May 20, 2019
PK# 2609-19.157

TRAFFIC STUDY

Project:
PD 15 Rezoning
In Dallas, Texas

Prepared for:
City of Dallas

On behalf of:
Preston Place Condominium Association

Prepared by:

Steve E. Stoner

Steve E. Stoner, P.E., PTOE

Pacheco Koch

7557 Rambler Road, Suite 1400
Dallas, Texas 75231-2388
(972) 235-3031 www.pkce.com
TX.REG: ENGINEERING FIRM F-469
TX. REG. SURVEYING FIRM LS-100080-00

EXECUTIVE SUMMARY

The services of **Pacheco Koch** (PK) were retained by **Preston Place Condominium Association** to prepare a traffic study for Planned Development District Number 15 ("PD 15") in Dallas, Texas. Rezoning of PD 15 was initiated by the City of Dallas in order to consider proper zoning for the subject property. Although a traffic study is not required for city-authorized hearings, this study was voluntarily commissioned by Preston Place Condominium Association in order to provide the City and citizens with information, specific to PD 15, that may be considered in the hearing process. [NOTE: This study is not intended to replace, duplicate, or compete with past planning studies, such as the *Northwest Highway and Preston Road Area Plan*.]

This report is not an evaluation of a specific Project but instead evaluates two hypothetical redevelopment scenarios within PD 15—replacing the existing low-rise properties with new development at 90 dwelling units per acre (Scenario A), and replacing the existing low-rise properties with new development at 125 dwelling units per acre (Scenario B). Scenario A represents an increase in trip generation within PD 15 of approximately 72% over existing conditions; while, Scenario B represents a 104% increase over existing conditions.

For intersection of local streets within the neighborhood (along Bandera, etc.), the analysis indicates that the intersections currently operate very efficiently and achieve good Levels of Service during peak traffic periods (generally, LOS A in most instances). With the addition of new traffic generated by the potential redevelopment within PD 15, the neighborhood intersections will experience increases in traffic volume and delay; however, the increases will not be significant. Peak hour intersection Levels of Service are expected to primarily remain at or near LOS A.

Intersections along Northwest Highway, however, operate quite differently. Although the volumes accessing Northwest Highway from Edgemere are relatively low, the average delay encountered by those motorists to safely perform those maneuvers can be very high due to the extremely high traffic volume on Northwest Highway. These poor Levels of Service, however, are typical for practically any unsignalized intersection on a major thoroughfare for this reason. With the addition of traffic generated by the potential redevelopment within PD 15, the intersection will continue to operate under similar conditions if no intersection modifications are made.

The signalized intersection of Northwest Highway and Pickwick Lane theoretically operates at good Levels of Service. However, these results (though analytically accurate) are somewhat misleading because so much of the intersection capacity is allocated to Northwest Highway—i.e., motorists on Pickwick Lane and Northwest Parkway endure very long cycle lengths of the traffic signal as a result of the disproportionality. The potential increase in traffic volume from the proposed redevelopment will add some delay for the Pickwick traffic maneuvers; however, the overall intersection Level of Service will not significantly change.

Based upon the findings of this analysis, Pacheco Koch developed and evaluated several concepts to improve existing conditions as well as mitigate potential future traffic growth.

- CONCEPTUAL RECOMMENDATIONS FOR PICKWICK LANE INTERSECTION:

  Pacheco Koch recommends potential modifications to the intersection of Northwest Highway and Pickwick Lane as conceptually illustrated in **Exhibit 3A**. The recommendations would allow for a new approach lane from Pickwick Lane that would allow for an overlapping right-turn phase (to coincide with the eastbound left-turn phase). Modifications to the existing traffic signal and restriping of Pickwick Lane for approximately 100 feet north of the existing stop line would be required. Some adjustments to on-street parking may be required in order to accommodate the additional approach lane.

- CONCEPTUAL RECOMMENDATIONS FOR EDGEMERE ROAD INTERSECTION:

  Pacheco Koch recommends potential modifications to Edgmere Road as illustrated in **Exhibit 3B**. The key component of the recommendation would be to consider installation of a traffic signal at the intersection of Northwest Highway and Edgemere Road.

  *NOTE: A traffic signal would need to meet TMUTCD warrant criteria **and** must be approved by the City of Dallas and TxDOT. (A cursory Traffic Signal Warrant Analysis was prepared by Pacheco Koch and finds that a traffic signal would be warranted.)*

  Among the benefits of a traffic signal at this location would be the improved accessibility and safety for motorists from the surrounding neighborhoods north of Northwest Highway. The physical conditions of the intersection are relatively well-suited for traffic signal installation, such as:

  - a full median opening already exists
  - spacing with existing traffic signals is good (approximately 1,000 feet, min.)
  - good accessibility to/from neighborhood

  The feasibility of installing right-turn deceleration lane on eastbound Northwest Highway as part of the intersection improvements is subject to further study (may be precluded by proximity of Northwest Parkway).

- CONCEPTUAL RECOMMENDATIONS FOR EDGEMERE ROAD:

  A second element of the Edgemere Road recommendation is the removal of the existing 45'-wide median between Northwest Highway and Northwood Road. In spite of the visual appeal, the extra-wide median creates awkward traffic maneuvers at the Bandera intersection and restricts left-turn maneuvers to/from some side streets and alleys (e.g. Del Norte Lane), which results in U-turn maneuvers. Reconfiguration of Edgemere Road to remove the median can be done in a way to create more usable greenspace and opportunities to accommodate bicycle

lanes (in accordance with the City's adopted Bicycle Plan) and pedestrian amenities.

❖ PROPOSAL TO ADD DRIVEWAY AT TULANE BOULEVARD:

A concept has been proposed (by others) to create a new intersection on Northwest Highway at Tulane Boulevard in order to provide additional access opportunities for traffic generated by uses within PD 15. Since Northwest Highway is an on-system TxDOT facility, any new access point is subject to TxDOT's standards and ultimate approval. (As a courtesy, TxDOT would not consider the request without the pre-approval by the City of Dallas; however, support from the City of Dallas does not ensure TxDOT approval.)

There are four primary scenarios for how a new driveway could be introduced on Northwest Highway:

1. Right-turn in/out only (no median opening) with no traffic signal
2. Right-turn in/out only (no median opening) with a "half" traffic signal
3. Full median opening with no traffic signal
4. Full median opening with a traffic signal

TxDOT requirements include quantifiable measures such as driveway spacing, sight distance, and deceleration lane need. However, subjective parameters such as safety impacts are also considered.

In general terms, Pacheco Koch believes that:

- TxDOT driveway spacing requirements would be satisfied
- intersection sight distance can be provided (although potentially substantial sections of the "pink wall" may require removal), and
- the ability to install a deceleration lane would require further study

However, installing a new driveway would have several negative impacts:

- For Options 1 and 2, the issue is the potential for outbound motorists from Tulane Boulevard wishing to travel east on Northwest Highway will have the convenient opportunity to use the existing median opening located immediately west of Tulane (that serves the Park Cities Baptist Church) to perform U-turn maneuvers. This requires two maneuvers that are potentially unsafe: (1) immediately weaving across three lanes of oncoming eastbound traffic, and (2) performing a U-turn maneuver in front of oncoming

westbound traffic. Although these maneuvers can be successfully performed during occasional gaps in the traffic flows created by upstream traffic signals, the safety risks are higher than usual due to the exceptionally high traffic volume of traffic on Northwest Highway and the long delays that can result in greater risk-taking.

NOTE: The opportunity exists to install a "No U-turn" sign at the Park Cities Baptist Church median opening; however, the ability for the City to enforce the regulation is very low.

- Options 3 and 4 would require installation of a new median opening on Northwest Highway. The new median opening would also require installation of a new left-turn bay. However, a turn bay serving the Tulane Boulevard would conflict with the existing left-turn bay serving the Park Cities Baptist Church driveway. Realistically, due to the relatively short distance between the median openings, only one left-turn bay could be accommodated (i.e., either the Park Cities Baptist Church left-turn bay would have to be removed, or the Tulane Boulevard would not provide a left-turn).
- Although installation of a traffic signal (or "half" signal) would eliminate some of the safety concerns expressed above, results of a cursory Traffic Signal Warrant Analysis prepared by Pacheco Koch indicates that installation of a traffic signal would not meet the TMUTCD warrant criteria.

So, based upon these various challenges (safety, conflict with existing conditions, and traffic signal warrants), Pacheco Koch does not recommend installation of a driveway opening on Northwest Highway at Tulane Boulevard, and we believe such is unlikely to be approved by the City of Dallas and TxDOT. A graphical summary of the issues described above are depicted in **Exhibit 3C.**

❖ NEIGHBORHOOD TRAFFIC:

A common concern from neighborhoods adjacent to major arterials is the potential of increased cut-through traffic. Although this study finds that, analytically, peak hour traffic operations at neighborhood intersections are currently good and good conditions are expected be maintained, it is likely that some cut-through traffic on PD 15 and surrounding neighborhoods streets does occur.

Like many other neighborhoods with similar circumstances, discouraging cut-through traffic on residential streets is a reasonable goal. Many traffic calming strategies have been developed and implemented around the country to effectively reduce cut-through traffic volumes, slow traffic, improve safety, and make streets more pedestrian- and bicycle-friendly. Examples of common traffic calming strategies include: road diets, speed devices (e.g., tables, cushions), narrowed sections, and many others.

However, certain strategies are more effective and more appropriate than others given the unique conditions of the area and the local preferences.

The City of Dallas Transportation Department has recently created the Neighborhood Traffic Management Program (NTMP) to assist citizens and neighborhoods with evaluating needs and developing methods to manage traffic. Should concern about cut-through traffic be a priority issues of the community, it is recommended that community leaders engage with the City of Dallas NTMP to take advantage of these resources.

END

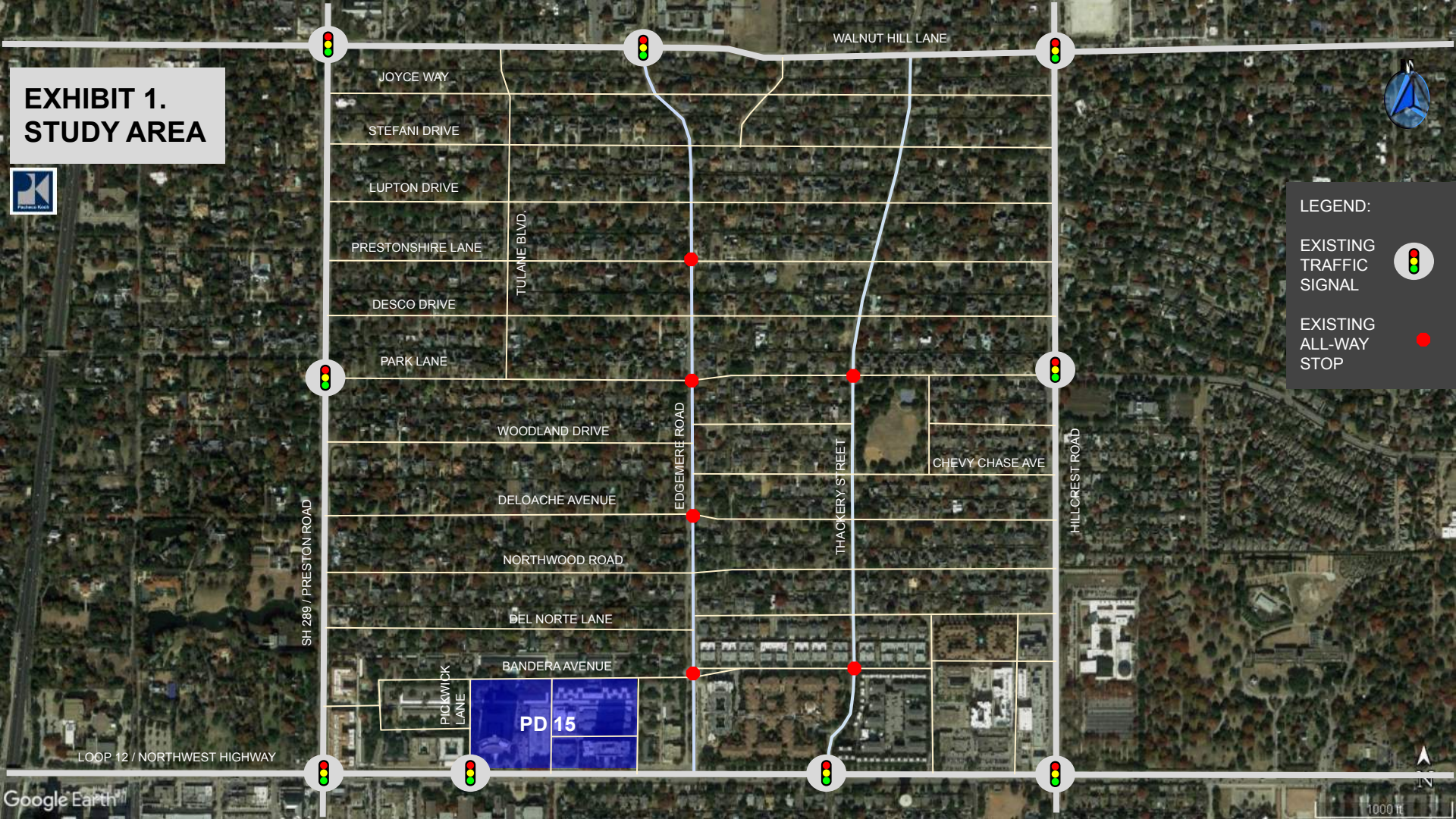


EXHIBIT 1.
STUDY AREA
WALNUT HILL LANE
JOYCE WAY
STEFANI DRIVE
LUPTON DRIVE
PRESTONSHIRE LANE
DESCO DRIVE
PARK LANE
TULANE BLVD.
WOODLAND DRIVE
DELOACHE AVENUE
NORTHWOOD ROAD
DEL NORTE LANE
BANDERA AVENUE
EDGEMERE ROAD
THACKERY STREET
CHEVY CHASE AVE
HILLCREST ROAD
SH 289 / PRESTON ROAD
PICKWICK LANE
PD 15
LOOP 12 / NORTHWEST HIGHWAY
LEGEND:
EXISTING TRAFFIC SIGNAL
EXISTING ALL-WAY STOP
N
Google Earth
1000 ft

TRAFFIC STUDY
PD 15 Rezoning
Dallas, Texas

TABLE OF CONTENTS

LIST OF TABLES:

LIST OF EXHIBITS:

LIST OF APPENDICES:

INTRODUCTION

Background

The services of **Pacheco Koch** (PK) were retained by **Preston Place Condominium Association** to prepare a traffic study for Planned Development District Number 15 ("PD 15") in Dallas, Texas. The 14.2-acre (12.4 acres developable) zoning district is bound by E Northwest Parkway N on the south, Pickwick Lane on the west, Bandera Avenue on the north, and Baltimore Drive on the east. A site location and surrounding community map is provided in **Exhibit *1***.

Rezoning of PD 15 was initiated by the City of Dallas in order to consider proper zoning for the subject property. Since the hearing for this zoning case is city-authorized (i.e., no conventional Applicant), a traffic study is not explicitly required. However, this study was voluntarily commissioned by Preston Place Condominium Association in order to provide the City and citizens with information that may be considered in the hearing process.

The current zoning conditions allows for up to 660 multifamily dwelling units, though only 534 units (approximate) currently exist. The proposed development conditions being considered would allow for higher density multifamily redevelopment within the district. **Table 1** summarizes the development scenarios considered in this analysis.

Table 1. Redevelopment Scenarios Considered In This Study

USE	EXISTING AMOUNT, TO REMAIN	POTENTIAL REDEVELOPMENT	TOTAL UNITS
Existing Conditions	660 DU, allowed (534 DU, actual)	0 DU	660 DU, allowed (534 DU, actual)
Scenario A Proposed Conditions (90 DU/acre)	460 DU[A]	540 DU[B] (@ 90 DU/acre for 6.0 acres)	1,000 DU (max.)
Scenario B Proposed Conditions (125 DU/acre)	460 DU[A]	750 DU[B] (@ 125 DU/acre for 6.0 acres)	1,210 DU (max.)

(A) Assumes two, existing, high-rise developments to remain (Preston Tower contains 320 DU on 4.2 acres and The Athena contains 140 DU on 2.2 acres).

(B) Assumes redevelopment would occur only on tracts that are currently developed as low-rise multifamily (currently, 74 DU on 6 acres).

Purpose

This traffic engineering study was requested to provide general information to City officials about existing and anticipated traffic conditions in and around the PD 15 district considering the potential redevelopment that could occur as a result of a proposed zoning change. This report is not an evaluation of a specific Project and does not contain a proposed site plan, building envelope, etc. Instead, this study evaluates the hypothetical redevelopment scenarios described in the preceding table. Although the study does provide some analyses that are often contained in a Traffic Impact Analysis (TIA), the scope of this study was customized to focus on topics believed to be relevant specifically to PD 15.

NOTE: This study is not intended to replace, duplicate, or compete with past planning studies, such as the *Northwest Highway and Preston Road Area Plan* that was commissioned by NCTCOG and other local entities. That study identified several strategies from members of the community intended to address long-range transportation needs. The land area contained within PD 15 was part of "Zone 4– Multifamily Neighborhoods" (the area generally bound by Northwest Highway on the south, Preston Road on the west, Bandera Avenue on the north, and Hillcrest Road on the east). The *Area Plan*'s recommendations for Zone 4 are summarized below:

> *Zone 4 is envisioned as a renewable, multi-family enclave giving preference to owner-occupied condominium units and senior living facilities. Retail and commercial development is limited to the existing area at the southeast corner of the zone.*
>
> *The Preferred Vision would maintain an orientation toward large, owner-occupied condominiums appealing to people ready to downsize from single-family homes, but who would enjoy living in the Preston Hollow area. The vision would allow for the gradual augmentation of various housing types in the neighborhood, with higher density than now exists, but with the understanding that particular attention be given to the need for improved infrastructure, most especially the enhancement of existing storm water drainage systems. In addition, new developments should include on-site parking for residents and guests (preferably underground), greater landscaping and open space, and pedestrian-friendly amenities (see Appendix II). Building heights within the zone should be restricted by the existing City of Dallas proximity slope limitations designed to protect the single-family neighborhoods located north of Bandera Avenue; and throughout the zone, new multi-family residential structures would not exceed four stories in height. The plan envisions the highest density development to be concentrated along the Northwest Highway frontages. The two existing high-rise residential structures would continue to be the only such buildings in the zone.*
>
> *Over the past ten years, a significant portion of Zone 4 has been or is currently being redeveloped, and the existing redevelopment projects are generally representative of the quality and scale that is envisioned. The Preferred Vision consists mainly of replacing the remaining older, multi-family housing stock.*

Although some areas of Zone 4 are subject to deed restrictions that limit density, current zoning generally allows for three-story, multi-family construction that would dramatically increase lot coverage and reduce the open spaces and landscaping that now exist. The Preferred Vision assumes that much of the current zoning will be changed as this area is redeveloped, permitting increased height as a trade-off for reduced lot coverage and other features that would improve the quality of life in the neighborhood and meet the needs of the community.

Pedestrian Recommendations (from Appendix III):

Improvements to the streetscape and public realm that serve and enhance the existing land uses allow residents to connect to an increasingly walkable neighborhood. These improvements will also serve to ready the area for strategic longer term redevelopment at the desire and timing of existing property owners.

The following pedestrian improvements are recommended for Zone 4:

- *Upgrade street trees and provide new street trees in areas with gaps in tree cover.*
- *Provide perimeter sidewalk connections along Preston, Walnut Hill, Hillcrest and Northwest Highway.*
- *Support resident requests to install sidewalks on a block-by-block basis, with owner initiation per city policy.*
- *Complete sidewalks on Edgemere and Hillcrest.*
- *Improve crosswalks from Zone 4 across Northwest Highway at Edgemere.*
- *Redesign Bandera to 12' lanes and 5' sidewalks on the south side.*
- *Follow city bike plan to place a shared-use trail along the east side of Preston Road from Northwest Highway to Walnut Hill Lane.*
- *Identify opportunities for strategic open space enhancements such as outdoor seating areas, landscape zones, street trees, shade structures and lighting.*
- *City should consider using the public right-of-way to create a connected urban form*

EVALUATIONS

Study Area

Roadway Designations

The PD 15 district is generally located northeast of the intersection of Northwest Highway and Preston Road. Both roadways are on-system TxDOT facilities, which means they are owned, operated, and maintained by the Texas Department of Transportation. The TxDOT designations are Loop 12 and SH 289, respectively. The City of Dallas is appointed to operate and maintain the traffic signals on each roadway.

Because they are major arterials, both roadways—along with city streets: Hillcrest Road to the east and Walnut Hill Lane to the north—are also designated as "Principal Arterials" (the highest classification) in the City of Dallas Thoroughfare Plan. The Thoroughfare Plan establishes and preserves a hierarchy of certain roadways that are critical in the maintaining a structured and comprehensive roadway network within the City.

Similarly, the North Central Texas Council of Governments (NCTCOG)—the federally-funded and mandated transportation policy-making organization for the Dallas-Fort Worth Metropolitan Area—maintains the Regional Thoroughfare Plan. This Plan identifies a select network of roadways that are of the highest level of interjurisdictional and regional significance. Northwest Highway and Preston Road are classified by NCTCOG as "Regional Arterials" (the highest designation of non-freeway roadways) and, therefore, are part of the National Highway System (NHS).

Although some neighborhood streets north of Northwest Highway and east of Preston Road, such as Edgemere Road, function as a collector street, none of those roadways are designated City thoroughfares and are, therefore, considered "local streets". The following local streets within PD 15 are privately owned (i.e., not under the jurisdiction of the City of Dallas or any other public entity):

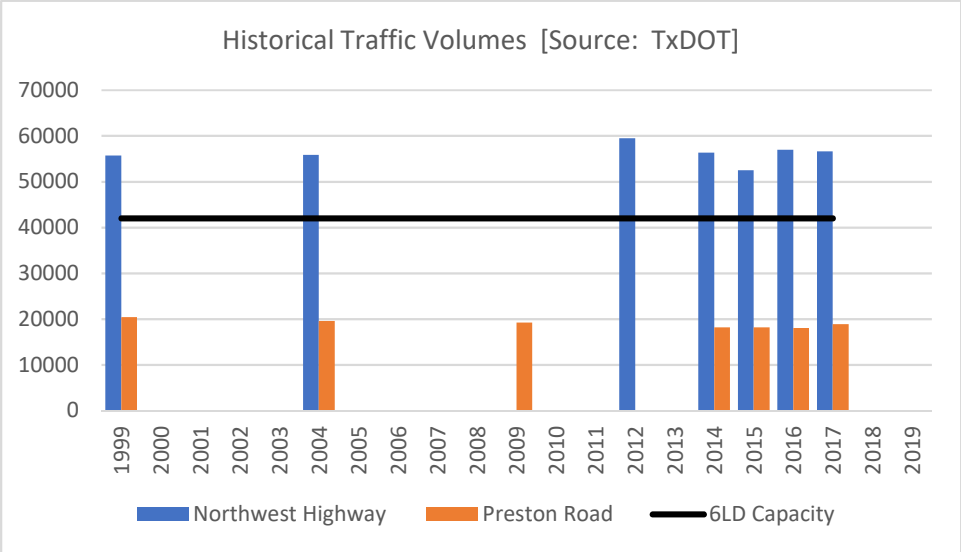
- Tulane Boulevard, between E Northwest Parkway N and Bandera Avenue
- Diamond Head Circle between Tulane Boulevard and Baltimore Drive
- E Northwest Parkway between Pickwick Lane and Baltimore Drive

Bandera Avenue and Edgemere Road are listed in the City of Dallas Bikeway Plan as having future on-street bicycle facilities.

Generally, the public local streets within PD 15 provide good signage and minimal pavement markings, which is typical of public streets throughout the City. However, private streets within the District, such as Tulane and Diamond Head Circle, do not provide standard signs or pavement markings. It is recommended that all signs and markings on all streets within PD 15, public and private, comply with current standards defined in the *Texas Manual On Uniform Traffic Control Devices (TMUTCD)*.

Traffic Volumes

The current daily traffic volume on Northwest Highway is over 56,000 vehicles per day, while the current daily traffic volume on Preston Road is over 18,000. Historical data show that these volumes have been relatively stable for more than 20 years. Peak traffic volumes on a typical weekday generally occur between 7:00-9:00 AM and 4:00-6:00 PM.



As stated in the City of Dallas Thoroughfare Plan, a six-lane, median-divided arterial (such as Northwest Highway or Preston Road) has a theoretical 24-hour capacity of 42,000 vehicles per day, while a two-lane collector street (such as Edgemere Road or Thackery Street) has a theoretical 24-hour capacity of 10,000 vehicles per day. Analytically, streets traffic volumes less than 65% of theoretical capacity are considered to operate at a good Level-of-Service.

Technically, residential streets are a type of two-lane roadway. Residential streets can range from cul de sacs, which terminate on one end, to collector streets, which provide direct access to thoroughfares. While there are no separate traffic volume capacity standards for residential streets, it is generally agreed that traffic volumes on residential streets should be as low as practical given their functionality. Current daily traffic volumes on local streets around PD 15 were collected on March 28, 2019 and are summarized in **Table 2**.

Table 2. Current Daily Traffic Volumes

ROADWAY SEGMENT	CURRENT DAILY VOLUME (DATE)
Pickwick Lane	1,671
Bandera Avenue	1,184
Edgemere Road	2,274

Traffic Impact

Trip Generation

Trip generation quantifies the amount of traffic (vehicular, and otherwise) generated by a development. Trip generation is measured in terms of "trip ends", which is simply the number of times a trip begins (originates) or ends (terminates) at a place within a certain period of time. A trip end is not equal to the total number of vehicles or number of persons; a single person may generate multiple trip ends over the course of a single day.

Trip generation is often calculated using the Institute of Transportation Engineers (ITE) *Trip Generation* manual, which is an industry-standard database of vehicular trip characteristics for various land uses. **Table 3** provides a summary of the calculated trip ends generated by the PD 15 for the analysis scenarios considered in this study.

Table 3. Projected Trip Generation Summary

SCENARIO	DAILY TRIP ENDS (WEEKDAY)	AM PEAK HOUR TRIP ENDS (ADJACENT STREET PEAK)	PM PEAK HOUR TRIP ENDS (ADJACENT STREET PEAK)
		Total (In/Out)	**Total** (In/Out)
Existing Uses (534 DU)	2,543	**177** (42/135)	**210** (129/81)
Scenario A – Hypothetical Conditions @ 90 DU/Acre			
New Units (540 DU)	2,339	**164** (39/125)	**192** (117/75)
Existing Units To Remain (460 DU)	2,024	**142** (34/108)	**165** (101/64)
Total (1,000 DU)	4,951	**306** (73/233)	**357** (218/139)
Net Increase Over Existing	+1,820 (+72%)	**+128** (31/97)	**+147** (89/58)
Scenario B – Hypothetical Conditions @ 125 DU/Acre			
New Units (750 DU)	3,167	**223** (53/170)	**264** (161/103)
Existing Units To Remain (460 DU)	2,024	**142** (34/108)	**165** (101/64)
Total (1,210 DU)	5,191	**365** (87/278)	**429** (262/167)
Net Increase Over Existing	+2,648 *(+104%)*	**+187** (45/142)	**+219** (133/86)

NOTE: All trip generation calculations for assumed new development were obtained from ITE Trip Generation (10th Edition), Land Use Code 222 – "Multifamily Housing (High-Rise)", which is defined as "high-rise multifamily housing includes apartments, townhouses, and condominiums that have more than 10 levels (floors). They are likely to have one or more elevators.".

Scenario A represents an increase in trip generation of approximately 72% over existing conditions; while, Scenario B represents a 104% increase over existing conditions.

Trip Distribution and Assignment

The distribution and assignment of new, site-generated trip ends to the surrounding roadway system is determined by estimating the orientation of travel via various travel routes. The trip distribution and assignment for this analysis were based upon Pacheco Koch's careful review of the current, actual traffic volumes within PD 15 during peak traffic periods.

Generally, the projected trips will travel:

- 40% to/from the east via Northwest Highway, Bandera Avenue, and Northwest Parkway
- 50% to/from the west via Northwest Highway, Bandera Avenue, and Averill Way
- 10% to/from the north via Edgemere Road

A more detailed graphic summary of the estimated trip distribution and traffic assignment is provided in **Appendix D**.

Intersection Analysis

The level of performance of civil infrastructure can often be measured through an analysis of volume and capacity that considers various physical and operational characteristics of the system. For vehicular traffic an operational analysis of roadway intersection capacity is the most detailed type of analysis. An industry-standardized methodology for this type of analysis was developed by the Transportation Research Board and is presented in the Highway Capacity Manual (HCM). HCM uses the term "Level of Service" (or, LOS) to qualitatively describe the efficiency using a letter grade of A through F. Generally, LOS can be described as follows:

LOS *A* = free, unobstructed flow
LOS *B* = reasonably free flow
LOS *C* = stable flow
LOS *D* = approaching unstable flow
LOS *E* = unstable flow, operating at design capacity
LOS *F* = operating over design capacity

Traffic operational analysis is typically measured in one-hour periods during day-to-day peak conditions. In most urban settings, LOS C, or better, is desirable, although LOS D is considered to be acceptable; LOS E indicates a facility or maneuver is approaching capacity, while LOS F is theoretically an over-capacity condition. On highly-utilized transportation facilities, brief periods of LOS E or F conditions are not uncommon for during peak periods. In some cases measures to increase capacity, either through operational changes and/or physical improvements, can be identified to improve efficiency and sometimes raise Level of Service.

For traffic-signal-controlled ("signalized") intersections and STOP-controlled ("unsignalized") intersections, LOS is determined based upon the calculated average seconds of delay per vehicle. For signalized intersections the average delay per vehicle can be effectively calculated for the entire intersection;

however, for unsignalized intersections the average delay per vehicle is calculated only by approach or by individual traffic maneuvers that must stop or yield right-of-way.

The following table summarizes the LOS criteria for signalized and unsignalized intersections as defined in the latest edition of the *Highway Capacity Manual*.

	Signalized Intersection (Average Delay per Vehicle)	**Unsignalized Intersection (Average Delay per Vehicle)**
LOS *A*	≤ 10	≤ 10
LOS *B*	> 10 - ≤ 20	> 10 - ≤ 15
LOS *C*	> 20 - ≤ 35	> 15 - ≤ 25
LOS *D*	> 35 - ≤ 55	> 25 - ≤ 35
LOS *E*	> 55 - ≤ 80	> 35 - ≤ 50
LOS *F*	> 80	> 50

Analysis Results

Results of the intersection analyses are summarized in **Table 4** and **Table 5**.

For intersection of local streets within the neighborhood (along Bandera, etc.), the analysis indicates that the intersections currently operate very efficiently and achieve good Levels of Service during peak traffic periods (generally, LOS *A* in most instances). With the addition of new traffic generated by the potential redevelopment within PD 15, the neighborhood intersections will experience increases in traffic volume and delay; however, the increases will not be significant. Peak hour intersection Levels of Service are expected to primarily remain at or near LOS *A*.

Intersections along Northwest Highway, however, operate quite differently. At the intersection of Edgemere and Northwest Highway, turning maneuvers from Edgemere onto Northwest Highway currently experience poor Levels of Service during peak traffic periods (generally, LOS *E* and *F*), which is indicative of long delays. The proximity of the intersections with Northwest Parkway add even more complexity to the traffic operations but are not the cause of the low Levels of Service. Although the volumes accessing Northwest Highway from Edgemere are relatively low, the average delay encountered by those motorists to safely perform those maneuvers can be very high due to the extremely high traffic volume on Northwest Highway. These poor Levels of Service, however, are typical for practically any unsignalized intersection on a major thoroughfare for this reason. With the addition of traffic generated by the potential redevelopment within PD 15, the intersection will continue to operate under similar conditions if no intersection modifications are made.

The signalized intersection of Northwest Highway and Pickwick Lane theoretically operates at good Levels of Service. However, these results (though analytically accurate) are somewhat misleading because so much of the intersection capacity is allocated to Northwest Highway—i.e., motorists on Pickwick Lane and Northwest Parkway endure very long cycle lengths of the traffic signal as a result of the disproportionality. The potential increase in traffic volume from the proposed redevelopment will add some delay for the Pickwick traffic maneuvers; however, the overall intersection Level of Service will not significantly change.

Intersection sight distance analyses, a summary of historical crash data, and driveway/intersection spacing along Northwest Highway are provided in **Appendix F**.

Table 4. Peak Hour Intersection Capacity Analysis Results Summary
(Signalized Intersections)

INTERSECTION		EXISTING CONDITIONS						BACKGROUND CONDITIONS						90 Units/Acre BUILDOUT CONDITIONS						125 Units/Acre BUILDOUT CONDITIONS					
		AM			PM			AM			PM			AM			PM			AM			PM		
		LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue
Pickwick Lane	Overall	A	*(9.4)*		A	*(6.2)*		A	*(9.8)*		A	*(6.4)*		B	*(12.6)*		A	*(7.7)*		B	*(14.6)*		A	*(8.3)*	
@ Northwest Highway	EBLTR	A	*(2.3)*	149 ft	A	*(3.6)*	288 ft	A	*(2.4)*	516 ft	A	*(3.7)*	304 ft	A	*(3.3)*	191 ft	A	*(4.7)*	350 ft	A	*(3.6)*	203 ft	A	*(5.2)*	369 ft
	WBLTR	B	*(11.2)*	936 ft	A	*(6.7)*	343 ft	B	*(11.9)*	1000 ft	A	*(6.9)*	356 ft	B	*(14.7)*	1141 ft	A	*(7.8)*	392 ft	B	*(17.5)*	1190 ft	A	*(8.2)*	407 ft
	SBLR	F	*(109.3)*	132 ft	F	*(108.3)*	124 ft	F	*(109.3)*	133 ft	F	*(108.5)*	125 ft	F	*(109.6)*	184 ft	F	*(109.4)*	155 ft	F	*(109.2)*	199 ft	F	*(109.4)*	169 ft

NOTE: Traffic signal operational parameters used in this analysis were based upon actual traffic signal operational characteristics observed in the field at the time of data collection.

Table 5. Peak Hour Intersection Capacity Analysis Results Summary
(Unsignalized Intersections)

INTERSECTION	TRAFFIC MANEUVER	EXISTING CONDITIONS						BACKGROUND CONDITIONS						BUILDOUT CONDITIONS						BUILDOUT CONDITIONS					
		AM			PM			AM			PM			AM			PM			AM			PM		
		LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue	LOS	delay	queue
Pickwick Lane	NBLTR	A	*(8.6)*	2 ft	A	*(8.8)*	2 ft	A	*(8.6)*	2 ft	A	*(8.8)*	3 ft	A	*(8.7)*	2 ft	A	*(8.9)*	3 ft	A	*(8.8)*	2 ft	A	*(9.0)*	3 ft
@ Bandera Avenue	WBL	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.4)*	1 ft	A	*(7.3)*	1 ft	A	*(7.4)*	1 ft
Pickwick Lane	NBL	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft	A	*(7.3)*	1 ft
@ Averill Way	EB	A	*(8.6)*	1 ft	A	*(9.0)*	3 ft	A	*(8.6)*	1 ft	A	*(9.0)*	3 ft	A	*(8.8)*	1 ft	A	*(9.2)*	4 ft	A	*(8.8)*	1 ft	A	*(9.3)*	4 ft
	WB	A	*(9.2)*	3 ft	A	*(9.4)*	1 ft	A	*(9.2)*	3 ft	A	*(9.4)*	1 ft	A	*(9.5)*	5 ft	A	*(9.8)*	3 ft	A	*(9.6)*	7 ft	A	*(9.9)*	4 ft
	SBL	A	*(7.2)*	0 ft	A	*(7.3)*	0 ft	A	*(7.2)*	0 ft	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.4)*	0 ft
Pickwick Lane	NBL	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.3)*	0 ft	A	*(7.4)*	0 ft	A	*(7.3)*	0 ft	A	*(7.4)*	0 ft	A	*(7.3)*	0 ft
@ Northwest Parkway	EB	A	*(9.1)*	0 ft	A	*(8.9)*	0 ft	A	*(9.1)*	0 ft	A	*(8.9)*	0 ft	A	*(9.3)*	0 ft	A	*(9.1)*	0 ft	A	*(9.4)*	0 ft	A	*(9.2)*	0 ft
	WB	A	*(9.0)*	1 ft	A	*(9.3)*	4 ft	A	*(9.0)*	1 ft	A	*(9.3)*	4 ft	A	*(9.2)*	3 ft	A	*(9.7)*	5 ft	A	*(9.3)*	4 ft	A	*(9.8)*	6 ft
	SBL	A	*(7.3)*	0 ft	A	*(7.4)*	1 ft	A	*(7.3)*	0 ft	A	*(7.4)*	0 ft	A	*(7.3)*	0 ft	A	*(7.5)*	1 ft	A	*(7.3)*	0 ft	A	*(7.5)*	1 ft
Edgemere Road	NBLTR	A	*(7.4)*	0.3 ft	A	*(7.8)*	0.5 ft	A	*(7.4)*	0.3 ft	A	*(7.8)*	0.5 ft	A	*(7.6)*	0.3 ft	A	*(8.1)*	0.6 ft	A	*(7.6)*	0.3 ft	A	*(8.2)*	0.7 ft
@ Bandera Avenue	EBLTR	A	*(7.6)*	0.2 ft	A	*(7.8)*	0.2 ft	A	*(7.6)*	0.2 ft	A	*(7.8)*	0.2 ft	A	*(8.0)*	0.4 ft	A	*(8.1)*	0.4 ft	A	*(8.1)*	0.5 ft	A	*(8.2)*	0.5 ft
	WBLTR	A	*(7.4)*	0.2 ft	A	*(7.8)*	0.3 ft	A	*(7.4)*	0.2 ft	A	*(7.9)*	0.3 ft	A	*(7.5)*	0.2 ft	A	*(8.1)*	0.4 ft	A	*(7.6)*	0.2 ft	A	*(8.2)*	0.5 ft
	SBLTR	A	*(7.4)*	0.2 ft	A	*(7.8)*	0.3 ft	A	*(7.4)*	0.2 ft	A	*(7.9)*	0.3 ft	A	*(7.6)*	0.2 ft	A	*(8.0)*	0.4 ft	A	*(7.6)*	0.2 ft	A	*(8.1)*	0.4 ft
Edgemere Road	NBLTR	A	*(7.4)*	0.3 ft	A	*(7.9)*	0.5 ft	A	*(7.5)*	0.3 ft	A	*(7.9)*	0.6 ft	A	*(7.6)*	0.4 ft	A	*(8.2)*	0.7 ft	A	*(7.7)*	0.4 ft	A	*(8.2)*	0.6 ft
@ Northwest Parkway	EBLTR	A	*(7.2)*	0.0 ft	A	*(7.3)*	0.1 ft	A	*(7.2)*	0.0 ft	A	*(7.3)*	0.1 ft	A	*(7.3)*	0.1 ft	A	*(7.5)*	0.1 ft	A	*(7.3)*	0.2 ft	A	*(7.4)*	0.4 ft
	WBLTR	A	*(7.1)*	0.1 ft	A	*(7.2)*	0.1 ft	A	*(7.1)*	0.1 ft	A	*(7.2)*	0.1 ft	A	*(7.1)*	0.1 ft	A	*(7.3)*	0.1 ft	A	*(7.1)*	0.1 ft	A	*(7.3)*	0.5 ft
	SBLTR	A	*(7.2)*	0.1 ft	A	*(7.5)*	0.2 ft	A	*(7.2)*	0.1 ft	A	*(7.5)*	0.2 ft	A	*(7.3)*	0.1 ft	A	*(7.5)*	0.2 ft	A	*(7.3)*	0.1 ft	A	*(7.5)*	0.4 ft
Edgemere Road	EBL	F	*(585.5)*	39 ft	F	*(144.6)*	42 ft	F	*(694.7)*	45 ft	F	*(168.9)*	50 ft	F	*(739.3)*	50 ft	F	*(208.4)*	54 ft	F	*(739.3)*	50 ft	F	*(227.1)*	57 ft
@ Northwest Highway	SBLTR	F	*(134.1)*	145 ft	F	*	198 ft	F	*(149.5)*	159 ft	F	*	178 ft	F	*(178.8)*	178 ft	F	*	232 ft	F	*(188.0)*	183 ft	F	*	238 ft

KEY:

A, B, C, D, E, F = Level-of-Service
NB-, SB-, EB-, WB- = intersection approach
AM = AM Peak Hour of Adjacent Street
(##.#) = Average Seconds of Delay Per Vehicle
-L, -T, -R = Left, Through, Right turning movement
PM = PM Peak Hour of Adjacent Street

** Due to extreme volume conditions on the major roadway the software results become discrepant and do not provide reliable delay values*

RECOMMENDATIONS

NOTE: Recommendations presented in this report reflect the opinion of Pacheco Koch based solely upon technical analysis and professional judgment. Although funding for any recommendations with significant cost implications is a serious consideration, the recommendations provided herein were made without consideration of funding source(s). Any proposed improvements in the public right-of-way are subject to approval by the respective, responsible agency(-ies).

The following discussions relate to conceptual recommendations developed by Pacheco Koch to improve existing conditions as well as mitigate potential future traffic growth. Some discussion topics relates to Pacheco Koch's assessment of specific concepts/topics that have been suggested by others.

- CONCEPUTAL RECOMMENDATIONS FOR PICKWICK LANE INTERSECTION:

  Pacheco Koch recommends potential modifications to the intersection of Northwest Highway and Pickwick Lane as conceptually illustrated in **Exhibit 3A**. The recommendations would allow for a new approach lane from Pickwick Lane that would allow for an overlapping right-turn phase (to coincide with the eastbound left-turn phase). Modifications to the existing traffic signal and restriping of Pickwick Lane for approximately 100 feet north of the existing stop line would be required. Some adjustments to on-street parking may be required in order to accommodate the additional approach lane.

  PROS:

  - Slight increase in traffic capacity for motorists entering Northwest Highway from Pickwick Lane.

  CONS:

  - Cost (for the traffic signal modifications)

  IMPORTANCE: Discretionary

  LOWER COST OR INTERIM ALTERNATIVE (NOTE: LESS EFFECTIVE):

  Implement the lane restriping only without the traffic signal modifications.

❖ CONCEPTUAL RECOMMENDATIONS FOR EDGEMERE ROAD INTERSECTION:

Pacheco Koch recommends potential modifications to Edgmere Road as illustrated in **Exhibit 3B**. The key component of the recommendation would be to consider installation of a traffic signal at the intersection of Northwest Highway and Edgemere Road.

*NOTE: A traffic signal would need to meet TMUTCD warrant criteria **and** must be approved by the City of Dallas and TxDOT. (A cursory Traffic Signal Warrant Analysis was prepared by Pacheco Koch and finds that a traffic signal would be warranted.)*

Among the benefits of a traffic signal at this location would be the improved accessibility and safety for motorists from the surrounding neighborhoods north of Northwest Highway. The physical conditions of the intersection are relatively well-suited for traffic signal installation, such as:

- a full median opening already exists
- spacing with existing traffic signals is good (approximately 1,000 feet, min.)
- good accessibility to/from neighborhood

The feasibility of installing right-turn deceleration lane on eastbound Northwest Highway as part of the intersection improvements is subject to further study (may be precluded by proximity of Northwest Parkway).

PROS:

- Provides more convenient access to Northwest Highway for neighborhood—especially streets west side of Edgemere (reduce internal neighborhood traffic trying to access Thackery or Pickwick signals)
- Improved safety for motorists accessing Northwest Highway

CONS:

- May add slight delay increase to motorists on Northwest Highway during off-peak periods
- Subject to same operational complexities that exist at Thackery and Pickwick intersections due to proximity of Northwest Parkway
- Cost

IMPORTANCE: Discretionary

LOWER COST OR INTERIM ALTERNATIVE (NOTE: LESS EFFECTIVE):

- Defer roadway improvements (see below)

❖ CONCEPTUAL RECOMMENDATIONS FOR EDGEMERE ROAD:

A second element of the Edgemere Road recommendation is the removal of the existing 45'-wide median between Northwest Highway and Northwood Road. In spite of the visual appeal, the extra-wide median creates awkward traffic maneuvers at the Bandera intersection and restricts left-turn maneuvers to/from some side streets and alleys (e.g. Del Norte Lane), which results in U-turn maneuvers. Reconfiguration of Edgemere Road to remove the median can be done in a way to create more usable greenspace and opportunities to accommodate bicycle lanes (in accordance with the City's adopted Bicycle Plan) and pedestrian amenities.

PROS:

- Reduces U-turns on Edgemere
- Provide left-turn access at some intersections along Edgemere that are currently have none
- Allow for more usable greenspace
- Creates opportunities for bicycle and pedestrian amenities

CONS:

- Cost

IMPORTANCE: Discretionary

LOWER COST OR INTERIM ALTERNATIVE (NOTE: LESS EFFECTIVE):

- Defer traffic signal
- Utilize existing roadway alignment (e.g., northbound lanes)

❖ PROPOSAL TO ADD DRIVEWAY AT TULANE BOULEVARD:

A concept has been proposed (by others) to create a new intersection on Northwest Highway at Tulane Boulevard in order to provide additional access opportunities for traffic generated by uses within PD 15. Since Northwest Highway is an on-system TxDOT facility, any new access point is subject to TxDOT's standards and ultimate approval. (As a courtesy, TxDOT would not consider the request without the pre-approval by the City of Dallas; however, support from the City of Dallas does not ensure TxDOT approval.)

There are four primary scenarios for how a new driveway could be introduced on Northwest Highway:

5. Right-turn in/out only (no median opening) with no traffic signal
6. Right-turn in/out only (no median opening) with a "half" traffic signal
7. Full median opening with no traffic signal
8. Full median opening with a traffic signal

TxDOT requirements include quantifiable measures such as driveway spacing, sight distance, and deceleration lane need. However, subjective parameters such as safety impacts are also considered.

In general terms, Pacheco Koch believes that:

- TxDOT driveway spacing requirements would be satisfied
- intersection sight distance can be provided (although potentially substantial sections of the "pink wall" may require removal), and
- the ability to install a deceleration lane would require further study

However, installing a new driveway would have several negative impacts:

- For Options 1 and 2, the issue is the potential for outbound motorists from Tulane Boulevard wishing to travel east on Northwest Highway will have the convenient opportunity to use the existing median opening located immediately west of Tulane (that serves the Park Cities Baptist Church) to perform U-turn maneuvers. This requires two maneuvers that are potentially unsafe: (1) immediately weaving across three lanes of oncoming eastbound traffic, and (2) performing a U-turn maneuver in front of oncoming westbound traffic. Although these maneuvers can be successfully performed during occasional gaps in the traffic flows created by upstream traffic signals, the safety risks are higher than usual due to the exceptionally high traffic

volume of traffic on Northwest Highway and the long delays that can result in greater risk-taking.

NOTE: The opportunity exists to install a "No U-turn" sign at the Park Cities Baptist Church median opening; however, the ability for the City to enforce the regulation is very low.

- Options 3 and 4 would require installation of a new median opening on Northwest Highway. The new median opening would also require installation of a new left-turn bay. However, a turn bay serving the Tulane Boulevard would conflict with the existing left-turn bay serving the Park Cities Baptist Church driveway. Realistically, due to the relatively short distance between the median openings, only one left-turn bay could be accommodated (i.e., either the Park Cities Baptist Church left-turn bay would have to be removed, or the Tulane Boulevard would not provide a left-turn).
- Although installation of a traffic signal (or "half" signal) would eliminate some of the safety concerns expressed above, results of a cursory Traffic Signal Warrant Analysis prepared by Pacheco Koch indicates that installation of a traffic signal would not meet the TMUTCD warrant criteria.

So, based upon these various challenges (safety, conflict with existing conditions, and traffic signal warrants), Pacheco Koch does not recommend installation of a driveway opening on Northwest Highway at Tulane Boulevard, and we believe such is unlikely to be approved by the City of Dallas and TxDOT. A graphical summary of the issues described above are depicted in **Exhibit 3C.**

PROS:

- By providing a "dedicated" driveway for traffic generated within PD 15, a proposed intersection at Tulane Boulevard would minimize impact to surrounding roadways.

CONS:

- Safety concerns
- Turn bay conflicts in median
- Traffic signal not warranted
- Potential removal of substantial sections of pink wall
- Cost

IMPORTANCE: (Not recommended.)

LOWER COST OR INTERIM ALTERNATIVE (NOTE: LESS EFFECTIVE):

- None

- NEIGHBORHOOD TRAFFIC:

  A common concern from neighborhoods adjacent to major arterials is the potential of increased cut-through traffic. Although this study finds that, analytically, peak hour traffic operations at neighborhood intersections are currently good and good conditions are expected be maintained, it is likely that some cut-through traffic on PD 15 and surrounding neighborhoods streets does occur.

  Like many other neighborhoods with similar circumstances, discouraging cut-through traffic on residential streets is a reasonable goal. Many traffic calming strategies have been developed and implemented around the country to effectively reduce cut-through traffic volumes, slow traffic, improve safety, and make streets more pedestrian- and bicycle-friendly. Examples of common traffic calming strategies include: road diets, speed devices (e.g., tables, cushions), narrowed sections, and many others. However, certain strategies are more effective and more appropriate than others given the unique conditions of the area and the local preferences.

  The City of Dallas Transportation Department has recently created the Neighborhood Traffic Management Program (NTMP) to assist citizens and neighborhoods with evaluating needs and developing methods to manage traffic. Should concern about cut-through traffic be a priority issues of the community, it is recommended that community leaders engage with the City of Dallas NTMP to take advantage of these resources.

END OF MEMO

EXHIBIT 2. TRIP DISTRIBUTION FOR PD 15 USES (EXISTING ROADWAY CONDITIONS)

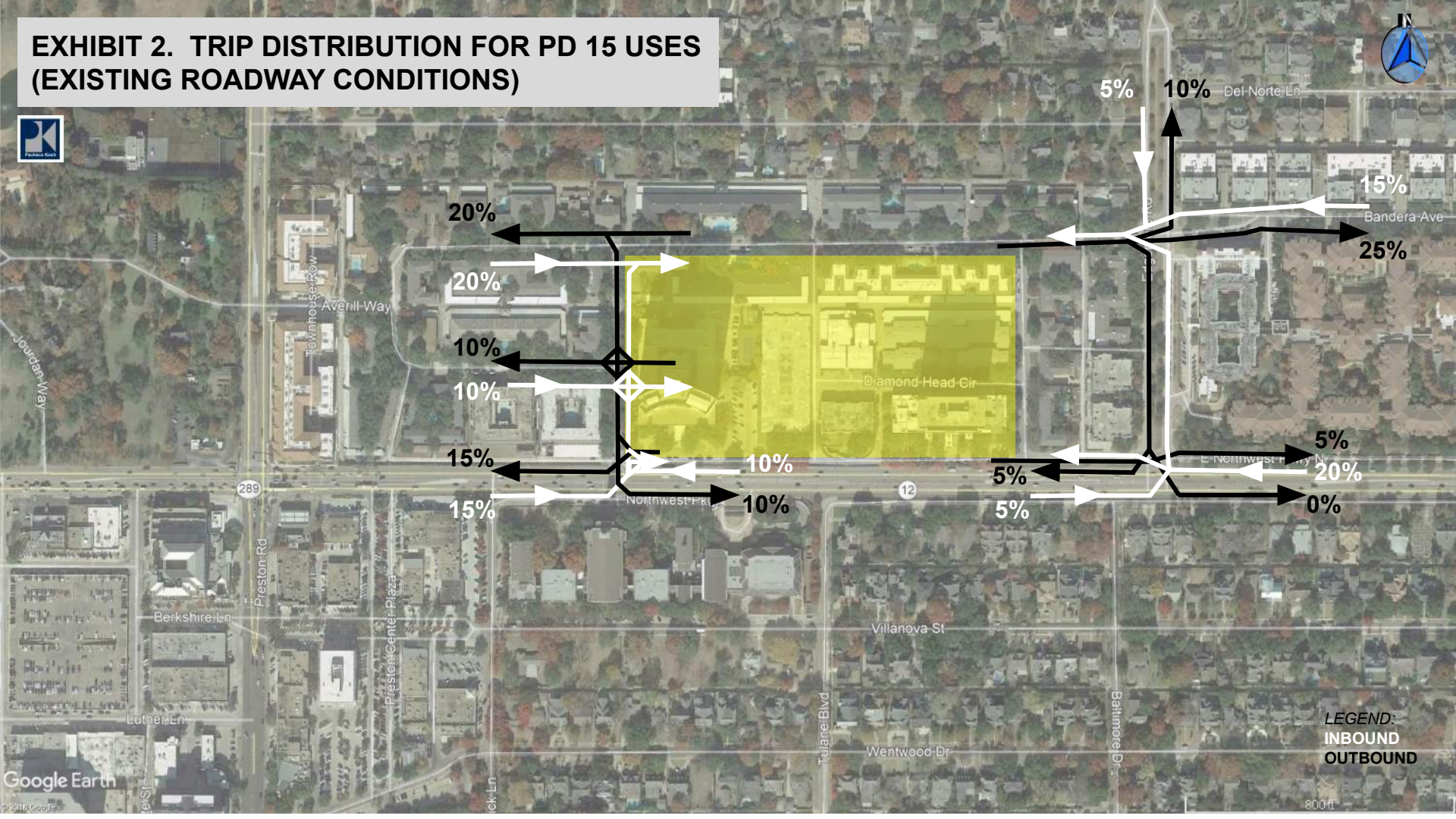
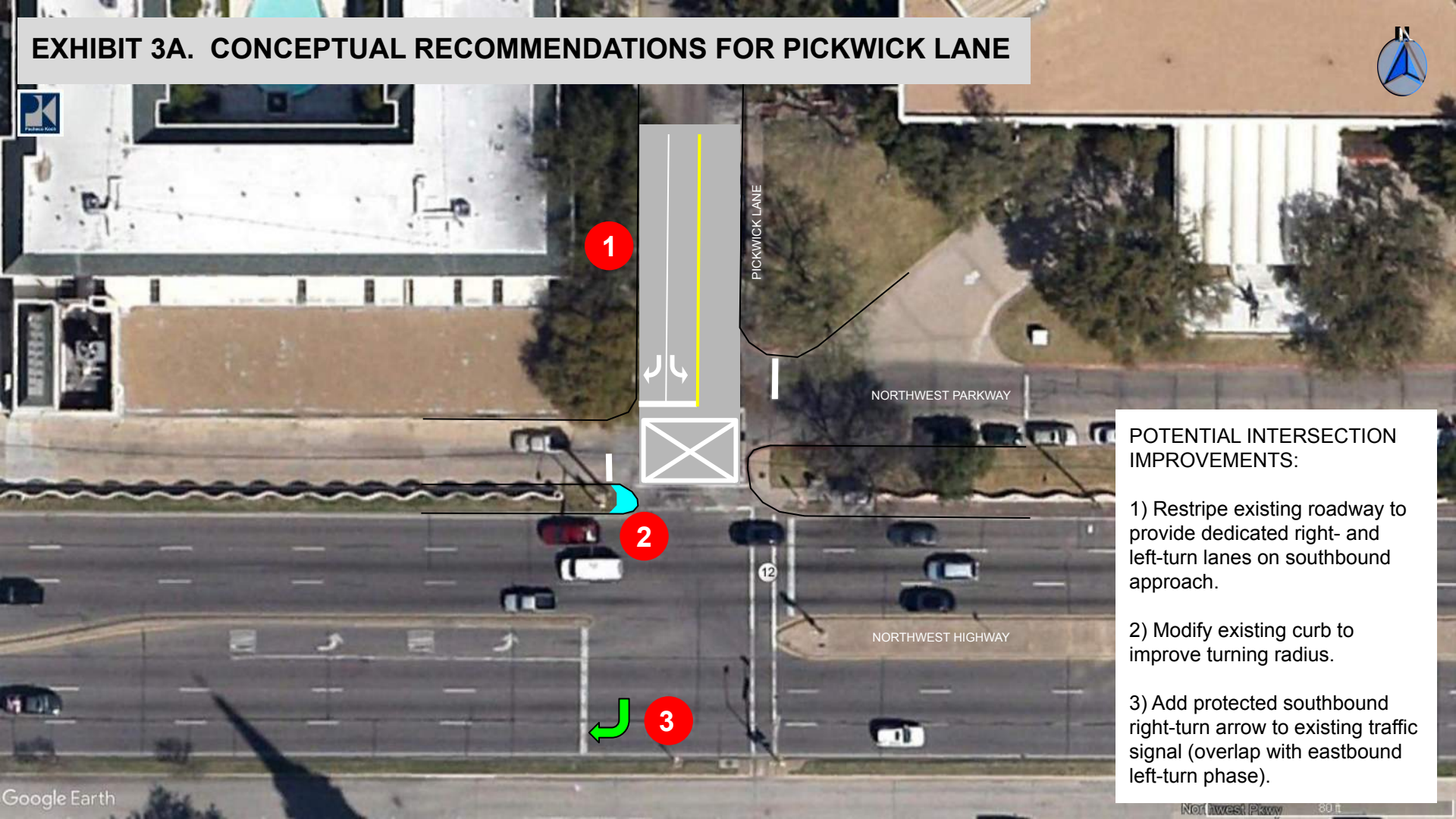


EXHIBIT 3A. CONCEPTUAL RECOMMENDATIONS FOR PICKWICK LANE



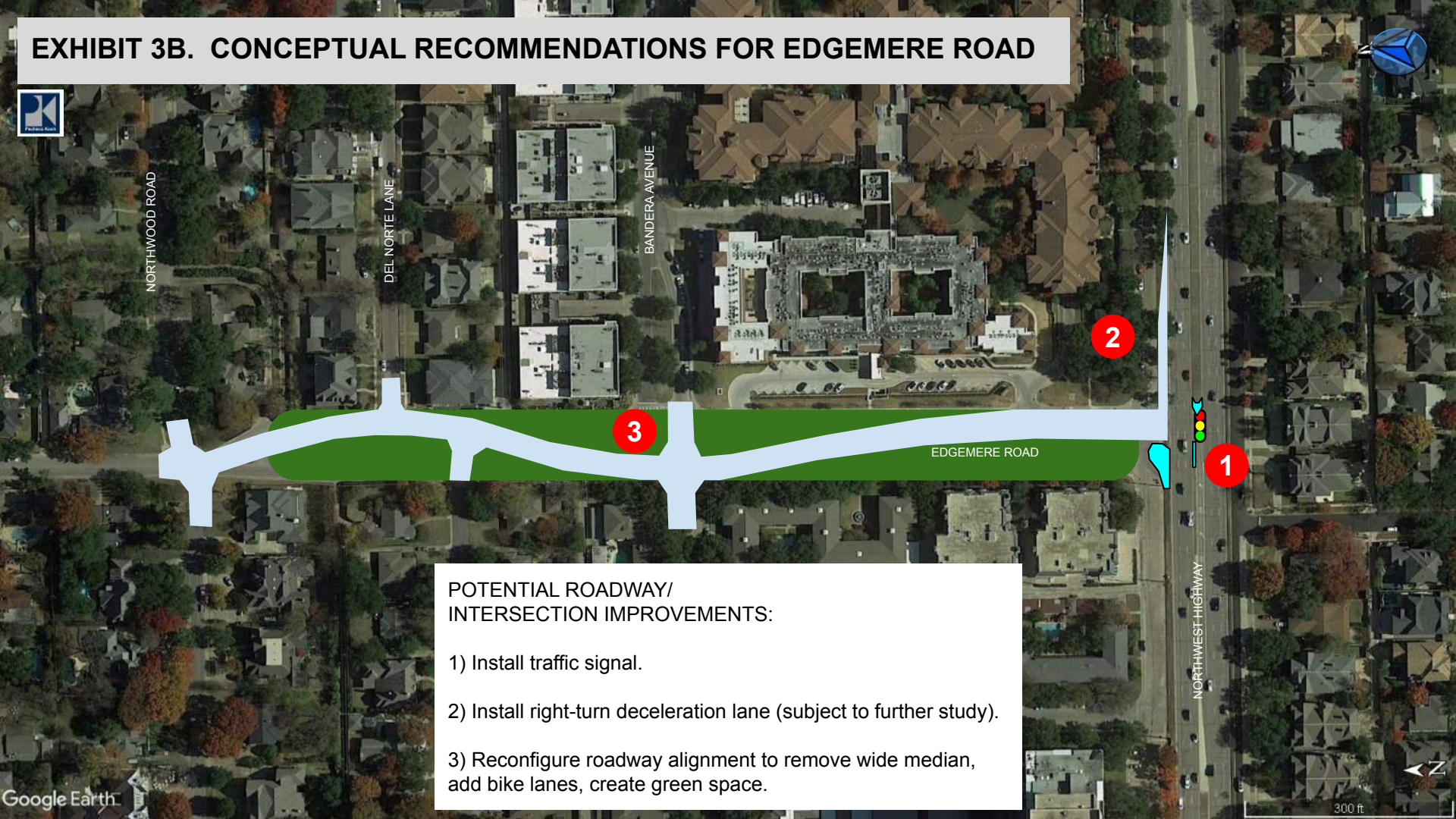
POTENTIAL INTERSECTION IMPROVEMENTS:

1) Restripe existing roadway to provide dedicated right- and left-turn lanes on southbound approach.

2) Modify existing curb to improve turning radius.

3) Add protected southbound right-turn arrow to existing traffic signal (overlap with eastbound left-turn phase).

EXHIBIT 3B. CONCEPTUAL RECOMMENDATIONS FOR EDGEMERE ROAD



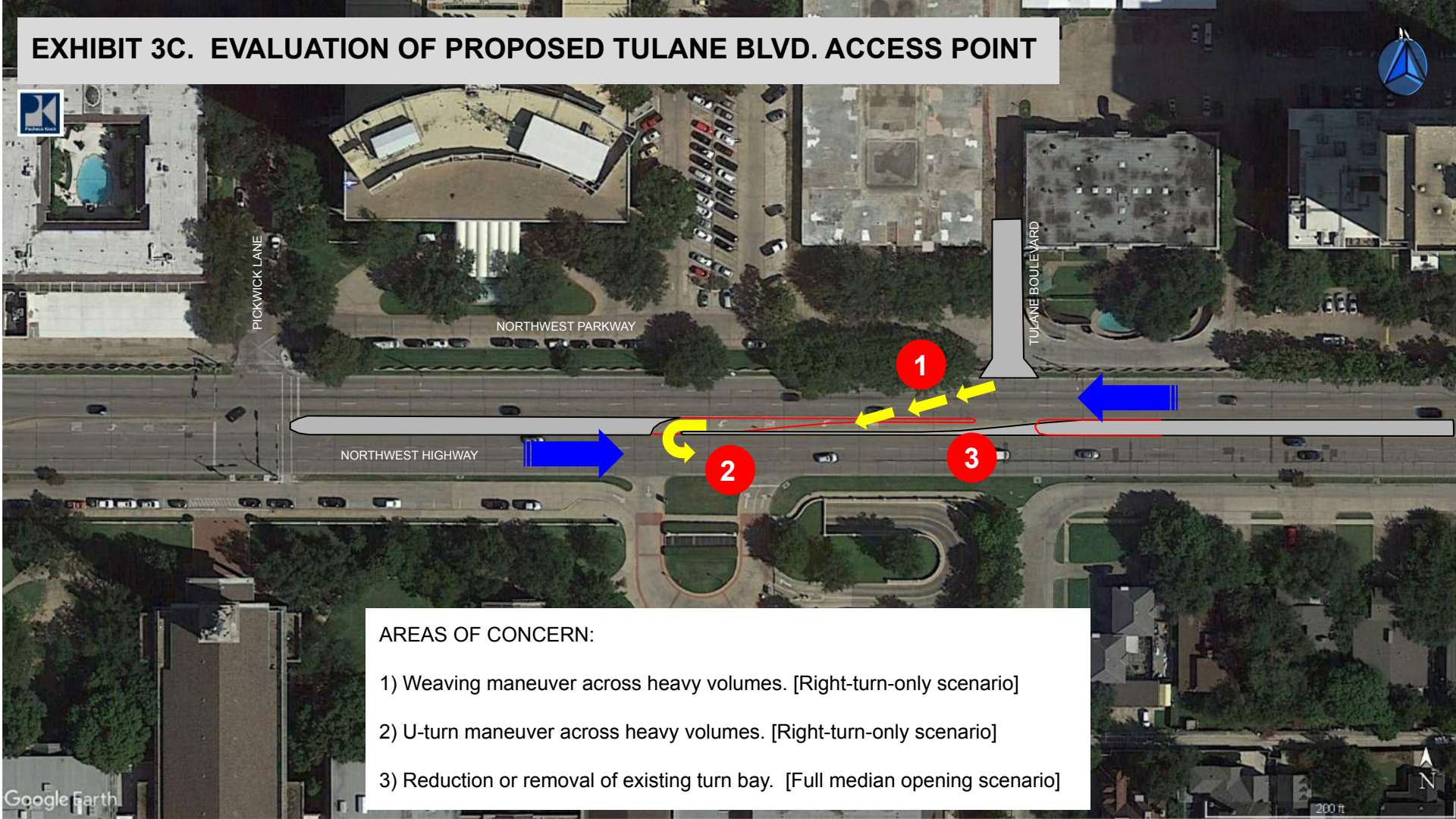
POTENTIAL ROADWAY/
INTERSECTION IMPROVEMENTS:

1) Install traffic signal.

2) Install right-turn deceleration lane (subject to further study).

3) Reconfigure roadway alignment to remove wide median, add bike lanes, create green space.

EXHIBIT 3C. EVALUATION OF PROPOSED TULANE BLVD. ACCESS POINT



AREAS OF CONCERN:

1) Weaving maneuver across heavy volumes. [Right-turn-only scenario]

2) U-turn maneuver across heavy volumes. [Right-turn-only scenario]

3) Reduction or removal of existing turn bay. [Full median opening scenario]

Appendix A. Reference Information

NORTHWEST HIGHWAY AND PRESTON ROAD AREA PLAN

ADVISORY TASK FORCE FINAL REPORT
DECEMBER 2016

Multi-Family Neighborhoods (Zone 4)

Zone 4 is envisioned as a renewable, multi-family enclave giving preference to owner-occupied condominium units and senior living facilities. Retail and commercial development is limited to the existing area at the southeast corner of the zone.

The Preferred Vision would maintain an orientation toward large, owner-occupied condominiums appealing to people ready to downsize from single-family homes, but who would enjoy living in the Preston Hollow area. The vision would allow for the gradual augmentation of various housing types in the neighborhood, with higher density than now exists, but with the understanding that particular attention be given to the need for improved infrastructure, most especially the enhancement of existing storm water drainage systems. In addition, new developments should include on-site parking for residents and guests (preferably underground), greater landscaping and open space, and pedestrian-friendly amenities (see Appendix II). Building heights within the zone should be restricted by the existing City of Dallas proximity slope limitations designed to protect the single-family neighborhoods located north of Bandera Avenue; and throughout the zone, new multi-family residential structures would not exceed four stories in height. The plan envisions the highest density development to be concentrated along the Northwest Highway frontages. The two existing high-rise residential structures would continue to be the only such buildings in the zone.

Over the past ten years, a significant portion of Zone 4 has been or is currently being redeveloped, and the existing redevelopment projects are generally representative of the quality and scale that is envisioned. The Preferred Vision consists mainly of replacing the remaining older, multi-family housing stock. Although some areas of Zone 4 are subject to deed restrictions that limit density, current zoning generally allows for three-story, multi-family construction that would dramatically increase lot coverage and reduce the open spaces and landscaping that now exist. The Preferred Vision assumes that much of the current zoning will be changed as this area is redeveloped, permitting increased height as a trade-off for reduced lot coverage and other features that would improve the quality of life in the neighborhood and meet the needs of the community.

Pedestrian Recommendations for Zone 4:

Improvements to the streetscape and public realm that serve and enhance the existing land uses allow residents to connect to an increasingly walkable neighborhood. These improvements will also serve to ready the area for strategic longer term redevelopment at the desire and timing of existing property owners.

The following pedestrian improvements are recommended for Zone 4:

- Upgrade street trees and provide new street trees in areas with gaps in tree cover.
- Provide perimeter sidewalk connections along Preston, Walnut Hill, Hillcrest and Northwest Highway.
- Support resident requests to install sidewalks on a block-by-block basis, with owner initiation per city policy.
- Complete sidewalks on Edgemere and Hillcrest.
- Improve crosswalks from Zone 4 across Northwest Highway at Edgemere.
- Redesign Bandera to 12’ lanes and 5’ sidewalks on the south side.
- Follow city bike plan to place a shared-use trail along the east side of Preston Road from Northwest Highway to Walnut Hill Lane.
- Identify opportunities for strategic open space enhancements such as outdoor seating areas, landscape zones, street trees, shade structures and lighting.
- City should consider using the public right-of-way to create a connected urban form

REGIONAL THOROUGHFARE PLAN

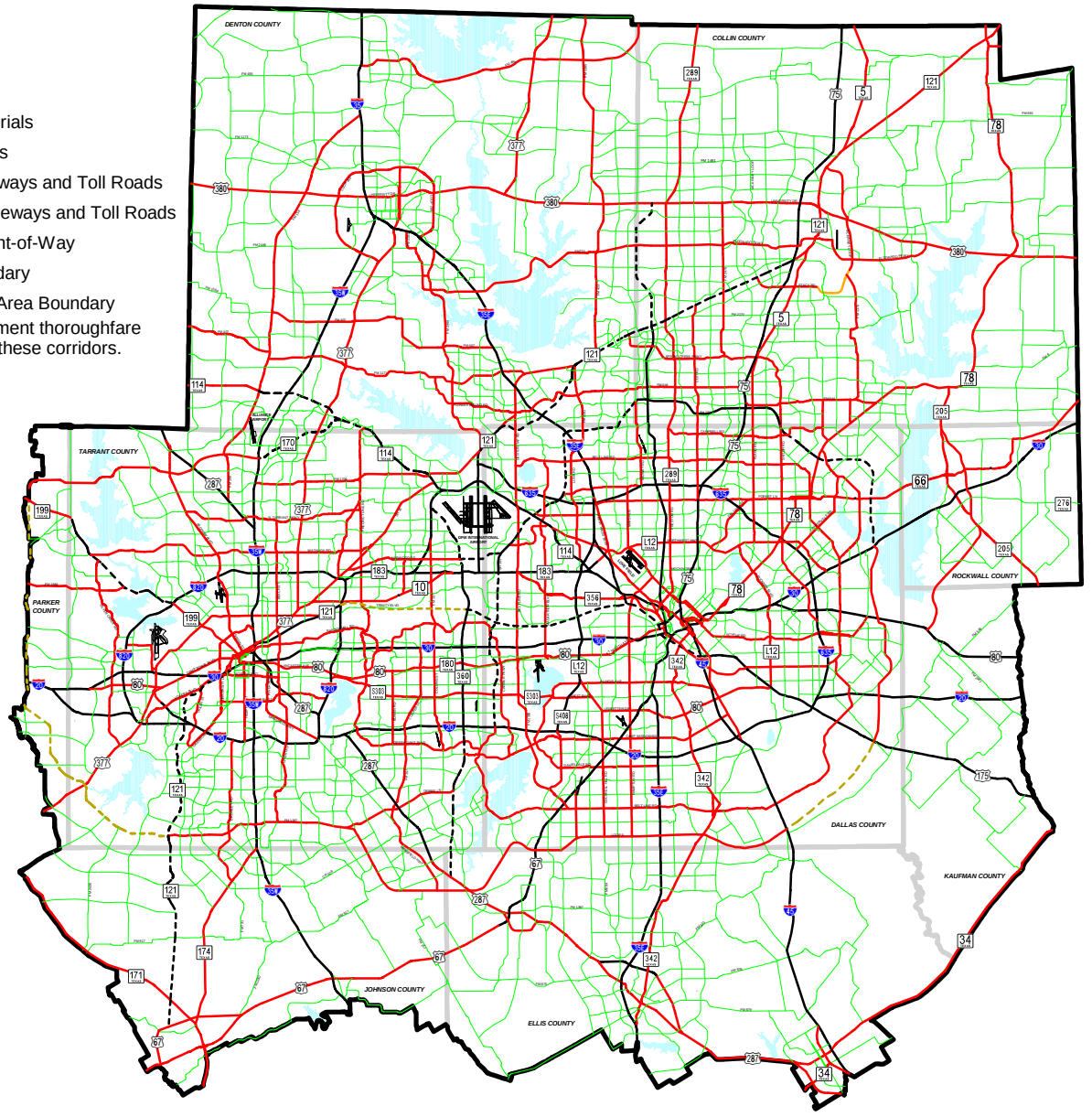
North Central Texas Council of Governments Transportation

0 5 10 15 Miles

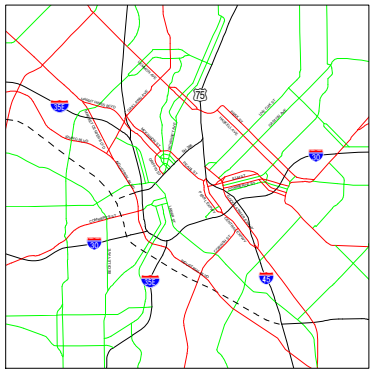
New facility locations indicate transportation needs and do not represent specific alignments.

LEGEND

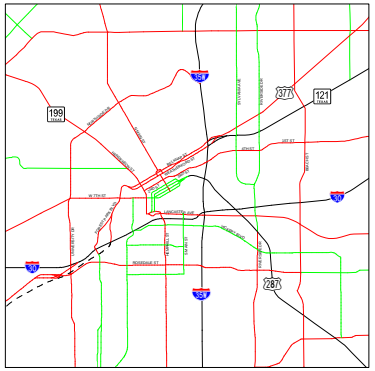
- Regional Arterials
- Other Arterials
- Existing Freeways and Toll Roads
- Proposed Freeways and Toll Roads
- Preserve Right-of-Way
- County Boundary
- Metropolitan Area Boundary
- Local government thoroughfare plans vary in these corridors.



Dallas CBD



Fort Worth CBD



As Amended by RTC on May 10, 2001.

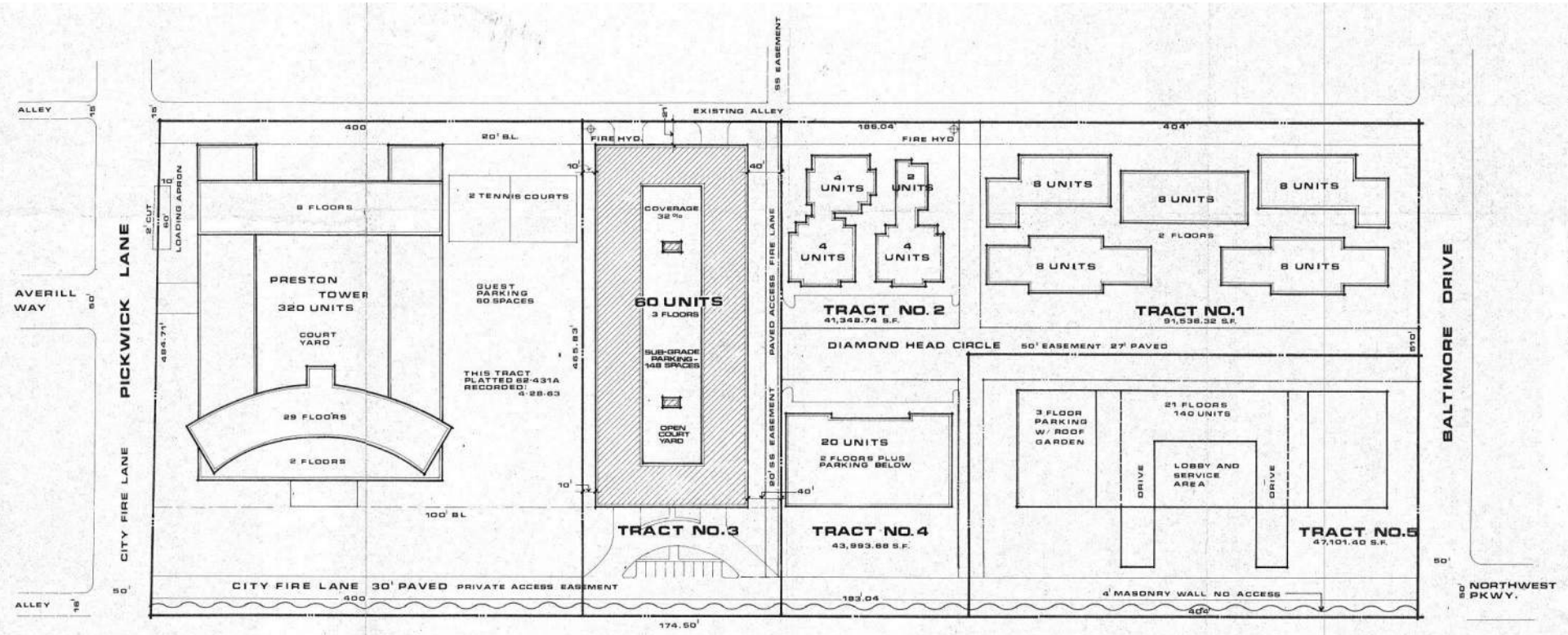
Z167-396

City Plan Commission
Briefing
March 7, 2019

City of Dallas

Andrew Ruegg
Senior Planner
Current Planning

PD No. 15 Existing Development Plan



PD·15 SITE

REF: Z73·189/3110·A

City of Dallas

Appendix B. Traffic Volume Exhibits

Appendix B1 - Roadway Geometry

North ▲
Not to Scale

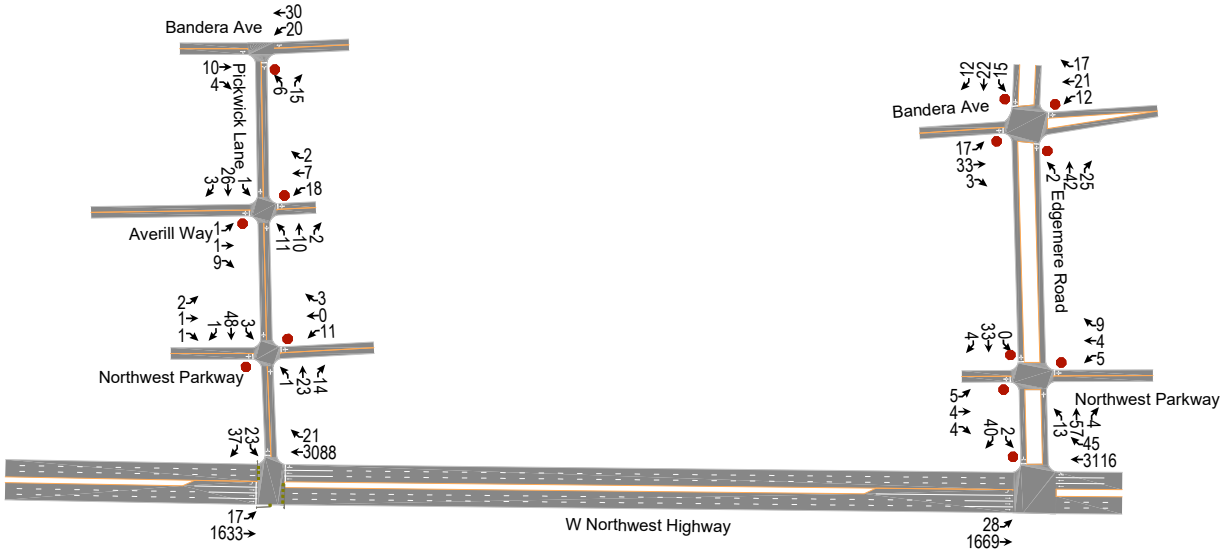
2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B2 - Existing AM

North ▲

Not to Scale



2609-19.157

AJV

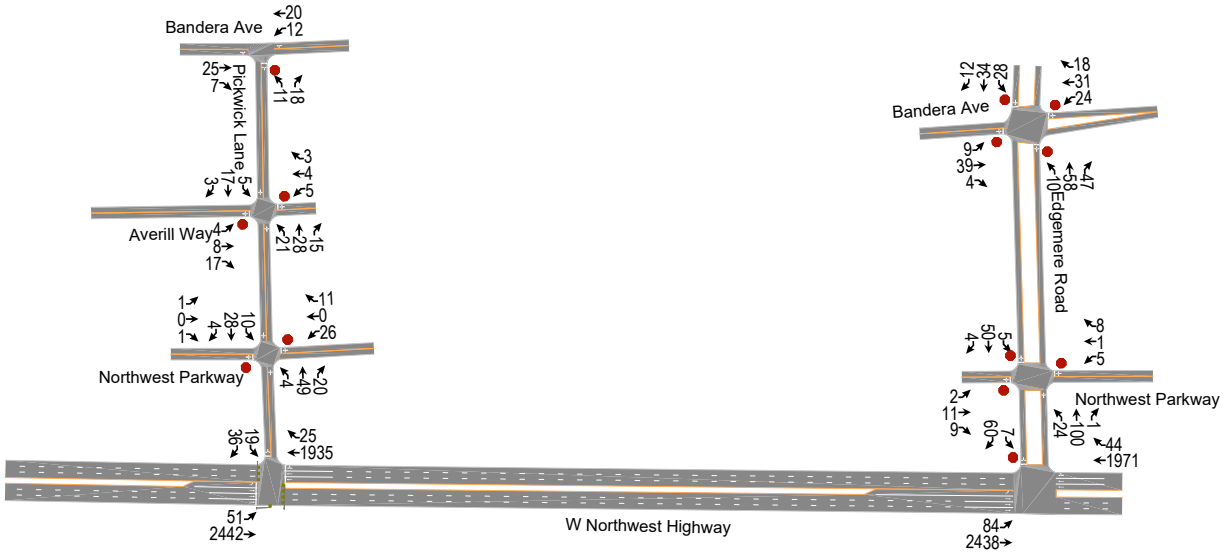
05/20/2019

Pacheco Koch

Appendix B3 - Existing PM

North ▲

Not to Scale



2609-19.157

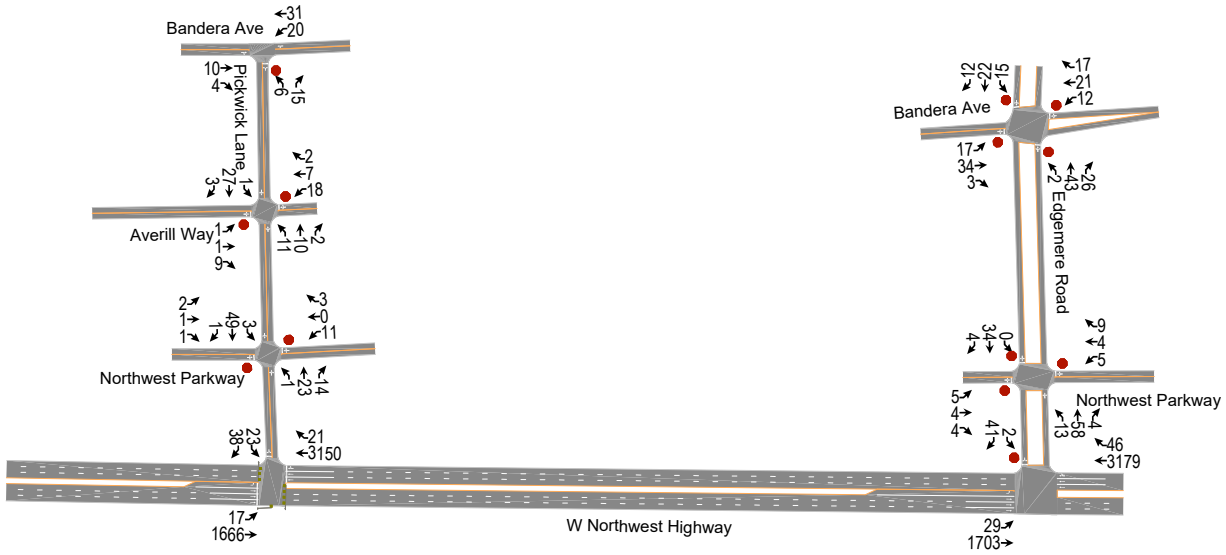
AJV

05/20/2019

Pacheco Koch

Appendix B4 - Background AM

North ▲
Not to Scale



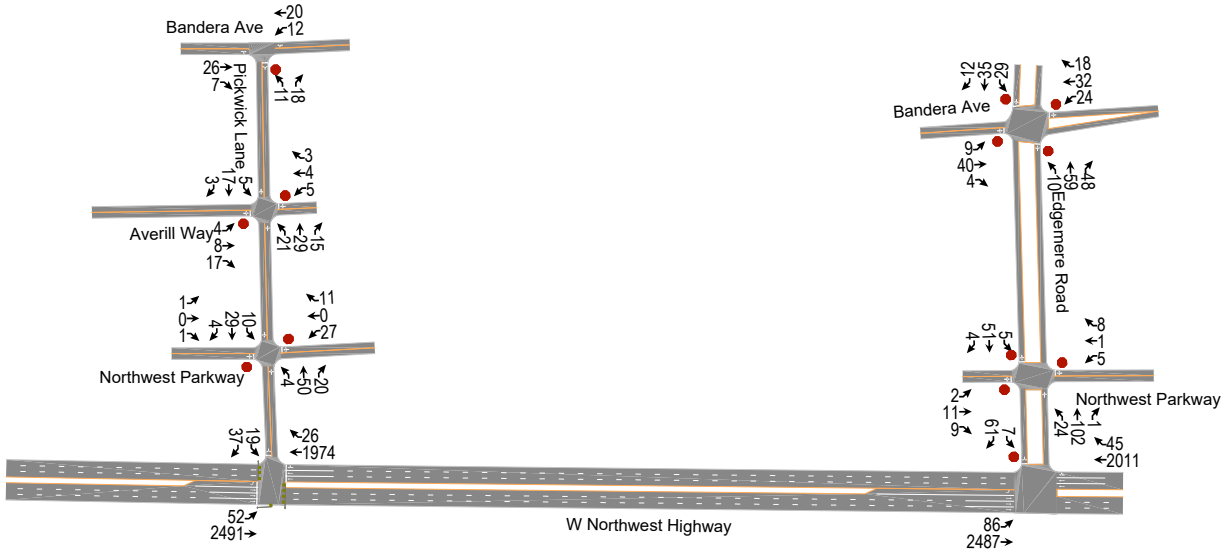
2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B5 - Background PM

North ▲

Not to Scale



2609-19.157

AJV

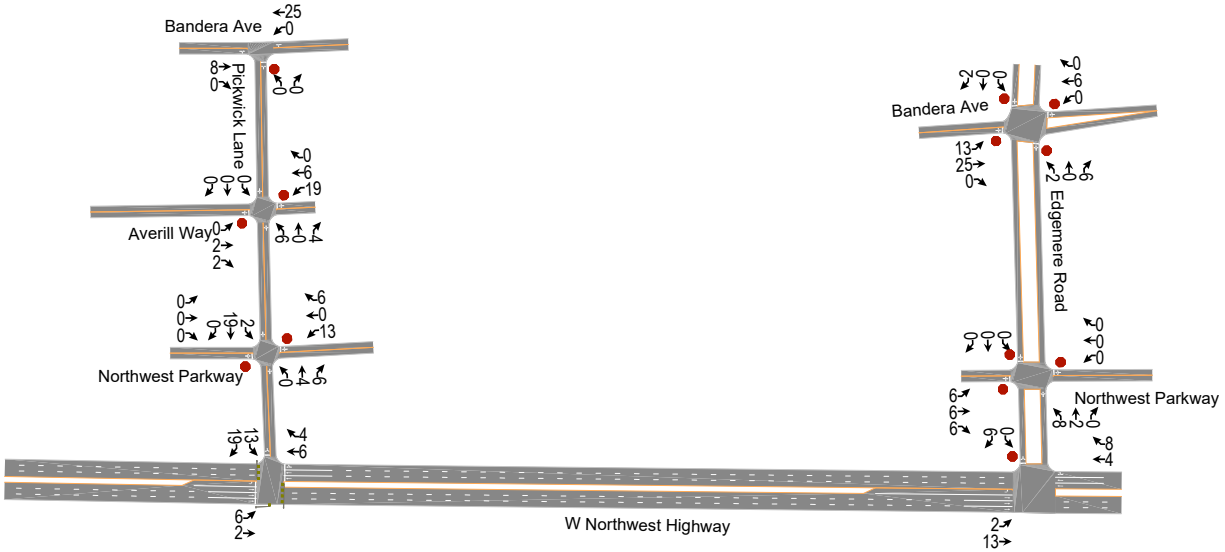
05/20/2019

Pacheco Koch

Appendix B6 - Site Generated AM (90 Units per Acre)

North ▲

Not to Scale



2609-19.157

AJV

05/20/2019

Pacheco Koch

Appendix B7 - Site Generated PM (90 Units per Acre)

North ▲
Not to Scale

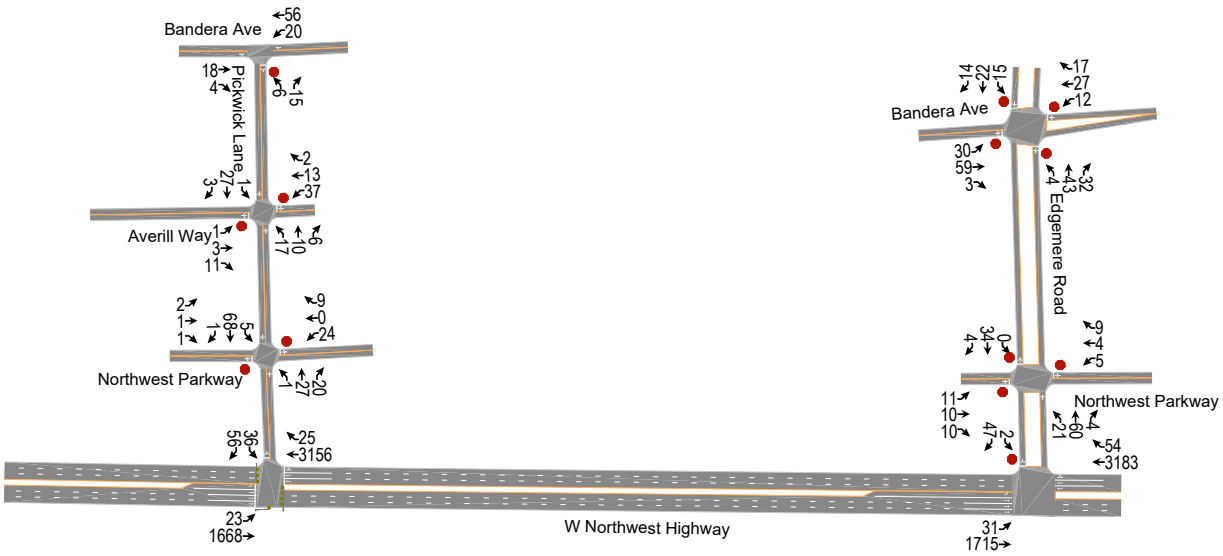
2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B8 - Buildout AM (90 Units per Acre)

North ▲

Not to Scale



2609-19.157

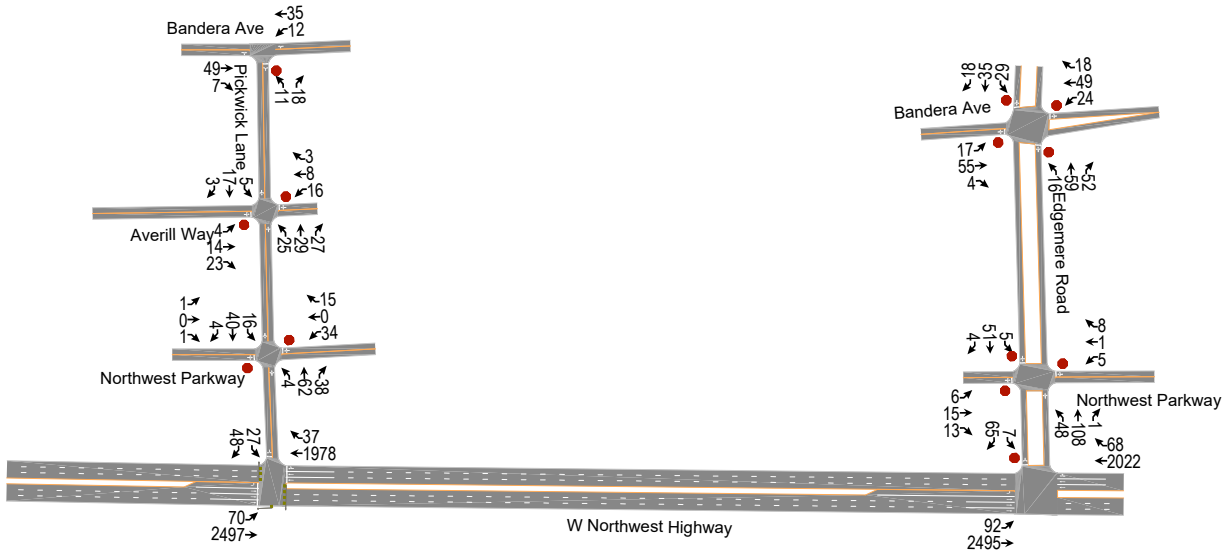
AJV

05/20/2019

Pacheco Koch

Appendix B9 - Buildout PM (90 Units per Acre)

North ▲
Not to Scale



2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B10 - Site Generated AM (125 Units per Acre)

North ▲

Not to Scale

2609-19.157

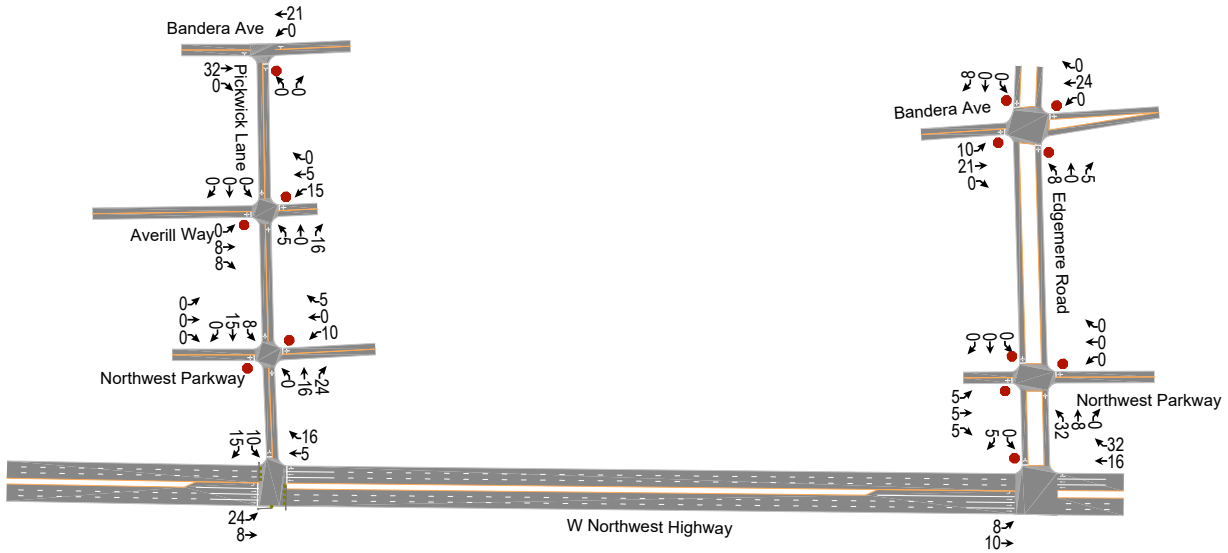
AJV

05/20/2019

Pacheco Koch

Appendix B11 - Site Generated PM (125 Units per Acre)

North ▲
Not to Scale

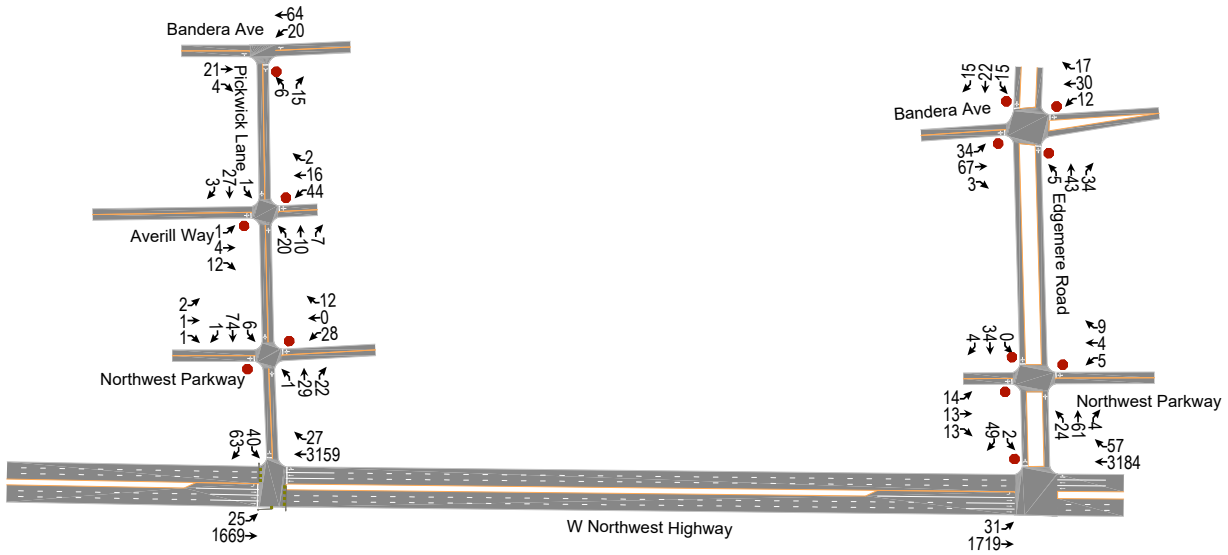


2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B12 - Buildout AM (125 Units per Acre)

North ▲
Not to Scale

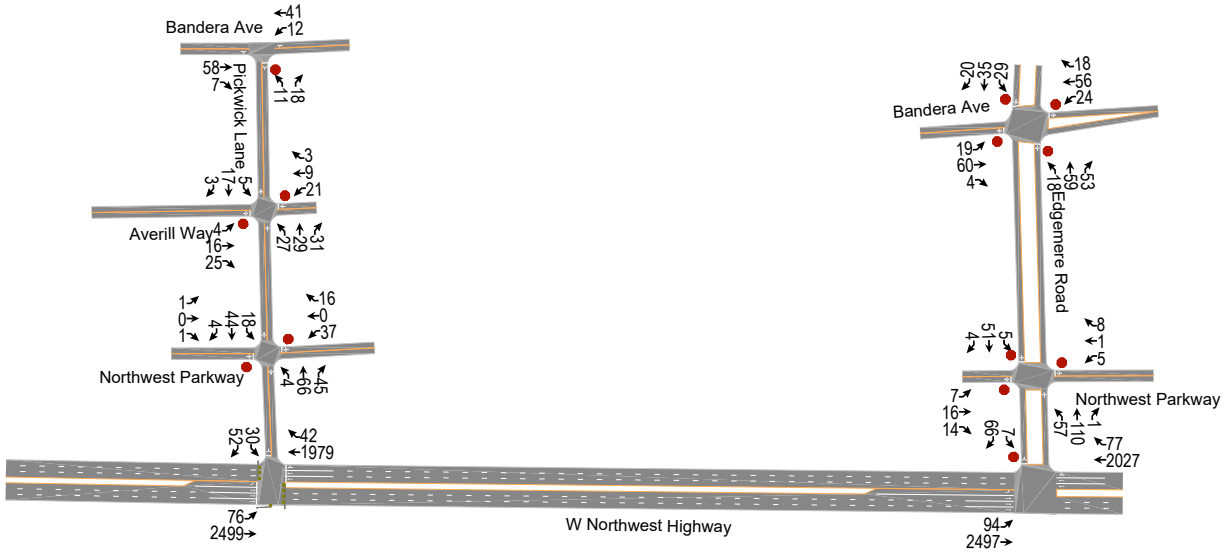


2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix B13 - Buildout PM (125 Units per Acre)

North ▲
Not to Scale



2609-19.157
AJV

05/20/2019
Pacheco Koch

Appendix C. Detailed Traffic Volume Data

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Pickwick Lane						Westbound Approach on Northwest Highway						Northbound Approach on Pickwick Lane						Eastbound Approach on Northwest Highway					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	*Dallas*	7:00 AM	7:15 AM		2	0	2				0	764	0				0	0	0				1	272	0		
State:	*Texas*	7:15 AM	7:30 AM		5	0	11				0	788	2				0	0	0				4	372	0		
Day:	*Wednesday*	7:30 AM	7:45 AM		6	0	13				0	789	4				0	0	0				3	401	0		
Date:	*27-Mar*	7:45 AM	8:00 AM		7	0	6				0	749	9				0	0	0				5	421	0		
Year:	*2019*	8:00 AM	8:15 AM		5	0	7				0	762	6				0	0	0				5	439	0		
Data Collector:	*Camera*	8:15 AM	8:30 AM		6	0	17				0	755	6				0	0	0				8	381	0		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		7	0	13				0	760	8				0	0	0				6	418	0		
Traffic Control:	*Traffic Signal*	8:45 AM	9:00 AM		3	0	19				0	747	6				0	0	0				6	408	0		
Observations:																											
		4:00 PM	4:15 PM		9	0	11				0	455	8				0	0	0				10	625	0		
		4:15 PM	4:30 PM		6	0	6				0	438	7				0	0	0				14	622	0		
		4:30 PM	***4:45 PM***		***6***	***0***	***10***				***0***	***500***	***7***				***0***	***0***	***0***				***10***	***593***	***0***		
		4:45 PM	***5:00 PM***		***4***	***0***	***8***				***0***	***470***	***5***				***0***	***0***	***0***				***13***	***613***	***0***		
		5:00 PM	***5:15 PM***		***6***	***0***	***5***				***0***	***460***	***7***				***0***	***0***	***0***				***13***	***647***	***0***		
		5:15 PM	***5:30 PM***		***3***	***0***	***13***				***0***	***505***	***6***				***0***	***0***	***0***				***15***	***589***	***0***		
		5:30 PM	5:45 PM		6	0	9				0	484	2				0	0	0				6	612	0		
		5:45 PM	6:00 PM		4	0	10				0	455	13				0	0	0				11	617	0		
AM Peak Hour	*Intersection PHF:*	*0.98*	*Intersection PHV:*	*0*	*23*	*0*	*37*			*0*	*0*	*3,088*	*21*			*0*	*0*	*0*	*0*			*0*	*17*	*1,633*	*0*		
	Peak Hour	*7:15 AM - 8:15 AM*	*PHF:*		*0.82*	*0.00*	*0.71*				*0.00*	*0.98*	*0.58*				*0.00*	*0.00*	*0.00*				*0.85*	*0.93*	*0.00*		
	Study Area PHF:	**0.98**	**Study Area PHV:**	**0**	**23**	**0**	**37**			**0**	**0**	**3,088**	**21**			**0**	**0**	**0**	**0**			**0**	**17**	**1,633**	**0**		
	Peak Hour:	**7:15 AM - 8:15 AM**	**PHF:**		**0.82**	**0.00**	**0.71**				**0.00**	**0.98**	**0.58**				**0.00**	**0.00**	**0.00**				**0.85**	**0.93**	**0.00**		
PM Peak Hour	*Intersection PHF:*	*0.99*	*Intersection PHV:*	*0*	*19*	*0*	*36*			*0*	*0*	*1,935*	*25*			*0*	*0*	*0*	*0*			*0*	*51*	*2,442*	*0*		
	Peak Hour	*4:30 PM - 5:30 PM*	*PHF:*		*0.79*	*0.00*	*0.69*				*0.00*	*0.96*	*0.89*				*0.00*	*0.00*	*0.00*				*0.85*	*0.94*	*0.00*		
	Study Area PHF:	**0.99**	**Study Area PHV:**	**0**	**19**	**0**	**36**			**0**	**0**	**1,935**	**25**			**0**	**0**	**0**	**0**			**0**	**51**	**2,442**	**0**		
	Peak Hour:	**4:30 PM - 5:30 PM**	**PHF:**		**0.79**	**0.00**	**0.69**				**0.00**	**0.96**	**0.89**				**0.00**	**0.00**	**0.00**				**0.85**	**0.94**	**0.00**		

Pacheco Koch

PK# 2609-19.157

Pickwick Lane at Northwest Highway

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Pickwick Lane						Westbound Approach on Northwest Parkway						Northbound Approach on Pickwick Lane						Eastbound Approach on Northwest Parkway					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	Dallas	7:00 AM	7:15 AM		1	1	0				2	0	1				0	2	0				1	0	1		
State:	Texas	**7:15 AM**	**7:30 AM**		**1**	**9**	**0**				**6**	**0**	**1**				**0**	**5**	**1**				**0**	**1**	**0**		
Day:	Wednesday	**7:30 AM**	**7:45 AM**		**1**	**16**	**0**				**0**	**0**	**0**				**1**	**3**	**3**				**0**	**0**	**1**		
Date:	27-Mar	**7:45 AM**	**8:00 AM**		**1**	**13**	**0**				**1**	**0**	**1**				**0**	**8**	**6**				**1**	**0**	**0**		
Year:	2019	***8:00 AM***	***8:15 AM***		***0***	***10***	***1***				***4***	***0***	***1***				***0***	***7***	***4***				***1***	***0***	***0***		
Data Collector:	Camera	*8:15 AM*	*8:30 AM*		*3*	*17*	*0*				*5*	*0*	*3*				*0*	*7*	*3*				*0*	*0*	*1*		
Data Source:	CJ Hensch & Associates, Inc.	*8:30 AM*	*8:45 AM*		*0*	*14*	*0*				*3*	*1*	*1*				*0*	*12*	*5*				*0*	*0*	*1*		
Traffic Control:	Minor Approach Stop	*8:45 AM*	*9:00 AM*		*2*	*15*	*0*				*7*	*0*	*3*				*0*	*6*	*4*				*0*	*1*	*0*		
Observations:																											
		4:00 PM	*4:15 PM*		*1*	*13*	*0*				*6*	*0*	*0*				*0*	*11*	*8*				*0*	*0*	*1*		
		4:15 PM	*4:30 PM*		*2*	*4*	*1*				*7*	*0*	*4*				*0*	*12*	*9*				*2*	*0*	*1*		
		4:30 PM	***4:45 PM***		***4***	***9***	***0***				***6***	***0***	***4***				***1***	***10***	***5***				***0***	***0***	***1***		
		4:45 PM	***5:00 PM***		***3***	***6***	***1***				***6***	***0***	***3***				***0***	***12***	***7***				***0***	***0***	***0***		
		5:00 PM	**5:15 PM**		**1**	**5**	**3**				**6**	**0**	**3**				**0**	**14**	**5**				**0**	**0**	**0**		
		5:15 PM	**5:30 PM**		**2**	**8**	**0**				**8**	**0**	**1**				**3**	**13**	**3**				**1**	**0**	**0**		
		5:30 PM	5:45 PM		3	10	1				5	0	6				1	9	2				1	0	0		
		5:45 PM	6:00 PM		4	8	1				6	0	1				1	18	5				1	0	0		
AM Peak Hour	*Intersection PHF:*	*0.91*	*Intersection PHV:*	*0*	*5*	*56*	*1*			*0*	*19*	*1*	*8*			*0*	*0*	*32*	*16*			*0*	*1*	*1*	*2*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*		*0.42*	*0.82*	*0.25*				*0.68*	*0.25*	*0.67*				*0.00*	*0.67*	*0.80*				*0.25*	*0.25*	*0.50*		
	Study Area PHF:	**0.87**	**Study Area PHV:**	**0**	**3**	**48**	**1**			**0**	**11**	**0**	**3**			**0**	**1**	**23**	**14**			**0**	**2**	**1**	**1**		
	Peak Hour:	**7:15 AM - 8:15 AM**	**PHF:**		**0.75**	**0.75**	**0.25**				**0.46**	**0.00**	**0.75**				**0.25**	**0.72**	**0.58**				**0.50**	**0.25**	**0.25**		
PM Peak Hour	*Intersection PHF:*	*0.95*	*Intersection PHV:*	*0*	*10*	*32*	*2*			*0*	*25*	*0*	*11*			*0*	*1*	*45*	*29*			*0*	*2*	*0*	*3*		
	Peak Hour	*4:00 PM - 5:00 PM*	*PHF:*		*0.63*	*0.62*	*0.50*				*0.89*	*0.00*	*0.69*				*0.25*	*0.94*	*0.81*				*0.25*	*0.00*	*0.75*		
	Study Area PHF:	**0.96**	**Study Area PHV:**	**0**	**10**	**28**	**4**			**0**	**26**	**0**	**11**			**0**	**4**	**49**	**20**			**0**	**1**	**0**	**1**		
	Peak Hour:	**4:30 PM - 5:30 PM**	**PHF:**		**0.63**	**0.78**	**0.33**				**0.81**	**0.00**	**0.69**				**0.33**	**0.88**	**0.71**				**0.25**	**0.00**	**0.25**		

Pacheco Koch

PK# 2609-19.157

Pickwick Lane at Northwest Parkway

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Pickwick Lane						Westbound Approach on Averill Way						Northbound Approach on Pickwick Lane						Eastbound Approach on Averill Way					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	*Dallas*	7:00 AM	7:15 AM		0	2	1				1	1	0				0	1	0				0	0	0		
State:	*Texas*	**7:15 AM**	**7:30 AM**		**0**	**4**	**2**				**3**	**0**	**1**				**2**	**2**	**0**				**0**	**0**	**2**		
Day:	*Wednesday*	**7:30 AM**	**7:45 AM**		**0**	**10**	**1**				**7**	**2**	**0**				**2**	**1**	**0**				**0**	**1**	**1**		
Date:	*27-Mar*	**7:45 AM**	**8:00 AM**		**1**	**5**	**0**				**4**	**2**	**0**				**6**	**1**	**1**				**0**	**0**	**3**		
Year:	*2019*	***8:00 AM***	***8:15 AM***		***0***	***7***	***0***				***4***	***3***	***1***				***1***	***6***	***1***				***1***	***0***	***3***		
Data Collector:	*Camera*	*8:15 AM*	*8:30 AM*		*0*	*8*	*1*				*7*	*1*	*0*				*1*	*7*	*1*				*0*	*1*	*3*		
Data Source:	*CJ Hensch & Associates, Inc.*	*8:30 AM*	*8:45 AM*		*0*	*6*	*1*				*5*	*2*	*2*				*4*	*7*	*0*				*0*	*0*	*4*		
Traffic Control:	*Minor Approach Stop*	*8:45 AM*	*9:00 AM*		*1*	*6*	*1*				*7*	*1*	*0*				*1*	*9*	*0*				*4*	*0*	*2*		
Observations:																											
		4:00 PM	4:15 PM		2	10	1				2	2	0				1	6	3				0	0	4		
		4:15 PM	4:30 PM		2	1	0				0	1	0				3	10	3				1	0	4		
		4:30 PM	**4:45 PM**		**1**	**3**	**0**				**2**	**1**	**1**				**6**	**6**	**2**				**0**	**0**	**8**		
		4:45 PM	**5:00 PM**		**1**	**4**	**3**				**0**	**0**	**1**				**5**	**6**	**4**				**0**	**2**	**5**		
		5:00 PM	***5:15 PM***		***1***	***7***	***0***				***0***	***2***	***0***				***5***	***9***	***5***				***2***	***5***	***2***		
		5:15 PM	***5:30 PM***		***2***	***3***	***0***				***3***	***1***	***1***				***5***	***7***	***4***				***2***	***1***	***2***		
		5:30 PM	*5:45 PM*		*0*	*9*	*0*				*4*	*0*	*0*				*4*	*9*	*1*				*3*	*1*	*2*		
		5:45 PM	*6:00 PM*		*3*	*4*	*0*				*1*	*1*	*1*				*2*	*9*	*5*				*1*	*1*	*4*		

AM Peak Hour	*Intersection PHF:*	*0.94*	*Intersection PHV:*	*0*	*1*	*27*	*3*			*0*	*23*	*7*	*3*			*0*	*7*	*29*	*2*			*0*	*5*	*1*	*12*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*		*0.25*	*0.84*	*0.75*				*0.82*	*0.58*	*0.38*				*0.44*	*0.81*	*0.50*				*0.31*	*0.25*	*0.75*		
	Study Area PHF:	**0.84**	**Study Area PHV:**	**0**	**1**	**26**	**3**			**0**	**18**	**7**	**2**			**0**	**11**	**10**	**2**			**0**	**1**	**1**	**9**		
	Peak Hour:	**7:15 AM - 8:15 AM**	**PHF:**		**0.25**	**0.65**	**0.38**				**0.64**	**0.58**	**0.50**				**0.46**	**0.42**	**0.50**				**0.25**	**0.25**	**0.75**		
PM Peak Hour	*Intersection PHF:*	*0.88*	*Intersection PHV:*	*0*	*6*	*23*	*0*			*0*	*8*	*4*	*2*			*0*	*16*	*34*	*15*			*0*	*8*	*8*	*10*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.50*	*0.64*	*0.00*				*0.50*	*0.50*	*0.50*				*0.80*	*0.94*	*0.75*				*0.67*	*0.40*	*0.63*		
	Study Area PHF:	**0.86**	**Study Area PHV:**	**0**	**5**	**17**	**3**			**0**	**5**	**4**	**3**			**0**	**21**	**28**	**15**			**0**	**4**	**8**	**17**		
	Peak Hour:	**4:30 PM - 5:30 PM**	**PHF:**		**0.63**	**0.61**	**0.25**				**0.42**	**0.50**	**0.75**				**0.88**	**0.78**	**0.75**				**0.50**	**0.40**	**0.53**		

Pickwick Lane at Averill Way

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Pickwick Lane						Westbound Approach on Bandera Avenue						Northbound Approach on Pickwick Lane						Eastbound Approach on Bandera Avenue					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	Dallas	7:00 AM	7:15 AM		0	0	0				1	3	0				0	0	2				0	4	1		
State:	Texas	**7:15 AM**	**7:30 AM**		**0**	**0**	**0**				**4**	**7**	**0**				**2**	**0**	**3**				**0**	**1**	**0**		
Day:	Wednesday	**7:30 AM**	**7:45 AM**		**0**	**0**	**0**				**8**	**12**	**0**				**1**	**0**	**2**				**0**	**5**	**1**		
Date:	27-Mar	**7:45 AM**	**8:00 AM**		**0**	**0**	**0**				**4**	**9**	**0**				**1**	**0**	**4**				**0**	**0**	**1**		
Year:	2019	***8:00 AM***	***8:15 AM***		***0***	***0***	***0***				***4***	***2***	***0***				***2***	***0***	***6***				***0***	***4***	***2***		
Data Collector:	Camera	*8:15 AM*	*8:30 AM*		*0*	*0*	*0*				*5*	*11*	*0*				*0*	*0*	*4*				*0*	*3*	*0*		
Data Source:	CJ Hensch & Associates, Inc.	*8:30 AM*	*8:45 AM*		*0*	*0*	*0*				*5*	*13*	*0*				*1*	*0*	*2*				*0*	*5*	*0*		
Traffic Control:	Minor Approach Stop	*8:45 AM*	*9:00 AM*		*0*	*0*	*0*				*4*	*9*	*0*				*2*	*0*	*10*				*0*	*4*	*0*		
Observations:																											
		4:00 PM	4:15 PM		0	0	0				6	2	0				1	0	7				0	1	1		
		4:15 PM	4:30 PM		0	0	0				2	4	0				4	0	5				0	9	0		
		4:30 PM	**4:45 PM**		**0**	**0**	**0**				**1**	**4**	**0**				**3**	**0**	**3**				**0**	**7**	**4**		
		4:45 PM	**5:00 PM**		**0**	**0**	**0**				**6**	**2**	**0**				**1**	**0**	**5**				**0**	**5**	**1**		
		5:00 PM	***5:15 PM***		***0***	***0***	***0***				***4***	***7***	***0***				***5***	***0***	***5***				***0***	***6***	***2***		
		5:15 PM	***5:30 PM***		***0***	***0***	***0***				***1***	***7***	***0***				***2***	***0***	***5***				***0***	***7***	***0***		
		5:30 PM	*5:45 PM*		*0*	*0*	*0*				*4*	*3*	*0*				*2*	*0*	*11*				*0*	*12*	*4*		
		5:45 PM	*6:00 PM*		*0*	*0*	*0*				*6*	*6*	*0*				*2*	*0*	*7*				*0*	*7*	*0*		

AM Peak Hour	*Intersection PHF:*	*0.84*	*Intersection PHV:*	*0*	*0*	*0*	*0*			*0*	*18*	*35*	*0*			*0*	*5*	*0*	*22*			*0*	*0*	*16*	*2*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*		*0.00*	*0.00*	*0.00*				*0.90*	*0.67*	*0.00*				*0.63*	*0.00*	*0.55*				*0.00*	*0.80*	*0.25*		
	Study Area PHF:	**0.73**	**Study Area PHV:**	**0**	**0**	**0**	**0**			**0**	**20**	**30**	**0**			**0**	**6**	**0**	**15**			**0**	**0**	**10**	**4**		
	Peak Hour:	**7:15 AM - 8:15 AM**	**PHF:**		**0.00**	**0.00**	**0.00**				**0.63**	**0.63**	**0.00**				**0.75**	**0.00**	**0.63**				**0.00**	**0.50**	**0.50**		
PM Peak Hour	*Intersection PHF:*	*0.80*	*Intersection PHV:*	*0*	*0*	*0*	*0*			*0*	*15*	*23*	*0*			*0*	*11*	*0*	*28*			*0*	*0*	*32*	*6*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.00*	*0.00*	*0.00*				*0.63*	*0.82*	*0.00*				*0.55*	*0.00*	*0.64*				*0.00*	*0.67*	*0.38*		
	Study Area PHF:	**0.80**	**Study Area PHV:**	**0**	**0**	**0**	**0**			**0**	**12**	**20**	**0**			**0**	**11**	**0**	**18**			**0**	**0**	**25**	**7**		
	Peak Hour:	**4:30 PM - 5:30 PM**	**PHF:**		**0.00**	**0.00**	**0.00**				**0.50**	**0.71**	**0.00**				**0.55**	**0.00**	**0.90**				**0.00**	**0.89**	**0.44**		

Pacheco Koch

PK# 2609-19.157

Pickwick Lane at Bandera Avenue

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Edgemere Road						Westbound Approach on Northwest Highway						Northbound Approach on Edgemere Road						Eastbound Approach on Northwest Highway					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	Dallas	7:00 AM	7:15 AM		3	0	4				0	740	5				0	0	0				6	276	0		
State:	Texas	7:15 AM	7:30 AM		0	0	10				0	809	9				0	0	0				8	388	0		
Day:	Wednesday	7:30 AM	7:45 AM		0	0	9				0	786	13				0	0	0				8	397	0		
Date:	27-Mar	7:45 AM	8:00 AM		1	0	8				0	795	11				0	0	0				3	448	0		
Year:	2019	8:00 AM	8:15 AM		1	0	13				0	726	12				0	0	0				9	436	0		
Data Collector:	Camera	8:15 AM	8:30 AM		1	0	5				0	787	10				0	0	0				7	383	0		
Data Source:	CJ Hensch & Associates, Inc.	8:30 AM	8:45 AM		0	0	12				0	723	14				0	0	0				4	408	0		
Traffic Control:	Minor Approach Stop	8:45 AM	9:00 AM		0	0	18				0	756	14				0	0	0				12	400	0		
Observations:																											
		4:00 PM	4:15 PM		0	0	13				0	465	14				0	0	0				16	655	0		
		4:15 PM	4:30 PM		1	0	12				0	461	10				0	0	0				13	630	0		
		4:30 PM	4:45 PM		1	0	15				0	497	6				0	0	0				17	605	0		
		4:45 PM	5:00 PM		1	0	16				0	495	10				0	0	0				20	603	0		
		5:00 PM	5:15 PM		2	0	14				0	472	15				0	0	0				30	622	0		
		5:15 PM	5:30 PM		3	0	15				0	507	13				0	0	0				17	608	0		
		5:30 PM	5:45 PM		2	0	9				0	490	8				0	0	0				15	626	0		
		5:45 PM	6:00 PM		1	0	13				0	460	5				0	0	0				15	612	0		
AM Peak Hour	Intersection PHF:	0.97	Intersection PHV:	0	2	0	40			0	0	3,116	45			0	0	0	0			0	28	1,669	0		
	Peak Hour	7:15 AM - 8:15 AM	PHF:		0.50	0.00	0.77				0.00	0.96	0.87				0.00	0.00	0.00				0.78	0.93	0.00		
	Study Area PHF:	0.97	Study Area PHV:	0	2	0	40			0	0	3,116	45			0	0	0	0			0	28	1,669	0		
	Peak Hour:	7:15 AM - 8:15 AM	PHF:		0.50	0.00	0.77				0.00	0.96	0.87				0.00	0.00	0.00				0.78	0.93	0.00		
PM Peak Hour	Intersection PHF:	0.99	Intersection PHV:	0	8	0	54			0	0	1,964	46			0	0	0	0			0	82	2,459	0		
	Peak Hour	4:45 PM - 5:45 PM	PHF:		0.67	0.00	0.84				0.00	0.97	0.77				0.00	0.00	0.00				0.68	0.98	0.00		
	Study Area PHF:	0.99	Study Area PHV:	0	7	0	60			0	0	1,971	44			0	0	0	0			0	84	2,438	0		
	Peak Hour:	4:30 PM - 5:30 PM	PHF:		0.58	0.00	0.94				0.00	0.97	0.73				0.00	0.00	0.00				0.70	0.98	0.00		

Edgemere Road at Northwest Highway

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Edgemere Road						Westbound Approach on Northwest Parkway						Northbound Approach on Edgemere Road						Eastbound Approach on Northwest Parkway					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	Dallas	7:00 AM	7:15 AM	1	1	6	1				0	0	1				0	10	1				0	2	1		
State:	Texas	**7:15 AM**	**7:30 AM**	**0**	**0**	**8**	**1**				**1**	**2**	**0**				**0**	**16**	**1**				**0**	**3**	**1**		
Day:	Wednesday	**7:30 AM**	**7:45 AM**	**3**	**0**	**8**	**0**				**0**	**1**	**4**				**4**	**15**	**2**				**1**	**1**	**1**		
Date:	27-Mar	**7:45 AM**	**8:00 AM**	**0**	**0**	**8**	**2**				**1**	**0**	**3**				**4**	**11**	**0**				**3**	**0**	**1**		
Year:	2019	***8:00 AM***	***8:15 AM***	***3***	***0***	***9***	***1***				***3***	***1***	***2***				***5***	***15***	***1***				***1***	***0***	***1***		
Data Collector:	Camera	*8:15 AM*	*8:30 AM*	*0*	*0*	*6*	*1*				*0*	*1*	*0*				*3*	*14*	*0*				*0*	*2*	*0*		
Data Source:	CJ Hensch & Associates, Inc.	*8:30 AM*	*8:45 AM*	*4*	*0*	*9*	*0*				*0*	*1*	*1*				*3*	*14*	*1*				*1*	*0*	*3*		
Traffic Control:	Minor Approach Stop	*8:45 AM*	*9:00 AM*	*4*	*0*	*14*	*1*				*0*	*0*	*4*				*3*	*23*	*0*				*1*	*1*	*3*		
Observations:																											
		4:00 PM	4:15 PM	1	0	8	0				0	3	5				4	26	0				1	3	3		
		4:15 PM	*4:30 PM*	*4*	*1*	*11*	*4*				*1*	*2*	*1*				*5*	*18*	*0*				*2*	*4*	*1*		
		4:30 PM	***4:45 PM***	***5***	***1***	***12***	***0***				***1***	***0***	***4***				***3***	***19***	***0***				***1***	***4***	***2***		
		4:45 PM	***5:00 PM***	***3***	***1***	***10***	***2***				***1***	***0***	***1***				***4***	***22***	***1***				***0***	***1***	***4***		
		5:00 PM	***5:15 PM***	***2***	***3***	***13***	***2***				***2***	***0***	***1***				***12***	***34***	***0***				***0***	***4***	***1***		
		5:15 PM	**5:30 PM**	**0**	**0**	**15**	**0**				**1**	**1**	**2**				**5**	**25**	**0**				**1**	**2**	**2**		
		5:30 PM	5:45 PM	4	0	9	5				0	2	1				4	19	1				1	0	2		
		5:45 PM	6:00 PM	2	0	10	0				2	2	0				4	12	3				2	3	2		
AM Peak Hour	*Intersection PHF:*	*0.74*	*Intersection PHV:*	*11*	*0*	*38*	*3*			*0*	*3*	*3*	*7*			*0*	*14*	*66*	*2*			*0*	*3*	*3*	*7*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*		*0.00*	*0.68*	*0.75*				*0.25*	*0.75*	*0.44*				*0.70*	*0.72*	*0.50*				*0.75*	*0.38*	*0.58*		
	Study Area PHF:	**0.88**	**Study Area PHV:**	**6**	**0**	**33**	**4**			**0**	**5**	**4**	**9**			**0**	**13**	**57**	**4**			**0**	**5**	**4**	**4**		
	Peak Hour:	**7:15 AM - 8:15 AM**	**PHF:**		**0.00**	**0.92**	**0.50**				**0.42**	**0.50**	**0.56**				**0.65**	**0.89**	**0.50**				**0.42**	**0.33**	**1.00**		
PM Peak Hour	*Intersection PHF:*	*0.78*	*Intersection PHV:*	*14*	*6*	*46*	*8*			*0*	*5*	*2*	*7*			*0*	*24*	*93*	*1*			*0*	*3*	*13*	*8*		
	Peak Hour	*4:15 PM - 5:15 PM*	*PHF:*		*0.50*	*0.88*	*0.50*				*0.63*	*0.25*	*0.44*				*0.50*	*0.68*	*0.25*				*0.38*	*0.81*	*0.50*		
	Study Area PHF:	**0.78**	**Study Area PHV:**	**10**	**5**	**50**	**4**			**0**	**5**	**1**	**8**			**0**	**24**	**100**	**1**			**0**	**2**	**11**	**9**		
	Peak Hour:	**4:30 PM - 5:30 PM**	**PHF:**		**0.42**	**0.83**	**0.50**				**0.63**	**0.25**	**0.50**				**0.50**	**0.74**	**0.25**				**0.50**	**0.69**	**0.56**		

Pacheco Koch

PK# 2609-19.157

Edgemere Road at Northwest Parkway

Intersection Turning Movement Counts

				NORTH LEG Southbound Approach on Edgemere Road						EAST LEG Westbound Approach on Bandera Avenue						SOUTH LEG Northbound Approach on Edgemere Road						WEST LEG Eastbound Approach on Bandera Avenue					
				Vehicles				Peds		Vehicles				Peds		Vehicles				Peds		Vehicles				Peds	
		START	END	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW	U	L	T	R	CCW	CW
City:	*Dallas*	7:00 AM	7:15 AM	2	0	3	0				0	2	3			5	1	9	3				1	6	0		
State:	*Texas*	**7:15 AM**	**7:30 AM**	**2**	**6**	**4**	**2**				**3**	**3**	**4**			**1**	**0**	**7**	**9**				**1**	**4**	**1**		
Day:	*Wednesday*	**7:30 AM**	**7:45 AM**	**1**	**2**	**4**	**3**				**3**	**4**	**3**			**2**	**1**	**10**	**8**				**8**	**9**	**1**		
Date:	*27-Mar*	**7:45 AM**	**8:00 AM**	**0**	**5**	**8**	**5**				**2**	**8**	**5**			**1**	**1**	**14**	**1**				**1**	**7**	**0**		
Year:	*2019*	***8:00 AM***	***8:15 AM***	***1***	***2***	***6***	***2***				***4***	***6***	***5***			***0***	***0***	***11***	***7***				***7***	***13***	***1***		
Data Collector:	*Camera*	*8:15 AM*	*8:30 AM*	*1*	*6*	*4*	*3*				*1*	*9*	*4*			*2*	*0*	*6*	*5*				*6*	*7*	*0*		
Data Source:	*CJ Hensch & Associates, Inc.*	*8:30 AM*	*8:45 AM*	*0*	*5*	*5*	*2*				*6*	*3*	*3*			*1*	*2*	*8*	*8*				*3*	*3*	*1*		
Traffic Control:	*Minor Approach Stop*	*8:45 AM*	*9:00 AM*	*3*	*7*	*9*	*5*				*7*	*8*	*8*			*3*	*3*	*11*	*9*				*2*	*10*	*1*		
Observations:																											
		4:00 PM	4:15 PM	1	9	5	1				3	3	8	6			0	3	18	14				4	7	0		
		4:15 PM	4:30 PM	2	2	13	1				0	5	5	6			0	0	12	10				3	9	1		
		4:30 PM	**4:45 PM**	**1**	**4**	**6**	**2**				**2**	**7**	**6**	**3**			**1**	**3**	**9**	**15**				**4**	**10**	**1**		
		4:45 PM	**5:00 PM**	**1**	**5**	**9**	**5**				**0**	**5**	**10**	**1**			**2**	**1**	**17**	**6**				**1**	**10**	**1**		
		5:00 PM	***5:15 PM***	***2***	***7***	***9***	***3***				***0***	***7***	***8***	***9***			***2***	***2***	***21***	***14***				***1***	***10***	***1***		
		5:15 PM	***5:30 PM***	***3***	***12***	***10***	***2***				***0***	***5***	***7***	***5***			***0***	***4***	***11***	***12***				***3***	***9***	***1***		
		5:30 PM	*5:45 PM*	*3*	*13*	*12*	*3*				*0*	*3*	*8*	*5*			*1*	*0*	*13*	*11*				*8*	*14*	*2*		
		5:45 PM	*6:00 PM*	*0*	*11*	*7*	*8*				*0*	*3*	*10*	*8*			*0*	*2*	*9*	*4*				*4*	*8*	*1*		
AM Peak Hour	*Intersection PHF:*	*0.74*		*Intersection PHV:*	*5*	*20*	*24*	*12*			*0*	*18*	*26*	*20*			*6*	*5*	*36*	*29*			*0*	*18*	*33*	*3*		
	Peak Hour	*8:00 AM - 9:00 AM*		*PHF:*		*0.71*	*0.67*	*0.60*				*0.64*	*0.72*	*0.63*				*0.42*	*0.82*	*0.81*				*0.64*	*0.63*	*0.75*		
	Study Area PHF:	**0.88**		**Study Area PHV:**	**4**	**15**	**22**	**12**			**0**	**12**	**21**	**17**			**4**	**2**	**42**	**25**			**0**	**17**	**33**	**3**		
	Peak Hour:	**7:15 AM - 8:15 AM**		**PHF:**		**0.63**	**0.69**	**0.60**				**0.75**	**0.66**	**0.85**				**0.50**	**0.75**	**0.69**				**0.53**	**0.63**	**0.75**		
PM Peak Hour	*Intersection PHF:*	*0.91*		*Intersection PHV:*	*8*	*43*	*38*	*16*			*0*	*18*	*33*	*27*			*3*	*8*	*54*	*41*			*0*	*16*	*41*	*5*		
	Peak Hour	*5:00 PM - 6:00 PM*		*PHF:*		*0.83*	*0.79*	*0.50*				*0.64*	*0.83*	*0.75*				*0.50*	*0.64*	*0.73*				*0.50*	*0.73*	*0.63*		
	Study Area PHF:	**0.85**		**Study Area PHV:**	**7**	**28**	**34**	**12**			**2**	**24**	**31**	**18**			**5**	**10**	**58**	**47**			**0**	**9**	**39**	**4**		
	Peak Hour:	**4:30 PM - 5:30 PM**		**PHF:**		**0.58**	**0.85**	**0.60**				**0.86**	**0.78**	**0.50**				**0.63**	**0.69**	**0.78**				**0.56**	**0.98**	**1.00**		

Pacheco Koch

PK# 2609-19.157

Edgemere Road at Bandera Avenue

ROADWAY: Bandera Avenue
LOCATION: Between Pickwick Lane and Edgemere Road
DAY: Thursday
DATE: 28-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

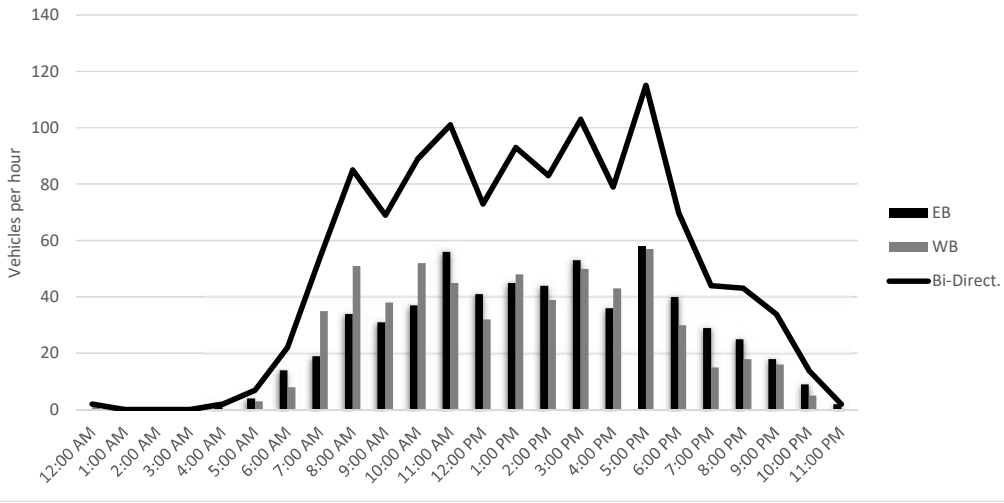
24-HOUR, BI-DIRECTIONAL VOLUME
1,184
(WEEKDAY)

Bandera Avenue

	Eastbound				Westbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	EB	WB	Bi-Direct.
12:00 AM	0	0	0	0	1	1	0	0	0	2	2
1:00 AM	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	1	0	1	0	0	0	0	0	2	0	2
5:00 AM	2	0	2	0	1	1	1	0	4	3	7
6:00 AM	2	1	4	7	0	1	1	6	14	8	22
7:00 AM	3	2	9	5	5	5	14	11	19	35	54
8:00 AM	7	8	9	10	17	13	8	13	34	51	85
9:00 AM	11	9	2	9	9	10	12	7	31	38	69
10:00 AM	5	9	8	15	7	13	14	18	37	52	89
11:00 AM	17	7	14	18	7	8	18	12	56	45	101
12:00 PM	13	13	5	10	7	5	9	11	41	32	73
1:00 PM	13	9	18	5	12	8	17	11	45	48	93
2:00 PM	11	13	9	11	11	11	11	6	44	39	83
3:00 PM	17	10	16	10	10	11	13	16	53	50	103
4:00 PM	13	9	9	5	8	13	12	10	36	43	79
5:00 PM	11	16	18	13	14	16	13	14	58	57	115
6:00 PM	13	8	8	11	7	8	8	7	40	30	70
7:00 PM	8	11	3	7	6	3	4	2	29	15	44
8:00 PM	10	3	10	2	4	2	9	3	25	18	43
9:00 PM	4	5	6	3	4	5	4	3	18	16	34
10:00 PM	2	1	2	4	0	1	0	4	9	5	14
11:00 PM	2	0	0	0	0	0	0	0	2	0	2

			EB	WB	Bi-Direct.
		24-Hour Total:	597	587	1,184
10:45 AM	11:45 AM	(Bi-Direct.) AM Peak Hour Total:	53	51	104
5:00 PM	6:00 PM	(Bi-Direct.) PM Peak Hour Total:	58	57	115
5:15 PM	6:15 PM	Highest By Direction (EB):	60		
5:00 PM	6:00 PM	Highest By Direction (WB):		57	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Thursday
DATE: 28-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

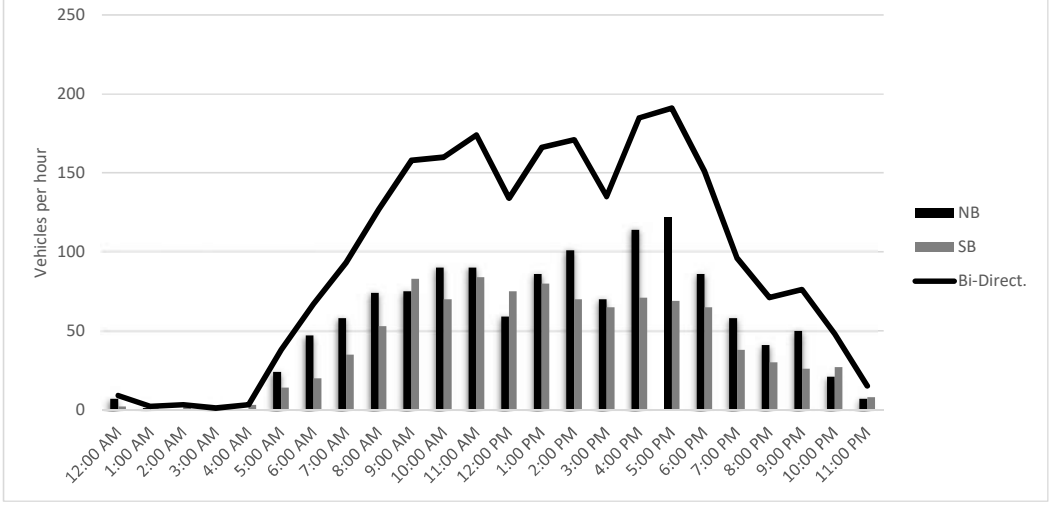
24-HOUR, BI-DIRECTIONAL VOLUME
2,274
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	1	3	1	2	2	0	0	0	7	2	9
1:00 AM	0	0	0	1	1	0	0	0	1	1	2
2:00 AM	0	0	0	0	0	1	0	2	0	3	3
3:00 AM	0	0	0	1	0	0	0	0	1	0	1
4:00 AM	0	0	0	0	0	0	0	3	0	3	3
5:00 AM	2	3	8	11	0	1	5	8	24	14	38
6:00 AM	7	8	14	18	7	3	4	6	47	20	67
7:00 AM	11	13	16	18	6	10	6	13	58	35	93
8:00 AM	24	14	18	18	11	12	12	18	74	53	127
9:00 AM	31	14	12	18	18	14	30	21	75	83	158
10:00 AM	20	28	20	22	14	14	24	18	90	70	160
11:00 AM	21	24	27	18	18	24	21	21	90	84	174
12:00 PM	16	13	16	14	19	20	23	13	59	75	134
1:00 PM	12	28	24	22	26	18	18	18	86	80	166
2:00 PM	29	24	22	26	16	16	14	24	101	70	171
3:00 PM	14	14	26	16	17	12	20	16	70	65	135
4:00 PM	45	24	23	22	18	21	14	18	114	71	185
5:00 PM	33	36	19	34	16	20	17	16	122	69	191
6:00 PM	27	25	19	15	18	14	18	15	86	65	151
7:00 PM	14	13	19	12	8	12	13	5	58	38	96
8:00 PM	6	13	14	8	12	8	8	2	41	30	71
9:00 PM	13	10	12	15	10	11	4	1	50	26	76
10:00 PM	5	5	7	4	8	4	10	5	21	27	48
11:00 PM	5	1	1	0	2	1	3	2	7	8	15

			NB	SB	Bi-Direct.
		24-Hour Total:	1,282	992	2,274
10:45 AM	11:45 AM	(Bi-Direct.) AM Peak Hour Total:	94	81	175
5:00 PM	6:00 PM	(Bi-Direct.) PM Peak Hour Total:	122	69	191
5:00 PM	6:00 PM	Highest By Direction (NB):	122		
11:15 AM	12:15 PM	Highest By Direction (SB):		85	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Friday
DATE: 29-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

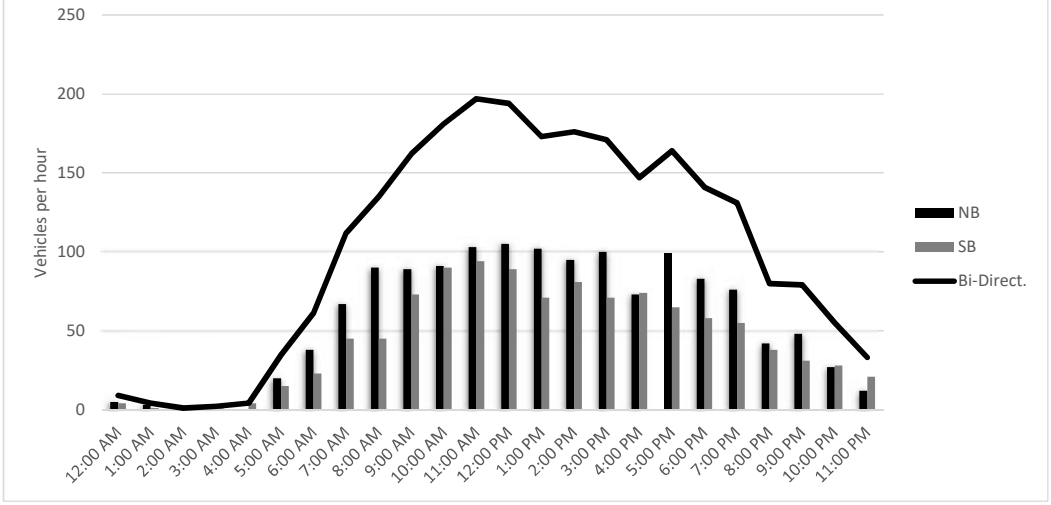
24-HOUR, BI-DIRECTIONAL VOLUME
2,447
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	2	2	1	0	2	0	2	0	5	4	9
1:00 AM	1	1	1	0	0	0	1	0	3	1	4
2:00 AM	0	0	0	0	0	0	1	0	0	1	1
3:00 AM	1	0	0	0	0	1	0	0	1	1	2
4:00 AM	0	0	0	0	0	1	1	2	0	4	4
5:00 AM	0	4	3	13	1	3	4	7	20	15	35
6:00 AM	12	4	6	16	6	2	8	7	38	23	61
7:00 AM	14	17	21	15	17	7	11	10	67	45	112
8:00 AM	22	18	23	27	7	9	14	15	90	45	135
9:00 AM	21	27	13	28	18	22	13	20	89	73	162
10:00 AM	24	22	28	17	18	21	23	28	91	90	181
11:00 AM	31	26	22	24	26	28	20	20	103	94	197
12:00 PM	26	26	23	30	24	25	18	22	105	89	194
1:00 PM	20	24	26	32	13	18	16	24	102	71	173
2:00 PM	21	23	19	32	19	19	20	23	95	81	176
3:00 PM	24	24	32	20	20	18	18	15	100	71	171
4:00 PM	24	16	23	10	18	15	26	15	73	74	147
5:00 PM	26	16	31	26	16	16	14	19	99	65	164
6:00 PM	23	25	18	17	13	15	16	14	83	58	141
7:00 PM	19	18	23	16	14	13	13	15	76	55	131
8:00 PM	12	10	9	11	13	10	8	7	42	38	80
9:00 PM	10	12	12	14	8	6	7	10	48	31	79
10:00 PM	3	7	9	8	10	8	4	6	27	28	55
11:00 PM	4	5	2	1	10	6	2	3	12	21	33

			NB	SB	Bi-Direct.
		24-Hour Total:	1,369	1,078	2,447
10:30 AM	11:30 AM	(Bi-Direct.) AM Peak Hour Total:	102	105	207
12:00 PM	1:00 PM	(Bi-Direct.) PM Peak Hour Total:	105	89	194
2:45 PM	3:45 PM	Highest By Direction (NB):	112		
10:30 AM	11:30 AM	Highest By Direction (SB):		105	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Saturday
DATE: 30-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

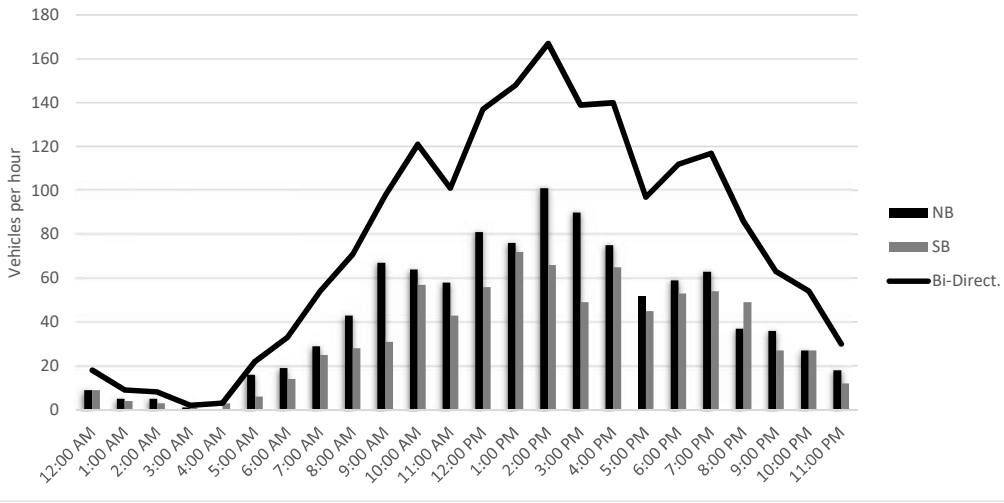
24-HOUR, BI-DIRECTIONAL VOLUME
1,830
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	5	3	1	0	1	2	6	0	9	9	18
1:00 AM	1	1	1	2	1	1	1	1	5	4	9
2:00 AM	1	2	2	0	1	0	1	1	5	3	8
3:00 AM	0	0	0	1	0	0	0	1	1	1	2
4:00 AM	0	0	0	0	0	0	1	2	0	3	3
5:00 AM	0	1	5	10	0	0	0	6	16	6	22
6:00 AM	5	1	6	7	3	1	4	6	19	14	33
7:00 AM	7	5	8	9	3	6	10	6	29	25	54
8:00 AM	9	16	12	6	6	4	8	10	43	28	71
9:00 AM	20	14	17	16	6	7	8	10	67	31	98
10:00 AM	21	14	16	13	10	17	17	13	64	57	121
11:00 AM	13	11	14	20	9	14	13	7	58	43	101
12:00 PM	14	20	24	23	15	15	11	15	81	56	137
1:00 PM	12	16	20	28	22	8	22	20	76	72	148
2:00 PM	34	21	28	18	13	20	16	17	101	66	167
3:00 PM	23	20	25	22	12	9	17	11	90	49	139
4:00 PM	16	22	13	24	20	16	19	10	75	65	140
5:00 PM	18	12	11	11	11	10	10	14	52	45	97
6:00 PM	19	17	11	12	15	15	13	10	59	53	112
7:00 PM	17	21	10	15	14	20	10	10	63	54	117
8:00 PM	12	7	9	9	18	13	12	6	37	49	86
9:00 PM	6	9	12	9	7	5	5	10	36	27	63
10:00 PM	10	7	5	5	8	8	7	4	27	27	54
11:00 PM	5	4	3	6	2	6	2	2	18	12	30

			NB	SB	Bi-Direct.
		24-Hour Total:	1,031	799	1,830
9:45 AM	10:45 AM	(Bi-Direct.) AM Peak Hour Total:	67	54	121
1:45 PM	2:45 PM	(Bi-Direct.) PM Peak Hour Total:	111	69	180
1:45 PM	2:45 PM	Highest By Direction (NB):	111		
1:30 PM	2:30 PM	Highest By Direction (SB):		75	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Sunday
DATE: 31-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

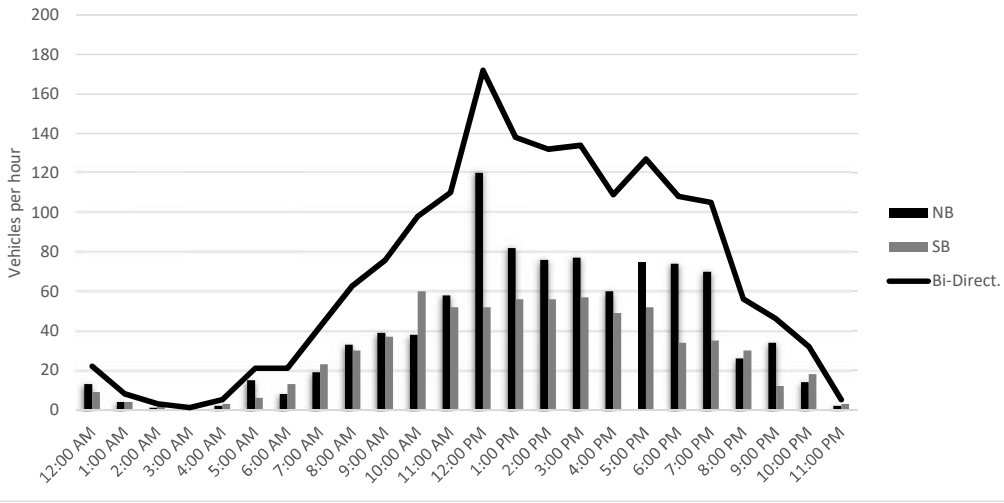
24-HOUR, BI-DIRECTIONAL VOLUME
1,634
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	7	1	2	3	3	3	2	1	13	9	22
1:00 AM	3	0	0	1	2	1	0	1	4	4	8
2:00 AM	0	1	0	0	0	2	0	0	1	2	3
3:00 AM	0	0	0	0	1	0	0	0	0	1	1
4:00 AM	0	2	0	0	1	1	0	1	2	3	5
5:00 AM	2	1	2	10	0	1	1	4	15	6	21
6:00 AM	3	1	2	2	4	2	5	2	8	13	21
7:00 AM	3	7	5	4	5	6	4	8	19	23	42
8:00 AM	14	5	6	8	5	13	6	6	33	30	63
9:00 AM	7	12	5	15	12	4	8	13	39	37	76
10:00 AM	4	8	15	11	7	20	15	18	38	60	98
11:00 AM	15	15	14	14	16	10	17	9	58	52	110
12:00 PM	27	44	27	22	15	16	6	15	120	52	172
1:00 PM	19	26	20	17	12	17	7	20	82	56	138
2:00 PM	20	27	15	14	16	9	15	16	76	56	132
3:00 PM	18	13	16	30	13	12	14	18	77	57	134
4:00 PM	17	16	13	14	16	10	5	18	60	49	109
5:00 PM	20	18	14	23	16	18	10	8	75	52	127
6:00 PM	17	15	20	22	8	8	10	8	74	34	108
7:00 PM	19	18	18	15	5	11	14	5	70	35	105
8:00 PM	6	11	1	8	10	7	11	2	26	30	56
9:00 PM	13	6	7	8	0	3	3	6	34	12	46
10:00 PM	7	4	1	2	5	5	5	3	14	18	32
11:00 PM	0	1	0	1	1	0	2	0	2	3	5

			NB	SB	Bi-Direct.
		24-Hour Total:	940	694	1,634
10:15 AM	11:15 AM	(Bi-Direct.) AM Peak Hour Total:	49	69	118
12:00 PM	1:00 PM	(Bi-Direct.) PM Peak Hour Total:	120	52	172
12:00 PM	1:00 PM	Highest By Direction (NB):	120		
10:15 AM	11:15 AM	Highest By Direction (SB):		69	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Monday
DATE: 1-Apr
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

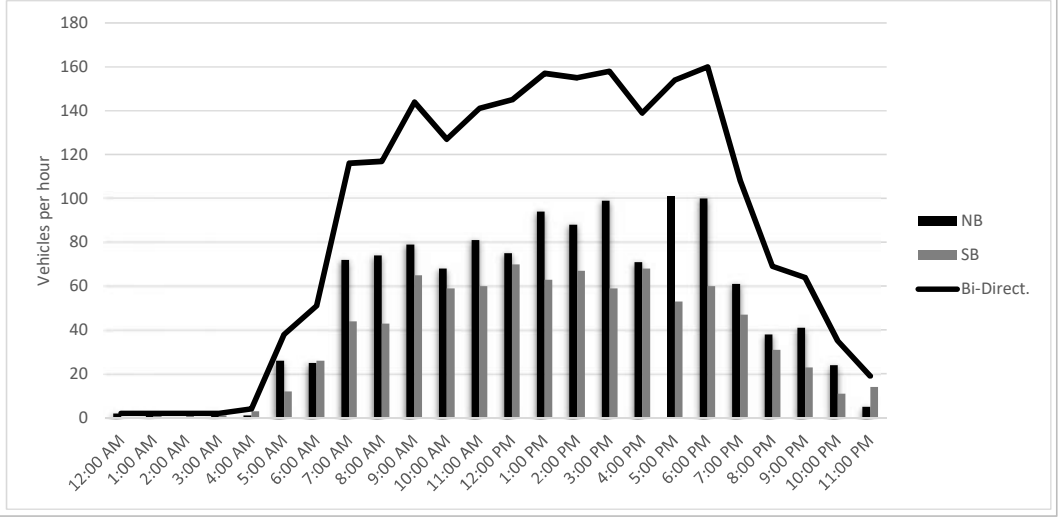
24-HOUR, BI-DIRECTIONAL VOLUME
2,109
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	1	0	0	1	0	0	0	0	2	0	2
1:00 AM	1	0	0	0	0	0	0	1	1	1	2
2:00 AM	0	0	0	0	0	0	0	2	0	2	2
3:00 AM	0	1	0	0	1	0	0	0	1	1	2
4:00 AM	0	0	0	1	0	0	1	2	1	3	4
5:00 AM	1	1	5	19	1	2	1	8	26	12	38
6:00 AM	3	3	8	11	4	3	14	5	25	26	51
7:00 AM	15	15	20	22	7	12	9	16	72	44	116
8:00 AM	14	26	13	21	10	6	8	19	74	43	117
9:00 AM	28	25	11	15	15	17	20	13	79	65	144
10:00 AM	22	15	17	14	13	16	15	15	68	59	127
11:00 AM	12	22	23	24	11	10	22	17	81	60	141
12:00 PM	19	16	26	14	13	19	20	18	75	70	145
1:00 PM	26	28	18	22	15	13	15	20	94	63	157
2:00 PM	24	13	22	29	17	14	15	21	88	67	155
3:00 PM	21	25	26	27	15	12	18	14	99	59	158
4:00 PM	16	20	17	18	13	22	22	11	71	68	139
5:00 PM	29	19	33	20	13	8	22	10	101	53	154
6:00 PM	23	27	35	15	19	10	14	17	100	60	160
7:00 PM	15	19	12	15	12	14	8	13	61	47	108
8:00 PM	9	9	10	10	6	4	10	11	38	31	69
9:00 PM	4	12	12	13	5	7	4	7	41	23	64
10:00 PM	8	7	5	4	4	3	2	2	24	11	35
11:00 PM	2	2	1	0	5	5	1	3	5	14	19

			NB	SB	Bi-Direct.
		24-Hour Total:	1,227	882	2,109
8:45 AM	9:45 AM	(Bi-Direct.) AM Peak Hour Total:	85	71	156
2:45 PM	3:45 PM	(Bi-Direct.) PM Peak Hour Total:	101	66	167
5:45 PM	6:45 PM	Highest By Direction (NB):	105		
12:15 PM	1:15 PM	Highest By Direction (SB):		72	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Tuesday
DATE: 2-Apr
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

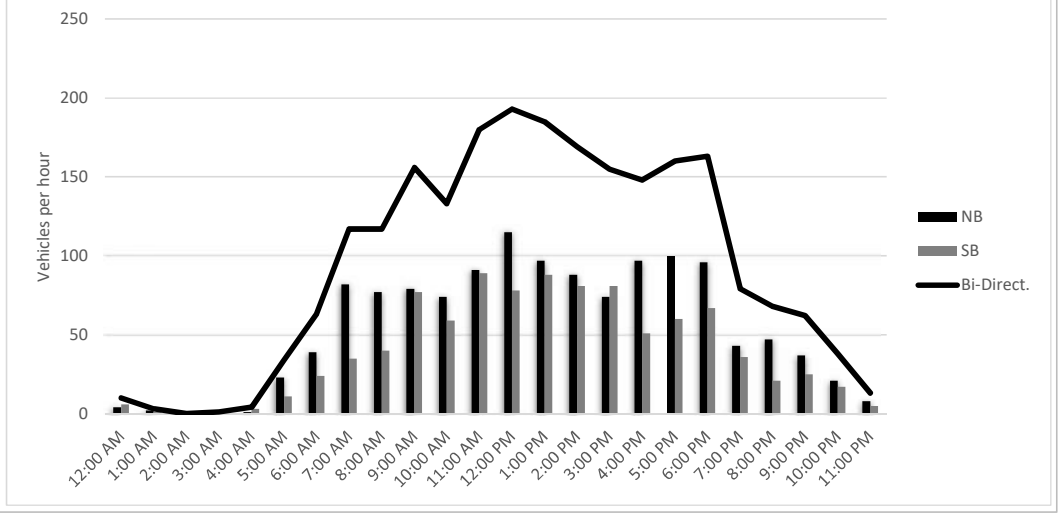
24-HOUR, BI-DIRECTIONAL VOLUME
2,251
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	1	0	2	1	2	0	4	0	4	6	10
1:00 AM	1	0	0	1	0	1	0	0	2	1	3
2:00 AM	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	1	0	0	0	0	1	1
4:00 AM	0	1	0	0	0	0	1	2	1	3	4
5:00 AM	3	2	6	12	1	2	2	6	23	11	34
6:00 AM	9	8	14	8	8	4	5	7	39	24	63
7:00 AM	13	18	30	21	7	10	6	12	82	35	117
8:00 AM	20	24	17	16	9	9	7	15	77	40	117
9:00 AM	25	25	17	12	19	26	14	18	79	77	156
10:00 AM	17	20	16	21	9	19	18	13	74	59	133
11:00 AM	15	24	22	30	21	30	20	18	91	89	180
12:00 PM	37	26	27	25	16	21	21	20	115	78	193
1:00 PM	22	19	28	28	22	14	27	25	97	88	185
2:00 PM	21	24	19	24	22	22	13	24	88	81	169
3:00 PM	20	18	19	17	19	21	24	17	74	81	155
4:00 PM	16	31	27	23	17	7	16	11	97	51	148
5:00 PM	23	29	30	18	20	12	18	10	100	60	160
6:00 PM	18	24	31	23	18	15	19	15	96	67	163
7:00 PM	6	16	10	11	9	15	7	5	43	36	79
8:00 PM	12	12	15	8	8	4	3	6	47	21	68
9:00 PM	8	10	10	9	8	9	6	2	37	25	62
10:00 PM	7	4	4	6	8	4	4	1	21	17	38
11:00 PM	4	0	1	3	2	2	1	0	8	5	13

			NB	SB	Bi-Direct.
		24-Hour Total:	1,295	956	2,251
11:00 AM	12:00 PM	(Bi-Direct.) AM Peak Hour Total:	91	89	180
1:30 PM	2:30 PM	(Bi-Direct.) PM Peak Hour Total:	101	96	197
11:45 AM	12:45 PM	Highest By Direction (NB):	120		
1:30 PM	2:30 PM	Highest By Direction (SB):		96	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Edgemere Road
LOCATION: Between Northwest Highway and Bandera Avenue
DAY: Wednesday
DATE: 3-Apr
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

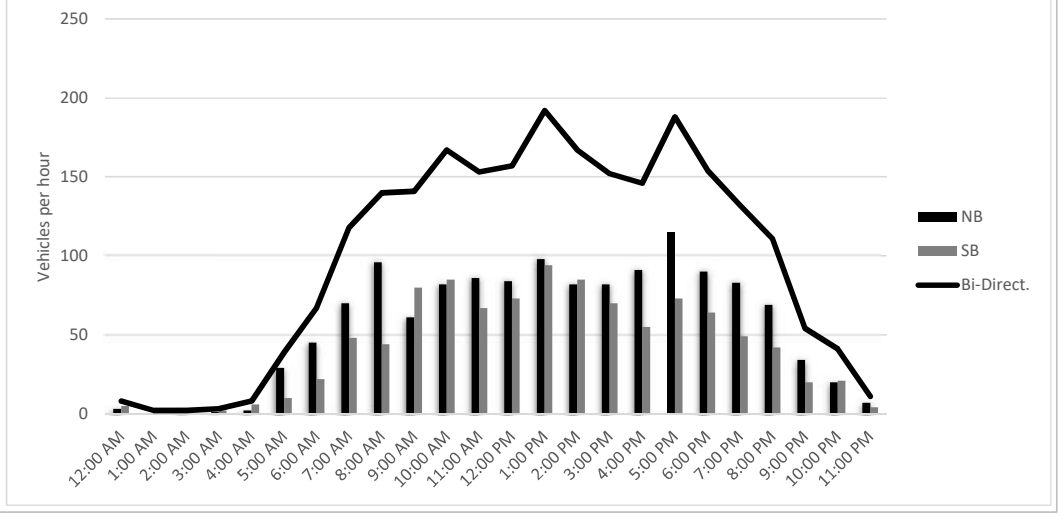
24-HOUR, BI-DIRECTIONAL VOLUME
2,353
(WEEKDAY)

Edgemere Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	0	1	2	0	1	0	2	2	3	5	8
1:00 AM	0	0	0	0	1	1	0	0	0	2	2
2:00 AM	0	0	2	0	0	0	0	0	2	0	2
3:00 AM	1	0	0	0	2	0	0	0	1	2	3
4:00 AM	0	1	0	1	0	0	1	5	2	6	8
5:00 AM	2	3	10	14	1	0	3	6	29	10	39
6:00 AM	6	10	17	12	9	5	6	2	45	22	67
7:00 AM	14	20	18	18	9	12	15	12	70	48	118
8:00 AM	24	18	22	32	6	8	11	19	96	44	140
9:00 AM	22	16	11	12	27	24	15	14	61	80	141
10:00 AM	17	19	24	22	16	21	20	28	82	85	167
11:00 AM	22	14	26	24	11	22	18	16	86	67	153
12:00 PM	24	22	18	20	17	23	17	16	84	73	157
1:00 PM	26	25	23	24	26	22	20	26	98	94	192
2:00 PM	17	17	25	23	18	18	24	25	82	85	167
3:00 PM	18	18	24	22	18	15	22	15	82	70	152
4:00 PM	24	22	26	19	15	17	13	10	91	55	146
5:00 PM	25	28	40	22	18	22	13	20	115	73	188
6:00 PM	19	28	20	23	15	13	18	18	90	64	154
7:00 PM	22	27	14	20	16	12	12	9	83	49	132
8:00 PM	22	18	12	17	11	11	8	12	69	42	111
9:00 PM	10	7	8	9	4	5	5	6	34	20	54
10:00 PM	8	7	3	2	6	8	5	2	20	21	41
11:00 PM	3	4	0	0	1	2	1	0	7	4	11

			NB	SB	Bi-Direct.
		24-Hour Total:	1,332	1,021	2,353
8:30 AM	9:30 AM	(Bi-Direct.) AM Peak Hour Total:	92	81	173
1:00 PM	2:00 PM	(Bi-Direct.) PM Peak Hour Total:	98	94	192
5:00 PM	6:00 PM	Highest By Direction (NB):	115		
1:00 PM	2:00 PM	Highest By Direction (SB):		94	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Northwest Highway
LOCATION: Between Pickwick Lane and Edgemere Road
DAY: Thursday
DATE: 28-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

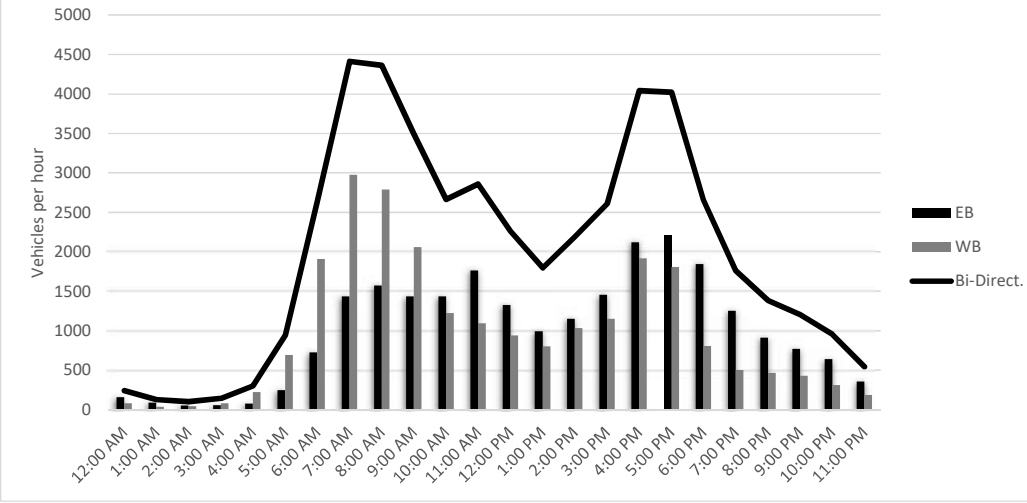
24-HOUR, BI-DIRECTIONAL VOLUME
47,712
(WEEKDAY)

Northwest Highway

	Eastbound				Westbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	EB	WB	Bi-Direct.
12:00 AM	52	43	38	26	24	22	26	10	159	82	241
1:00 AM	31	17	23	20	14	7	6	10	91	37	128
2:00 AM	13	14	10	18	10	12	15	9	55	46	101
3:00 AM	18	13	13	14	17	18	23	25	58	83	141
4:00 AM	11	14	26	25	35	39	60	90	76	224	300
5:00 AM	34	61	66	88	94	151	200	248	249	693	942
6:00 AM	98	166	190	272	324	400	512	676	726	1912	2638
7:00 AM	259	352	390	436	692	788	714	782	1437	2976	4413
8:00 AM	390	386	400	397	691	700	696	704	1573	2791	4364
9:00 AM	384	337	350	364	654	563	452	392	1435	2061	3496
10:00 AM	344	324	370	398	314	298	301	314	1436	1227	2663
11:00 AM	394	393	474	502	284	283	290	237	1763	1094	2857
12:00 PM	458	352	269	246	238	238	256	208	1325	940	2265
1:00 PM	210	248	258	278	190	212	196	206	994	804	1798
2:00 PM	264	350	294	246	232	274	280	250	1154	1036	2190
3:00 PM	306	310	432	408	232	264	273	384	1456	1153	2609
4:00 PM	498	552	560	513	468	482	482	487	2123	1919	4042
5:00 PM	574	558	544	538	463	468	484	392	2214	1807	4021
6:00 PM	572	484	389	402	298	193	168	150	1847	809	2656
7:00 PM	306	321	330	298	134	139	113	119	1255	505	1760
8:00 PM	234	244	242	195	126	124	110	109	915	469	1384
9:00 PM	206	208	193	166	126	108	108	89	773	431	1204
10:00 PM	178	180	141	142	104	86	68	54	641	312	953
11:00 PM	93	108	88	70	60	56	36	35	359	187	546

			EB	WB	Bi-Direct.
		24-Hour Total:	24,114	23,598	47,712
7:15 AM	8:15 AM	(Bi-Direct.) AM Peak Hour Total:	1,568	2,975	4,543
4:15 PM	5:15 PM	(Bi-Direct.) PM Peak Hour Total:	2,199	1,914	4,113
5:00 PM	6:00 PM	Highest By Direction (EB):	2,214		
7:00 AM	8:00 AM	Highest By Direction (WB):		2,976	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Pickwick Lane
LOCATION: Between Averill Way and Northwest Parkway
DAY: Thursday
DATE: 28-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

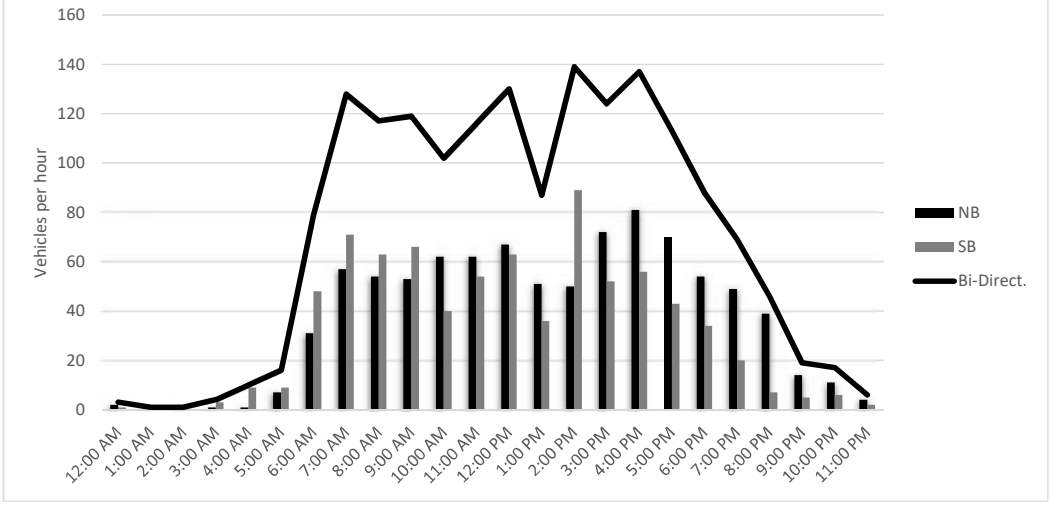
24-HOUR, BI-DIRECTIONAL VOLUME
1,671
(WEEKDAY)

Pickwick Lane

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	1	0	0	1	0	1	0	0	2	1	3
1:00 AM	0	0	0	1	0	0	0	0	1	0	1
2:00 AM	0	0	1	0	0	0	0	0	1	0	1
3:00 AM	0	0	0	1	0	0	1	2	1	3	4
4:00 AM	0	0	1	0	1	1	3	4	1	9	10
5:00 AM	3	1	3	0	1	3	4	1	7	9	16
6:00 AM	0	5	13	13	4	14	12	18	31	48	79
7:00 AM	8	14	17	18	19	16	10	26	57	71	128
8:00 AM	13	20	17	4	16	22	13	12	54	63	117
9:00 AM	14	12	10	17	21	8	17	20	53	66	119
10:00 AM	16	15	18	13	12	12	6	10	62	40	102
11:00 AM	15	20	13	14	10	8	17	19	62	54	116
12:00 PM	16	12	25	14	12	13	25	13	67	63	130
1:00 PM	10	22	10	9	7	10	12	7	51	36	87
2:00 PM	18	9	3	20	22	21	23	23	50	89	139
3:00 PM	30	12	13	17	16	15	13	8	72	52	124
4:00 PM	22	18	22	19	11	16	18	11	81	56	137
5:00 PM	13	14	24	19	16	3	10	14	70	43	113
6:00 PM	15	18	13	8	5	12	13	4	54	34	88
7:00 PM	13	13	13	10	7	5	3	5	49	20	69
8:00 PM	9	8	13	9	1	2	4	0	39	7	46
9:00 PM	0	4	6	4	0	1	3	1	14	5	19
10:00 PM	4	3	1	3	2	1	3	0	11	6	17
11:00 PM	1	2	1	0	1	1	0	0	4	2	6

			NB	SB	Bi-Direct.
		24-Hour Total:	894	777	1,671
7:45 AM	8:45 AM	(Bi-Direct.) AM Peak Hour Total:	68	77	145
2:15 PM	3:15 PM	(Bi-Direct.) PM Peak Hour Total:	62	83	145
4:00 PM	5:00 PM	Highest By Direction (NB):	81		
2:00 PM	3:00 PM	Highest By Direction (SB):		89	

Graph



PK# 2609-19.157

Pacheco Koch

ROADWAY: Preston Road
LOCATION: Between Pickwick Lane and Edgemere Road
DAY: Thursday
DATE: 28-Mar
YEAR: 2019
SOURCE: CJ Hensch & Associates, Inc.

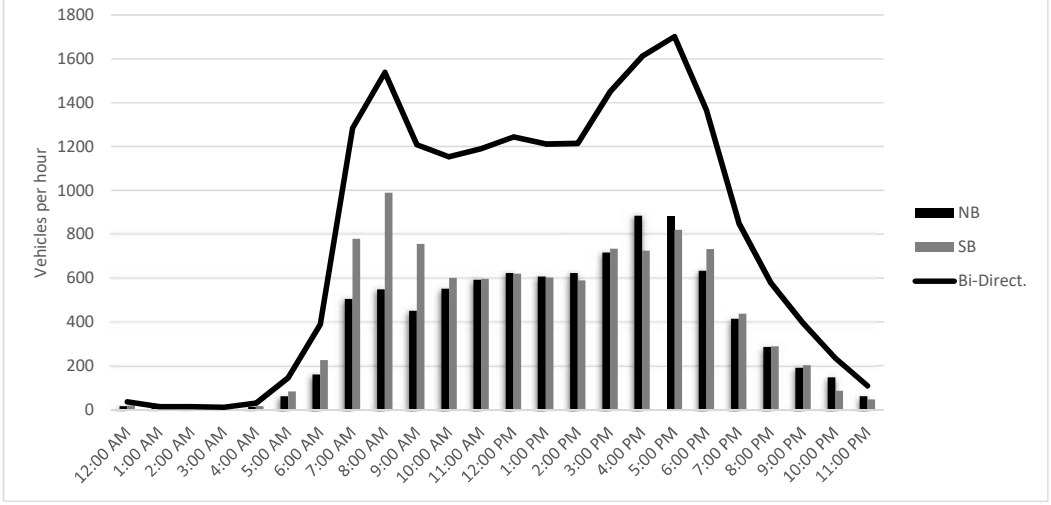
24-HOUR, BI-DIRECTIONAL VOLUME
18,980
(WEEKDAY)

Preston Road

	Northbound				Southbound				Totals		
START TIME	0:00	0:15	0:30	0:45	0:00	0:15	0:30	0:45	NB	SB	Bi-Direct.
12:00 AM	6	5	2	4	4	6	6	3	17	19	36
1:00 AM	4	1	2	2	4	0	0	1	9	5	14
2:00 AM	1	1	3	2	0	1	2	4	7	7	14
3:00 AM	0	0	2	0	1	1	1	6	2	9	11
4:00 AM	0	2	2	10	0	6	2	8	14	16	30
5:00 AM	3	17	21	21	10	20	20	34	62	84	146
6:00 AM	20	42	43	56	33	42	68	84	161	227	388
7:00 AM	74	112	139	180	106	172	231	270	505	779	1284
8:00 AM	152	142	149	106	224	225	241	300	549	990	1539
9:00 AM	115	116	100	120	212	220	159	166	451	757	1208
10:00 AM	122	136	142	152	166	152	129	154	552	601	1153
11:00 AM	124	135	162	172	148	130	162	157	593	597	1190
12:00 PM	166	152	140	166	160	148	150	162	624	620	1244
1:00 PM	157	137	136	178	161	142	161	139	608	603	1211
2:00 PM	160	164	150	150	134	136	148	172	624	590	1214
3:00 PM	128	165	212	212	178	188	176	192	717	734	1451
4:00 PM	219	216	202	248	162	185	167	212	885	726	1611
5:00 PM	227	234	222	198	204	215	196	206	881	821	1702
6:00 PM	176	174	150	134	208	182	164	179	634	733	1367
7:00 PM	136	105	82	92	127	116	109	86	415	438	853
8:00 PM	86	89	62	50	80	72	64	74	287	290	577
9:00 PM	56	48	33	54	58	44	50	51	191	203	394
10:00 PM	64	26	24	34	27	21	17	22	148	87	235
11:00 PM	21	9	11	20	17	11	13	6	61	47	108

			NB	SB	Bi-Direct.
		24-Hour Total:	8,997	9,983	18,980
7:45 AM	8:45 AM	(Bi-Direct.) AM Peak Hour Total:	623	960	1,583
4:45 PM	5:45 PM	(Bi-Direct.) PM Peak Hour Total:	931	827	1,758
4:45 PM	5:45 PM	Highest By Direction (NB):	931		
8:00 AM	9:00 AM	Highest By Direction (SB):		990	

Graph



PK# 2609-19.157

Pacheco Koch

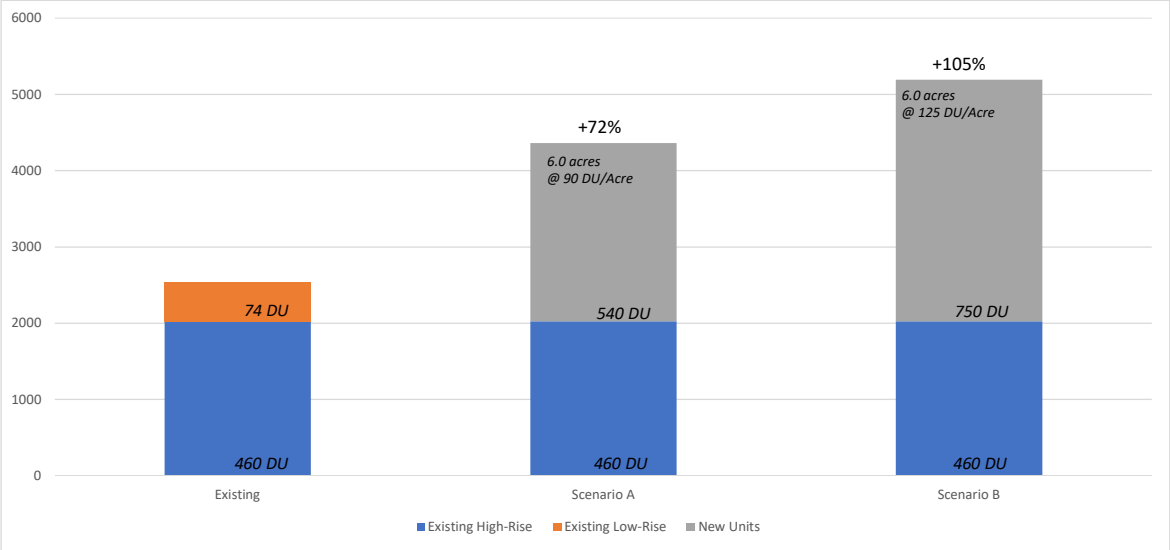
Appendix D. Site-Generated Traffic Supplement

TRIP GENERATION SUMMARY
PD 15
(based upon ITE *Trip Generation* handbook, 10th Edition)

Existing			**Daily**	**AM**	In	Out	**PM**	In	Out
High-Rise	460 DU		**2024**	**142**	34	108	**165**	101	64
Low-Rise	74 DU		**519**	**36**	8	28	**45**	28	17
			2543	**177**	42	135	**210**	129	81

Scenario 1 - Entire acreage gets redeveloped	12.4 acres Total	**Daily**	**AM**	In	Out	**PM**	In	Out	
A) @ 90 DU/acre	1116 DU	**5247**	**371**	89	282	**443**	270	173	
		206%	***209%***	*211%*	*208%*	***211%***	*209%*	*213%*	*inc./existing*
B) @ 125 DU/acre	1550 DU	**7205**	**510**	122	387	**612**	373	239	
		283%	***287%***	*290%*	*286%*	***291%***	*289%*	*295%*	*inc./existing*

Scenairo 2 - Only existing low-rise gets redeveloped		6 acres Total	**Daily**	**AM**	In	Out	**PM**	In	Out	
A) @ 90 DU/acre	New	540	**2339**	**164**	39	125	**192**	117	75	
	Existing	460	**2024**	**142**	34	108	**165**	101	64	
		1000 DU	**4363**	**306**	73	233	**357**	218	139	
DIFFERENCE (OVER EXISTING)			**1820**	**128**	**31**	**97**	**147**	**89**	**58**	
			172%	***172%***	*173%*	*172%*	***170%***	*169%*	*172%*	*inc./existing*
B) @ 125 DU/acre	New	750	**3167**	**223**	53	170	**264**	161	103	
	Existing	460	**2024**	**142**	34	108	**165**	101	64	
		1210 DU	**5191**	**365**	87	278	**429**	262	167	
DIFFERENCE (OVER EXISTING)			**2648**	**187**	**45**	**142**	**219**	**133**	**86**	
			204%	***205%***	*206%*	*205%*	***204%***	*203%*	*206%*	*inc./existing*



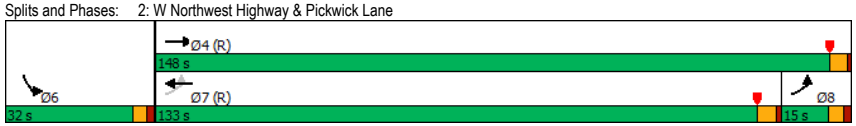
Appendix E. Detailed Intersection Capacity Analysis Results

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	1633	3088	21	23	37
Future Volume (vph)	17	1633	3088	21	23	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1775	3357	23	25	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	1775	3380	0	65	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	8	4	7		6	
Permitted Phases	7					
Detector Phase	8	4	7		6	
Switch Phase						
Minimum Initial (s)	3.0	10.0	10.0		6.0	
Minimum Split (s)	8.0	20.0	21.3		30.2	
Total Split (s)	15.0	148.0	133.0		32.0	
Total Split (%)	8.3%	82.2%	73.9%		17.8%	
Yellow Time (s)	3.0	3.9	3.9		3.0	
All-Red Time (s)	2.0	1.0	1.2		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	4.9	5.1		5.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	156.1	159.2	150.0		10.9	
Actuated g/C Ratio	0.87	0.88	0.83		0.06	
v/c Ratio	0.16	0.39	0.80		0.64	
Control Delay	9.5	2.3	11.2		109.3	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	9.5	2.3	11.2		109.3	
LOS	A	A	B		F	
Approach Delay		2.3	11.2		109.3	
Approach LOS		A	B		F	
Queue Length 50th (ft)	2	102	771		77	
Queue Length 95th (ft)	6	149	936		132	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	139	4497	4233		251	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.13	0.39	0.80		0.26	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 108 (60%), Referenced to phase 4:EBT and 7:EBWB, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80

Intersection Signal Delay: 9.4 — Intersection LOS: A
Intersection Capacity Utilization 73.5% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	4	4	5	4	9	13	57	4	0	33	4
Future Vol, veh/h	5	4	4	5	4	9	13	57	4	0	33	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	4	4	5	4	10	14	62	4	0	36	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.1	7.4	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	38%	28%	0%
Vol Thru, %	77%	31%	22%	89%
Vol Right, %	5%	31%	50%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	13	18	37
LT Vol	13	5	5	0
Through Vol	57	4	4	33
RT Vol	4	4	9	4
Lane Flow Rate	80	14	20	40
Geometry Grp	1	1	1	1
Degree of Util (X)	0.09	0.016	0.021	0.045
Departure Headway (Hd)	4.026	4.049	3.909	3.988
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	877	908	896
Service Time	2.047	2.107	1.965	2.018
HCM Lane V/C Ratio	0.09	0.016	0.022	0.045
HCM Control Delay	7.4	7.2	7.1	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0	0.1	0.1

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	33	3	12	21	17	2	42	25	15	22	12
Future Vol, veh/h	17	33	3	12	21	17	2	42	25	15	22	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	36	3	13	23	18	2	46	27	16	24	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.4	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	32%	24%	31%
Vol Thru, %	61%	62%	42%	45%
Vol Right, %	36%	6%	34%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	53	50	49
LT Vol	2	17	12	15
Through Vol	42	33	21	22
RT Vol	25	3	17	12
Lane Flow Rate	75	58	54	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.082	0.068	0.061	0.061
Departure Headway (Hd)	3.956	4.228	4.044	4.099
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	896	839	876	864
Service Time	2.026	2.296	2.116	2.171
HCM Lane V/C Ratio	0.084	0.069	0.062	0.061
HCM Control Delay	7.4	7.6	7.4	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.2	0.2

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	1669	3116	45	2	40
Future Vol, veh/h	28	1669	3116	45	2	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	1814	3387	49	2	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3436	0	-	0	4198	1718
Stage 1	-	-	-	-	3412	-
Stage 2	-	-	-	-	786	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 22	-	-	-	5	67
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	372	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	~ 22	-	-	-	0	67
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	372	-

Approach	EB	WB	SB
HCM Control Delay, s	9.7	0	134.1
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 22	-	-	-	67
HCM Lane V/C Ratio	1.383	-	-	-	0.681
HCM Control Delay (s)	$ 585.5	-	-	-	134.1
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	3.9	-	-	-	3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	37	2	41	0	544	14	13	915	2
Future Vol, veh/h	0	0	5	37	2	41	0	544	14	13	915	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	40	2	45	0	591	15	14	995	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1261	1630	499	1025	1624	303	-	0	0	606	0	0
Stage 1	1024	1024	-	599	599	-	-	-	-	-	-	-
Stage 2	237	606	-	426	1025	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	179	101	442	247	102	591	0	-	-	604	-	-
Stage 1	192	311	-	375	489	-	0	-	-	-	-	-
Stage 2	684	485	-	528	311	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	160	99	442	240	100	591	-	-	-	604	-	-
Mov Cap-2 Maneuver	160	99	-	240	100	-	-	-	-	-	-	-
Stage 1	192	304	-	375	489	-	-	-	-	-	-	-
Stage 2	630	485	-	509	304	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	19.9	0	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	442	328	604	-	-
HCM Lane V/C Ratio	-	-	0.012	0.265	0.023	-	-
HCM Control Delay (s)	-	-	13.2	19.9	11.1	-	-
HCM Lane LOS	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0	1	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	1	11	0	3	1	23	14	3	48	1
Future Vol, veh/h	2	1	1	11	0	3	1	23	14	3	48	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	1	12	0	3	1	25	15	3	52	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	95	101	53	95	94	33	53	0	0	40	0	0
Stage 1	59	59	-	35	35	-	-	-	-	-	-	-
Stage 2	36	42	-	60	59	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	888	789	1014	888	796	1041	1553	-	-	1570	-	-
Stage 1	953	846	-	981	866	-	-	-	-	-	-	-
Stage 2	980	860	-	951	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	884	787	1014	884	794	1041	1553	-	-	1570	-	-
Mov Cap-2 Maneuver	884	787	-	884	794	-	-	-	-	-	-	-
Stage 1	952	844	-	980	865	-	-	-	-	-	-	-
Stage 2	976	859	-	947	844	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9	0.2	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1553	-	-	885	914	1570	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.017	0.002	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	9	18	7	2	11	10	2	1	26	3
Future Vol, veh/h	1	1	9	18	7	2	11	10	2	1	26	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	10	20	8	2	12	11	2	1	28	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	73	69	30	73	69	12	31	0	0	13	0	0
Stage 1	32	32	-	36	36	-	-	-	-	-	-	-
Stage 2	41	37	-	37	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	918	822	1044	918	822	1069	1582	-	-	1606	-	-
Stage 1	984	868	-	980	865	-	-	-	-	-	-	-
Stage 2	974	864	-	978	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	903	815	1044	902	815	1069	1582	-	-	1606	-	-
Mov Cap-2 Maneuver	903	815	-	902	815	-	-	-	-	-	-	-
Stage 1	976	867	-	972	858	-	-	-	-	-	-	-
Stage 2	956	857	-	967	867	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.2	3.5	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1582	-	-	1004	888	1606	-	-
HCM Lane V/C Ratio	0.008	-	-	0.012	0.033	0.001	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.2	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	4	20	30	6	15
Future Vol, veh/h	10	4	20	30	6	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	4	22	33	7	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	15	0	90	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1603	-	910	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	946	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1603	-	897	1067
Mov Cap-2 Maneuver	-	-	-	-	897	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	946	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	8.6
HCM LOS			A

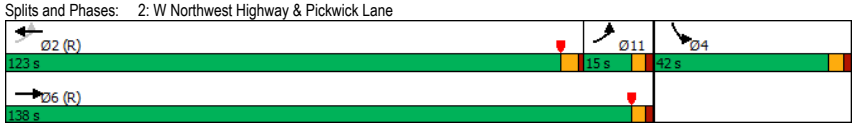
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1012	-	-	1603	-
HCM Lane V/C Ratio	0.023	-	-	0.014	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	51	2442	1935	25	19	36
Future Volume (vph)	51	2442	1935	25	19	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	2654	2103	27	21	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	2654	2130	0	60	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	11	6	2		4	
Permitted Phases	2					
Detector Phase	11	6	2		4	
Switch Phase						
Minimum Initial (s)	3.0	6.0	10.0		6.0	
Minimum Split (s)	8.0	30.2	20.9		30.2	
Total Split (s)	15.0	138.0	123.0		42.0	
Total Split (%)	8.3%	76.7%	68.3%		23.3%	
Yellow Time (s)	3.0	3.0	3.9		3.0	
All-Red Time (s)	2.0	2.0	1.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	4.9		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	C-Max	C-Max		None	
Act Effct Green (s)	154.5	159.5	144.6		10.5	
Actuated g/C Ratio	0.86	0.89	0.80		0.06	
v/c Ratio	0.27	0.59	0.52		0.62	
Control Delay	7.4	3.2	6.7		108.3	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	7.4	3.5	6.7		108.3	
LOS	A	A	A		F	
Approach Delay		3.6	6.7		108.3	
Approach LOS		A	A		F	
Queue Length 50th (ft)	6	204	273		71	
Queue Length 95th (ft)	14	288	343		124	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	202	4506	4077		343	
Starvation Cap Reductn	0	948	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.27	0.75	0.52		0.17	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 165 (92%), Referenced to phase 2:EBWB and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62

Intersection Signal Delay: 6.2 — Intersection LOS: A
Intersection Capacity Utilization 60.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	11	9	5	1	8	24	100	1	5	50	4
Future Vol, veh/h	2	11	9	5	1	8	24	100	1	5	50	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	12	10	5	1	9	26	109	1	5	54	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.9	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	9%	36%	8%
Vol Thru, %	80%	50%	7%	85%
Vol Right, %	1%	41%	57%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	22	14	59
LT Vol	24	2	5	5
Through Vol	100	11	1	50
RT Vol	1	9	8	4
Lane Flow Rate	136	24	15	64
Geometry Grp	1	1	1	1
Degree of Util (X)	0.154	0.027	0.017	0.073
Departure Headway (Hd)	4.084	4.063	4.025	4.081
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	876	866	873	873
Service Time	2.116	2.159	2.124	2.127
HCM Lane V/C Ratio	0.155	0.028	0.017	0.073
HCM Control Delay	7.9	7.3	7.2	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	39	4	24	31	18	10	58	47	28	34	12
Future Vol, veh/h	9	39	4	24	31	18	10	58	47	28	34	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	42	4	26	34	20	11	63	51	30	37	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.8	7.8	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	17%	33%	38%
Vol Thru, %	50%	75%	42%	46%
Vol Right, %	41%	8%	25%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	52	73	74
LT Vol	10	9	24	28
Through Vol	58	39	31	34
RT Vol	47	4	18	12
Lane Flow Rate	125	57	79	80
Geometry Grp	1	1	1	1
Degree of Util (X)	0.143	0.07	0.096	0.097
Departure Headway (Hd)	4.105	4.461	4.366	4.352
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	876	805	824	826
Service Time	2.115	2.475	2.379	2.363
HCM Lane V/C Ratio	0.143	0.071	0.096	0.097
HCM Control Delay	7.8	7.8	7.8	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	0.3	0.3

Intersection	
Int Delay, s/veh	9.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	84	2438	1971	44	7	60
Future Vol, veh/h	84	2438	1971	44	7	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	91	2650	2142	48	8	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2190	0	-	0	3408	1095
Stage 1	-	-	-	-	2166	-
Stage 2	-	-	-	-	1242	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	100	-	-	-	*68	179
Stage 1	-	-	-	-	*44	-
Stage 2	-	-	-	-	*333	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	100	-	-	-	*~ 6	179
Mov Cap-2 Maneuver	-	-	-	-	*~ 6	-
Stage 1	-	-	-	-	*~ 4	-
Stage 2	-	-	-	-	*333	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	$ 502.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	100	-	-	-	45
HCM Lane V/C Ratio	0.913	-	-	-	1.618
HCM Control Delay (s)	144.6	-	-	-	$ 502.7
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	5.3	-	-	-	7.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	14	0	35	2	934	31	42	800	0
Future Vol, veh/h	1	0	1	14	0	35	2	934	31	42	800	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	15	0	38	2	1015	34	46	870	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1372	2015	435	1476	1998	525	870	0	0	1049	0	0
Stage 1	962	962	-	1036	1036	-	-	-	-	-	-	-
Stage 2	410	1053	-	440	962	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	154	58	487	133	59	426	452	-	-	371	-	-
Stage 1	212	332	-	188	307	-	-	-	-	-	-	-
Stage 2	539	301	-	518	332	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	126	50	487	119	51	426	452	-	-	371	-	-
Mov Cap-2 Maneuver	126	50	-	119	51	-	-	-	-	-	-	-
Stage 1	210	291	-	186	304	-	-	-	-	-	-	-
Stage 2	485	298	-	453	291	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.2	23.7	0	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	452	-	-	200	245	371	-	-
HCM Lane V/C Ratio	0.005	-	-	0.011	0.217	0.123	-	-
HCM Control Delay (s)	13	-	-	23.2	23.7	16.1	-	-
HCM Lane LOS	B	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.8	0.4	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	26	0	11	4	49	20	10	28	4
Future Vol, veh/h	1	0	1	26	0	11	4	49	20	10	28	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	28	0	12	4	53	22	11	30	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	132	137	32	127	128	64	34	0	0	75	0	0
Stage 1	54	54	-	72	72	-	-	-	-	-	-	-
Stage 2	78	83	-	55	56	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	840	754	1042	846	763	1000	1578	-	-	1524	-	-
Stage 1	958	850	-	938	835	-	-	-	-	-	-	-
Stage 2	931	826	-	957	848	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	824	746	1042	838	755	1000	1578	-	-	1524	-	-
Mov Cap-2 Maneuver	824	746	-	838	755	-	-	-	-	-	-	-
Stage 1	955	844	-	935	832	-	-	-	-	-	-	-
Stage 2	917	824	-	949	842	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.3	0.4	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1578	-	-	920	880	1524	-	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.046	0.007	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.3	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	8	17	5	4	3	21	28	15	5	17	3
Future Vol, veh/h	4	8	17	5	4	3	21	28	15	5	17	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	9	18	5	4	3	23	30	16	5	18	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	118	122	20	127	115	38	21	0	0	46	0	0
Stage 1	30	30	-	84	84	-	-	-	-	-	-	-
Stage 2	88	92	-	43	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	858	768	1058	846	775	1034	1595	-	-	1562	-	-
Stage 1	987	870	-	924	825	-	-	-	-	-	-	-
Stage 2	920	819	-	971	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	840	754	1058	813	761	1034	1595	-	-	1562	-	-
Mov Cap-2 Maneuver	840	754	-	813	761	-	-	-	-	-	-	-
Stage 1	972	867	-	910	813	-	-	-	-	-	-	-
Stage 2	899	807	-	942	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.4	2.4	1.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	922	839	1562	-	-
HCM Lane V/C Ratio	0.014	-	-	0.034	0.016	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9.4	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	25	7	12	20	11	18
Future Vol, veh/h	25	7	12	20	11	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	8	13	22	12	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	35	0	79	31
Stage 1	-	-	-	-	31	-
Stage 2	-	-	-	-	48	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1576	-	924	1043
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	974	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1576	-	917	1043
Mov Cap-2 Maneuver	-	-	-	-	917	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	974	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	8.8
HCM LOS			A

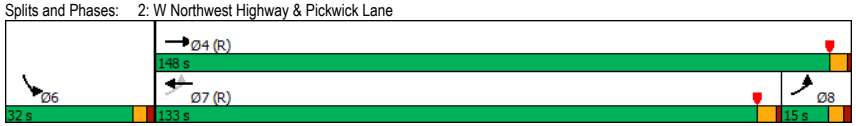
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	991	-	-	1576	-
HCM Lane V/C Ratio	0.032	-	-	0.008	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	1666	3150	21	23	38
Future Volume (vph)	17	1666	3150	21	23	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	1811	3424	23	25	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	1811	3447	0	66	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	8	4	7		6	
Permitted Phases	7					
Detector Phase	8	4	7		6	
Switch Phase						
Minimum Initial (s)	3.0	10.0	10.0		6.0	
Minimum Split (s)	8.0	20.0	21.3		30.2	
Total Split (s)	15.0	148.0	133.0		32.0	
Total Split (%)	8.3%	82.2%	73.9%		17.8%	
Yellow Time (s)	3.0	3.9	3.9		3.0	
All-Red Time (s)	2.0	1.0	1.2		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	4.9	5.1		5.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	156.0	159.1	149.9		11.0	
Actuated g/C Ratio	0.87	0.88	0.83		0.06	
v/c Ratio	0.16	0.40	0.82		0.65	
Control Delay	9.6	2.3	11.9		109.3	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	9.6	2.3	11.9		109.3	
LOS	A	A	B		F	
Approach Delay		2.4	11.9		109.3	
Approach LOS		A	B		F	
Queue Length 50th (ft)	2	106	821		78	
Queue Length 95th (ft)	6	156	1000		133	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	138	4493	4229		251	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.13	0.40	0.82		0.26	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 108 (60%), Referenced to phase 4:EBT and 7:EBWB, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82

Intersection Signal Delay: 9.8 — Intersection LOS: A
Intersection Capacity Utilization 74.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	5	4	4	5	4	9	13	58	4	0	34	4
Future Vol, veh/h	5	4	4	5	4	9	13	58	4	0	34	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	4	4	5	4	10	14	63	4	0	37	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.1	7.5	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	38%	28%	0%
Vol Thru, %	77%	31%	22%	89%
Vol Right, %	5%	31%	50%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	13	18	38
LT Vol	13	5	5	0
Through Vol	58	4	4	34
RT Vol	4	4	9	4
Lane Flow Rate	82	14	20	41
Geometry Grp	1	1	1	1
Degree of Util (X)	0.091	0.016	0.021	0.046
Departure Headway (Hd)	4.027	4.053	3.912	3.99
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	890	876	907	896
Service Time	2.048	2.111	1.969	2.02
HCM Lane V/C Ratio	0.092	0.016	0.022	0.046
HCM Control Delay	7.5	7.2	7.1	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0	0.1	0.1

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	17	34	3	12	21	17	2	43	26	15	22	12
Future Vol, veh/h	17	34	3	12	21	17	2	43	26	15	22	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	37	3	13	23	18	2	47	28	16	24	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.4	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	31%	24%	31%
Vol Thru, %	61%	63%	42%	45%
Vol Right, %	37%	6%	34%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	71	54	50	49
LT Vol	2	17	12	15
Through Vol	43	34	21	22
RT Vol	26	3	17	12
Lane Flow Rate	77	59	54	53
Geometry Grp	1	1	1	1
Degree of Util (X)	0.085	0.069	0.061	0.061
Departure Headway (Hd)	3.955	4.231	4.049	4.103
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	895	838	874	863
Service Time	2.026	2.301	2.122	2.176
HCM Lane V/C Ratio	0.086	0.07	0.062	0.061
HCM Control Delay	7.4	7.6	7.4	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.2	0.2

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	29	1703	3179	46	2	41
Future Vol, veh/h	29	1703	3179	46	2	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	1851	3455	50	2	45

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3505	0	-	0	4284	1753
Stage 1	-	-	-	-	3480	-
Stage 2	-	-	-	-	804	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 20	-	-	-	5	64
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	364	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	~ 20	-	-	-	0	64
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	364	-

Approach	EB	WB	SB
HCM Control Delay, s	11.6	0	149.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 20	-	-	-	64
HCM Lane V/C Ratio	1.576	-	-	-	0.73
HCM Control Delay (s)	$ 694.7	-	-	-	149.5
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	4.2	-	-	-	3.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	38	2	42	0	555	14	13	933	2
Future Vol, veh/h	0	0	5	38	2	42	0	555	14	13	933	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	41	2	46	0	603	15	14	1014	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1285	1661	508	1045	1655	309	-	0	0	618	0	0
Stage 1	1043	1043	-	611	611	-	-	-	-	-	-	-
Stage 2	242	618	-	434	1044	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	173	96	437	241	97	586	0	-	-	596	-	-
Stage 1	186	305	-	368	482	-	0	-	-	-	-	-
Stage 2	679	479	-	522	304	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	154	94	437	234	95	586	-	-	-	596	-	-
Mov Cap-2 Maneuver	154	94	-	234	95	-	-	-	-	-	-	-
Stage 1	186	298	-	368	482	-	-	-	-	-	-	-
Stage 2	623	479	-	503	297	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	20.5	0	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	437	321	596	-	-
HCM Lane V/C Ratio	-	-	0.012	0.278	0.024	-	-
HCM Control Delay (s)	-	-	13.3	20.5	11.2	-	-
HCM Lane LOS	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0	1.1	0.1	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	1	11	0	3	1	23	14	3	49	1
Future Vol, veh/h	2	1	1	11	0	3	1	23	14	3	49	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	1	12	0	3	1	25	15	3	53	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	96	102	54	96	95	33	54	0	0	40	0	0
Stage 1	60	60	-	35	35	-	-	-	-	-	-	-
Stage 2	36	42	-	61	60	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	887	788	1013	887	795	1041	1551	-	-	1570	-	-
Stage 1	951	845	-	981	866	-	-	-	-	-	-	-
Stage 2	980	860	-	950	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	883	786	1013	883	793	1041	1551	-	-	1570	-	-
Mov Cap-2 Maneuver	883	786	-	883	793	-	-	-	-	-	-	-
Stage 1	950	843	-	980	865	-	-	-	-	-	-	-
Stage 2	976	859	-	946	843	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9	0.2	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	884	913	1570	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.017	0.002	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	9	18	7	2	11	10	2	1	27	3
Future Vol, veh/h	1	1	9	18	7	2	11	10	2	1	27	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	1	10	20	8	2	12	11	2	1	29	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	74	70	31	74	70	12	32	0	0	13	0	0
Stage 1	33	33	-	36	36	-	-	-	-	-	-	-
Stage 2	41	37	-	38	34	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	916	821	1043	916	821	1069	1580	-	-	1606	-	-
Stage 1	983	868	-	980	865	-	-	-	-	-	-	-
Stage 2	974	864	-	977	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	901	814	1043	900	814	1069	1580	-	-	1606	-	-
Mov Cap-2 Maneuver	901	814	-	900	814	-	-	-	-	-	-	-
Stage 1	975	867	-	972	858	-	-	-	-	-	-	-
Stage 2	956	857	-	966	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.2	3.5	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	1003	886	1606	-	-
HCM Lane V/C Ratio	0.008	-	-	0.012	0.033	0.001	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.2	7.2	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	10	4	20	31	6	15
Future Vol, veh/h	10	4	20	31	6	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	4	22	34	7	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	15	0	91	13
Stage 1	-	-	-	-	13	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1603	-	909	1067
Stage 1	-	-	-	-	1010	-
Stage 2	-	-	-	-	945	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1603	-	896	1067
Mov Cap-2 Maneuver	-	-	-	-	896	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	945	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	8.6
HCM LOS			A

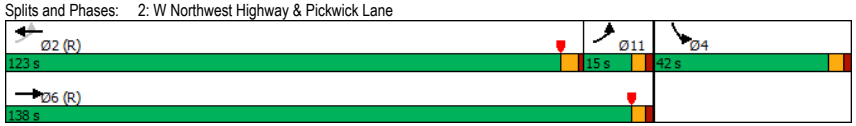
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1012	-	-	1603	-
HCM Lane V/C Ratio	0.023	-	-	0.014	-
HCM Control Delay (s)	8.6	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	2491	1974	26	19	37
Future Volume (vph)	52	2491	1974	26	19	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	2708	2146	28	21	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	2708	2174	0	61	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	11	6	2		4	
Permitted Phases	2					
Detector Phase	11	6	2		4	
Switch Phase						
Minimum Initial (s)	3.0	6.0	10.0		6.0	
Minimum Split (s)	8.0	30.2	20.9		30.2	
Total Split (s)	15.0	138.0	123.0		42.0	
Total Split (%)	8.3%	76.7%	68.3%		23.3%	
Yellow Time (s)	3.0	3.0	3.9		3.0	
All-Red Time (s)	2.0	2.0	1.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	4.9		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	C-Max	C-Max		None	
Act Effct Green (s)	154.4	159.4	144.5		10.6	
Actuated g/C Ratio	0.86	0.89	0.80		0.06	
v/c Ratio	0.29	0.60	0.53		0.62	
Control Delay	8.8	3.3	6.9		108.5	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	8.8	3.6	6.9		108.5	
LOS	A	A	A		F	
Approach Delay		3.7	6.9		108.5	
Approach LOS		A	A		F	
Queue Length 50th (ft)	6	213	284		72	
Queue Length 95th (ft)	15	304	356		125	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	197	4503	4074		342	
Starvation Cap Reductn	0	924	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.29	0.76	0.53		0.18	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 165 (92%), Referenced to phase 2:EBWB and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62

Intersection Signal Delay: 6.4 — Intersection LOS: A
Intersection Capacity Utilization 61.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	11	9	5	1	8	24	102	1	5	51	4
Future Vol, veh/h	2	11	9	5	1	8	24	102	1	5	51	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	12	10	5	1	9	26	111	1	5	55	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.2	7.9	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	9%	36%	8%
Vol Thru, %	80%	50%	7%	85%
Vol Right, %	1%	41%	57%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	127	22	14	60
LT Vol	24	2	5	5
Through Vol	102	11	1	51
RT Vol	1	9	8	4
Lane Flow Rate	138	24	15	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.157	0.027	0.017	0.074
Departure Headway (Hd)	4.085	4.069	4.132	4.083
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	877	864	872	873
Service Time	2.116	2.167	2.132	2.13
HCM Lane V/C Ratio	0.157	0.028	0.017	0.074
HCM Control Delay	7.9	7.3	7.2	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	40	4	24	32	18	10	59	48	29	35	12
Future Vol, veh/h	9	40	4	24	32	18	10	59	48	29	35	12
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	43	4	26	35	20	11	64	52	32	38	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.8	7.9	7.8	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	17%	32%	38%
Vol Thru, %	50%	75%	43%	46%
Vol Right, %	41%	8%	24%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	53	74	76
LT Vol	10	9	24	29
Through Vol	59	40	32	35
RT Vol	48	4	18	12
Lane Flow Rate	127	58	80	83
Geometry Grp	1	1	1	1
Degree of Util (X)	0.145	0.072	0.098	0.1
Departure Headway (Hd)	4.112	4.474	4.38	4.364
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	875	804	821	824
Service Time	2.124	2.486	2.391	2.376
HCM Lane V/C Ratio	0.145	0.072	0.097	0.101
HCM Control Delay	7.8	7.8	7.9	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.2	0.3	0.3

Intersection	
Int Delay, s/veh	61.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	86	2487	2011	45	7	61
Future Vol, veh/h	86	2487	2011	45	7	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	93	2703	2186	49	8	66

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2235	0	-	0	3478	1118
Stage 1	-	-	-	-	2211	-
Stage 2	-	-	-	-	1267	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	95	-	-	-	*53	173
Stage 1	-	-	-	-	*41	-
Stage 2	-	-	-	-	*333	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	95	-	-	-	*~ 1	173
Mov Cap-2 Maneuver	-	-	-	-	*~ 1	-
Stage 1	-	-	-	-	*~ 1	-
Stage 2	-	-	-	-	*333	-

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	$ 4055.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	95	-	-	-	9
HCM Lane V/C Ratio	0.984	-	-	-	8.213
HCM Control Delay (s)	168.9	-	-	-	$ 4055.6
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	5.8	-	-	-	10.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	14	0	36	2	953	32	43	816	0
Future Vol, veh/h	1	0	1	14	0	36	2	953	32	43	816	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	15	0	39	2	1036	35	47	887	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1399	2056	444	1507	2039	536	887	0	0	1071	0	0
Stage 1	981	981	-	1058	1058	-	-	-	-	-	-	-
Stage 2	418	1075	-	449	981	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	148	55	480	127	56	419	444	-	-	362	-	-
Stage 1	205	326	-	181	300	-	-	-	-	-	-	-
Stage 2	533	294	-	511	326	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	120	47	480	113	48	419	444	-	-	362	-	-
Mov Cap-2 Maneuver	120	47	-	113	48	-	-	-	-	-	-	-
Stage 1	203	284	-	179	297	-	-	-	-	-	-	-
Stage 2	478	291	-	444	284	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24	24.5	0	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	444	-	-	192	238	362	-	-
HCM Lane V/C Ratio	0.005	-	-	0.011	0.228	0.129	-	-
HCM Control Delay (s)	13.1	-	-	24	24.5	16.4	-	-
HCM Lane LOS	B	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.9	0.4	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	27	0	11	4	50	20	10	29	4
Future Vol, veh/h	1	0	1	27	0	11	4	50	20	10	29	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	29	0	12	4	54	22	11	32	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	135	140	34	130	131	65	36	0	0	76	0	0
Stage 1	56	56	-	73	73	-	-	-	-	-	-	-
Stage 2	79	84	-	57	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	836	751	1039	843	760	999	1575	-	-	1523	-	-
Stage 1	956	848	-	937	834	-	-	-	-	-	-	-
Stage 2	930	825	-	955	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	820	743	1039	835	752	999	1575	-	-	1523	-	-
Mov Cap-2 Maneuver	820	743	-	835	752	-	-	-	-	-	-	-
Stage 1	953	842	-	934	831	-	-	-	-	-	-	-
Stage 2	916	823	-	947	841	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.3	0.4	1.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	917	877	1523	-	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.047	0.007	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.3	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	8	17	5	4	3	21	29	15	5	17	3
Future Vol, veh/h	4	8	17	5	4	3	21	29	15	5	17	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	9	18	5	4	3	23	32	16	5	18	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	120	124	20	129	117	40	21	0	0	48	0	0
Stage 1	30	30	-	86	86	-	-	-	-	-	-	-
Stage 2	90	94	-	43	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	855	766	1058	844	773	1031	1595	-	-	1559	-	-
Stage 1	987	870	-	922	824	-	-	-	-	-	-	-
Stage 2	917	817	-	971	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	837	752	1058	811	759	1031	1595	-	-	1559	-	-
Mov Cap-2 Maneuver	837	752	-	811	759	-	-	-	-	-	-	-
Stage 1	972	867	-	908	812	-	-	-	-	-	-	-
Stage 2	896	805	-	942	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.4	2.4	1.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	921	837	1559	-	-
HCM Lane V/C Ratio	0.014	-	-	0.034	0.016	0.003	-	-
HCM Control Delay (s)	7.3	0	-	9	9.4	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	7	12	20	11	18
Future Vol, veh/h	26	7	12	20	11	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	8	13	22	12	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	36	0	80	32
Stage 1	-	-	-	-	32	-
Stage 2	-	-	-	-	48	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1575	-	922	1042
Stage 1	-	-	-	-	991	-
Stage 2	-	-	-	-	974	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1575	-	915	1042
Mov Cap-2 Maneuver	-	-	-	-	915	-
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	974	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	8.8
HCM LOS			A

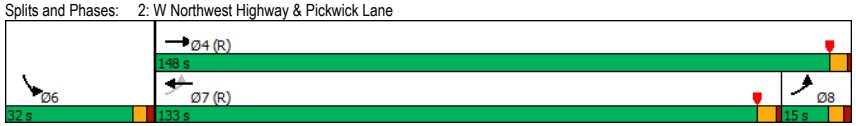
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	990	-	-	1575	-
HCM Lane V/C Ratio	0.032	-	-	0.008	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	1668	3156	25	36	56
Future Volume (vph)	23	1668	3156	25	36	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1813	3430	27	39	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	1813	3457	0	100	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	8	4	7		6	
Permitted Phases	7					
Detector Phase	8	4	7		6	
Switch Phase						
Minimum Initial (s)	3.0	10.0	10.0		6.0	
Minimum Split (s)	8.0	20.0	21.3		30.2	
Total Split (s)	15.0	148.0	133.0		32.0	
Total Split (%)	8.3%	82.2%	73.9%		17.8%	
Yellow Time (s)	3.0	3.9	3.9		3.0	
All-Red Time (s)	2.0	1.0	1.2		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	4.9	5.1		5.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	152.4	155.5	146.3		14.6	
Actuated g/C Ratio	0.85	0.86	0.81		0.08	
v/c Ratio	0.22	0.41	0.84		0.74	
Control Delay	19.2	3.1	14.7		109.6	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	19.2	3.1	14.7		109.6	
LOS	B	A	B		F	
Approach Delay		3.3	14.7		109.6	
Approach LOS		A	B		F	
Queue Length 50th (ft)	3	132	928		118	
Queue Length 95th (ft)	16	191	1141		184	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	139	4392	4128		251	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.18	0.41	0.84		0.40	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 108 (60%), Referenced to phase 4:EBT and 7:EBWB, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84

Intersection Signal Delay: 12.6 — Intersection LOS: B
Intersection Capacity Utilization 75.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	11	10	10	5	4	9	21	60	4	0	34	4
Future Vol, veh/h	11	10	10	5	4	9	21	60	4	0	34	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	11	11	5	4	10	23	65	4	0	37	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.1	7.6	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	35%	28%	0%
Vol Thru, %	71%	32%	22%	89%
Vol Right, %	5%	32%	50%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	85	31	18	38
LT Vol	21	11	5	0
Through Vol	60	10	4	34
RT Vol	4	10	9	4
Lane Flow Rate	92	34	20	41
Geometry Grp	1	1	1	1
Degree of Util (X)	0.105	0.038	0.021	0.046
Departure Headway (Hd)	4.079	4.057	3.947	4.033
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	878	874	897	884
Service Time	2.11	2.123	2.016	2.076
HCM Lane V/C Ratio	0.105	0.039	0.022	0.046
HCM Control Delay	7.6	7.3	7.1	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	30	59	3	12	27	17	4	43	32	15	22	14
Future Vol, veh/h	30	59	3	12	27	17	4	43	32	15	22	14
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	64	3	13	29	18	4	47	35	16	24	15
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8	7.5	7.6	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	33%	21%	29%
Vol Thru, %	54%	64%	48%	43%
Vol Right, %	41%	3%	30%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	79	92	56	51
LT Vol	4	30	12	15
Through Vol	43	59	27	22
RT Vol	32	3	17	14
Lane Flow Rate	86	100	61	55
Geometry Grp	1	1	1	1
Degree of Util (X)	0.098	0.119	0.071	0.066
Departure Headway (Hd)	4.124	4.27	4.22	4.281
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	873	827	854	841
Service Time	2.128	2.362	2.22	2.285
HCM Lane V/C Ratio	0.099	0.121	0.071	0.065
HCM Control Delay	7.6	8	7.5	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.2	0.2

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1715	3183	54	2	47
Future Vol, veh/h	31	1715	3183	54	2	47
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1864	3460	59	2	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3519	0	-	0	4304	1760
Stage 1	-	-	-	-	3490	-
Stage 2	-	-	-	-	814	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 20	-	-	-	5	63
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	359	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	~ 20	-	-	-	0	63
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	359	-

Approach	EB	WB	SB
HCM Control Delay, s	13.1	0	178.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 20	-	-	-	63
HCM Lane V/C Ratio	1.685	-	-	-	0.845
HCM Control Delay (s)	$ 739.3	-	-	-	178.8
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	4.5	-	-	-	3.9

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	56	2	61	0	555	20	19	933	2
Future Vol, veh/h	0	0	5	56	2	61	0	555	20	19	933	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	61	2	66	0	603	22	21	1014	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1299	1682	508	1062	1672	313	-	0	0	625	0	0
Stage 1	1057	1057	-	614	614	-	-	-	-	-	-	-
Stage 2	242	625	-	448	1058	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	170	94	437	235	95	583	0	-	-	591	-	-
Stage 1	182	300	-	367	481	-	0	-	-	-	-	-
Stage 2	679	475	-	512	300	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	91	437	226	92	583	-	-	-	591	-	-
Mov Cap-2 Maneuver	144	91	-	226	92	-	-	-	-	-	-	-
Stage 1	182	289	-	367	481	-	-	-	-	-	-	-
Stage 2	599	475	-	488	289	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	23.9	0	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	437	318	591	-	-
HCM Lane V/C Ratio	-	-	0.012	0.407	0.035	-	-
HCM Control Delay (s)	-	-	13.3	23.9	11.3	-	-
HCM Lane LOS	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0	1.9	0.1	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	1	24	0	9	1	27	20	5	68	1
Future Vol, veh/h	2	1	1	24	0	9	1	27	20	5	68	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	1	26	0	10	1	29	22	5	74	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	132	138	75	128	127	40	75	0	0	51	0	0
Stage 1	85	85	-	42	42	-	-	-	-	-	-	-
Stage 2	47	53	-	86	85	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	840	753	986	845	764	1031	1524	-	-	1555	-	-
Stage 1	923	824	-	972	860	-	-	-	-	-	-	-
Stage 2	967	851	-	922	824	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	829	750	986	841	761	1031	1524	-	-	1555	-	-
Mov Cap-2 Maneuver	829	750	-	841	761	-	-	-	-	-	-	-
Stage 1	922	822	-	971	859	-	-	-	-	-	-	-
Stage 2	957	850	-	917	822	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	9.2	0.2	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1524	-	-	840	886	1555	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.04	0.003	-	-
HCM Control Delay (s)	7.4	0	-	9.3	9.2	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	3	11	37	13	2	17	10	6	1	27	3
Future Vol, veh/h	1	3	11	37	13	2	17	10	6	1	27	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	12	40	14	2	18	11	7	1	29	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	92	87	31	91	85	15	32	0	0	18	0	0
Stage 1	33	33	-	51	51	-	-	-	-	-	-	-
Stage 2	59	54	-	40	34	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	892	803	1043	893	805	1065	1580	-	-	1599	-	-
Stage 1	983	868	-	962	852	-	-	-	-	-	-	-
Stage 2	953	850	-	975	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	870	793	1043	872	795	1065	1580	-	-	1599	-	-
Mov Cap-2 Maneuver	870	793	-	872	795	-	-	-	-	-	-	-
Stage 1	971	867	-	950	842	-	-	-	-	-	-	-
Stage 2	924	840	-	959	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.5	3.8	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	969	857	1599	-	-
HCM Lane V/C Ratio	0.012	-	-	0.017	0.066	0.001	-	-
HCM Control Delay (s)	7.3	0	-	8.8	9.5	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	18	4	20	56	6	15
Future Vol, veh/h	18	4	20	56	6	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	4	22	61	7	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	127	22
Stage 1	-	-	-	-	22	-
Stage 2	-	-	-	-	105	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1591	-	868	1055
Stage 1	-	-	-	-	1001	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1591	-	856	1055
Mov Cap-2 Maneuver	-	-	-	-	856	-
Stage 1	-	-	-	-	987	-
Stage 2	-	-	-	-	919	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	8.7
HCM LOS			A

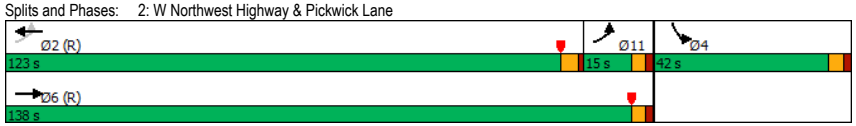
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	989	-	-	1591	-
HCM Lane V/C Ratio	0.023	-	-	0.014	-
HCM Control Delay (s)	8.7	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	70	2497	1978	37	27	48
Future Volume (vph)	70	2497	1978	37	27	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	2714	2150	40	29	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	2714	2190	0	81	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	11	6	2		4	
Permitted Phases	2					
Detector Phase	11	6	2		4	
Switch Phase						
Minimum Initial (s)	3.0	6.0	10.0		6.0	
Minimum Split (s)	8.0	30.2	20.9		30.2	
Total Split (s)	15.0	138.0	123.0		42.0	
Total Split (%)	8.3%	76.7%	68.3%		23.3%	
Yellow Time (s)	3.0	3.0	3.9		3.0	
All-Red Time (s)	2.0	2.0	1.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	4.9		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	C-Max	C-Max		None	
Act Effct Green (s)	152.3	157.3	142.4		12.7	
Actuated g/C Ratio	0.85	0.87	0.79		0.07	
v/c Ratio	0.40	0.61	0.55		0.69	
Control Delay	19.4	4.0	7.8		109.4	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	19.4	4.3	7.8		109.4	
LOS	B	A	A		F	
Approach Delay		4.7	7.8		109.4	
Approach LOS		A	A		F	
Queue Length 50th (ft)	9	247	309		95	
Queue Length 95th (ft)	35	350	392		155	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	190	4443	4011		343	
Starvation Cap Reductn	0	890	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.40	0.76	0.55		0.24	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 165 (92%), Referenced to phase 2:EBWB and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69

Intersection Signal Delay: 7.7 — Intersection LOS: A
Intersection Capacity Utilization 61.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	15	13	5	1	8	48	108	1	5	51	4
Future Vol, veh/h	6	15	13	5	1	8	48	108	1	5	51	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	16	14	5	1	9	52	117	1	5	55	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	8.2	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	31%	18%	36%	8%
Vol Thru, %	69%	44%	7%	85%
Vol Right, %	1%	38%	57%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	157	34	14	60
LT Vol	48	6	5	5
Through Vol	108	15	1	51
RT Vol	1	13	8	4
Lane Flow Rate	171	37	15	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.196	0.044	0.018	0.075
Departure Headway (Hd)	4.133	4.277	4.224	4.132
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	842	852	858
Service Time	2.177	2.277	2.225	2.2
HCM Lane V/C Ratio	0.198	0.044	0.018	0.076
HCM Control Delay	8.2	7.5	7.3	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.1	0.2

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	55	4	24	49	18	16	59	52	29	35	18
Future Vol, veh/h	17	55	4	24	49	18	16	59	52	29	35	18
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	60	4	26	53	20	17	64	57	32	38	20
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.1	8.1	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	22%	26%	35%
Vol Thru, %	46%	72%	54%	43%
Vol Right, %	41%	5%	20%	22%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	127	76	91	82
LT Vol	16	17	24	29
Through Vol	59	55	49	35
RT Vol	52	4	18	18
Lane Flow Rate	138	83	99	89
Geometry Grp	1	1	1	1
Degree of Util (X)	0.162	0.105	0.123	0.11
Departure Headway (Hd)	4.235	4.566	4.469	4.443
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	849	786	803	808
Service Time	2.254	2.587	2.49	2.464
HCM Lane V/C Ratio	0.163	0.106	0.123	0.11
HCM Control Delay	8.1	8.1	8.1	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0.4	0.4

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	92	2495	2022	68	7	65
Future Vol, veh/h	92	2495	2022	68	7	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	100	2712	2198	74	8	71

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2272	0	-	0	3520	1136
Stage 1	-	-	-	-	2235	-
Stage 2	-	-	-	-	1285	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 91	-	-	-	*52	168
Stage 1	-	-	-	-	*40	-
Stage 2	-	-	-	-	*318	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	~ 91	-	-	-	*0	168
Mov Cap-2 Maneuver	-	-	-	-	*0	-
Stage 1	-	-	-	-	*0	-
Stage 2	-	-	-	-	*318	-

Approach	EB	WB	SB
HCM Control Delay, s	7.4	0	43.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 91	-	-	-	168
HCM Lane V/C Ratio	1.099	-	-	-	0.466
HCM Control Delay (s)	208.4	-	-	-	43.9
HCM Lane LOS	F	-	-	-	E
HCM 95th %tile Q(veh)	6.7	-	-	-	2.2

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	26	0	47	2	953	49	60	816	0
Future Vol, veh/h	1	0	1	26	0	47	2	953	49	60	816	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	28	0	51	2	1036	53	65	887	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1435	2110	444	1552	2084	545	887	0	0	1089	0	0
Stage 1	1017	1017	-	1067	1067	-	-	-	-	-	-	-
Stage 2	418	1093	-	485	1017	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	141	50	480	120	52	413	444	-	-	354	-	-
Stage 1	194	313	-	179	297	-	-	-	-	-	-	-
Stage 2	533	288	-	486	313	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	105	40	480	102	42	413	444	-	-	354	-	-
Mov Cap-2 Maneuver	105	40	-	102	42	-	-	-	-	-	-	-
Stage 1	192	255	-	177	293	-	-	-	-	-	-	-
Stage 2	461	285	-	396	255	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.2	34.8	0	1.2
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	444	-	-	172	198	354	-	-
HCM Lane V/C Ratio	0.005	-	-	0.013	0.401	0.184	-	-
HCM Control Delay (s)	13.1	-	-	26.2	34.8	17.5	-	-
HCM Lane LOS	B	-	-	D	D	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0	1.8	0.7	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	34	0	15	4	62	38	16	40	4
Future Vol, veh/h	1	0	1	34	0	15	4	62	38	16	40	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	37	0	16	4	67	41	17	43	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	183	195	45	176	177	88	47	0	0	108	0	0
Stage 1	79	79	-	96	96	-	-	-	-	-	-	-
Stage 2	104	116	-	80	81	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	778	700	1025	786	717	970	1560	-	-	1483	-	-
Stage 1	930	829	-	911	815	-	-	-	-	-	-	-
Stage 2	902	800	-	929	828	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	756	690	1025	777	706	970	1560	-	-	1483	-	-
Mov Cap-2 Maneuver	756	690	-	777	706	-	-	-	-	-	-	-
Stage 1	927	819	-	908	813	-	-	-	-	-	-	-
Stage 2	884	798	-	917	818	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.1	9.7	0.3	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1560	-	-	870	827	1483	-	-
HCM Lane V/C Ratio	0.003	-	-	0.002	0.064	0.012	-	-
HCM Control Delay (s)	7.3	0	-	9.1	9.7	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	14	23	16	8	3	25	29	27	5	17	3
Future Vol, veh/h	4	14	23	16	8	3	25	29	27	5	17	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	15	25	17	9	3	27	32	29	5	18	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	137	145	20	151	132	47	21	0	0	61	0	0
Stage 1	30	30	-	101	101	-	-	-	-	-	-	-
Stage 2	107	115	-	50	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	834	746	1058	816	759	1022	1595	-	-	1542	-	-
Stage 1	987	870	-	905	811	-	-	-	-	-	-	-
Stage 2	898	800	-	963	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	811	730	1058	772	743	1022	1595	-	-	1542	-	-
Mov Cap-2 Maneuver	811	730	-	772	743	-	-	-	-	-	-	-
Stage 1	969	867	-	889	796	-	-	-	-	-	-	-
Stage 2	869	786	-	921	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.8	2.3	1.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	894	784	1542	-	-
HCM Lane V/C Ratio	0.017	-	-	0.05	0.037	0.004	-	-
HCM Control Delay (s)	7.3	0	-	9.2	9.8	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	49	7	12	35	11	18
Future Vol, veh/h	49	7	12	35	11	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	53	8	13	38	12	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	61	0	121	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	64	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1542	-	874	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	959	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1542	-	866	1009
Mov Cap-2 Maneuver	-	-	-	-	866	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	959	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	8.9
HCM LOS			A

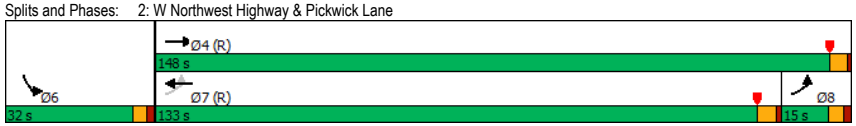
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	950	-	-	1542	-
HCM Lane V/C Ratio	0.033	-	-	0.008	-
HCM Control Delay (s)	8.9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	1669	3159	27	40	63
Future Volume (vph)	25	1669	3159	27	40	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	1814	3434	29	43	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	1814	3463	0	111	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	8	4	7		6	
Permitted Phases	7					
Detector Phase	8	4	7		6	
Switch Phase						
Minimum Initial (s)	3.0	10.0	10.0		6.0	
Minimum Split (s)	8.0	20.0	21.3		30.2	
Total Split (s)	15.0	148.0	133.0		32.0	
Total Split (%)	8.3%	82.2%	73.9%		17.8%	
Yellow Time (s)	3.0	3.9	3.9		3.0	
All-Red Time (s)	2.0	1.0	1.2		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	4.9	5.1		5.0	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	None	C-Max	C-Max		None	
Act Effct Green (s)	150.2	154.3	142.1		15.8	
Actuated g/C Ratio	0.83	0.86	0.79		0.09	
v/c Ratio	0.21	0.42	0.86		0.76	
Control Delay	20.8	3.4	17.5		109.2	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	20.8	3.4	17.5		109.2	
LOS	C	A	B		F	
Approach Delay		3.6	17.5		109.2	
Approach LOS		A	B		F	
Queue Length 50th (ft)	4	141	966		131	
Queue Length 95th (ft)	20	203	1190		199	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	138	4358	4010		251	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.20	0.42	0.86		0.44	

Intersection Summary
Cycle Length: 180
Actuated Cycle Length: 180
Offset: 108 (60%), Referenced to phase 4:EBT and 7:EBWB, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86

Intersection Signal Delay: 14.6 — Intersection LOS: B
Intersection Capacity Utilization 76.1% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	13	13	5	4	9	24	61	4	0	34	4
Future Vol, veh/h	14	13	13	5	4	9	24	61	4	0	34	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	14	14	5	4	10	26	66	4	0	37	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.1	7.7	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	35%	28%	0%
Vol Thru, %	69%	32%	22%	89%
Vol Right, %	4%	33%	50%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	89	40	18	38
LT Vol	24	14	5	0
Through Vol	61	13	4	34
RT Vol	4	13	9	4
Lane Flow Rate	97	43	20	41
Geometry Grp	1	1	1	1
Degree of Util (X)	0.11	0.049	0.022	0.047
Departure Headway (Hd)	4.102	4.063	3.963	4.054
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	871	872	892	878
Service Time	2.14	2.133	2.037	2.104
HCM Lane V/C Ratio	0.111	0.049	0.022	0.047
HCM Control Delay	7.7	7.3	7.1	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.1	0.1

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	67	3	12	30	17	5	43	34	15	22	15
Future Vol, veh/h	34	67	3	12	30	17	5	43	34	15	22	15
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	73	3	13	33	18	5	47	37	16	24	16
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	7.6	7.6	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	33%	20%	29%
Vol Thru, %	52%	64%	51%	42%
Vol Right, %	41%	3%	29%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	82	104	59	52
LT Vol	5	34	12	15
Through Vol	43	67	30	22
RT Vol	34	3	17	15
Lane Flow Rate	89	113	64	57
Geometry Grp	1	1	1	1
Degree of Util (X)	0.103	0.134	0.076	0.068
Departure Headway (Hd)	4.159	4.283	4.244	4.312
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	823	847	834
Service Time	2.165	2.382	2.254	2.319
HCM Lane V/C Ratio	0.103	0.137	0.076	0.068
HCM Control Delay	7.6	8.1	7.6	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.2	0.2

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	1719	3184	57	2	49
Future Vol, veh/h	31	1719	3184	57	2	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	1868	3461	62	2	53

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	3523	0	-	0	4307	1762
Stage 1	-	-	-	-	3492	-
Stage 2	-	-	-	-	815	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 20	-	-	-	5	63
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	359	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	~ 20	-	-	-	0	63
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	359	-

Approach	EB	WB	SB
HCM Control Delay, s	13.1	0	188
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 20	-	-	-	63
HCM Lane V/C Ratio	1.685	-	-	-	0.88
HCM Control Delay (s)	$ 739.3	-	-	-	188
HCM Lane LOS	F	-	-	-	F
HCM 95th %tile Q(veh)	4.5	-	-	-	4.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	5	63	2	67	0	555	22	21	933	2
Future Vol, veh/h	0	0	5	63	2	67	0	555	22	21	933	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	5	68	2	73	0	603	24	23	1014	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1303	1688	508	1067	1677	314	-	0	0	627	0	0
Stage 1	1061	1061	-	615	615	-	-	-	-	-	-	-
Stage 2	242	627	-	452	1062	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	-	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	-	-	-	3.12	-	-
Pot Cap-1 Maneuver	169	93	437	233	94	582	0	-	-	590	-	-
Stage 1	181	299	-	366	480	-	0	-	-	-	-	-
Stage 2	679	474	-	509	298	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	141	89	437	223	90	582	-	-	-	590	-	-
Mov Cap-2 Maneuver	141	89	-	223	90	-	-	-	-	-	-	-
Stage 1	181	287	-	366	480	-	-	-	-	-	-	-
Stage 2	591	474	-	483	286	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	25.8	0	0.2
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	437	314	590	-	-
HCM Lane V/C Ratio	-	-	0.012	0.457	0.039	-	-
HCM Control Delay (s)	-	-	13.3	25.8	11.3	-	-
HCM Lane LOS	-	-	B	D	B	-	-
HCM 95th %tile Q(veh)	-	-	0	2.3	0.1	-	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	1	1	28	0	12	1	29	22	6	74	1
Future Vol, veh/h	2	1	1	28	0	12	1	29	22	6	74	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	1	1	30	0	13	1	32	24	7	80	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	148	153	81	142	141	44	81	0	0	56	0	0
Stage 1	95	95	-	46	46	-	-	-	-	-	-	-
Stage 2	53	58	-	96	95	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	820	739	979	828	750	1026	1517	-	-	1549	-	-
Stage 1	912	816	-	968	857	-	-	-	-	-	-	-
Stage 2	960	847	-	911	816	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	806	735	979	822	746	1026	1517	-	-	1549	-	-
Mov Cap-2 Maneuver	806	735	-	822	746	-	-	-	-	-	-	-
Stage 1	911	812	-	967	856	-	-	-	-	-	-	-
Stage 2	947	846	-	904	812	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.3	0.1	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	822	874	1549	-	-
HCM Lane V/C Ratio	0.001	-	-	0.005	0.05	0.004	-	-
HCM Control Delay (s)	7.4	0	-	9.4	9.3	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	4	12	44	16	2	20	10	7	1	27	3
Future Vol, veh/h	1	4	12	44	16	2	20	10	7	1	27	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	4	13	48	17	2	22	11	8	1	29	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	102	96	31	100	93	15	32	0	0	19	0	0
Stage 1	33	33	-	59	59	-	-	-	-	-	-	-
Stage 2	69	63	-	41	34	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	879	794	1043	881	797	1065	1580	-	-	1597	-	-
Stage 1	983	868	-	953	846	-	-	-	-	-	-	-
Stage 2	941	842	-	974	867	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	853	782	1043	856	785	1065	1580	-	-	1597	-	-
Mov Cap-2 Maneuver	853	782	-	856	785	-	-	-	-	-	-	-
Stage 1	969	867	-	940	834	-	-	-	-	-	-	-
Stage 2	907	830	-	956	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.6	4	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	955	842	1597	-	-
HCM Lane V/C Ratio	0.014	-	-	0.019	0.08	0.001	-	-
HCM Control Delay (s)	7.3	0	-	8.8	9.6	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	21	4	20	64	6	15
Future Vol, veh/h	21	4	20	64	6	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	4	22	70	7	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	139	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1587	-	854	1051
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1587	-	842	1051
Mov Cap-2 Maneuver	-	-	-	-	842	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	911	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	981	-	-	1587	-
HCM Lane V/C Ratio	0.023	-	-	0.014	-
HCM Control Delay (s)	8.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

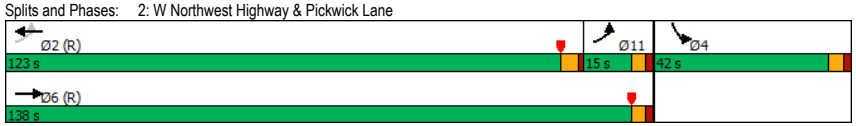
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	76	2499	1979	42	30	52
Future Volume (vph)	76	2499	1979	42	30	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	2716	2151	46	33	57
Shared Lane Traffic (%)						
Lane Group Flow (vph)	83	2716	2197	0	90	0
Turn Type	D.P+P	NA	NA		Prot	
Protected Phases	11	6	2		4	
Permitted Phases	2					
Detector Phase	11	6	2		4	
Switch Phase						
Minimum Initial (s)	3.0	6.0	10.0		6.0	
Minimum Split (s)	8.0	30.2	20.9		30.2	
Total Split (s)	15.0	138.0	123.0		42.0	
Total Split (%)	8.3%	76.7%	68.3%		23.3%	
Yellow Time (s)	3.0	3.0	3.9		3.0	
All-Red Time (s)	2.0	2.0	1.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0	4.9		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max	C-Max	C-Max		None	
Act Effct Green (s)	151.4	156.4	141.5		13.6	
Actuated g/C Ratio	0.84	0.87	0.79		0.08	
v/c Ratio	0.44	0.61	0.55		0.71	
Control Delay	24.3	4.3	8.2		109.4	
Queue Delay	0.0	0.3	0.0		0.0	
Total Delay	24.3	4.6	8.2		109.4	
LOS	C	A	A		F	
Approach Delay		5.2	8.2		109.4	
Approach LOS		A	A		F	
Queue Length 50th (ft)	11	261	320		106	
Queue Length 95th (ft)	49	369	407		169	
Internal Link Dist (ft)		1020	1510		66	
Turn Bay Length (ft)	130					
Base Capacity (vph)	188	4417	3985		343	
Starvation Cap Reductn	0	877	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.44	0.77	0.55		0.26	

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 165 (92%), Referenced to phase 2:EBWB and 6:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71

Intersection Signal Delay: 8.3 — Intersection LOS: A
Intersection Capacity Utilization 61.6% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: W Northwest Highway & Pickwick Lane



Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	16	14	5	1	8	57	110	1	5	51	4
Future Vol, veh/h	7	16	14	5	1	8	57	110	1	5	51	4
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	17	15	5	1	9	62	120	1	5	55	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.3	8.3	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	19%	36%	8%
Vol Thru, %	65%	43%	7%	85%
Vol Right, %	1%	38%	57%	7%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	168	37	14	60
LT Vol	57	7	5	5
Through Vol	110	16	1	51
RT Vol	1	14	8	4
Lane Flow Rate	183	40	15	65
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.048	0.018	0.075
Departure Headway (Hd)	4.146	4.308	4.255	4.147
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	862	836	846	854
Service Time	2.192	2.309	2.256	2.22
HCM Lane V/C Ratio	0.212	0.048	0.018	0.076
HCM Control Delay	8.3	7.5	7.3	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.2	0.1	0.2

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	60	4	24	56	18	18	59	53	29	35	20
Future Vol, veh/h	19	60	4	24	56	18	18	59	53	29	35	20
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	65	4	26	61	20	20	64	58	32	38	22
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.2	8.2	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	23%	24%	35%
Vol Thru, %	45%	72%	57%	42%
Vol Right, %	41%	5%	18%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	83	98	84
LT Vol	18	19	24	29
Through Vol	59	60	56	35
RT Vol	53	4	18	20
Lane Flow Rate	141	90	107	91
Geometry Grp	1	1	1	1
Degree of Util (X)	0.168	0.115	0.133	0.113
Departure Headway (Hd)	4.28	4.595	4.499	4.475
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	839	781	798	802
Service Time	2.3	2.618	2.522	2.496
HCM Lane V/C Ratio	0.168	0.115	0.134	0.113
HCM Control Delay	8.2	8.2	8.2	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0.5	0.4

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	94	2497	2027	77	7	66
Future Vol, veh/h	94	2497	2027	77	7	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	285	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	2714	2203	84	8	72

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2287	0	-	0	3535	1144
Stage 1	-	-	-	-	2245	-
Stage 2	-	-	-	-	1290	-
Critical Hdwy	5.34	-	-	-	5.74	7.14
Critical Hdwy Stg 1	-	-	-	-	6.64	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	3.12	-	-	-	3.82	3.92
Pot Cap-1 Maneuver	~ 89	-	-	-	*49	166
Stage 1	-	-	-	-	*39	-
Stage 2	-	-	-	-	*318	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	~ 89	-	-	-	*0	166
Mov Cap-2 Maneuver	-	-	-	-	*0	-
Stage 1	-	-	-	-	*0	-
Stage 2	-	-	-	-	*318	-

Approach	EB	WB	SB
HCM Control Delay, s	8.2	0	45.1
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	~ 89	-	-	-	166
HCM Lane V/C Ratio	1.148	-	-	-	0.478
HCM Control Delay (s)	227.1	-	-	-	45.1
HCM Lane LOS	F	-	-	-	E
HCM 95th %tile Q(veh)	7.1	-	-	-	2.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	0	1	30	0	51	2	953	56	67	816	0
Future Vol, veh/h	1	0	1	30	0	51	2	953	56	67	816	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	115	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	33	0	55	2	1036	61	73	887	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1451	2134	444	1572	2104	549	887	0	0	1097	0	0
Stage 1	1033	1033	-	1071	1071	-	-	-	-	-	-	-
Stage 2	418	1101	-	501	1033	-	-	-	-	-	-	-
Critical Hdwy	6.44	6.54	7.14	6.44	6.54	7.14	5.34	-	-	5.34	-	-
Critical Hdwy Stg 1	7.34	5.54	-	7.34	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.74	5.54	-	6.74	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Cap-1 Maneuver	138	49	480	116	51	411	444	-	-	351	-	-
Stage 1	189	308	-	178	295	-	-	-	-	-	-	-
Stage 2	533	286	-	476	308	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	99	38	480	96	40	411	444	-	-	351	-	-
Mov Cap-2 Maneuver	99	38		96	40			-	-		-	-
Stage 1	187	244	-	176	291	-	-	-	-	-	-	-
Stage 2	456	283	-	376	244	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.2	40.6	0	1.4
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	444	-	-	164	186	351	-	-
HCM Lane V/C Ratio	0.005	-	-	0.013	0.473	0.207	-	-
HCM Control Delay (s)	13.1	-	-	27.2	40.6	17.9	-	-
HCM Lane LOS	B	-	-	D	E	C	-	-
HCM 95th %tile Q(veh)	0	-	-	0	2.3	0.8	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	1	37	0	16	4	66	45	18	44	4
Future Vol, veh/h	1	0	1	37	0	16	4	66	45	18	44	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	1	40	0	17	4	72	49	20	48	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	203	219	50	196	197	97	52	0	0	121	0	0
Stage 1	90	90	-	105	105	-	-	-	-	-	-	-
Stage 2	113	129	-	91	92	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	755	679	1018	763	699	959	1554	-	-	1467	-	-
Stage 1	917	820	-	901	808	-	-	-	-	-	-	-
Stage 2	892	789	-	916	819	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	732	667	1018	752	687	959	1554	-	-	1467	-	-
Mov Cap-2 Maneuver	732	667	-	752	687	-	-	-	-	-	-	-
Stage 1	914	809	-	898	806	-	-	-	-	-	-	-
Stage 2	873	787	-	902	808	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	9.8	0.3	2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1554	-	-	852	804	1467	-	-
HCM Lane V/C Ratio	0.003	-	-	0.003	0.072	0.013	-	-
HCM Control Delay (s)	7.3	0	-	9.2	9.8	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	16	25	21	9	3	27	29	31	5	17	3
Future Vol, veh/h	4	16	25	21	9	3	27	29	31	5	17	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	17	27	23	10	3	29	32	34	5	18	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	144	154	20	159	138	49	21	0	0	66	0	0
Stage 1	30	30	-	107	107	-	-	-	-	-	-	-
Stage 2	114	124	-	52	31	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	825	738	1058	807	753	1020	1595	-	-	1536	-	-
Stage 1	987	870	-	898	807	-	-	-	-	-	-	-
Stage 2	891	793	-	961	869	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	800	722	1058	759	736	1020	1595	-	-	1536	-	-
Mov Cap-2 Maneuver	800	722	-	759	736	-	-	-	-	-	-	-
Stage 1	968	867	-	881	792	-	-	-	-	-	-	-
Stage 2	861	778	-	915	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	9.9	2.3	1.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1595	-	-	886	770	1536	-	-
HCM Lane V/C Ratio	0.018	-	-	0.055	0.047	0.004	-	-
HCM Control Delay (s)	7.3	0	-	9.3	9.9	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	58	7	12	41	11	18
Future Vol, veh/h	58	7	12	41	11	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	8	13	45	12	20

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	71	0	138	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	71	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1529	-	855	997
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	952	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1529	-	847	997
Mov Cap-2 Maneuver	-	-	-	-	847	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	952	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	934	-	-	1529	-
HCM Lane V/C Ratio	0.034	-	-	0.009	-
HCM Control Delay (s)	9	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Appendix F. Supplemental Information

Design Speed MPH	Intersection Sight Distance (Feet)			
	Left Side		Right Side	
	Min.	Desirable	Min.	Desirable
25	110	235	150	240
30	145	315	200	315
35	180	405	225	410
40	225	485	275	485
45	270	575	325	--
50	325	675	400	--
55	375	780	450	825

Pacheco Koch

Northwest Highway at Edgemere Road

Intersection Sight Distance - City of Dallas Desirable

Preston Place, Dallas, Texas

PK #2609-19.157 (HWL: 05/20/19)

APPENDIX **F1**

Design Speed MPH	Intersection Sight Distance (Feet)			
	Left Side		Right Side	
	Min.	Desirable	Min.	Desirable
25	110	235	150	240
30	145	315	200	315
35	180	405	225	410
40	225	485	275	485
45	270	575	325	--
50	325	675	400	--
55	375	780	450	825

Pacheco Koch

Northwest Highway at Edgemere Road

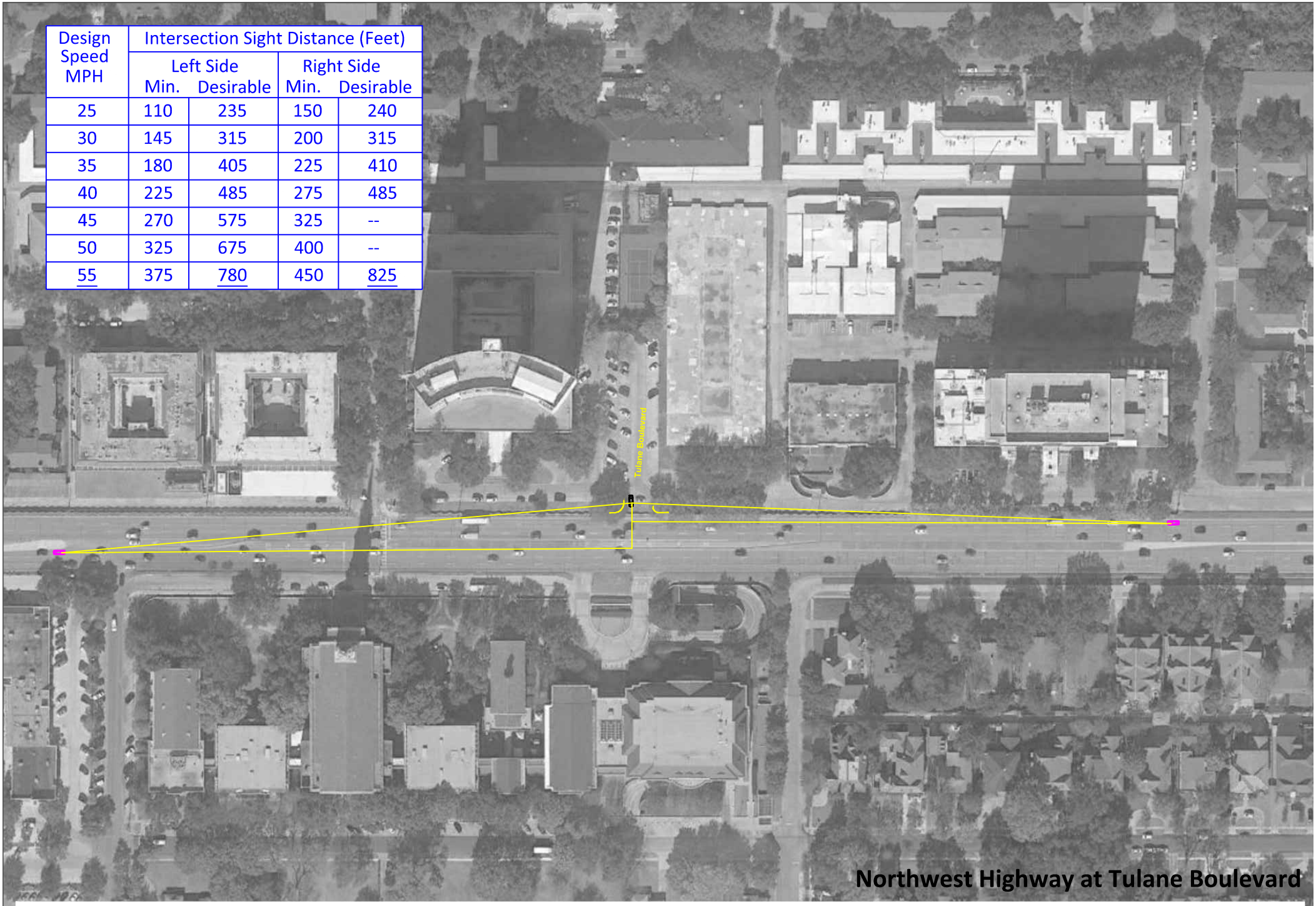
Intersection Sight Distance - City of Dallas Minimum

Preston Place, Dallas, Texas

PK #2609-19.157 (HWL: 05/20/19)

APPENDIX **F2**

Design Speed MPH	Intersection Sight Distance (Feet)			
	Left Side		Right Side	
	Min.	Desirable	Min.	Desirable
25	110	235	150	240
30	145	315	200	315
35	180	405	225	410
40	225	485	275	485
45	270	575	325	--
50	325	675	400	--
55	375	780	450	825



Northwest Highway at Tulane Boulevard

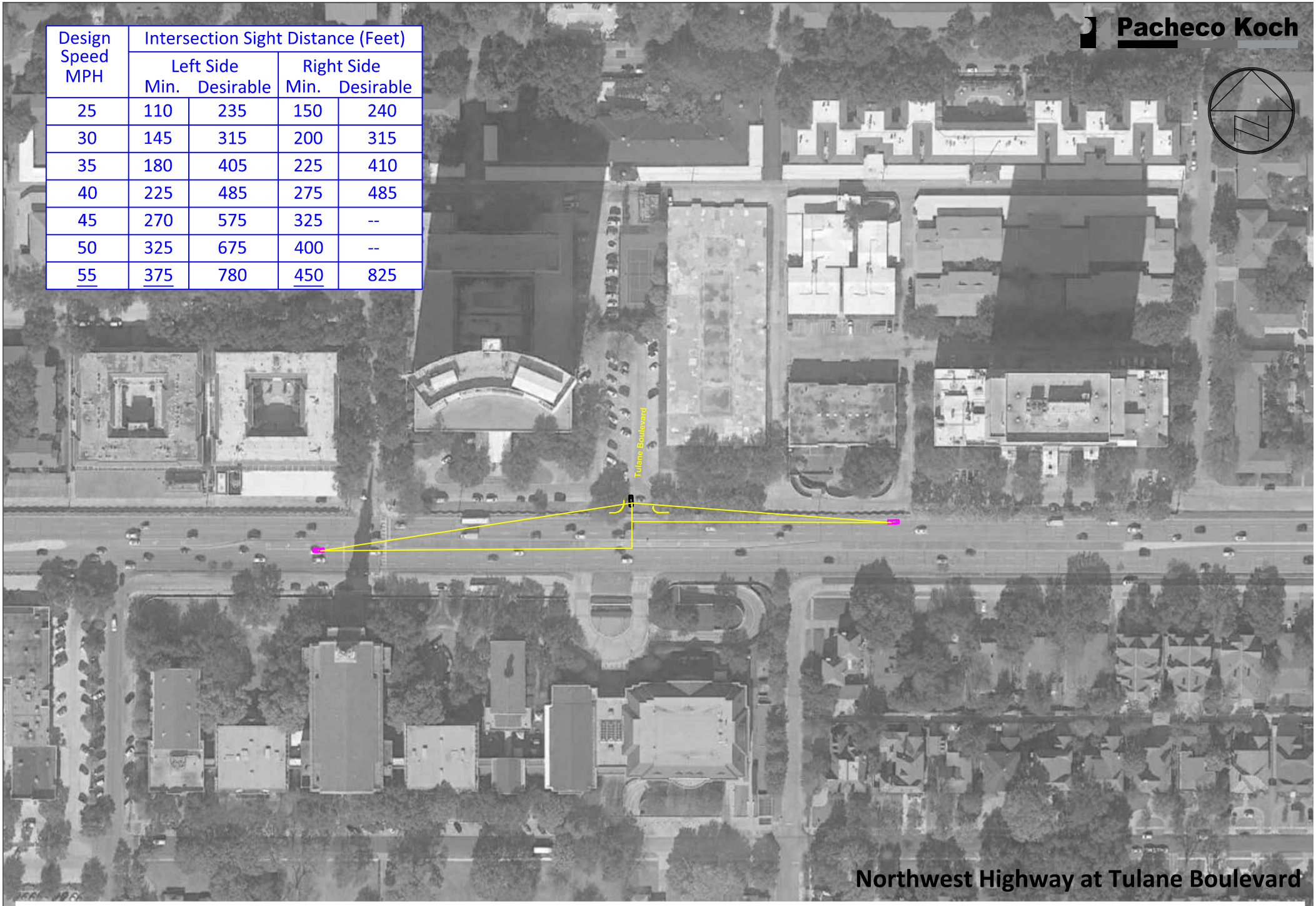
Intersection Sight Distance - City of Dallas Desirable

Preston Place, Dallas, Texas

PK #2609-19.157 (HWL: 05/20/19)

APPENDIX **F3**

Design Speed MPH	Intersection Sight Distance (Feet)			
	Left Side		Right Side	
	Min.	Desirable	Min.	Desirable
25	110	235	150	240
30	145	315	200	315
35	180	405	225	410
40	225	485	275	485
45	270	575	325	--
50	325	675	400	--
55	375	780	450	825



Pacheco Koch

Northwest Highway at Tulane Boulevard

Intersection Sight Distance - City of Dallas Minimum

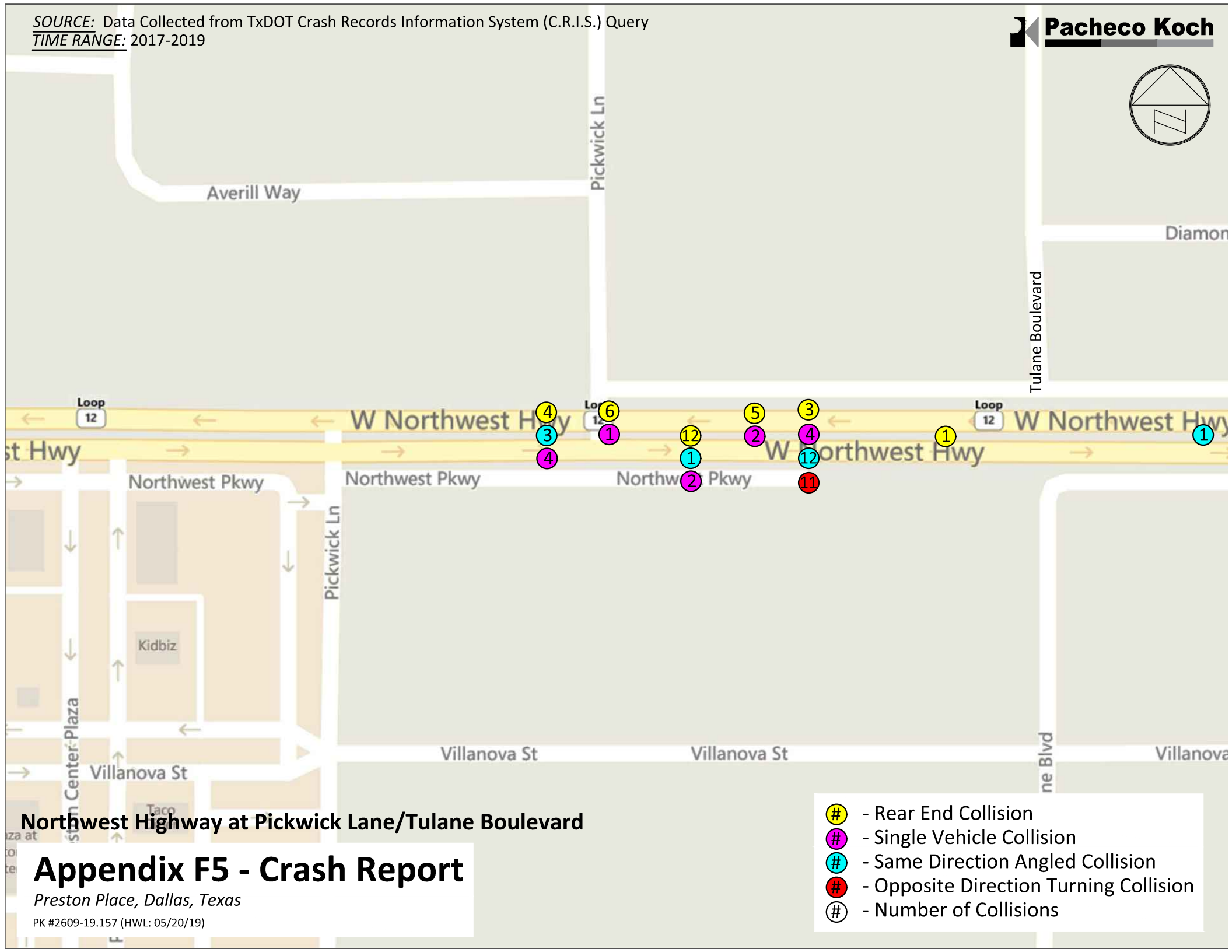
Preston Place, Dallas, Texas

PK #2609-19.157 (HWL: 05/20/19)

APPENDIX **F4**

SOURCE: Data Collected from TxDOT Crash Records Information System (C.R.I.S.) Query
TIME RANGE: 2017-2019

Pacheco Koch



Northwest Highway at Pickwick Lane/Tulane Boulevard

Appendix F5 - Crash Report

Preston Place, Dallas, Texas

PK #2609-19.157 (HWL: 05/20/19)

(#) - Rear End Collision
(#) - Single Vehicle Collision
(#) - Same Direction Angled Collision
(#) - Opposite Direction Turning Collision
(#) - Number of Collisions

EXHIBIT F7. DRIVEWAY/INTERSECTION SPACING

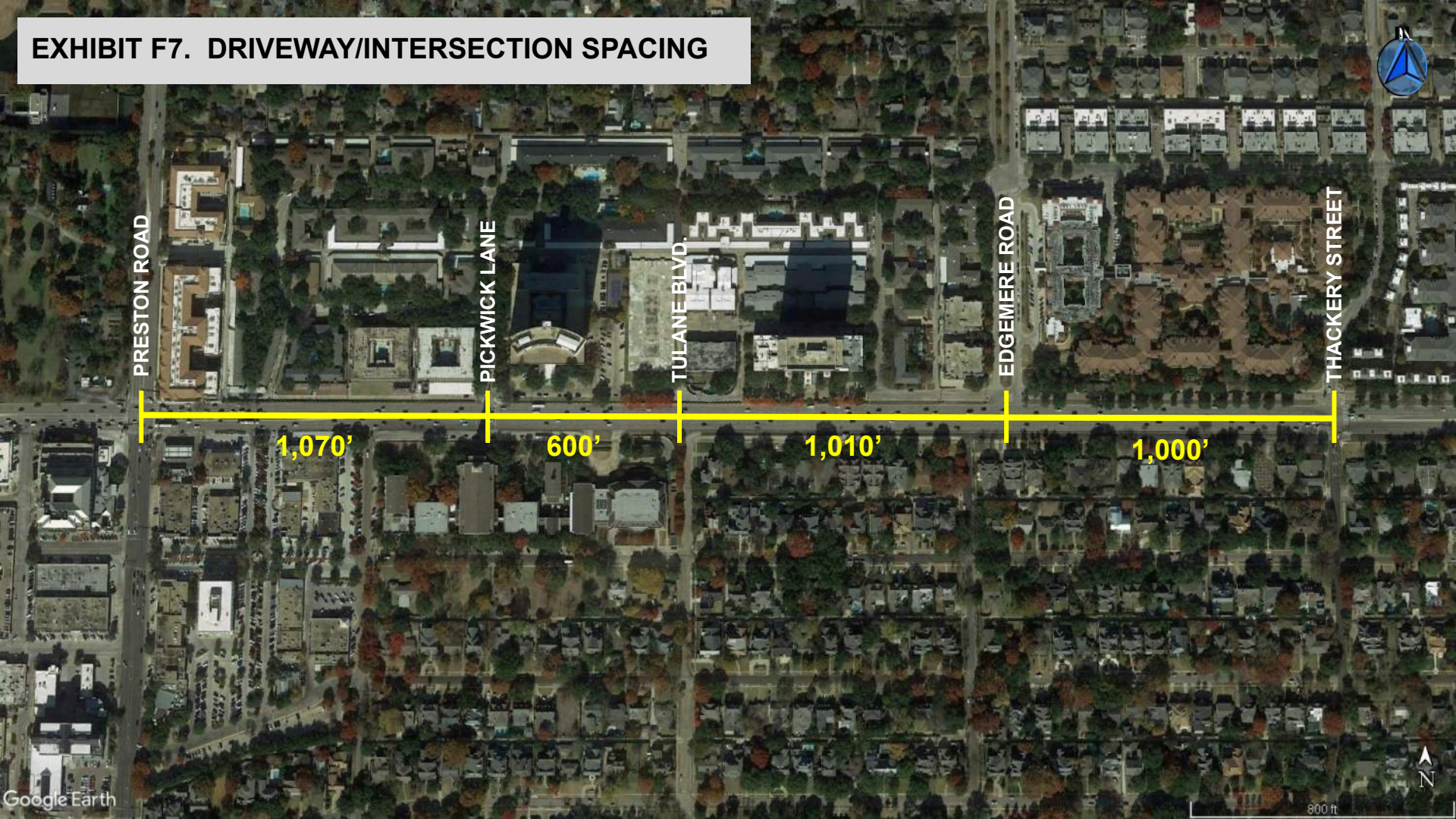


EXHIBIT F8. PRIVATE STREETS