYSIS

The evaluation of the Build Out (2018) system was comprised of both the AM and PM peak hour level of service analyses. The addition of the parking garage access driveways along Daniel Avenue and Haynie Avenue were included in the analysis. To obtain background growth, the existing volumes were grown at a rate of 3% for two (2) years. This background growth was added to the anticipated site traffic after internal capture and pass-by deductions were made to obtain the Build Out Total Traffic Volumes (**Exhibit 11**) turning movements for the intersections analyzed in 2018.

Table 7 summarizes the results of the level of service (LOS) analysis for the Build Out (2018) scenario. Synchro 9™ output sheets are provided in the **Appendix.**

Table 7: Build Out (2018) Intersection Capacity Analysis

INTERSECTION	APPROACH	AM Peak Hour		PM Peak Hour	
		DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
UNSIGNALIZED INTERSECTIONS					
Hillcrest Ave & Haynie Ave	EB	9.4	A	9.9	A
Daniel Ave & Snider Plz	SB	12.5	B	22.0	C
Dickens Ave & Haynie Ave	EB	9.5	A	9.0	A
	WB	10.1	B	8.3	A
	NB	10.1	B	8.8	A
	SB	12.9	B	9.5	A
Daniel Ave & Dickens Ave	WB	21.2	C	14.9	B
Daniel Ave & Parking Garage North	NB	11.0	B	14.0	B
Daniel Ave & Parking Garage South	SB	9.4	A	9.3	A
SIGNALIZED INTERSECTIONS					
Daniel Ave & Hillcrest Ave	*Overall*	*25.5*	*C*	*29.6*	*C*
	EB	34.3	C	61.5	E
	WB	29.9	C	47.6	D
	NB	27.1	C	18.5	B
	SB	21.0	C	17.6	B

Based on the capacity analysis for the AM and PM peak hours, all study intersections are operating at an acceptable LOS, however, the eastbound approach at Daniel Avenue and Hillcrest Avenue is projected to operate at LOS E in the PM peak hour. Based upon the analysis, the following recommendation is made:

- *Recommendation*: It is recommended to improve the signal timing at Daniel Avenue and Hillcrest Avenue, based on field conditions observed within the first few weeks of the opening of the Park Plaza redevelopment. For analysis purposes, signal timings were altered slightly to maximize intersection efficiency and improve overall level of service. This was accomplished by extending green time for the northbound/southbound movements in the AM peak hour and the eastbound/westbound movements in the PM peak hour.

BUILD OUT (2018) TRAFFIC ANALYSIS WITH IMPROVEMENTS

Table 8 summarizes the results of the level of service (LOS) analysis for the Build Out (2018) with Improvements scenario. This scenario includes signal timing improvements at the intersection of Daniel Avenue and Hillcrest Avenue. Synchro 9™ output sheets are provided in the **Appendix.**

Table 8: Build Out (2018) Intersection Capacity Analysis with Improvements

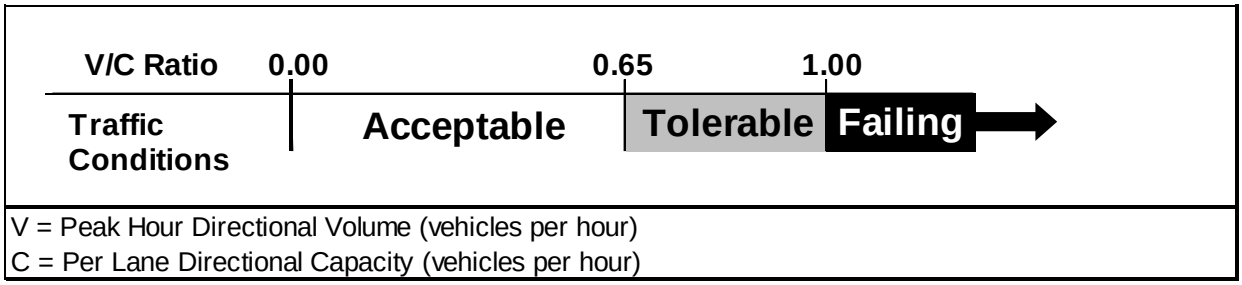
INTERSECTION	APPROACH	AM Peak Hour		PM Peak Hour	
		DELAY (Sec/Veh)	LOS	DELAY (Sec/Veh)	LOS
UNSIGNALIZED INTERSECTIONS					
Hillcrest Ave & Haynie Ave	EB	10.0	A	9.5	A
Daniel Ave & Snider Plz	SB	12.6	B	22.1	C
Dickens Ave & Haynie Ave	EB	9.5	A	9.0	A
	WB	10.1	B	8.3	A
	NB	10.1	B	8.8	A
	SB	12.9	B	9.5	A
Daniel Ave & Dickens Ave	WB	21.2	C	14.9	B
Daniel Ave & Parking Garage North	NB	11.0	B	14.0	B
Daniel Ave & Parking Garage South	SB	9.4	A	9.3	A
SIGNALIZED INTERSECTIONS					
Daniel Ave & Hillcrest Ave	*Overall*	*19.0*	*B*	*27.8*	*C*
	EB	39.5	D	36.6	D
	WB	39.3	D	27.5	C
	NB	11.1	B	24.8	C
	SB	13.2	B	27.0	C

Based on the capacity analysis for the AM and PM peak hours, signal timing improvements are anticipated to improve operations at the intersection of Daniel Avenue and Hillcrest Avenue in the AM peak hour while keeping LOS to the existing condition of C, with slightly greater delay in the PM peak hour.

ROADWAY CAPACITY ANALYSIS

Roadway capacity analyses were completed using level of service criteria outlined by the North Central Texas Council of Governments (NCTCOG). The traffic condition criteria is based on the volume-to-capacity ratio for traffic volumes and roadway capacity. **Table 9** provides a description of this criterion as it applies to roadways.

Table 9: Traffic Condition Criteria for Roadway Capacity Analysis



V = Peak Hour Directional Volume (vehicles per hour)
C = Per Lane Directional Capacity (vehicles per hour)

An "Acceptable" operating condition means the facility is underutilized, while a "Failing" operating condition indicates the approximate carrying capacity has been met or exceeded. Considering the roadway facility types, a capacity of 750 vehicles per hour per lane was used during analyses for Hillcrest Avenue, while a capacity of 475 vehicles per hour per lane was used for Daniel Avenue.

EXISTING (2016) ANALYSIS

Table 10 provides a summary of directional and two-way roadway capacity analysis for Hillcrest Avenue and Daniel Avenue. Based upon the results of the Existing (2016) thoroughfare capacity analysis, all roadway segments are operating at an acceptable overall traffic condition for the Existing scenario.

Table 10: Existing Roadway Capacity Analysis

Roadway	Segment	Section	Direction	AM Peak Hour			PM Peak Hour		
				Vol	V/C Ratio	Traffic Condition	Vol	V/C Ratio	Traffic Condition
Hillcrest Avenue	South of Daniel Avenue	Four-Lane Undivided	NB	753	0.50	Acceptable	811	0.54	Acceptable
			SB	999	0.67	Tolerable	878	0.59	Acceptable
			Total	1,752	0.58	Acceptable	1,689	0.56	Acceptable
Daniel Avenue	West of Hillcrest Avenue	Two-Lane Undivided	EB	101	0.21	Acceptable	195	0.41	Acceptable
			WB	297	0.63	Acceptable	323	0.68	Tolerable
			Total	398	0.42	Acceptable	518	0.55	Acceptable

BUILD OUT (2018) ANALYSIS

Table 11 provides a summary of directional and two-way roadway capacity analysis for Hillcrest Avenue and Daniel Avenue. Based upon the results of the Build Out (2018) roadway capacity analysis, Daniel Avenue is projected to approach capacity in the PM peak hour in the westbound direction.

Table 11: Build Out Roadway Capacity Analysis

Roadway	Segment	Section	Direction	AM Peak Hour			PM Peak Hour		
				Vol	V/C Ratio	Traffic Condition	Vol	V/C Ratio	Traffic Condition
Hillcrest Avenue	South of Daniel Avenue	Four-Lane Undivided	NB	833	0.56	Acceptable	883	0.59	Acceptable
			SB	1,094	0.73	Tolerable	947	0.63	Acceptable
			Total	1,927	0.64	Acceptable	1,830	0.61	Acceptable
Daniel Avenue	West of Hillcrest Avenue	Two-Lane Undivided	EB	146	0.31	Acceptable	385	0.81	Tolerable
			WB	417	0.88	Tolerable	482	1.01	Failing
			Total	563	0.59	Acceptable	867	0.91	Tolerable

Based upon the results of the roadway capacity analysis the following recommendation is made:

- *Recommendation*: Daniel Avenue operates in a tolerable condition overall. With the westbound direction during the PM peak hour approaching capacity, it is recommended to be monitored.

OTHER CONSIDERATIONS

NEIGHBORHOOD IMPACT

The impact on the neighborhood streets of the Park Plaza redevelopment was quantified through the projected site traffic distribution and assignment. It is anticipated that the majority of site traffic (75%) will be accessing the site via Hillcrest Avenue and Daniel Avenue and not traveling through the neighborhood streets to the west.

The remaining 25% of traffic is projected to circulate through the neighborhoods to the west. This percentage results in an increase of 72 additional vehicles in the AM peak hour and 90 additional vehicles in the PM peak hours at the intersection of Daniel Avenue and Dickens Avenue, split between four movements. At the intersection of Haynie Avenue and Dickens Avenue, an additional 30 vehicles in the AM and 39 vehicles in the PM peak hours, split between three movements.

This translates to an average additional .93 seconds of delay on each approach at the Dickens Avenue and Haynie Avenue intersection in the AM peak hour, which is nearly unnoticeable. At the Daniel Avenue and Dickens Avenue intersection, the westbound approach delay is anticipated to increase by 6.3 seconds while still operating at an acceptable LOS, C.

Of this 25% of site-generated traffic that is projected to circulate through the west neighborhood, the majority is anticipated to be current residents attempting to access the shopping center or restaurants. Due to this, and the minimal effects at the two intersections discussed, the neighborhood impact is not anticipated to be an issue.

Parking Needs

The purpose of this parking analysis is to determine if the planned 714 spaces is anticipated to provide adequate parking for the proposed development.

Parking needs for the Park Plaza redevelopment were analyzed in two ways. One analysis was carried out using University Park's off-street parking requirements while another was done using base rates and time distribution of parking demand throughout the day from the Urban Land Institute (ULI).

University Park provides parking space requirements for specified land uses which are provided in Sec. 26-100 of the *City of University Park Zoning Ordinance*. **Table 12** summarizes the anticipated parking needs based upon The City's requirements. It was found that 620 spaces were needed based upon these requirements.

Table 12: University Park Off-street Parking Requirements

Land Use	Units	Base Ratio	Stand Alone Demand
Office	85,900	1 space / 300 sf	287
Retail	27,285	1 space / 200 sf	137
Restaurant	19,595	1 space / 100 sf	196
Total	**132,780**		**620**

For comparison purposes, base rates and time distribution of parking demand recommended by ULI were used in the second analysis that was carried out. A special time distribution is provided for a shopping center for the month of December. By factoring the peak parking demand of each land use, which may have different peak times, the actual parking demand in each hour of the day can be modeled, taking into account the fact that the same space can be used by different land uses during different peaks.

From the analysis, it was found that the projected weekday peak time during December is anticipated to be 11:00 AM – 12:00 PM for the Park Plaza redevelopment. While the stand alone demand is anticipated to be very similar to the demand found using The City's requirements, when time of day factors are considered, the parking required is anticipate to be reduced by 124 spaces. This brings ULI's parking requirements to 510 spaces. The findings of the analysis can be found in **Table 13**.

Table 13: ULI Parking Requirements

Use	Building Area (1,000 sf)	Base Ratio	Time of Day Factor	Parking Required	Stand Alone Demand
Office	85.9	0.30	85%	22	26
Office Employee	85.9	3.50	95%	286	301
Restaurant	19.595	9.00	45%	80	177
Restaurant Empolyee	19.595	1.50	100%	30	30
Retail	27.285	2.90	90%	72	80
Retail Employee	27.285	0.70	100%	20	20
			Total	**510**	**634**

The parking garage at Park Plaza is anticipated to provide 714 spaces, which well exceeds parking requirements outlined by The City and ULI. In addition, it is anticipated that the garage will be reserved specifically for Park Plaza visitors. For this reason, the traffic impacts of potential shared parking demand from Snider Plaza visitors was not analyzed.

Parking Garage Analysis

A portal capacity analysis was carried out by HWA Parking. The results of this analysis can be found in the **Appendix**. Based upon the analysis, the maximum 90% probability design queue is projected to be two vehicles for the PM peak departure. It should be stressed that this analysis was done with the conservative approach of considering only one garage access location, the North Garage access driveway. If the South Garage access driveway were to be included in the analysis, it is anticipated that the peak hour departure queue lengths would decrease.

These results are consistent with that of the Build Out scenario intersection capacity results which project a queue length of 2 vehicles exiting northbound in the PM peak hour. Based upon the current site plan, a queue of approximately 4 vehicle lengths (85 ft) can be accommodated in the garage stacking area shown. Therefore, queueing at the gate is not anticipated to be an issue.

LOADING RAMPS

One service dock is anticipated to be provided on site. The location is on the south side of the site along Haynie Avenue. This location is highlighted on the site plan in the **Appendix**. It should be noted that the site is anticipated to be served by design vehicles comparable to an SU-30 (single unit 2-axle or similar) and that large trailer trucks with three or more axles are not expected to be attempting to access the site. If larger trucks were to access the site and were not able to dock, on-street parking would occur along Hillcrest Avenue. When trucks are loading and unloading they will be instructed to strictly use Hillcrest Avenue when attempting to access the site. This way, residential areas will not be impacted. These directions are in agreement with designated truck routes outlined by The City and can be seen in **Exhibit A**.

PEDESTRIAN INTERACTION

Currently, a pedestrian crossing is provided along the east leg of the Daniel Avenue and Snider Plaza intersection. The site plan proposes to add another crossing along the west leg of this intersection as well as at the stop control of the intersection of Haynie Avenue and Hillcrest Avenue. Appropriate signage is recommended to be installed so drivers are aware of the pedestrian crossing. With driver awareness addressed, and the overall busy nature of the area, drivers are anticipated to travel at safe operating speeds in a way that pedestrians will be able to cross in a safe manner.

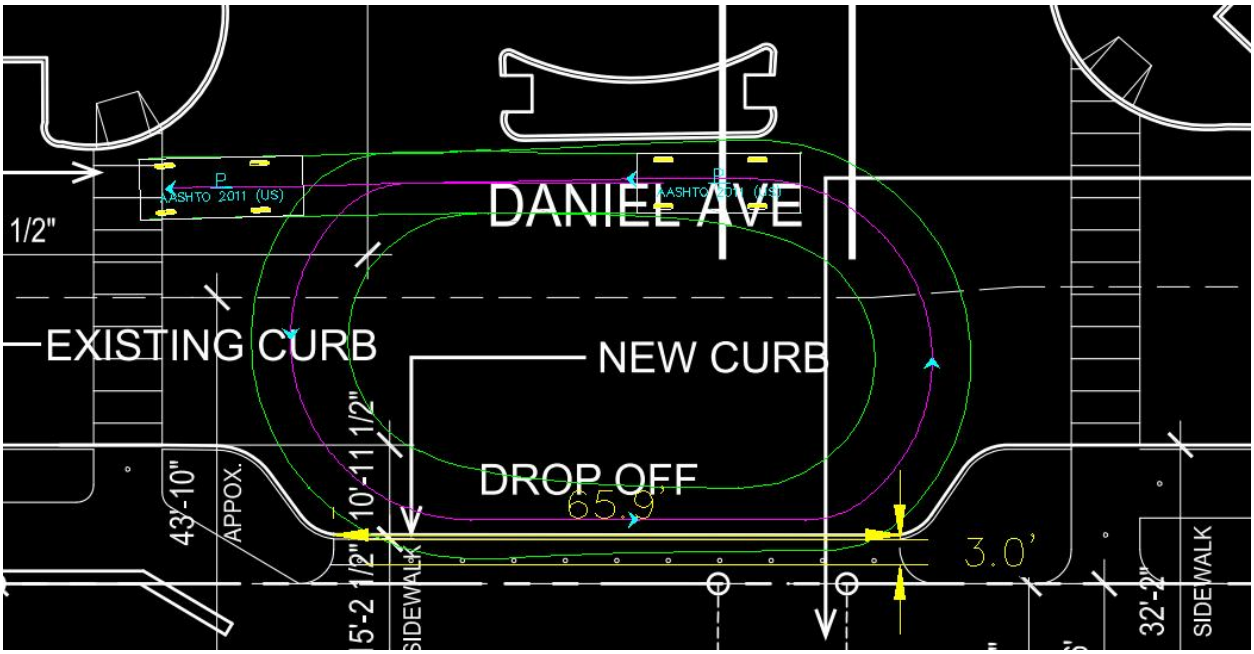
In addition to signage, accessibility of pedestrian crossings should be reviewed and upgraded where necessary to ensure compliance with the Americans with Disabilities Act (ADA) standards. With pedestrian activity anticipated to increase at the signalized intersection of Hillcrest Avenue and Daniel Avenue, it is also recommended that all pedestrian crossings and the corresponding pedestrian equipment be reviewed for compliance with the ADA and Public Rights-of-Way Accessibility Guidelines (PROWAG) standards.

Additional consideration should be given to the removal of the on-street parking provided in the channelized eastbound right-turn lane at the Daniel Avenue and Hillcrest Avenue intersection due to driver expectancy considerations as well as sight distance concerns for pedestrians.

VALET OPERATION

A turning simulation was carried out to check the feasibility of westbound left-turns entering the valet area of the site. The analysis was carried out using a design vehicle that simulates a large passenger car. **Exhibit 12** provides the simulated turning movement analyzed.

Exhibit 12. AutoTURN Simulation



Based upon the analysis, the valet lane is planned to have a length of about 66 feet, which will easily accommodate for two vehicles. It is recommended that the valet lane be constructed so it cut further into the site, by about three feet, while not impacting the location of the proposed building. With this adjustment, the analysis shows that a larger passenger vehicle can turn left into the valet lane travelling westbound on Daniel Avenue and make another left to exit back onto Daniel travelling westbound, once again, to access the parking garage. Users traveling eastbound on Daniel Avenue and southbound on Snider Plaza are anticipated to have no issues accessing the valet lane. It is to be stressed that as time goes on, users will become more accustom to the valet operations.

RECOMMENDATIONS

Traffic Impact Analysis

Intersection Capacity Analysis

Based on the results of the intersection analysis, it is recommended to implement signal timing improvements to the traffic signal at Daniel Avenue and Hillcrest Avenue based on field conditions observed within the first few weeks of the opening of the Park Plaza redevelopment.

For analysis purposes, signal timings were altered slightly to maximize intersection efficiency and improve overall level of service. This was accomplished by extending green time for the northbound/southbound movements in the AM peak hour and the eastbound/westbound movements in the PM peak hour.

Roadway Capacity Analysis

Based upon the results of the roadway capacity analysis, Daniel Avenue, west of Hillcrest Avenue, operates in a tolerable condition in the Build Out (2018) scenario. The westbound direction during the PM peak hour approaches capacity and should be monitored.

Other Considerations

Neighborhood Impacts

The Park Plaza redevelopment impact on the surrounding neighborhoods is expected to be minimal. 75% of traffic is anticipated to access the site via Hillcrest Avenue and Daniel Avenue with the other 25% circulating through the neighborhood streets to the west. This 25% is expected to have the impact on the neighborhood. This additional traffic is only anticipated to add a total of 72 vehicles in the AM peak hour and 90 vehicles in the PM peak hour at the intersection of Daniel Avenue and Dickens Avenue (split between four movements). An additional 30 vehicles in the AM peak hour and 39 vehicles in the PM peak hour (split between three movements) at the Haynie Avenue and Dickens Avenue intersection are projected as well. Of this 25%, the majority is anticipated to be current residents attempting to access the shopping center or restaurants. Due to this, and the minimal affect at the two intersections along Dickens Avenue, the neighborhood impact is not anticipated to be an observable issue.

Parking

Based upon the two parking requirement analyses, the anticipated supply of 714 spaces, well exceeds requirements set forth by both The City and ULI. In addition, it is anticipated that the garage will be reserved specifically for Park Plaza visitors. For this reason, the traffic impacts of potential shared parking demand from Snider Plaza visitors was not analyzed.

With the proposed location of the North Garage access driveway, the on-street parking provided along Daniel Avenue to the north may need to be removed.

Truck Traffic and Loading Zones

One service dock is anticipated to be provided on site. The location is on the south side of the site along Haynie Avenue. Truck traffic will be directed along Hillcrest Avenue when attempting to access the site. These directions are in agreement with designated truck routes outlined by The City. It is also to be stressed that trucks serving the development are anticipated to be comparable to an SU-30 (single unit 2-axle or similar) and that large trailer trucks with three or more axles are not expected to be attempting to access the site.

Pedestrian Crossing

Three pedestrian crossings are indicated on the current site plan. Two will be provided at the Daniel Avenue and Snider Plaza intersection, one on the east and one on the west legs. The third is to be provided at the stop control at the intersection of Haynie Avenue and Hillcrest Avenue. Appropriate signage is recommended to be installed to make drivers well aware of these pedestrian crossings. In addition to signage, accessibility of pedestrian crossings should be reviewed and upgraded where necessary to ensure compliance with the ADA standards. Furthermore, at the signalized intersection of Daniel Avenue and Hillcrest Avenue, pedestrian equipment should be reviewed as well for compliance with ADA and PROWAG standards.

Additional consideration should be given to the removal of the on-street parking provided in the channelized eastbound right-turn lane at the Daniel Avenue and Hillcrest Avenue intersection due to driver expectancy considerations as well as sight distance concerns for pedestrians.

Valet Drop-off

A turning simulation was carried out to check the feasibility of westbound left-turns entering the valet area of the site. The analysis was carried out using a design vehicle that simulates a large passenger car. From the simulation, it is recommended that the valet lane be constructed so it cut further into the site, by about three feet, while not impacting the location of the proposed building. With this change, it is projected that users should be able to make a left-turn into the valet area travelling westbound on Daniel Avenue and that the valet can exit turning left to access the parking garage.

APPENDIX

1. Raw Traffic Counts
2. Conceptual Site Plan
3. Left-Turn Analysis
4. Existing (2016) Traffic Analysis
5. Build Out (2018) Traffic Analysis
6. Improved Build Out (2018) Traffic Analysis
7. HWA Portal Capacity Analysis
8. Internal Capture Worksheets

RAW TRAFFIC COUNTS

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : DANIEL AVE @ DICKENS AVE
Site Code : 00000019
Start Date : 1/20/2016
Page No : 1

Groups Printed- Unshifted

	DICKENS AVE Southbound					DANIEL AVE Westbound					DICKENS AVE Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	5	6	0	0	11	16	0	4	0	20	0	9	3	0	12	0	0	0	0	0	43
07:15	8	14	0	0	22	25	0	12	0	37	0	7	9	0	16	0	0	0	0	0	75
07:30	5	31	0	0	36	41	0	19	0	60	0	11	14	0	25	0	0	0	0	0	121
07:45	17	49	0	0	66	48	0	10	0	58	0	25	14	0	39	0	0	0	0	0	163
Total	35	100	0	0	135	130	0	45	0	175	0	52	40	0	92	0	0	0	0	0	402
08:00	14	31	0	0	45	30	0	8	0	38	0	20	15	0	35	0	0	0	0	0	118
08:15	9	9	0	0	18	26	0	10	0	36	0	11	11	0	22	0	0	0	0	0	76
08:30	13	17	0	0	30	16	0	12	0	28	0	19	9	0	28	0	0	0	0	0	86
08:45	9	19	0	0	28	23	0	11	0	34	0	9	8	0	17	0	0	0	2	2	81
Total	45	76	0	0	121	95	0	41	0	136	0	59	43	0	102	0	0	0	2	2	361
*** BREAK ***																					
16:30	12	33	0	0	45	25	0	12	0	37	0	29	21	0	50	0	0	0	0	0	132
16:45	7	23	0	0	30	24	0	10	0	34	0	25	32	0	57	0	0	0	0	0	121
Total	19	56	0	0	75	49	0	22	0	71	0	54	53	0	107	0	0	0	0	0	253
17:00	5	26	0	0	31	26	0	15	0	41	0	21	29	0	50	0	0	0	0	0	122
17:15	18	41	0	0	59	26	0	14	0	40	0	21	30	0	51	0	0	0	0	0	150
17:30	11	33	0	0	44	23	0	15	1	39	0	28	16	0	44	0	0	0	0	0	127
17:45	11	34	0	0	45	21	0	10	3	34	0	16	21	0	37	0	0	0	0	0	116
Total	45	134	0	0	179	96	0	54	4	154	0	86	96	0	182	0	0	0	0	0	515
18:00	7	23	0	0	30	20	0	19	0	39	0	30	24	0	54	0	0	0	0	0	123
18:15	6	28	0	0	34	13	0	10	0	23	0	14	14	0	28	0	0	0	0	0	85
Grand Total	157	417	0	0	574	403	0	191	4	598	0	295	270	0	565	0	0	0	2	2	1739
Apprch %	27.4	72.6	0	0		67.4	0	31.9	0.7		0	52.2	47.8	0		0	0	0	100		
Total %	9	24	0	0	33	23.2	0	11	0.2	34.4	0	17	15.5	0	32.5	0	0	0	0.1	0.1	

	DICKENS AVE Southbound					DANIEL AVE Westbound					DICKENS AVE Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	5	31	0	0	36	41	0	**19**	0	**60**	0	11	14	0	25	0	0	0	0	0	121
07:45	**17**	**49**	0	0	**66**	**48**	0	10	0	58	0	**25**	14	0	**39**	0	0	0	0	0	**163**
08:00	14	31	0	0	45	30	0	8	0	38	0	20	**15**	0	35	0	0	0	0	0	118
08:15	9	9	0	0	18	26	0	10	0	36	0	11	11	0	22	0	0	0	0	0	76
Total Volume	45	120	0	0	165	145	0	47	0	192	0	67	54	0	121	0	0	0	0	0	478
% App. Total	27.3	72.7	0	0		75.5	0	24.5	0		0	55.4	44.6	0		0	0	0	0		
PHF	.662	.612	.000	.000	.625	.755	.000	.618	.000	.800	.000	.670	.900	.000	.776	.000	.000	.000	.000	.000	.733

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : DANIEL AVE @ DICKENS AVE
Site Code : 00000019
Start Date : 1/20/2016
Page No : 2

	DICKENS AVE Southbound					DANIEL AVE Westbound					DICKENS AVE Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:30																					
16:30	12	33	0	0	45	25	0	12	0	37	0	**29**	21	0	50	0	0	0	0	0	132
16:45	7	23	0	0	30	24	0	10	0	34	0	25	**32**	0	**57**	0	0	0	0	0	121
17:00	5	26	0	0	31	**26**	0	**15**	0	**41**	0	21	29	0	50	0	0	0	0	0	122
17:15	**18**	**41**	0	0	**59**	26	0	14	0	40	0	21	30	0	51	0	0	0	0	0	**150**
Total Volume	42	123	0	0	165	101	0	51	0	152	0	96	112	0	208	0	0	0	0	0	525
% App. Total	25.5	74.5	0	0		66.4	0	33.6	0		0	46.2	53.8	0		0	0	0	0		
PHF	.583	.750	.000	.000	.699	.971	.000	.850	.000	.927	.000	.828	.875	.000	.912	.000	.000	.000	.000	.000	.875

GRAM Traffic North Texas, Inc.

1120 W. Lovers Lane
Arlington, TX 76013

File Name : DANIEL AVE @ HILLCREST AVE
Site Code : 00000241
Start Date : 1/20/2016
Page No : 1

Groups Printed- Unshifted

	HILLCREST AVE Southbound					DANIEL AVE Westbound					HILLCREST AVE Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	6	61	12	0	79	44	28	7	1	80	16	34	11	2	63	1	9	8	0	18	240
07:15	18	79	15	0	112	92	36	5	0	133	7	67	22	4	100	2	5	12	0	19	364
07:30	17	202	30	1	250	87	34	14	0	135	21	49	44	2	116	3	14	5	1	23	524
07:45	22	228	22	0	272	69	38	15	0	122	23	116	59	3	201	3	13	6	0	22	617
Total	63	570	79	1	713	292	136	41	1	470	67	266	136	11	480	9	41	31	1	82	1745
08:00	24	190	20	0	234	40	27	15	1	83	27	169	50	2	248	2	16	8	1	27	592
08:15	30	109	23	2	164	44	24	8	0	76	8	145	42	1	196	3	17	11	0	31	467
08:30	23	122	24	2	171	43	30	8	0	81	8	88	53	6	155	5	11	6	0	22	429
08:45	12	116	25	0	153	34	33	2	0	69	19	85	30	2	136	6	8	15	1	30	388
Total	89	537	92	4	722	161	114	33	1	309	62	487	175	11	735	16	52	40	2	110	1876
*** BREAK ***																					
16:30	22	130	23	0	175	40	26	16	0	82	17	129	48	3	197	4	21	12	2	39	493
16:45	18	154	19	2	193	44	31	13	0	88	22	130	42	1	195	7	15	8	0	30	506
Total	40	284	42	2	368	84	57	29	0	170	39	259	90	4	392	11	36	20	2	69	999
17:00	27	136	26	1	190	52	36	33	0	121	32	136	46	4	218	6	32	15	0	53	582
17:15	24	150	23	0	197	52	29	18	2	101	20	146	42	4	212	9	32	9	1	51	561
17:30	36	167	26	0	229	51	41	20	0	112	23	116	45	3	187	10	29	9	2	50	578
17:45	32	167	20	3	222	56	29	15	1	101	18	128	59	5	210	5	25	14	0	44	577
Total	119	620	95	4	838	211	135	86	3	435	93	526	192	16	827	30	118	47	3	198	2298
18:00	34	162	13	0	209	48	32	23	0	103	16	137	45	1	199	6	26	15	0	47	558
18:15	35	171	24	0	230	37	19	19	0	75	20	145	37	3	205	5	12	10	1	28	538
Grand Total	380	2344	345	11	3080	833	493	231	5	1562	297	1820	675	46	2838	77	285	163	9	534	8014
Apprch %	12.3	76.1	11.2	0.4		53.3	31.6	14.8	0.3		10.5	64.1	23.8	1.6		14.4	53.4	30.5	1.7		
Total %	4.7	29.2	4.3	0.1	38.4	10.4	6.2	2.9	0.1	19.5	3.7	22.7	8.4	0.6	35.4	1	3.6	2	0.1	6.7	

	HILLCREST AVE Southbound					DANIEL AVE Westbound					HILLCREST AVE Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	17	202	**30**	1	250	**87**	34	14	0	**135**	21	49	44	2	116	**3**	14	5	**1**	23	524
07:45	22	**228**	22	0	**272**	69	**38**	**15**	0	122	23	116	**59**	**3**	201	3	13	6	0	22	**617**
08:00	24	190	20	0	234	40	27	15	**1**	83	**27**	**169**	50	2	**248**	2	16	8	1	27	592
08:15	**30**	109	23	**2**	164	44	24	8	0	76	8	145	42	1	196	3	**17**	**11**	0	**31**	467
Total Volume	93	729	95	3	920	240	123	52	1	416	79	479	195	8	761	11	60	30	2	103	2200
% App. Total	10.1	79.2	10.3	0.3		57.7	29.6	12.5	0.2		10.4	62.9	25.6	1.1		10.7	58.3	29.1	1.9		
PHF	.775	.799	.792	.375	.846	.690	.809	.867	.250	.770	.731	.709	.826	.667	.767	.917	.882	.682	.500	.831	.891

GRAM Traffic North Texas, Inc.

1120 W. Lovers Lane
Arlington, TX 76013

File Name : DANIEL AVE @ HILLCREST AVE
Site Code : 00000241
Start Date : 1/20/2016

	HILLCREST AVE Southbound					DANIEL AVE Westbound					HILLCREST AVE Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	27	136	**26**	1	190	52	36	**33**	0	**121**	**32**	136	46	4	**218**	6	**32**	**15**	0	**53**	**582**
17:15	24	150	23	0	197	52	29	18	**2**	101	20	**146**	42	4	212	9	32	9	1	51	561
17:30	**36**	**167**	26	0	**229**	51	**41**	20	0	112	23	116	45	3	187	**10**	29	9	**2**	50	578
17:45	32	167	20	**3**	222	**56**	29	15	1	101	18	128	**59**	**5**	210	5	25	14	0	44	577
Total Volume	119	620	95	4	838	211	135	86	3	435	93	526	192	16	827	30	118	47	3	198	2298
% App. Total	14.2	74	11.3	0.5		48.5	31	19.8	0.7		11.2	63.6	23.2	1.9		15.2	59.6	23.7	1.5		
PHF	.826	.928	.913	.333	.915	.942	.823	.652	.375	.899	.727	.901	.814	.800	.948	.750	.922	.783	.375	.934	.987

File Name: DANIEL AVE @ SNYDER PLAZA
Start Date: 1/20/2016
Start Time: 7:00:00 AM
Site Code: 00000054

	SNYDER PLAZA Southbound					DANIEL AVE Westbound				SNYDER PLAZA Northbound				DANIEL AVE Eastbound			
Start Time	Left	Thru	Right	U-Turns	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
07:00	6	0	0	2	0	0	17	10	0	0	1	0	0	1	10	0	0
07:15	3	0	2	1	4	0	39	27	4	0	2	0	0	5	16	0	0
07:30	9	0	6	5	2	0	52	12	2	2	2	2	0	5	17	0	0
07:45	5	0	5	2	3	0	56	25	1	0	3	2	0	6	20	0	0
08:00	3	0	2	2	5	0	41	41	1	0	1	1	0	10	21	0	0
08:15	9	0	0	6	6	0	42	34	1	0	2	2	0	4	20	0	0
08:30	7	0	2	2	3	0	26	17	0	2	2	1	0	2	20	0	0
08:45	8	0	3	4	2	0	35	21	1	0	1	0	0	5	21	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	14	0	7	11	4	0	32	34	2	0	0	0	0	10	25	0	0
16:45	9	0	5	9	25	0	28	36	2	2	2	1	0	8	24	0	0
17:00	19	0	10	20	10	0	35	47	5	0	1	3	0	13	29	0	0
17:15	19	0	10	16	6	0	41	34	7	0	0	1	0	11	28	0	0
17:30	17	0	3	9	10	0	36	43	4	0	2	2	0	7	28	0	0
17:45	19	0	7	15	28	0	29	35	2	0	0	1	0	10	24	0	0
18:00	10	0	4	11	4	0	33	28	3	0	2	0	0	10	21	0	0
18:15	14	0	6	12	6	0	22	28	3	0	1	1	0	8	11	0	0

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : DANIEL AVE @ SNYDER PLAZA
Site Code : 00000054
Start Date : 1/20/2016
Page No : 1

Groups Printed- Cars

	SNYDER PLAZA Southbound					DANIEL AVE Westbound					SNYDER PLAZA Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	6	0	0	0	6	0	17	10	0	27	0	1	0	0	1	1	10	0	0	11	45
07:15	3	0	2	4	9	0	39	27	4	70	0	2	0	0	2	5	16	0	0	21	102
07:30	9	0	6	2	17	0	52	12	2	66	2	2	2	0	6	5	17	0	0	22	111
07:45	5	0	5	3	13	0	56	25	1	82	0	3	2	0	5	6	20	0	0	26	126
Total	23	0	13	9	45	0	164	74	7	245	2	8	4	0	14	17	63	0	0	80	384
08:00	3	0	2	5	10	0	41	41	1	83	0	1	1	0	2	10	21	0	0	31	126
08:15	9	0	0	6	15	0	42	34	1	77	0	2	2	0	4	4	20	0	0	24	120
08:30	7	0	2	3	12	0	26	17	0	43	2	2	1	0	5	2	20	0	0	22	82
08:45	8	0	3	2	13	0	35	21	1	57	0	1	0	0	1	5	21	0	0	26	97
Total	27	0	7	16	50	0	144	113	3	260	2	6	4	0	12	21	82	0	0	103	425
16:30	14	0	7	4	25	0	32	34	2	68	0	0	0	0	0	10	25	0	0	35	128
16:45	9	0	5	25	39	0	28	36	2	66	2	2	1	0	5	8	24	0	0	32	142
Total	23	0	12	29	64	0	60	70	4	134	2	2	1	0	5	18	49	0	0	67	270
17:00	19	0	10	10	39	0	35	47	5	87	0	1	3	0	4	13	29	0	0	42	172
17:15	19	0	10	6	35	0	41	34	7	82	0	0	1	0	1	11	28	0	0	39	157
17:30	17	0	3	10	30	0	36	43	4	83	0	2	2	0	4	7	28	0	0	35	152
17:45	19	0	7	28	54	0	29	35	2	66	0	0	1	0	1	10	24	0	0	34	155
Total	74	0	30	54	158	0	141	159	18	318	0	3	7	0	10	41	109	0	0	150	636
18:00	10	0	4	4	18	0	33	28	3	64	0	2	0	0	2	10	21	0	0	31	115
18:15	14	0	6	6	26	0	22	28	3	53	0	1	1	0	2	8	11	0	0	19	100
Grand Total	171	0	72	118	361	0	564	472	38	1074	6	22	17	0	45	115	335	0	0	450	1930
Apprch %	47.4	0	19.9	32.7		0	52.5	43.9	3.5		13.3	48.9	37.8	0		25.6	74.4	0	0		
Total %	8.9	0	3.7	6.1	18.7	0	29.2	24.5	2	55.6	0.3	1.1	0.9	0	2.3	6	17.4	0	0	23.3	

	SNYDER PLAZA Southbound					DANIEL AVE Westbound					SNYDER PLAZA Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	**9**	0	**6**	2	**17**	0	52	12	**2**	66	**2**	2	**2**	0	**6**	5	17	0	0	22	111
07:45	5	0	5	3	13	0	**56**	25	1	82	0	**3**	2	0	5	6	20	0	0	26	**126**
08:00	3	0	2	5	10	0	41	**41**	1	**83**	0	1	1	0	2	**10**	**21**	0	0	**31**	126
08:15	9	0	0	**6**	15	0	42	34	1	77	0	2	2	0	4	4	20	0	0	24	120
Total Volume	26	0	13	16	55	0	191	112	5	308	2	8	7	0	17	25	78	0	0	103	483
% App. Total	47.3	0	23.6	29.1		0	62	36.4	1.6		11.8	47.1	41.2	0		24.3	75.7	0	0		
PHF	.722	.000	.542	.667	.809	.000	.853	.683	.625	.928	.250	.667	.875	.000	.708	.625	.929	.000	.000	.831	.958

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : DANIEL AVE @ SNYDER PLAZA
Site Code : 00000054
Start Date : 1/20/2016
Page No : 2

	SNYDER PLAZA Southbound					DANIEL AVE Westbound					SNYDER PLAZA Northbound					DANIEL AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 18:15 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	**19**	0	**10**	10	39	0	35	**47**	5	**87**	0	1	**3**	0	**4**	**13**	**29**	0	0	**42**	**172**
17:15	19	0	10	6	35	0	**41**	34	**7**	82	0	0	1	0	1	11	28	0	0	39	157
17:30	17	0	3	10	30	0	36	43	4	83	0	**2**	2	0	4	7	28	0	0	35	152
17:45	19	0	7	**28**	**54**	0	29	35	2	66	0	0	1	0	1	10	24	0	0	34	155
Total Volume	74	0	30	54	158	0	141	159	18	318	0	3	7	0	10	41	109	0	0	150	636
% App. Total	46.8	0	19	34.2		0	44.3	50	5.7		0	30	70	0		27.3	72.7	0	0		
PHF	.974	.000	.750	.482	.731	.000	.860	.846	.643	.914	.000	.375	.583	.000	.625	.788	.940	.000	.000	.893	.924

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : HAYNIE AVE @ DICKENS AVE
Site Code : 120
Start Date : 1/20/2016
Page No : 1

Groups Printed- Unshifted

	DICKENS AVE Southbound					HAYNIE AVE Westbound					DICKENS AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	0	12	9	0	21	0	7	1	0	8	1	10	0	0	11	1	1	0	0	2	42
07:15	1	19	16	1	37	0	15	1	1	17	1	8	0	0	9	6	2	0	0	8	71
07:30	0	39	33	1	73	0	19	3	0	22	2	15	0	0	17	3	3	4	0	10	122
07:45	2	39	57	2	100	1	33	1	0	35	6	32	1	0	39	5	7	0	1	13	187
Total	3	109	115	4	231	1	74	6	1	82	10	65	1	0	76	15	13	4	1	33	422
08:00	0	34	32	1	67	0	15	6	0	21	9	23	0	0	32	9	5	1	0	15	135
08:15	0	13	25	0	38	0	8	0	0	8	0	16	0	0	16	6	2	2	0	10	72
08:30	1	19	10	0	30	0	10	0	0	10	1	20	2	0	23	5	4	2	0	11	74
08:45	2	20	16	0	38	0	8	2	0	10	0	18	0	0	18	2	0	0	0	2	68
Total	3	86	83	1	173	0	41	8	0	49	10	77	2	0	89	22	11	5	0	38	349
16:30	2	33	17	0	52	0	3	1	0	4	0	35	1	0	36	15	1	0	0	16	108
16:45	2	32	20	0	54	0	4	5	0	9	0	28	1	0	29	18	5	0	0	23	115
Total	4	65	37	0	106	0	7	6	0	13	0	63	2	0	65	33	6	0	0	39	223
17:00	2	31	16	0	49	0	2	2	0	4	1	34	0	0	35	23	7	1	0	31	119
17:15	5	45	22	0	72	1	3	3	0	7	0	30	2	0	32	15	4	0	0	19	130
17:30	1	32	20	1	54	1	10	0	1	12	0	28	2	0	30	16	4	1	1	22	118
17:45	2	34	15	2	53	2	5	0	0	7	0	26	0	2	28	13	8	1	5	27	115
Total	10	142	73	3	228	4	20	5	1	30	1	118	4	2	125	67	23	3	6	99	482
18:00	3	26	15	1	45	0	6	2	1	9	2	32	0	0	34	17	6	1	2	26	114
18:15	0	30	11	0	41	3	3	0	0	6	1	28	1	1	31	8	5	0	0	13	91
Grand Total	23	458	334	9	824	8	151	27	3	189	24	383	10	3	420	162	64	13	9	248	1681
Apprch %	2.8	55.6	40.5	1.1		4.2	79.9	14.3	1.6		5.7	91.2	2.4	0.7		65.3	25.8	5.2	3.6		
Total %	1.4	27.2	19.9	0.5	49	0.5	9	1.6	0.2	11.2	1.4	22.8	0.6	0.2	25	9.6	3.8	0.8	0.5	14.8	

	DICKENS AVE Southbound					HAYNIE AVE Westbound					DICKENS AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	**39**	33	1	73	0	19	3	0	22	2	15	0	0	17	3	3	**4**	0	10	122
07:45	**2**	39	**57**	**2**	**100**	**1**	**33**	1	0	**35**	6	**32**	**1**	0	**39**	5	**7**	0	**1**	13	**187**
08:00	0	34	32	1	67	0	15	**6**	0	21	**9**	23	0	0	32	**9**	5	1	0	**15**	135
08:15	0	13	25	0	38	0	8	0	0	8	0	16	0	0	16	6	2	2	0	10	72
Total Volume	2	125	147	4	278	1	75	10	0	86	17	86	1	0	104	23	17	7	1	48	516
% App. Total	0.7	45	52.9	1.4		1.2	87.2	11.6	0		16.3	82.7	1	0		47.9	35.4	14.6	2.1		
PHF	.250	.801	.645	.500	.695	.250	.568	.417	.000	.614	.472	.672	.250	.000	.667	.639	.607	.438	.250	.800	.690

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76015

File Name : HAYNIE AVE @ DICKENS AVE
Site Code : 120
Start Date : 1/20/2016
Page No : 2

	DICKENS AVE Southbound					HAYNIE AVE Westbound					DICKENS AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:45																					
16:45	2	32	20	0	54	0	4	**5**	0	9	0	28	1	0	29	18	5	0	0	23	115
17:00	2	31	16	0	49	0	2	2	0	4	**1**	**34**	0	0	**35**	**23**	**7**	**1**	0	**31**	119
17:15	**5**	**45**	**22**	0	**72**	**1**	3	3	0	7	0	30	**2**	0	32	15	4	0	0	19	**130**
17:30	1	32	20	**1**	54	1	**10**	0	**1**	**12**	0	28	2	0	30	16	4	1	**1**	22	118
Total Volume	10	140	78	1	229	2	19	10	1	32	1	120	5	0	126	72	20	2	1	95	482
% App. Total	4.4	61.1	34.1	0.4		6.2	59.4	31.2	3.1		0.8	95.2	4	0		75.8	21.1	2.1	1.1		
PHF	.500	.778	.886	.250	.795	.500	.475	.500	.250	.667	.250	.882	.625	.000	.900	.783	.714	.500	.250	.766	.927

GRAM Traffic North Texas, Inc.

1120 W. Lovers Lane
Arlington, TX 76013

File Name : HAYNIE AVE @ HILLCREST AVE
Site Code : 211
Start Date : 1/20/2016
Page No : 1

Groups Printed- Unshifted

	HILLCREST AVE Southbound					HAYNIE AVE Westbound					HILLCREST AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00	0	108	6	3	117	0	0	0	0	0	1	57	0	0	58	0	0	3	0	3	178
07:15	0	170	12	0	182	0	0	0	0	0	4	97	0	0	101	0	0	3	0	3	286
07:30	0	277	15	3	295	0	0	0	0	0	9	117	0	0	126	0	0	2	0	2	423
07:45	0	277	24	0	301	0	0	0	0	0	14	194	0	1	209	0	0	8	0	8	518
Total	0	832	57	6	895	0	0	0	0	0	28	465	0	1	494	0	0	16	0	16	1405
08:00	0	213	14	0	227	0	0	0	0	0	10	245	0	0	255	0	0	5	0	5	487
08:15	0	156	7	2	165	0	0	0	0	0	5	192	0	2	199	0	0	3	0	3	367
08:30	0	164	12	0	176	0	0	0	0	0	4	140	0	1	145	0	0	5	0	5	326
08:45	0	161	7	1	169	0	0	0	0	0	2	149	0	0	151	0	0	3	3	6	326
Total	0	694	40	3	737	0	0	0	0	0	21	726	0	3	750	0	0	16	3	19	1506
16:30	0	172	6	5	183	0	0	0	2	2	0	190	0	2	192	0	0	1	0	1	378
16:45	0	196	9	0	205	0	0	0	0	0	3	192	0	2	197	0	0	4	0	4	406
Total	0	368	15	5	388	0	0	0	2	2	3	382	0	4	389	0	0	5	0	5	784
17:00	0	199	7	1	207	0	0	0	1	1	3	215	0	0	218	0	0	7	0	7	433
17:15	0	211	4	2	217	0	0	0	0	0	6	211	0	4	221	0	0	6	0	6	444
17:30	0	216	11	2	229	0	0	0	0	0	1	186	0	0	187	0	0	8	0	8	424
17:45	0	217	4	4	225	0	0	0	0	0	2	196	0	6	204	0	0	8	0	8	437
Total	0	843	26	9	878	0	0	0	1	1	12	808	0	10	830	0	0	29	0	29	1738
18:00	0	224	3	1	228	0	0	0	0	0	3	199	0	3	205	0	0	8	0	8	441
18:15	0	214	1	0	215	0	0	0	0	0	2	201	0	1	204	0	0	4	0	4	423
Grand Total	0	3175	142	24	3341	0	0	0	3	3	69	2781	0	22	2872	0	0	78	3	81	6297
Apprch %	0	95	4.3	0.7		0	0	0	100		2.4	96.8	0	0.8		0	0	96.3	3.7		
Total %	0	50.4	2.3	0.4	53.1	0	0	0	0	0	1.1	44.2	0	0.3	45.6	0	0	1.2	0	1.3	

	HILLCREST AVE Southbound					HAYNIE AVE Westbound					HILLCREST AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30																					
07:30	0	**277**	15	**3**	295	0	0	0	0	0	9	117	0	0	126	0	0	2	0	2	423
07:45	0	277	**24**	0	**301**	0	0	0	0	0	**14**	194	0	1	209	0	0	**8**	0	**8**	**518**
08:00	0	213	14	0	227	0	0	0	0	0	10	**245**	0	0	**255**	0	0	5	0	5	487
08:15	0	156	7	2	165	0	0	0	0	0	5	192	0	**2**	199	0	0	3	0	3	367
Total Volume	0	923	60	5	988	0	0	0	0	0	38	748	0	3	789	0	0	18	0	18	1795
% App. Total	0	93.4	6.1	0.5		0	0	0	0		4.8	94.8	0	0.4		0	0	100	0		
PHF	.000	.833	.625	.417	.821	.000	.000	.000	.000	.000	.679	.763	.000	.375	.774	.000	.000	.563	.000	.563	.866

GRAM Traffic North Texas, Inc.

1120 W. Lovers Lane
Arlington, TX 76013

File Name : HAYNIE AVE @ HILLCREST AVE
Site Code : 211
Start Date : 1/20/2016
Page No : 2

	HILLCREST AVE Southbound					HAYNIE AVE Westbound					HILLCREST AVE Northbound					HAYNIE AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	0	199	7	1	207	0	0	0	**1**	**1**	3	**215**	0	0	218	0	0	7	0	7	433
17:15	0	211	4	2	217	0	0	0	0	0	**6**	211	0	4	**221**	0	0	6	0	6	**444**
17:30	0	216	**11**	2	**229**	0	0	0	0	0	1	186	0	0	187	0	0	**8**	0	**8**	424
17:45	0	**217**	4	**4**	225	0	0	0	0	0	2	196	0	**6**	204	0	0	8	0	8	437
Total Volume	0	843	26	9	878	0	0	0	1	1	12	808	0	10	830	0	0	29	0	29	1738
% App. Total	0	96	3	1		0	0	0	100		1.4	97.3	0	1.2		0	0	100	0		
PHF	.000	.971	.591	.563	.959	.000	.000	.000	.250	.250	.500	.940	.000	.417	.939	.000	.000	.906	.000	.906	.979

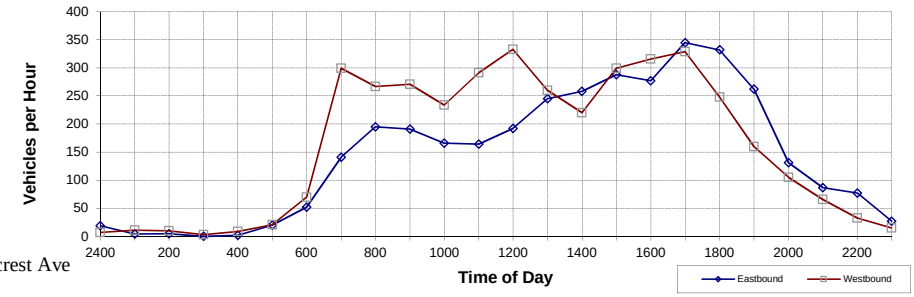
Kimley»Horn

Automatic Traffic Counts
Average Daily Traffic (24-Hour Count)

Project No. : 61292200.000
Station No. :
Counter No. :

City/State: University Park, TX
Date: January 20, 2016
Day of Week: Wednesday

Site: Daniel Ave west of Hillcrest Ave



Time	Peak	Eastbound		Westbound		Time	Peak	Eastbound		Westbound	
24:00						12:00					
0:15		6		1		12:15		55		100	
0:30		2		1		12:30		39		85	
0:45		5		3		12:45		41		80	
1:00		6	19	2	7	13:00		57	192	68	333
1:15		2		2		13:15		48		70	
1:30		0		1		13:30		75		62	
1:45		2		5		13:45		63		68	
2:00		0	4	3	11	14:00		59	245	60	260
2:15		1		2		14:15		50		50	
2:30		0		2		14:30		68		57	
2:45		4		5		14:45		72		61	
3:00		0	5	1	10	15:00		68	258	52	220
3:15		0		0		15:15		61		55	
3:30		0		2		15:30		61		74	
3:45		0		0		15:45		77		82	
4:00		0	0	1	3	16:00		89	288	88	299
4:15		0		1		16:15		74		76	
4:30		0		0		16:30		67		91	
4:45		0		4		16:45		64		78	
5:00		2	2	4	9	17:00		72	277	71	316
5:15		1		6		17:15		97		76	
5:30		3		3		17:30		86		102	
5:45		6		6		17:45		78		68	
6:00		10	20	6	21	18:00		84	345	83	329
6:15		4		10		18:15		98		90	
6:30		4		12		18:30		64		67	
6:45		23		18		18:45		102		49	
7:00		21	52	30	70	19:00		68	332	42	248
7:15		18		53		19:15		88		44	
7:30		35		62		19:30		57		46	
7:45		41		100		19:45		66		30	
8:00		47	141	84	299	20:00		51	262	40	160
8:15		59		90		20:15		45		32	
8:30		45		60		20:30		22		23	
8:45		50		55		20:45		48		28	
9:00		41	195	62	267	21:00		16	131	22	105
9:15		52		69		21:15		39		18	
9:30		44		62		21:30		18		18	
9:45		45		74		21:45		21		17	
10:00		50	191	66	271	22:00		9	87	13	66
10:15		31		66		22:15		9		15	
10:30		50		52		22:30		25		5	
10:45		37		48		22:45		32		5	
11:00		48	166	68	234	23:00		11	77	8	33
11:15		50		73		23:15		8		4	
11:30		33		56		23:30		7		3	
11:45		46		78		23:45		7		4	
12:00		35	164	84	291	24:00		5	27	4	15

AM Peak Hour	7:30-8:30	Directional Volumes	3,480	3,877
% of ADT	7.1%		**24-Hour Volume**	7,357
PM Peak Hour	17:15-18:15			
% of ADT	9.4%			

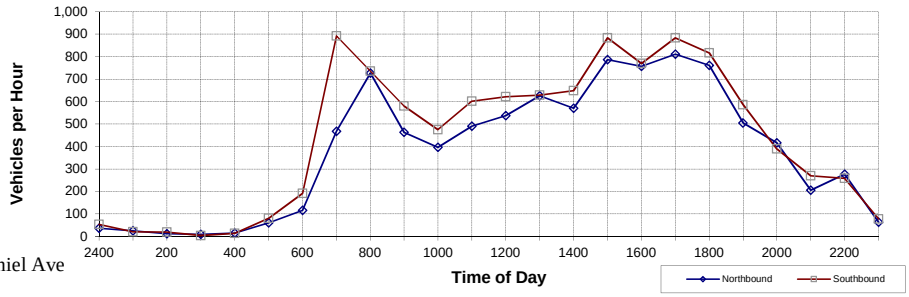
Kimley»Horn

Automatic Traffic Counts
Average Daily Traffic (24-Hour Count)

Project No. : 61292200.000
Station No. :
Counter No. :

City/State: University Park, TX
Date: January 20, 2016
Day of Week: Wednesday

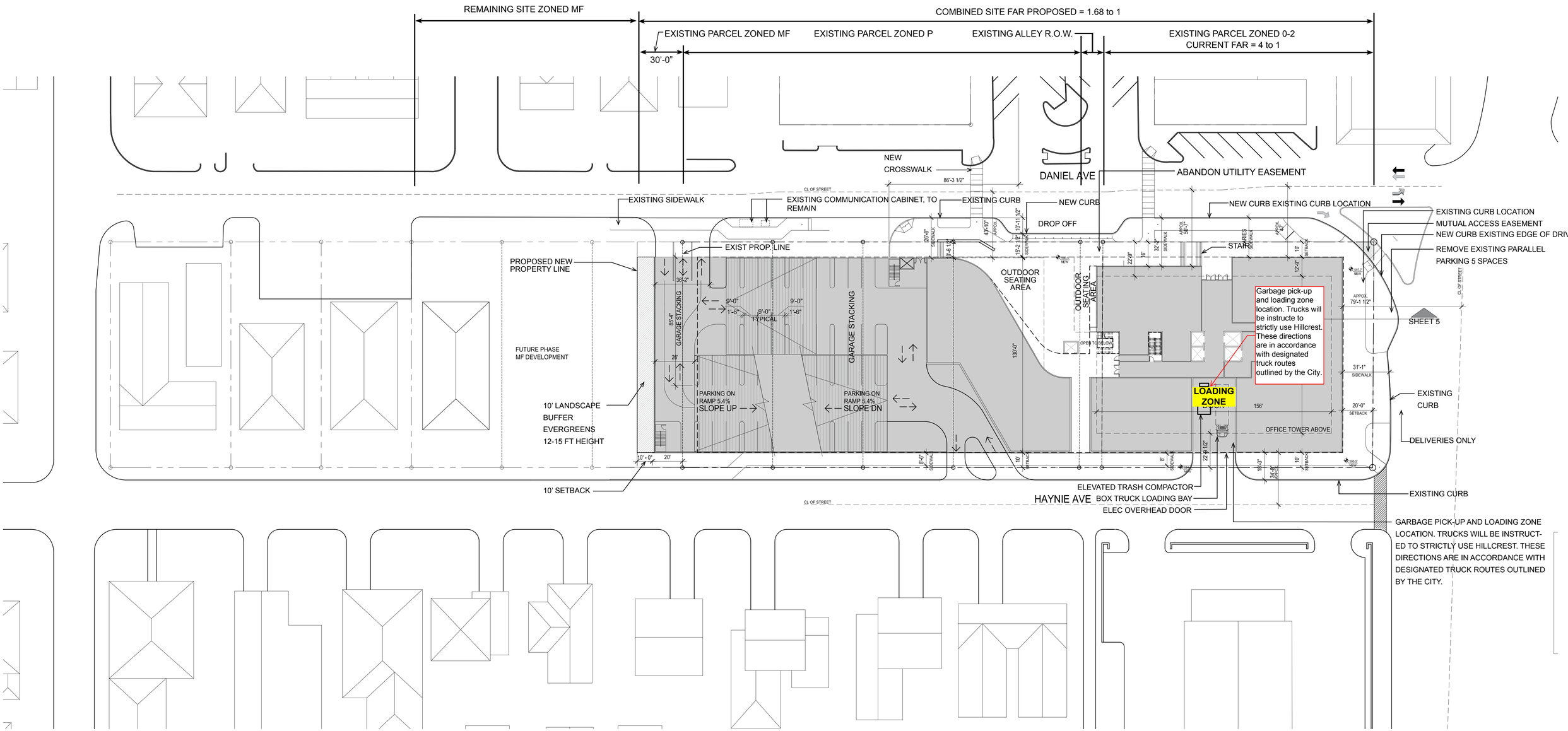
Site: Hillcrest Ave south of Daniel Ave



Time	Peak	Northbound		Southbound		Time	Peak	Northbound		Southbound	
24:00						12:00					
0:15		12		20		12:15		135		152	
0:30		9		8		12:30		132		148	
0:45		11		13		12:45		144		152	
1:00		4	36	13	54	13:00		127	538	170	622
1:15		5		7		13:15		161		124	
1:30		8		5		13:30		166		160	
1:45		1		3		13:45		158		168	
2:00		11	25	6	21	14:00		140	625	177	629
2:15		7		6		14:15		156		150	
2:30		1		4		14:30		128		168	
2:45		1		6		14:45		160		161	
3:00		3	12	3	19	15:00		126	570	170	649
3:15		6		0		15:15		148		223	
3:30		1		1		15:30		212		224	
3:45		1		2		15:45		173		233	
4:00		1	9	1	4	16:00		254	787	203	883
4:15		0		2		16:15		196		186	
4:30		4		4		16:30		176		198	
4:45		5		4		16:45		192		179	
5:00		6	15	4	14	17:00		192	756	207	770
5:15		5		10		17:15		214		209	
5:30		9		15		17:30		218		215	
5:45		28		22		17:45		181		234	
6:00		18	60	34	81	18:00		198	811	226	884
6:15		30		35		18:15		196		227	
6:30		14		16		18:30		196		216	
6:45		34		50		18:45		189		197	
7:00		38	116	90	191	19:00		180	761	176	816
7:15		51		107		19:15		148		159	
7:30		98		183		19:30		142		148	
7:45		122		292		19:45		116		143	
8:00		196	467	310	892	20:00		98	504	136	586
8:15		249		238		20:15		87		123	
8:30		191		152		20:30		156		86	
8:45		140		182		20:45		103		110	
9:00		147	727	164	736	21:00		71	417	70	389
9:15		130		156		21:15		72		100	
9:30		94		140		21:30		48		60	
9:45		106		156		21:45		42		64	
10:00		133	463	128	580	22:00		44	206	46	270
10:15		94		99		22:15		46		58	
10:30		99		115		22:30		106		80	
10:45		99		111		22:45		88		77	
11:00		104	396	150	475	23:00		37	277	43	258
11:15		124		134		23:15		24		25	
11:30		124		136		23:30		10		24	
11:45		112		152		23:45		13		18	
12:00		130	490	180	602	24:00		16	63	10	77

AM Peak Hour	7:30-8:30	Directional Volumes	9,131	10,502
% of ADT	8.9%		**24-Hour Volume**	19,633
PM Peak Hour	17:15-18:15			
% of ADT	8.6%			

CONCEPTUAL SITE PLAN



PARKING SPACES REQUIRED			
PER SECTION 26-100 OF UNIVERSITY PARK ZONING ORDINANCE		GROSS AREA	PARKING REQUIRED
OFFICE	1 SPACE PER 300SF	85,900	287 SPACES
RETAIL	1 SPACE PER 200SF	27,285	137 SPACES
RESTAURANT	1 SPACE PER 100SF	14,695	147 SPACES
	TOTAL GROSS FLOOR AREA	127,880	
RESTAURANT OUTDOOR SEATING (4)	1 SPACE PER 200SF	4,900	25 SPACES
	TOTAL PARKING REQUIRED		596 SPACES

CONCEPTUAL PARKING SPACES TABULATIONS	
PARKING LEVEL GRADE +2	73 SPACES
PARKING LEVEL GRADE +1	40 SPACES
PARKING LEVEL GRADE	39 SPACES
PARKING LEVEL B1	142 SPACES
PARKING LEVEL B2	127 SPACES
PARKING LEVEL B3	146 SPACES
PARKING LEVEL B4	147 SPACES
TOTAL : 714 SPACES (STRUCTURED PARKING ONLY)	

NOTE:

(1) PARKING SPACES LOCATED IN THE PUBLIC RIGHT OF WAY ARE NOT INCLUDED IN TOTAL PARKING TABULATIONS
(2) STANDARD PARKING SPACES WILL MEASURE 9FT X 20FT MINMIMUM
(3) COMPACT PARKING SPACES WILL MEASURE 8.5FT X 16FT MINIMUM. COMPACT SPACES WILL NOT EXCEED 25% OF TOTAL SPACES
(4) OUTDOOR SEATING AREAS WILL BE PARKED AT 50% OF OCCUPANCY PARKING LOAD

CONCEPTUAL SITE PLAN

SCALE: 1" = 30'-0"

0' 15' 30' 60'

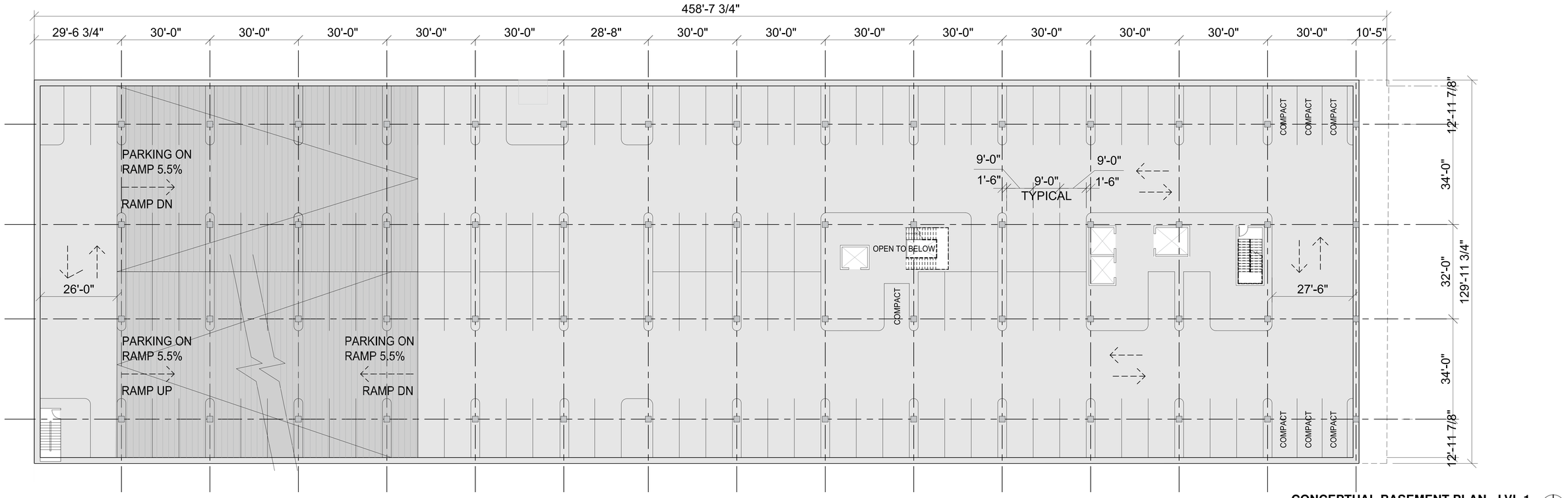
PARK PLAZA

MIXED USE DEVELOPMENT

UNIVERSITY PARK, TX

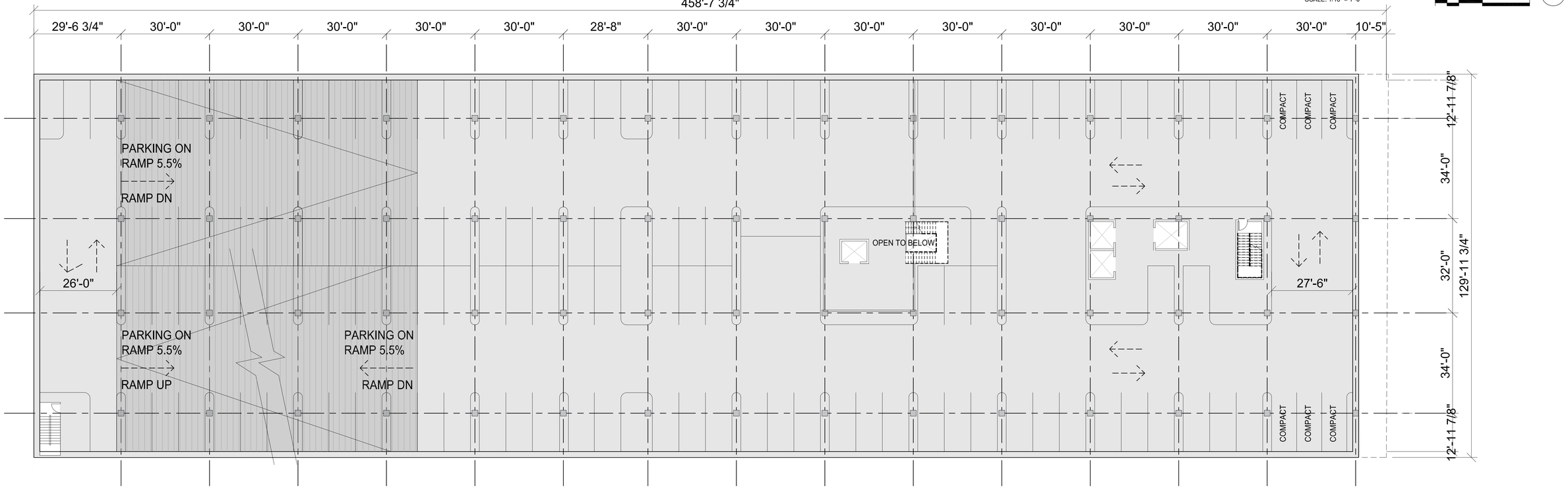
May 20, 2016

OMNIPLAN



CONCEPTUAL BASEMENT PLAN - LVL 1

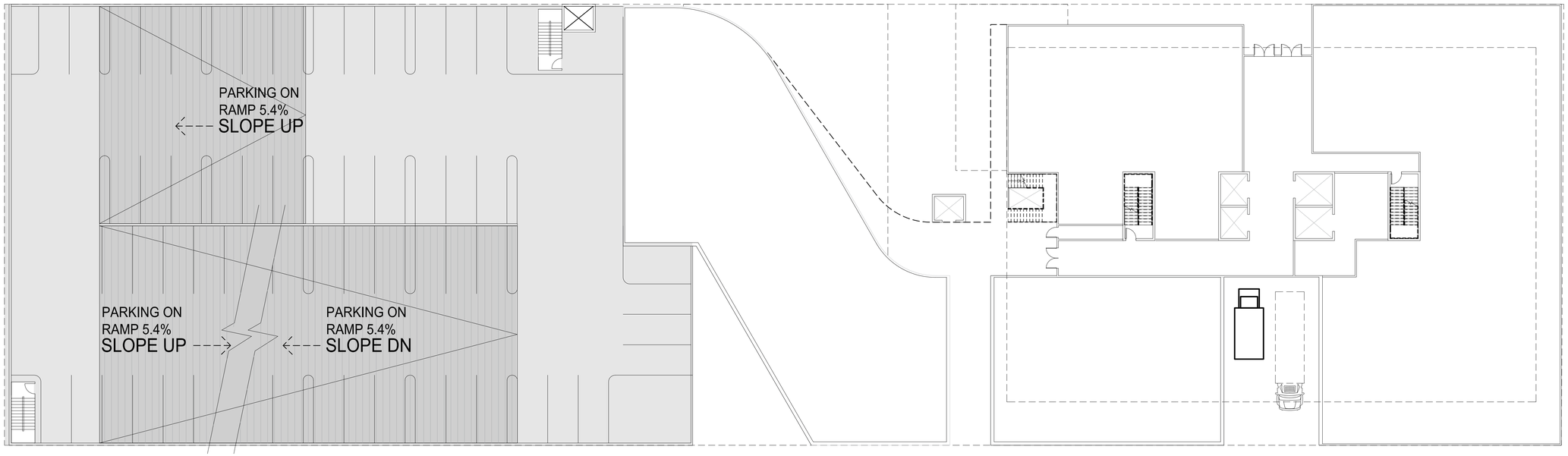
SCALE: 1/16" = 1'-0"



CONCEPTUAL BASEMENT PLAN - LVL 2-4

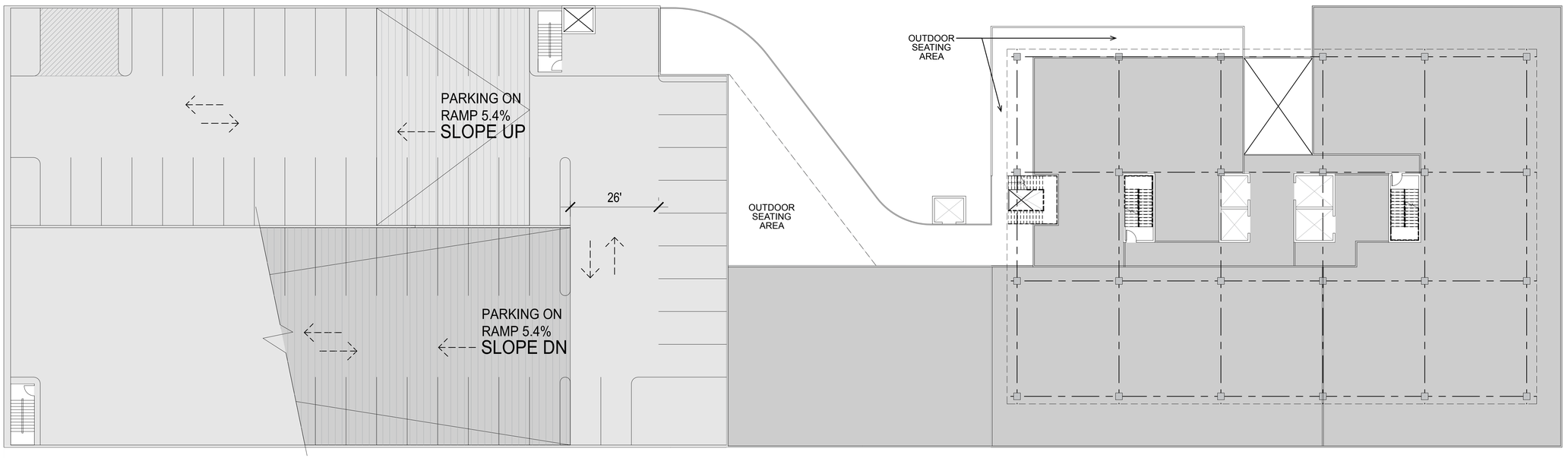
SCALE: 1/16" = 1'-0"

0' 8' 16' 32'



CONCEPTUAL PARKING LEVEL 1

SCALE: 1/16" = 1'-0"



CONCEPTUAL PARKING LEVEL 2

SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

LEFT-TURN ANALYSIS

Left-Turn Warrant - Parking Garage @ Daniel Avenue (AM Peak)

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

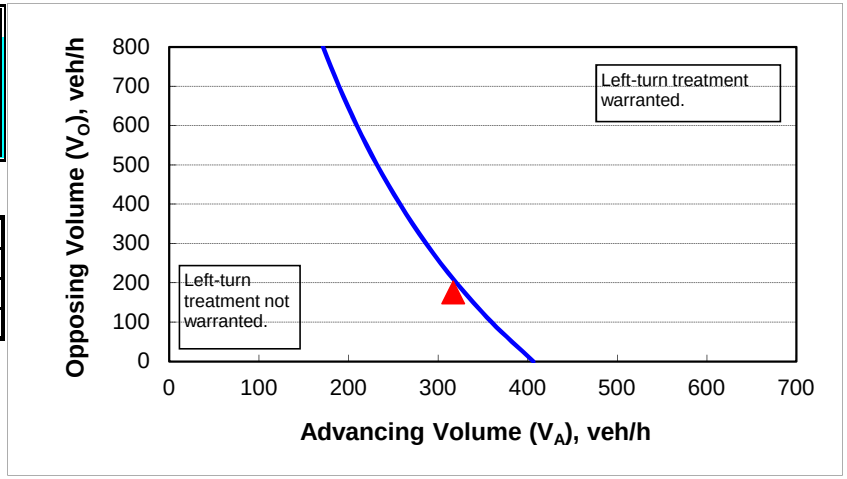
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Percent of left-turns in advancing volume (V_A), %:	36%
Advancing volume (V_A), veh/h:	317
Opposing volume (V_O), veh/h:	176

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	329
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Warrant - Parking Garage @ Daniel Avenue (PM Peak)

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

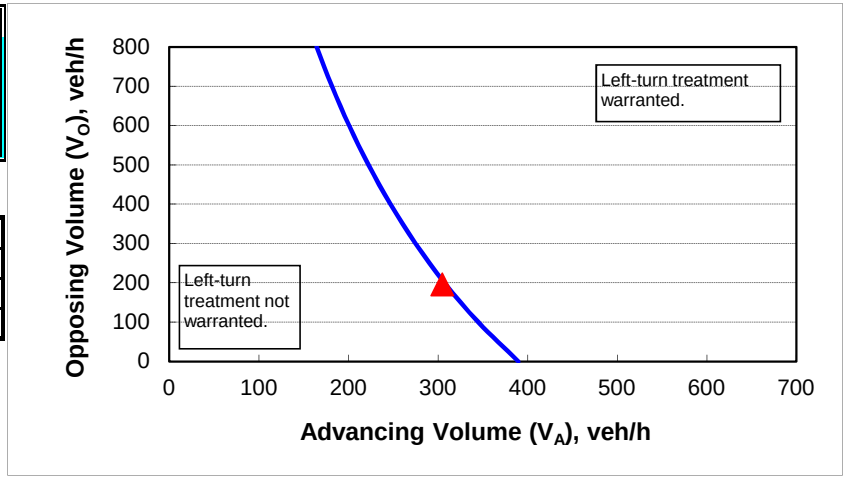
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	30
Percent of left-turns in advancing volume (V_A), %:	48%
Advancing volume (V_A), veh/h:	305
Opposing volume (V_O), veh/h:	196

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	309
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

EXISTING (2016) TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	60	30	240	123	52	79	479	195	93	729	95
Future Volume (vph)	11	60	30	240	123	52	79	479	195	93	729	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.95		1.00	0.96		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1769		1770	1780		1770	3386			3467	
Flt Permitted	0.63	1.00		0.54	1.00		0.28	1.00			0.69	
Satd. Flow (perm)	1182	1769		1012	1780		518	3386			2393	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	12	67	34	270	138	58	89	538	219	104	819	107
RTOR Reduction (vph)	0	20	0	0	17	0	0	49	0	0	10	0
Lane Group Flow (vph)	12	81	0	270	179	0	89	708	0	0	1020	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.5	16.5		30.5	30.5		35.5	35.5			50.5	
Effective Green, g (s)	16.5	16.5		30.5	30.5		35.5	35.5			50.5	
Actuated g/C Ratio	0.18	0.18		0.34	0.34		0.39	0.39			0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)	216	324		422	603		204	1335			1468	
v/s Ratio Prot		0.05		c0.07	0.10			0.21			c0.08	
v/s Ratio Perm	0.01			c0.15			0.17				c0.31	
v/c Ratio	0.06	0.25		0.64	0.30		0.44	0.53			0.70	
Uniform Delay, d1	30.3	31.4		23.8	21.9		19.9	20.9			14.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.5	1.8		7.3	1.3		6.7	1.5			2.7	
Delay (s)	30.8	33.3		31.1	23.1		26.6	22.4			17.0	
Level of Service	C	C		C	C		C	C			B	
Approach Delay (s)		33.0			27.7			22.8			17.0	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	38	748	923	60
Future Volume (Veh/h)	0	18	38	748	923	60
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	21	44	860	1061	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.83	0.83	0.83			
vC, conflicting volume	1614	565	1130			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1328	64	745			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	94			
cM capacity (veh/h)	114	818	712			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	21	44	430	430	707	423
Volume Left	0	44	0	0	0	0
Volume Right	21	0	0	0	0	69
cSH	818	712	1700	1700	1700	1700
Volume to Capacity	0.03	0.06	0.25	0.25	0.42	0.25
Queue Length 95th (ft)	2	5	0	0	0	0
Control Delay (s)	9.5	10.4	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.5	0.5			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	37.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	25	78	0	0	191	112	2	8	7	15	26	0
Future Volume (Veh/h)	25	78	0	0	191	112	2	8	7	15	26	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	26	81	0	0	199	117	2	8	7	0	27	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.94						0.94	0.94		0.00	0.94	0.94
vC, conflicting volume	316			81			404	449	81	0	402	390
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240			81			334	382	81	0	331	320
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	98			100			100	98	99	0	95	100
cM capacity (veh/h)	1247			1517			563	507	979	0	564	550

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	107	316	17	41
Volume Left	26	0	2	27
Volume Right	0	117	7	14
cSH	1247	1700	642	630
Volume to Capacity	0.02	0.19	0.03	0.07
Queue Length 95th (ft)	2	0	2	5
Control Delay (s)	2.1	0.0	10.8	11.1
Lane LOS	A		B	B
Approach Delay (s)	2.1	0.0	10.8	11.1
Approach LOS			B	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	42.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	13
Future Volume (Veh/h)	13
Sign Control	
Grade	
Peak Hour Factor	0.96
Hourly flow rate (vph)	14
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.94
vC, conflicting volume	258
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	178
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	98
cM capacity (veh/h)	813
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	23	17	7	1	75	10	17	86	1	2	125	147
Future Volume (vph)	23	17	7	1	75	10	17	86	1	2	125	147
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	33	25	10	1	109	14	25	125	1	3	181	213

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	68	124	151	397
Volume Left (vph)	33	1	25	3
Volume Right (vph)	10	14	1	213
Hadj (s)	0.04	-0.03	0.06	-0.29
Departure Headway (s)	5.4	5.2	4.9	4.3
Degree Utilization, x	0.10	0.18	0.21	0.48
Capacity (veh/h)	588	616	683	795
Control Delay (s)	9.0	9.4	9.2	11.3
Approach Delay (s)	9.0	9.4	9.2	11.3
Approach LOS	A	A	A	B

Intersection Summary				
Delay	10.3			
Level of Service	B			
Intersection Capacity Utilization	32.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	145	47	67	54	45	120
Future Volume (Veh/h)	145	47	67	54	45	120
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	199	64	92	74	62	164
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	417	129			166	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417	129			166	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	65	93			96	
cM capacity (veh/h)	566	921			1412	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	263	166	226
Volume Left	199	0	62
Volume Right	64	74	0
cSH	625	1700	1412
Volume to Capacity	0.42	0.10	0.04
Queue Length 95th (ft)	52	0	3
Control Delay (s)	14.9	0.0	2.4
Lane LOS	B		A
Approach Delay (s)	14.9	0.0	2.4
Approach LOS	B		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	118	47	211	135	86	93	526	192	119	620	95
Future Volume (vph)	30	118	47	211	135	86	93	526	192	119	620	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.96		1.00	0.94		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1784		1770	1754		1770	3397			3454	
Flt Permitted	0.62	1.00		0.39	1.00		0.34	1.00			0.68	
Satd. Flow (perm)	1153	1784		724	1754		624	3397			2361	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	30	119	47	213	136	87	94	531	194	120	626	96
RTOR Reduction (vph)	0	14	0	0	23	0	0	37	0	0	10	0
Lane Group Flow (vph)	30	152	0	213	200	0	94	688	0	0	832	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.5	16.5		30.5	30.5		56.0	45.5			56.0	
Effective Green, g (s)	16.5	16.5		30.5	30.5		56.0	45.5			56.0	
Actuated g/C Ratio	0.16	0.16		0.30	0.30		0.56	0.46			0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)	190	294		320	534		469	1545			1436	
v/s Ratio Prot		0.09		c0.06	0.11		0.02	0.20			c0.06	
v/s Ratio Perm	0.03			c0.14			0.09				c0.26	
v/c Ratio	0.16	0.52		0.67	0.37		0.20	0.45			0.58	
Uniform Delay, d1	35.8	38.1		27.9	27.3		10.2	18.6			14.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.8	6.4		10.5	2.0		1.0	0.9			1.7	
Delay (s)	37.6	44.5		38.4	29.3		11.2	19.6			16.0	
Level of Service	D	D		D	C		B	B			B	
Approach Delay (s)		43.4			33.7			18.6			16.0	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	29	12	808	843	26
Future Volume (Veh/h)	0	29	12	808	843	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	30	12	824	860	27
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.88	0.88	0.88			
vC, conflicting volume	1310	444	887			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1074	88	593			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	99			
cM capacity (veh/h)	186	836	859			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	12	412	412	573	314
Volume Left	0	12	0	0	0	0
Volume Right	30	0	0	0	0	27
cSH	836	859	1700	1700	1700	1700
Volume to Capacity	0.04	0.01	0.24	0.24	0.34	0.18
Queue Length 95th (ft)	3	1	0	0	0	0
Control Delay (s)	9.5	9.2	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.5	0.1			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	34.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	41	109	0	0	141	159	0	3	7	60	74	0
Future Volume (Veh/h)	41	109	0	0	141	159	0	3	7	60	74	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	45	118	0	0	153	173	0	3	8	0	80	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.93						0.93	0.93		0.00	0.93	0.93
vC, conflicting volume	326			118			480	534	118	0	457	448
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	242			118			408	465	118	0	382	372
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	96			100			100	99	99	0	84	100
cM capacity (veh/h)	1236			1470			483	445	934	0	515	502

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	163	326	11	113
Volume Left	45	0	0	80
Volume Right	0	173	8	33
cSH	1236	1700	719	580
Volume to Capacity	0.04	0.19	0.02	0.19
Queue Length 95th (ft)	3	0	1	18
Control Delay (s)	2.4	0.0	10.1	12.7
Lane LOS	A		B	B
Approach Delay (s)	2.4	0.0	10.1	12.7
Approach LOS			B	B

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	51.1%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	30
Future Volume (Veh/h)	30
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	33
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.93
vC, conflicting volume	240
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	149
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	96
cM capacity (veh/h)	837
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	67	23	3	4	20	5	1	118	4	10	142	73
Future Volume (vph)	67	23	3	4	20	5	1	118	4	10	142	73
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	72	25	3	4	22	5	1	127	4	11	153	78

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	100	31	132	242
Volume Left (vph)	72	4	1	11
Volume Right (vph)	3	5	4	78
Hadj (s)	0.16	-0.04	0.02	-0.15
Departure Headway (s)	4.9	4.8	4.5	4.2
Degree Utilization, x	0.14	0.04	0.17	0.29
Capacity (veh/h)	672	674	761	813
Control Delay (s)	8.7	8.1	8.4	8.9
Approach Delay (s)	8.7	8.1	8.4	8.9
Approach LOS	A	A	A	A

Intersection Summary				
Delay		8.7		
Level of Service		A		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	96	54	86	96	45	134
Future Volume (Veh/h)	96	54	86	96	45	134
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	112	63	100	112	52	156
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	416	156			212	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	416	156			212	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	80	93			96	
cM capacity (veh/h)	570	890			1358	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	175	212	208
Volume Left	112	0	52
Volume Right	63	112	0
cSH	655	1700	1358
Volume to Capacity	0.27	0.12	0.04
Queue Length 95th (ft)	27	0	3
Control Delay (s)	12.5	0.0	2.2
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	2.2
Approach LOS	B		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

BUILD OUT (2018) TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	78	32	255	164	55	118	508	207	99	807	135
Future Volume (vph)	36	78	32	255	164	55	118	508	207	99	807	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1782		1770	1792		1770	3385			3454	
Flt Permitted	0.61	1.00		0.50	1.00		0.23	1.00			0.66	
Satd. Flow (perm)	1129	1782		935	1792		437	3385			2303	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	88	36	287	184	62	133	571	233	111	907	152
RTOR Reduction (vph)	0	16	0	0	13	0	0	49	0	0	13	0
Lane Group Flow (vph)	40	108	0	287	233	0	133	755	0	0	1157	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.5	16.5		30.5	30.5		35.5	35.5			50.5	
Effective Green, g (s)	16.5	16.5		30.5	30.5		35.5	35.5			50.5	
Actuated g/C Ratio	0.18	0.18		0.34	0.34		0.39	0.39			0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)	206	326		405	607		172	1335			1426	
v/s Ratio Prot		0.06		c0.07	0.13			0.22			c0.09	
v/s Ratio Perm	0.04			c0.17			0.30				c0.36	
v/c Ratio	0.19	0.33		0.71	0.38		0.77	0.57			0.81	
Uniform Delay, d1	31.1	31.9		24.6	22.6		23.7	21.2			15.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	2.1	2.7		10.0	1.8		28.0	1.7			5.1	
Delay (s)	33.2	34.6		34.6	24.4		51.7	23.0			21.0	
Level of Service	C	C		C	C		D	C			C	
Approach Delay (s)		34.3			29.9			27.1			21.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	36	63	828	979	98
Future Volume (Veh/h)	0	36	63	828	979	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	41	72	952	1125	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.79	0.79	0.79			
vC, conflicting volume	1802	619	1238			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1487	0	775			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	89			
cM capacity (veh/h)	81	859	662			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	41	72	476	476	750	488
Volume Left	0	72	0	0	0	0
Volume Right	41	0	0	0	0	113
cSH	859	662	1700	1700	1700	1700
Volume to Capacity	0.05	0.11	0.28	0.28	0.44	0.29
Queue Length 95th (ft)	4	9	0	0	0	0
Control Delay (s)	9.4	11.1	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	9.4	0.8			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.5			
Intersection Capacity Utilization	40.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	38	121	0	0	304	119	0	0	0	16	28	0
Future Volume (Veh/h)	38	121	0	0	304	119	0	0	0	16	28	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	40	126	0	0	317	124	0	0	0	0	29	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.89						0.89	0.89		0.00	0.89	0.89
vC, conflicting volume	441			126			611	647	126	0	585	585
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	306			126			498	538	126	0	468	468
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	96			100			100	100	100	0	93	100
cM capacity (veh/h)	1113			1460			401	384	924	0	436	421

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	441	55
Volume Left	40	0	29
Volume Right	0	124	26
cSH	1113	1700	534
Volume to Capacity	0.04	0.26	0.10
Queue Length 95th (ft)	3	0	9
Control Delay (s)	2.3	0.0	12.5
Lane LOS	A		B
Approach Delay (s)	2.3	0.0	12.5
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	45.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	25
Future Volume (Veh/h)	25
Sign Control	
Grade	
Peak Hour Factor	0.96
Hourly flow rate (vph)	26
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.89
vC, conflicting volume	379
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	236
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	96
cM capacity (veh/h)	712
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	18	7	3	80	28	18	114	1	2	138	156
Future Volume (vph)	24	18	7	3	80	28	18	114	1	2	138	156
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	35	26	10	4	116	41	26	165	1	3	200	226

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	71	161	192	429
Volume Left (vph)	35	4	26	3
Volume Right (vph)	10	41	1	226
Hadj (s)	0.05	-0.11	0.06	-0.28
Departure Headway (s)	5.8	5.4	5.2	4.6
Degree Utilization, x	0.11	0.24	0.28	0.54
Capacity (veh/h)	543	596	651	758
Control Delay (s)	9.5	10.1	10.1	12.9
Approach Delay (s)	9.5	10.1	10.1	12.9
Approach LOS	A	B	B	B

Intersection Summary				
Delay	11.5			
Level of Service	B			
Intersection Capacity Utilization	35.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	159	60	73	95	82	127
Future Volume (Veh/h)	159	60	73	95	82	127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	218	82	100	130	112	174
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	563	165			230	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563	165			230	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	51	91			92	
cM capacity (veh/h)	447	879			1338	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	300	230	286
Volume Left	218	0	112
Volume Right	82	130	0
cSH	516	1700	1338
Volume to Capacity	0.58	0.14	0.08
Queue Length 95th (ft)	92	0	7
Control Delay (s)	21.2	0.0	3.6
Lane LOS	C		A
Approach Delay (s)	21.2	0.0	3.6
Approach LOS	C		

Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	120	56	113	204	15	35
Future Volume (Veh/h)	120	56	113	204	15	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	61	123	222	16	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				633		
pX, platoon unblocked						
vC, conflicting volume			191		628	160
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		628	160
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		96	96
cM capacity (veh/h)			1383		407	885

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	191	345	54
Volume Left	0	123	16
Volume Right	61	0	38
cSH	1700	1383	656
Volume to Capacity	0.11	0.09	0.08
Queue Length 95th (ft)	0	7	7
Control Delay (s)	0.0	3.3	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	3.3	11.0
Approach LOS			B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	104	56	17	2
Future Volume (Veh/h)	0	19	104	56	17	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	113	61	18	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	174				164	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174				164	144
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1403				826	904

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	174	20
Volume Left	0	0	18
Volume Right	0	61	2
cSH	1700	1700	833
Volume to Capacity	0.01	0.10	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	165	87	224	165	91	150	529	204	126	636	167
Future Volume (vph)	133	165	87	224	165	91	150	529	204	126	636	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.95		1.00	0.95		1.00	0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1766		1770	1763		1770	3391			3420	
Flt Permitted	0.60	1.00		0.21	1.00		0.30	1.00			0.67	
Satd. Flow (perm)	1116	1766		385	1763		568	3391			2305	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	134	167	88	226	167	92	152	534	206	127	642	169
RTOR Reduction (vph)	0	19	0	0	20	0	0	40	0	0	19	0
Lane Group Flow (vph)	134	236	0	226	239	0	152	700	0	0	919	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.5	16.5		30.5	30.5		56.0	45.5			56.0	
Effective Green, g (s)	16.5	16.5		30.5	30.5		56.0	45.5			56.0	
Actuated g/C Ratio	0.16	0.16		0.30	0.30		0.56	0.46			0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)	184	291		249	537		444	1542			1407	
v/s Ratio Prot		0.13		c0.09	0.14		0.04	0.21			c0.07	
v/s Ratio Perm	0.12			c0.19			0.16				c0.30	
v/c Ratio	0.73	0.81		0.91	0.44		0.34	0.45			0.65	
Uniform Delay, d1	39.6	40.2		29.7	27.9		10.6	18.7			15.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	22.2	21.2		37.4	2.7		2.1	1.0			2.4	
Delay (s)	61.8	61.4		67.1	30.6		12.7	19.7			17.6	
Level of Service	E	E		E	C		B	B			B	
Approach Delay (s)		61.5			47.6			18.5			17.6	
Approach LOS		E			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	92	28	879	894	50
Future Volume (Veh/h)	0	92	28	879	894	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	94	29	897	912	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.86	0.86	0.86			
vC, conflicting volume	1444	482	963			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1196	80	639			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	89	96			
cM capacity (veh/h)	149	831	812			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	94	29	448	448	608	355
Volume Left	0	29	0	0	0	0
Volume Right	94	0	0	0	0	51
cSH	831	812	1700	1700	1700	1700
Volume to Capacity	0.11	0.04	0.26	0.26	0.36	0.21
Queue Length 95th (ft)	10	3	0	0	0	0
Control Delay (s)	9.9	9.6	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.9	0.3			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	38.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	58	294	0	0	288	169	0	0	0	64	79	0
Future Volume (Veh/h)	58	294	0	0	288	169	0	0	0	64	79	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	320	0	0	313	184	0	0	0	0	86	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.88						0.88	0.88		0.00	0.88	0.88
vC, conflicting volume	497			320			893	943	320	0	851	851
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354			320			807	864	320	0	759	759
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	94			100			100	100	100	0	68	100
cM capacity (veh/h)	1054			1240			235	240	721	0	270	277

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	383	497	128
Volume Left	63	0	86
Volume Right	0	184	42
cSH	1054	1700	337
Volume to Capacity	0.06	0.29	0.38
Queue Length 95th (ft)	5	0	43
Control Delay (s)	2.0	0.0	22.0
Lane LOS	A		C
Approach Delay (s)	2.0	0.0	22.0
Approach LOS			C

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	64.4%	ICU Level of Service	C	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	39
Future Volume (Veh/h)	39
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	42
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.88
vC, conflicting volume	405
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	249
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	94
cM capacity (veh/h)	691
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	71	24	3	11	21	15	1	140	4	11	168	77
Future Volume (vph)	71	24	3	11	21	15	1	140	4	11	168	77
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	76	26	3	12	23	16	1	151	4	12	181	83

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	105	51	156	276
Volume Left (vph)	76	12	1	12
Volume Right (vph)	3	16	4	83
Hadj (s)	0.16	-0.11	0.02	-0.14
Departure Headway (s)	5.1	4.9	4.6	4.4
Degree Utilization, x	0.15	0.07	0.20	0.33
Capacity (veh/h)	641	652	737	789
Control Delay (s)	9.0	8.3	8.8	9.5
Approach Delay (s)	9.0	8.3	8.8	9.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay			9.1	
Level of Service			A	
Intersection Capacity Utilization			40.0%	ICU Level of Service
Analysis Period (min)			15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	119	93	91	127	70	142
Future Volume (Veh/h)	119	93	91	127	70	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	138	108	106	148	81	165
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	507	180			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	180			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	87			94	
cM capacity (veh/h)	493	863			1311	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	246	254	246
Volume Left	138	0	81
Volume Right	108	148	0
cSH	607	1700	1311
Volume to Capacity	0.41	0.15	0.06
Queue Length 95th (ft)	49	0	5
Control Delay (s)	14.9	0.0	3.0
Lane LOS	B		A
Approach Delay (s)	14.9	0.0	3.0
Approach LOS	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	160	36	146	159	53	184
Future Volume (Veh/h)	160	36	146	159	53	184
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	39	159	173	58	200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				633		
pX, platoon unblocked						
vC, conflicting volume			213		684	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		684	194
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		84	76
cM capacity (veh/h)			1357		366	848

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	332	258
Volume Left	0	159	58
Volume Right	39	0	200
cSH	1700	1357	654
Volume to Capacity	0.13	0.12	0.39
Queue Length 95th (ft)	0	10	47
Control Delay (s)	0.0	4.4	14.0
Lane LOS		A	B
Approach Delay (s)	0.0	4.4	14.0
Approach LOS			B

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	31	40	36	61	7
Future Volume (Veh/h)	0	31	40	36	61	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	43	39	66	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82				96	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				96	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	1515				903	1002

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	82	74
Volume Left	0	0	66
Volume Right	0	39	8
cSH	1700	1700	913
Volume to Capacity	0.02	0.05	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	9.3
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

IMPROVED BUILD OUT (2018) TRAFFIC ANALYSIS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	78	32	255	164	55	118	508	207	99	807	135
Future Volume (vph)	36	78	32	255	164	55	118	508	207	99	807	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.96		1.00	0.96		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1782		1770	1792		1770	3385			3454	
Flt Permitted	0.61	1.00		0.41	1.00		0.18	1.00			0.76	
Satd. Flow (perm)	1129	1782		759	1792		343	3385			2627	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	40	88	36	287	184	62	133	571	233	111	907	152
RTOR Reduction (vph)	0	17	0	0	14	0	0	32	0	0	12	0
Lane Group Flow (vph)	40	107	0	287	232	0	133	772	0	0	1158	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases		4		3	8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.3	10.3		25.3	25.3		55.7	55.7			55.7	
Effective Green, g (s)	10.3	10.3		25.3	25.3		55.7	55.7			55.7	
Actuated g/C Ratio	0.11	0.11		0.28	0.28		0.62	0.62			0.62	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	129	203		331	503		212	2094			1625	
v/s Ratio Prot		0.06		c0.10	0.13			0.23				
v/s Ratio Perm	0.04			c0.14			0.39				c0.44	
v/c Ratio	0.31	0.53		0.87	0.46		0.63	0.37			0.71	
Uniform Delay, d1	36.6	37.6		29.0	26.7		10.7	8.5			11.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	1.4	2.5		20.5	0.7		13.2	0.5			1.5	
Delay (s)	38.0	40.0		49.5	27.4		23.9	9.0			13.2	
Level of Service	D	D		D	C		C	A			B	
Approach Delay (s)		39.5			39.3			11.1			13.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	36	63	828	979	98
Future Volume (Veh/h)	0	36	63	828	979	98
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	0	41	72	952	1125	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.82	0.82	0.82			
vC, conflicting volume	1802	619	1238			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1541	102	856			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	95	89			
cM capacity (veh/h)	77	767	641			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	41	72	476	476	750	488
Volume Left	0	72	0	0	0	0
Volume Right	41	0	0	0	0	113
cSH	767	641	1700	1700	1700	1700
Volume to Capacity	0.05	0.11	0.28	0.28	0.44	0.29
Queue Length 95th (ft)	4	9	0	0	0	0
Control Delay (s)	10.0	11.3	0.0	0.0	0.0	0.0
Lane LOS	A	B				
Approach Delay (s)	10.0	0.8			0.0	
Approach LOS	A					

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	38	121	0	0	304	119	0	0	0	16	28	0
Future Volume (Veh/h)	38	121	0	0	304	119	0	0	0	16	28	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	40	126	0	0	317	124	0	0	0	0	29	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.90						0.90	0.90		0.00	0.90	0.90
vC, conflicting volume	441			126			611	647	126	0	585	585
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	324			126			512	552	126	0	484	484
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	96			100			100	100	100	0	93	100
cM capacity (veh/h)	1113			1460			398	383	924	0	432	419

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	166	441	55
Volume Left	40	0	29
Volume Right	0	124	26
cSH	1113	1700	529
Volume to Capacity	0.04	0.26	0.10
Queue Length 95th (ft)	3	0	9
Control Delay (s)	2.3	0.0	12.6
Lane LOS	A		B
Approach Delay (s)	2.3	0.0	12.6
Approach LOS			B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	45.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	25
Future Volume (Veh/h)	25
Sign Control	
Grade	
Peak Hour Factor	0.96
Hourly flow rate (vph)	26
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.90
vC, conflicting volume	379
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	255
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	96
cM capacity (veh/h)	706
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	24	18	7	3	80	28	18	114	1	2	138	156
Future Volume (vph)	24	18	7	3	80	28	18	114	1	2	138	156
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Hourly flow rate (vph)	35	26	10	4	116	41	26	165	1	3	200	226

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	71	161	192	429
Volume Left (vph)	35	4	26	3
Volume Right (vph)	10	41	1	226
Hadj (s)	0.05	-0.11	0.06	-0.28
Departure Headway (s)	5.8	5.4	5.2	4.6
Degree Utilization, x	0.11	0.24	0.28	0.54
Capacity (veh/h)	543	596	651	758
Control Delay (s)	9.5	10.1	10.1	12.9
Approach Delay (s)	9.5	10.1	10.1	12.9
Approach LOS	A	B	B	B

Intersection Summary				
Delay		11.5		
Level of Service		B		
Intersection Capacity Utilization		35.0%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	159	60	73	95	82	127
Future Volume (Veh/h)	159	60	73	95	82	127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Hourly flow rate (vph)	218	82	100	130	112	174
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	563	165			230	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	563	165			230	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	51	91			92	
cM capacity (veh/h)	447	879			1338	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	300	230	286
Volume Left	218	0	112
Volume Right	82	130	0
cSH	516	1700	1338
Volume to Capacity	0.58	0.14	0.08
Queue Length 95th (ft)	92	0	7
Control Delay (s)	21.2	0.0	3.6
Lane LOS	C		A
Approach Delay (s)	21.2	0.0	3.6
Approach LOS	C		

Intersection Summary			
Average Delay	9.0		
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	120	56	113	204	15	35
Future Volume (Veh/h)	120	56	113	204	15	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	61	123	222	16	38
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				633		
pX, platoon unblocked						
vC, conflicting volume			191		628	160
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			191		628	160
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		96	96
cM capacity (veh/h)			1383		407	885

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	191	345	54
Volume Left	0	123	16
Volume Right	61	0	38
cSH	1700	1383	656
Volume to Capacity	0.11	0.09	0.08
Queue Length 95th (ft)	0	7	7
Control Delay (s)	0.0	3.3	11.0
Lane LOS		A	B
Approach Delay (s)	0.0	3.3	11.0
Approach LOS			B

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	19	104	56	17	2
Future Volume (Veh/h)	0	19	104	56	17	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	21	113	61	18	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	174				164	144
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174				164	144
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	100
cM capacity (veh/h)	1403				826	904

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	21	174	20
Volume Left	0	0	18
Volume Right	0	61	2
cSH	1700	1700	833
Volume to Capacity	0.01	0.10	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	9.4
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.4
Approach LOS			A

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	165	87	224	165	91	150	529	204	126	636	167
Future Volume (vph)	133	165	87	224	165	91	150	529	204	126	636	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.95		1.00	0.95		1.00	0.96			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1766		1770	1763		1770	3391			3420	
Flt Permitted	0.60	1.00		0.35	1.00		0.30	1.00			0.63	
Satd. Flow (perm)	1116	1766		661	1763		565	3391			2167	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	134	167	88	226	167	92	152	534	206	127	642	169
RTOR Reduction (vph)	0	19	0	0	20	0	0	41	0	0	19	0
Lane Group Flow (vph)	134	236	0	226	239	0	152	699	0	0	919	0
Turn Type	Perm	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	25.5	25.5		38.5	38.5		48.0	37.5			48.0	
Effective Green, g (s)	25.5	25.5		38.5	38.5		48.0	37.5			48.0	
Actuated g/C Ratio	0.26	0.26		0.38	0.38		0.48	0.38			0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)	284	450		348	678		397	1271			1171	
v/s Ratio Prot		0.13		c0.06	0.14		0.04	0.21			c0.08	
v/s Ratio Perm	0.12			c0.19			0.14				c0.29	
v/c Ratio	0.47	0.53		0.65	0.35		0.38	0.55			0.79	
Uniform Delay, d1	31.5	32.0		23.2	21.9		14.8	24.6			21.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	5.5	4.3		9.1	1.4		2.8	1.7			5.3	
Delay (s)	37.1	36.4		32.2	23.3		17.6	26.3			27.0	
Level of Service	D	D		C	C		B	C			C	
Approach Delay (s)		36.6			27.5			24.8			27.0	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	92	28	879	894	50
Future Volume (Veh/h)	0	92	28	879	894	50
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	94	29	897	912	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					211	
pX, platoon unblocked	0.83	0.83	0.83			
vC, conflicting volume	1444	482	963			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1131	0	553			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	90	97			
cM capacity (veh/h)	159	903	844			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	94	29	448	448	608	355
Volume Left	0	29	0	0	0	0
Volume Right	94	0	0	0	0	51
cSH	903	844	1700	1700	1700	1700
Volume to Capacity	0.10	0.03	0.26	0.26	0.36	0.21
Queue Length 95th (ft)	9	3	0	0	0	0
Control Delay (s)	9.5	9.4	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.5	0.3			0.0	
Approach LOS	A					

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	38.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (veh/h)	58	294	0	0	288	169	0	0	0	64	79	0
Future Volume (Veh/h)	58	294	0	0	288	169	0	0	0	64	79	0
Sign Control		Free			Free			Stop				Stop
Grade		0%			0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	320	0	0	313	184	0	0	0	0	86	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					247							
pX, platoon unblocked	0.88						0.88	0.88		0.00	0.88	0.88
vC, conflicting volume	497			320			893	943	320	0	851	851
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	362			320			811	868	320	0	763	763
tC, single (s)	4.1			4.1			7.1	6.5	6.2	0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	0.0	3.5	4.0
p0 queue free %	94			100			100	100	100	0	68	100
cM capacity (veh/h)	1055			1240			235	241	721	0	270	277

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	383	497	128
Volume Left	63	0	86
Volume Right	0	184	42
cSH	1055	1700	337
Volume to Capacity	0.06	0.29	0.38
Queue Length 95th (ft)	5	0	43
Control Delay (s)	2.0	0.0	22.1
Lane LOS	A		C
Approach Delay (s)	2.0	0.0	22.1
Approach LOS			C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	39
Future Volume (Veh/h)	39
Sign Control	
Grade	
Peak Hour Factor	0.92
Hourly flow rate (vph)	42
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	0.88
vC, conflicting volume	405
vC1, stage 1 conf vol	
vC2, stage 2 conf vol	
vCu, unblocked vol	257
tC, single (s)	6.2
tC, 2 stage (s)	
tF (s)	3.3
p0 queue free %	94
cM capacity (veh/h)	688
Direction, Lane #	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	71	24	3	11	21	15	1	140	4	11	168	77
Future Volume (vph)	71	24	3	11	21	15	1	140	4	11	168	77
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	76	26	3	12	23	16	1	151	4	12	181	83

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	105	51	156	276
Volume Left (vph)	76	12	1	12
Volume Right (vph)	3	16	4	83
Hadj (s)	0.16	-0.11	0.02	-0.14
Departure Headway (s)	5.1	4.9	4.6	4.4
Degree Utilization, x	0.15	0.07	0.20	0.33
Capacity (veh/h)	641	652	737	789
Control Delay (s)	9.0	8.3	8.8	9.5
Approach Delay (s)	9.0	8.3	8.8	9.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	9.1			
Level of Service	A			
Intersection Capacity Utilization	40.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	119	93	91	127	70	142
Future Volume (Veh/h)	119	93	91	127	70	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	138	108	106	148	81	165
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	507	180			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	507	180			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	87			94	
cM capacity (veh/h)	493	863			1311	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	246	254	246
Volume Left	138	0	81
Volume Right	108	148	0
cSH	607	1700	1311
Volume to Capacity	0.41	0.15	0.06
Queue Length 95th (ft)	49	0	5
Control Delay (s)	14.9	0.0	3.0
Lane LOS	B		A
Approach Delay (s)	14.9	0.0	3.0
Approach LOS	B		

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	160	36	146	159	53	184
Future Volume (Veh/h)	160	36	146	159	53	184
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	174	39	159	173	58	200
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)				633		
pX, platoon unblocked						
vC, conflicting volume			213		684	194
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			213		684	194
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			88		84	76
cM capacity (veh/h)			1357		366	848

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	213	332	258
Volume Left	0	159	58
Volume Right	39	0	200
cSH	1700	1357	654
Volume to Capacity	0.13	0.12	0.39
Queue Length 95th (ft)	0	10	47
Control Delay (s)	0.0	4.4	14.0
Lane LOS		A	B
Approach Delay (s)	0.0	4.4	14.0
Approach LOS			B

Intersection Summary			
Average Delay	6.3		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	31	40	36	61	7
Future Volume (Veh/h)	0	31	40	36	61	7
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	43	39	66	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82				96	62
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82				96	62
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	99
cM capacity (veh/h)	1515				903	1002

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	34	82	74
Volume Left	0	0	66
Volume Right	0	39	8
cSH	1700	1700	913
Volume to Capacity	0.02	0.05	0.08
Queue Length 95th (ft)	0	0	7
Control Delay (s)	0.0	0.0	9.3
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.3
Approach LOS			A

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

HWA PORTAL CAPACITY ANALYSIS

HWA PARKING
strickland | jamail

Park Plaza — **Portal Capacity Analysis**

University Park, TX — **7/21/2016**

Portal Capacity: Anticipated AM Arrival

Total Office Parking Spaces	359	SP
Peak Hour Factor	70%	of facility capacity
Peak Hour Demand	251	VPH
Total Retail/Restaurant Parking Spaces	355	SP
Peak Hour Factor	50%	of facility capacity
Peak Hour Demand	178	VPH
Subtotal	429	VPH
Peak Interval Factor	115%	(peak 15 min. interval)
Peak Demand	**493**	**Vehicles Per Hour (VPH)**
Average Entry/Exit Lane Capacity	600	VPH/LN
Number of Entry or Exit Lanes	2	
Theoretical Processing Capacity Capacity	1,200	VPH
Portal Utilization	41%	of capacity
90% Probability Design Queue (# of vehicles)	1	
Avg Delay (in seconds)	6	
LOS	**A**	(above average level of service)

Portal Capacity: Anticipated AM Departure

Total Office Parking Spaces	359	SP
Peak Hour Factor	15%	of facility capacity
Peak Hour Demand	54	VPH
Total Retail/Restaurant Parking Spaces	355	SP
Peak Hour Factor	60%	of facility capacity
Peak Hour Demand	213	VPH
Subtotal	267	VPH
Peak Interval Factor	115%	(peak 15 min. interval)
Peak Demand	**307**	**Vehicles Per Hour (VPH)**
Average Entry/Exit Lane Capacity	500	VPH/LN
Number of Entry or Exit Lanes	2	
Theoretical Processing Capacity Capacity	1,000	VPH
Portal Utilization	31%	of capacity
90% Probability Design Queue (# of vehicles)	1	
Avg Delay (in seconds)	7	
LOS	**A**	(above average level of service)

Portal Capacity: Anticipated PM Arrival

Total Office Parking Spaces	359	SP
Peak Hour Factor	20%	of facility capacity
Peak Hour Demand	72	VPH
Total Retail/Restaurant Parking Spaces	355	SP
Peak Hour Factor	60%	of facility capacity
Peak Hour Demand	213	VPH
Subtotal	285	VPH
Peak Interval Factor	115%	(peak 15 min. interval)
Peak Demand	**328**	**Vehicles Per Hour (VPH)**
Average Entry/Exit Lane Capacity	600	VPH/LN
Number of Entry or Exit Lanes	2	
Theoretical Processing Capacity Capacity	1,200	VPH
Portal Utilization	27%	of capacity
90% Probability Design Queue (# of vehicles)	1	
Avg Delay (in seconds)	6	
LOS	**A**	(above average level of service)

Portal Capacity: Anticipated PM Departure

Total Office Parking Spaces	359	SP
Peak Hour Factor	70%	of facility capacity
Peak Hour Demand	251	VPH
Total Retail/Restaurant Parking Spaces	355	SP
Peak Hour Factor	60%	of facility capacity
Peak Hour Demand	213	VPH
Subtotal	464	VPH
Peak Interval Factor	115%	(peak 15 min. interval)
Peak Demand	**534**	**Vehicles Per Hour (VPH)**
Average Entry/Exit Lane Capacity	500	VPH/LN
Number of Entry or Exit Lanes	2	
Theoretical Processing Capacity Capacity	1,000	VPH
Portal Utilization	53%	of capacity
90% Probability Design Queue (# of vehicles)	2	
Avg Delay (in seconds)	14	
LOS	**A**	(above average level of service)

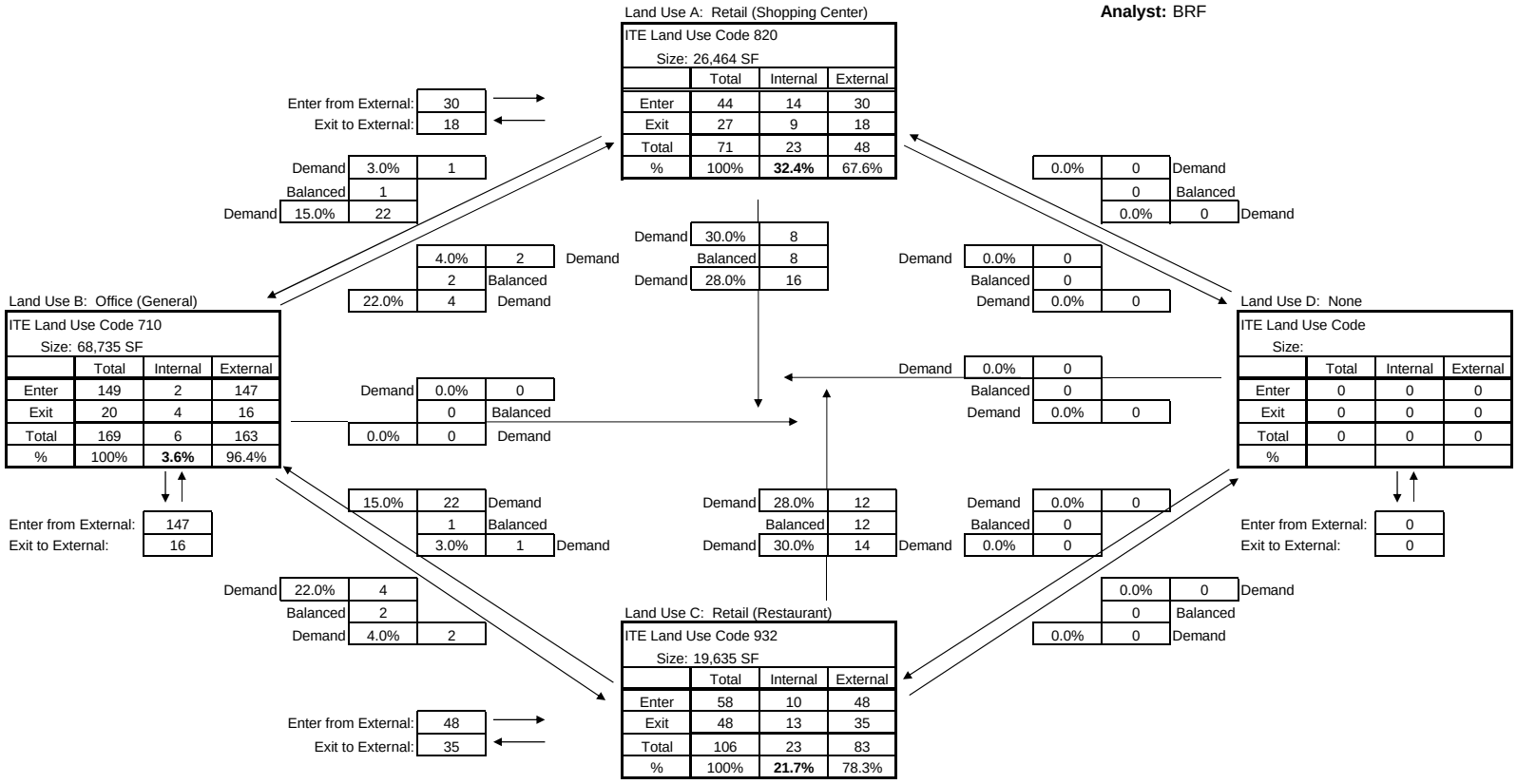
LOS	*Delay in Seconds*
A	*9*
B	*18*
C	*36*
D	*45*

INTERNAL CAPTURE WORKSHEETS

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Volume 1, ITE *Trip Generation Manual, 9th Edition,* 2012)

Project Number: -
Project Name: Park Plaza
Scenario: AM Peak Hour
Analysis Period: AM Peak
Analyst: BRF



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT

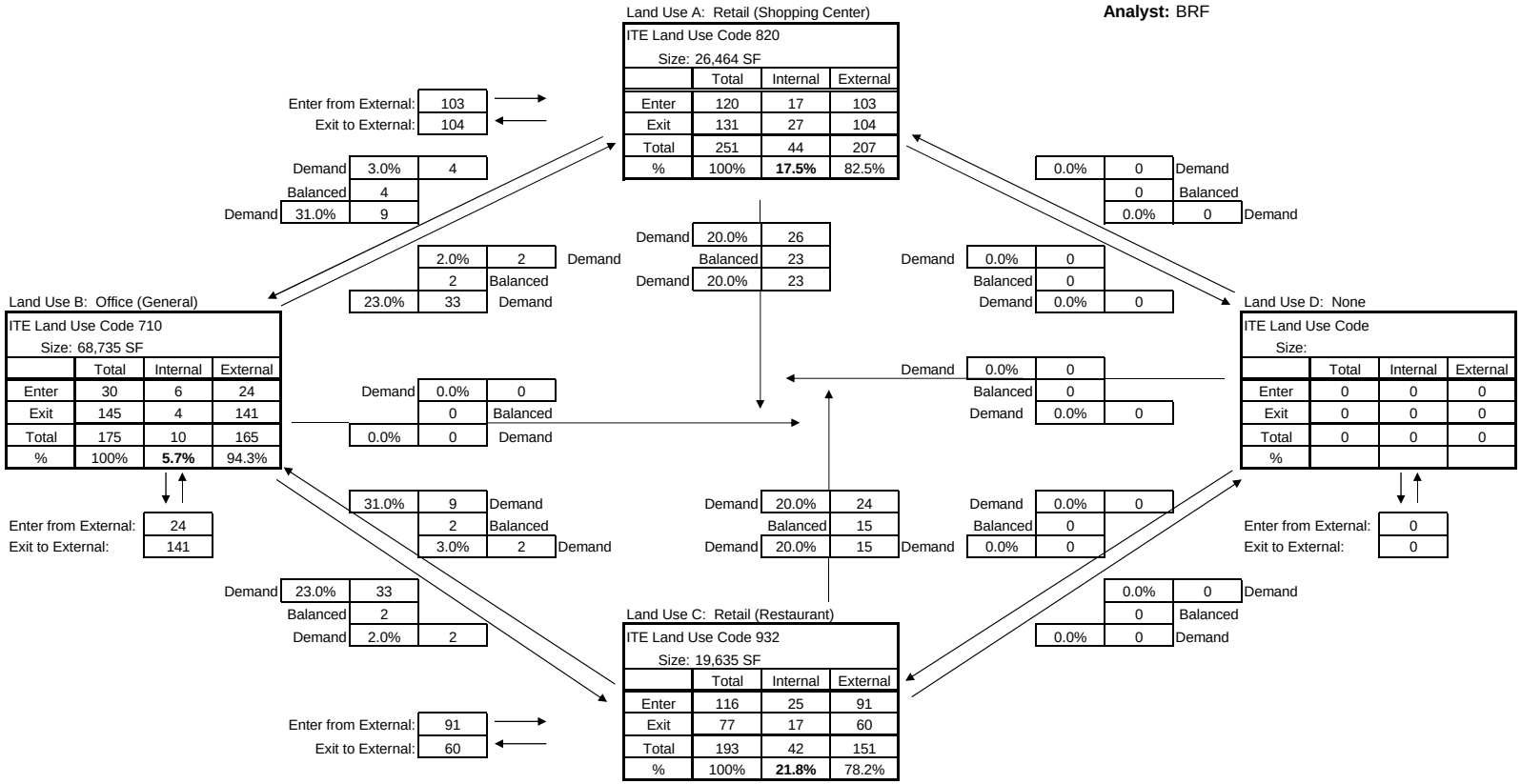
Category	Land Use A	B	C	D	Total
Enter	30	147	48	0	225
Exit	18	16	35	0	69
Total	48	163	83	0	**294**
Single Use Trip Gen Estimate	71	169	106	0	**346**

Overall Internal Capture = **15.03%**

ITE MULTI-USE PROJECT INTERNAL CAPTURE WORKSHEET

(Source: Volume 1, ITE *Trip Generation Manual, 9th Edition,* 2012)

Project Number: -
Project Name: Park Plaza
Scenario: PM Peak Hour
Analysis Period: PM Peak
Analyst: BRF



NET EXTERNAL TRIPS FOR MULTI-USE DEVELOPMENT

Category	Land Use A	B	C	D	Total
Enter	103	24	91	0	218
Exit	104	141	60	0	305
Total	207	165	151	0	**523**
Single Use Trip Gen Estimate	251	175	193	0	**619**

Overall Internal Capture = **15.51%**