September 5, 2018
PK# 2386-16.242
Z178-358

TRAFFIC IMPACT ANALYSIS

Project:
Preston Center-SMAA Development
In Dallas, Texas

Prepared for:
City of Dallas

On behalf of:
Lincoln Property Company Commercial, Inc.

Prepared by:

Steve E. Stoner

Steve E. Stoner, P.E., PTOE

Pacheco Koch

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TX.REG: ENGINEERING FIRM F-469
TX. REG. SURVEYING FIRM LS-100080-00

EXECUTIVE SUMMARY

The services of **Pacheco Koch** were retained by **Lincoln Property Company Commercial, Inc.** to prepare a Traffic Impact Analysis (TIA) for the proposed mixed-use development known as *Preston Center-SMAA Development* (the "Project") located adjacent to the intersection of Douglas Avenue and Frederick Square in Dallas, Texas.

The 14-acre subject site contains the existing Saint Michael & All Angels Episcopal Church (SMAA) that also houses the Episcopal School of Dallas (ESD) and the Saint Michael Episcopal School (SMES). In conjunction with the project, the ESD plans to relocate from the site. Also located on the site in the northwest corner of the site site is an existing 39,324-SF general office building. This building is scheduled to be replaced in the future.

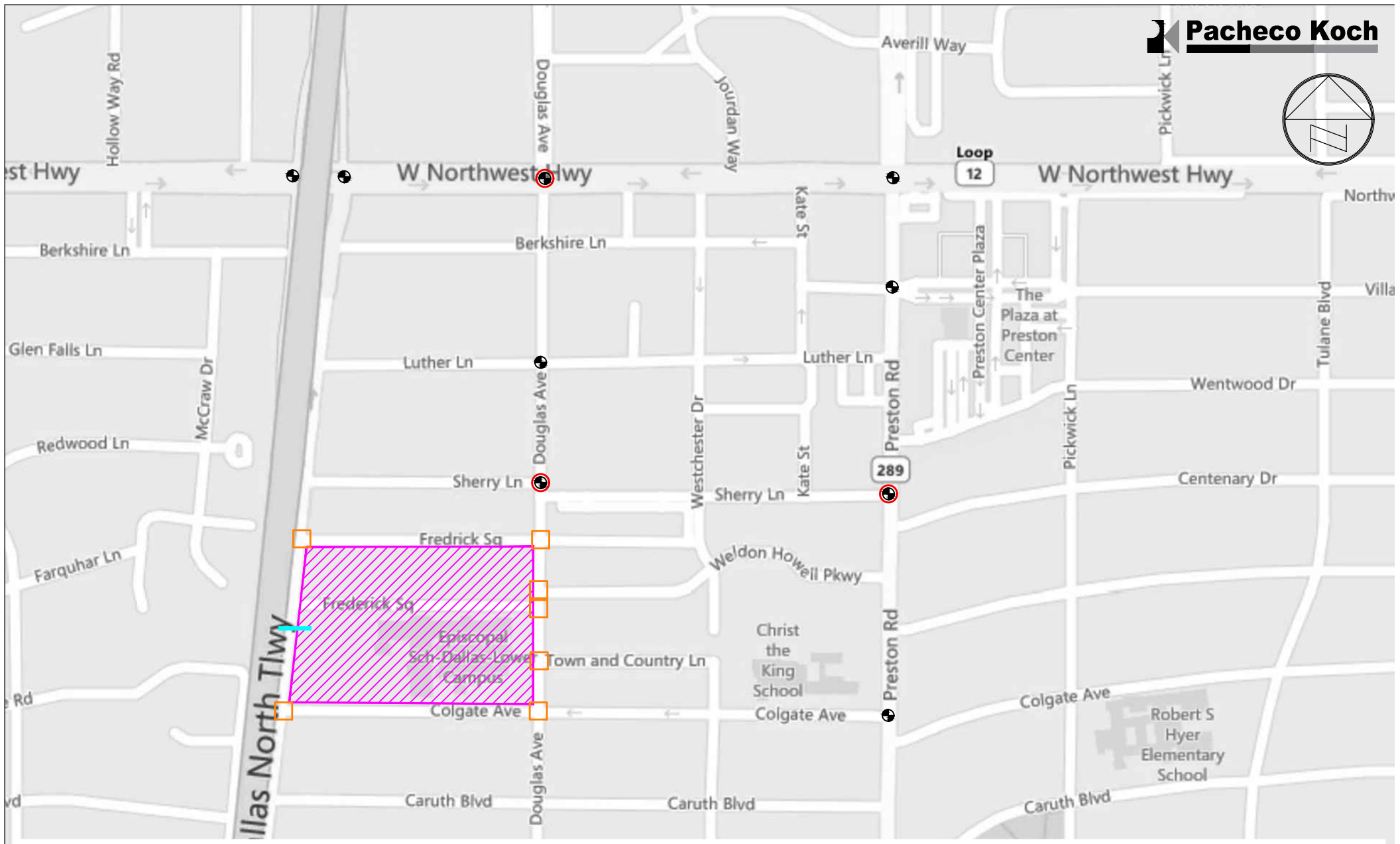
The majority of the proposed new construction on the site will occur north of the existing church building on the site of existing surface parking. The new uses will incorporate mid-rise office, mid-rise apartment, and ground-level retail/restaurant use. The project is assumed to be completed in 2021.

The purpose of this report is to estimate the incremental impact on the background traffic operational conditions caused by the proposed development within a study area as determined by standardized engineering analyses. The parameters used in this TIA were based upon discussion with the City and are consistent with the standard industry practices used in similar studies.

Based upon the analyses performed herein, Pacheco Koch developed the following findings and recommendations.

> FINDING: Under typical-day peak traffic periods, the traffic operations at the signalized and unsignalized intersections within the study area generally operate efficiently and achieve acceptable Levels of Service.
>
> FINDING: With the addition of estimated background traffic growth and the net increase in site-generated traffic from the proposed development, some individual traffic movements will experience a slight increase in average delay. However, the increases are not sufficient to result in any significant change in the existing traffic operational conditions. Therefore, no mitigation measures are considered to be warranted by the proposed development.

END



Site Location Map

Preston Center-SMAA Development, Dallas, Texas

PK #2386-16.242 (HWL: 09/05/18)

EXHIBIT **1**

SHERRY LANE
(VARIABLE WIDTH R.O.W.)

FARQUHAR DRIVE
(VARIABLE WIDTH R.O.W.)

DALLAS NORTH TOLLWAY
(VARIABLE WIDTH R.O.W.)

LOMO ALTO DRIVE
(50' R.O.W.)

STONEGATE DRIVE
(50' R.O.W.)

EASTERN AVENUE
(VARIABLE WIDTH R.O.W.)

COLGATE AVENUE
(60' R.O.W.)

DOUGLAS AVENUE
(100' R.O.W.)

WELDON HOWELL PARKWAY
(56' R.O.W.)

BLOCK D/5645
MUNGER SQUARE ADDITION
VOL. 67135, PG. 1414
M.R.D.C.T.

LOT 9A
LOT 7A
BLOCK 4/5625
LOT 7A & LOT 9A ADDITION
VOL. 85124, PG. 4349
D.R.D.C.T.

6" STREET ESMT.
VOL. 85124, PG. 4349
D.R.D.C.T.

15' DRAINAGE ESMT.
VOL. 85124, PG. 4349
D.R.D.C.T.

LOT 2A, BLOCK 4/5625
5956 SHERRY LANE ADDITION
VOL. 82167, PG. 288
D.R.D.C.T.

SHERRY REALTY HOLDINGS
INST. NO.
200600129562
D.R.D.C.T.

5/8 CIRF

1/2 CIRF

15'X15' ALLEY SIGHT ESMT.
INST. NO. 20090031368
O.P.R.D.C.T.

D.P.&L. AND S.W. BELL TEL. CO. ESMT.
VOL. 2954, PG. 594
D.R.D.C.T.

20' ALLEY

N89°44'00"E – 600.01'

PROPOSED OFFICE BUILDING – 225,000 gsf
WITH 10,000 sf OF RETAIL

PROPOSED RESIDENTIAL – 220,000 gsf

RESTAURANT

DROP-OFF

S0°00'00"E
254.48'

N0°00'00"E
224.04'

FREDERICKS SQUARE TITLE
VOL. 2003154, PG. 15097
D.R.D.C.T.

FREDERICK SQUARE
VOL. 13, PG. 123
M.R.D.C.T.

20' D.P.&L. AND S.W. BELL TEL. CO. ESMT.
VOL. 3082, PG. 340
D.R.D.C.T.

N89°58'00"E
603.80'

S89°58'00"W – 300.00'

N0°00'00"E
28.00'

20' D.P.&L. AND S.W. BELL TEL. CO. ESMT.
VOL. 3082, PG. 340
D.R.D.C.T.

25' ALLEY ABANDONMENT BY ORDINANCE NO. 27492
INST.NO. 20090034895
O.P.R.D.C.T.

PUBLIC
189

"X" FND

ALUM. MON.

15'X15' SIGHT ESMT.
VOL. 95210, PG. 5718
D.R.D.C.T.

15'X15' SIGHT ESMT.
VOL. 95210, PG. 5709
D.R.D.C.T.

STORAGE SHED

15' STORM DRAIN ESMT.
VOL. 95210, PG. 5718
D.R.D.C.T.

20' WATER ESMT.
INST. NO. 20090031388S
O.P.R.D.C.T.

15' WATER ESMT.
VOL. 95210, PG. 5718
D.R.D.C.T.

508.93'

CORPORATION OF EPISCOPAL DIOCESE OF DALLAS
VOL. 92193, PG. 2218
D.R.D.C.T.

LOT 1, BLOCK A/5626
SMAA
INST. NO. 20090031388S
O.P.R.D.C.T.

COOLER/GENERATOR AREA

BELL TOWER

EVT

310.95'

S0°05'00"W – 366.02'

1.5' SIDEWALK AND UTILITY ESMT.
INST. NO. 20090031388S
O.P.R.D.C.T.

25' WATER AND WASTEWATER ESMT.
INST. NO. 20090031388S
O.P.R.D.C.T.

N5°30'00"E
367.75'

N42°15'56"W
13.44'

S89°58'08"W
919.46'

S45°01'34"W
14.16'

BLOCK 3/5631
IDLEWILD ANNEX ADDITION
VOL. 6, PG. 312
M.R.D.C.T.

BLOCK 2/5624
PRESTON PARKWAY
VOL. 7, PG. 48
M.R.D.C.T.

TOMLIN FAMILY, LTD.
VOL. 2000199, PG. 0169
D.R.D.C.T.

6012 SHERRY LANE, LTD.
VOL. 95018, PG. 205
D.R.D.C.T.

10' ALLEY

10" EASEMENT
VOL. 15, PG. 289
M.R.D.C.T.

BV CP PRESTON CENTER LP
INST. NO. 201200320503
O.P.R.D.C.T.

BLOCK 1/5627
TOWN & COUNTRY APARTMENT ADDITION
VOL. 15, PG. 289
M.R.D.C.T.

10'X10' STREET R.O.W. DEDICATION
INST. NO. 201200340811
O.P.R.D.C.T.

RIGHT-OF-WAY TO CITY OF DALLAS
VOL. 80238, PG. 2703
D.R.D.C.T.

THE ROMAN CATHOLIC DIOCESE OF DALLAS
VOL. 79007, PG. 753
D.R.D.C.T.

LOT 1, BLOCK 2/5627
CHRIST THE KING
INST. NO. 201200340811
O.P.R.D.C.T.

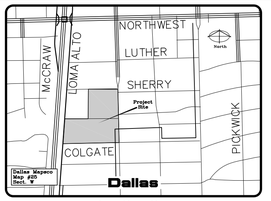
15'X15' ALLEY SIGHT ESMT.
INST. NO. 201200340811
O.P.R.D.C.T.

15' ALLEY

BLOCK 7/5627
PRESTON HOMES ADDITION NO. 2
VOL. 7, PG. 22
M.R.D.C.T.

BLOCK 5/5627
PRESTON HOMES ADDITION
VOL. 6, PG. 79
M.R.D.C.T.

CITY OF DALLAS
CITY OF UNIVERSITY PARK



Location Map

0 50 100 150
GRAPHIC SCALE
1"=50'

BENCHMARKS:

BENCHMARK #1:
Square cut found on center of drop inlet, 150 feet north of the northwest intersection of Colgate Avenue and Douglas Avenue.
Elev.=566.75

BENCHMARK #2:
Square cut center storm sewer drop inlet on concrete curb at southeast corner of Stonegate Road and Devonshire Drive.
Elev.=550.12

DEVELOPMENT PLAN

ST. MICHAEL AND ALL ANGELS EPISCOPAL CHURCH

CITY OF DALLAS, TEXAS

BROCKETTE/DAVIS/DRAKE, INC.
consulting engineers
Civil & Structural Engineering - Surveying
Texas Registered Engineering Firm F-841
4144 North Central Expressway, Suite 1100
Dallas, Texas 75204
(214) 824-3647 - fax (214) 824-7064

DESIGNED	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JAR	DJR	02/20/18	1"=50'	BDD	C17086	

STATE OF TEXAS
JAMES A. RILEY
73231
LICENSED
PROFESSIONAL ENGINEER

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF JAMES A. RILEY, P.E. NO. 73231 ON 02/20/2018. IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

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TRAFFIC IMPACT ANALYSIS
Preston Center-SMAA Development
Dallas, Texas

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INTRODUCTION

The services of **Pacheco Koch** (PK) were retained by **Lincoln Property Company Commercial, Inc.** to prepare a Traffic Impact Analysis (TIA) for a proposed mixed-use development located at the intersection of Douglas Avenue and Frederick Square in Dallas, Texas. The Project is referred to herein as *Preston Center-SMAA Development*. A preliminary site plan for the Project, prepared by **HKS**, and a site location map (**Exhibit *1***) are provided following the EXECUTIVE SUMMARY section of this report.

In order to facilitate development of the Project, Lincoln Property Company Commercial, Inc. (the "Applicant") has made a request to the City of Dallas (the "Approving Agency") for creation of a new Planned Development District. As part of application process for this request, submittal of a TIA by the Applicant to the Approving Agency is required.

This TIA was prepared by traffic engineers at Pacheco Koch (the "Engineer") in accordance with industry and local standards. Pacheco Koch is a licensed engineering firm based in Dallas, Texas, that provides professional engineering and related services.

Purpose

A Traffic Impact Analysis (TIA) is a engineering study used to provide information on the projected off-site impacts produced by a specific Project on the traffic operations of public traffic facilities. Commissioning a TIA may be required by an Approving Agency when an Applicant is seeking approvals or entitlements for the Project, such as a change in zoning rights. Using standardized analysis methodologies, if the findings of the TIA indicate that the direct impacts attributed to a Project result in degradation of the conditions that would otherwise occur from an "acceptable" condition to an "unacceptable" condition, the Approving Agency may, within certain legal parameters, require the Applicant to fund the improvement(s) needed to mitigate the impacts. A TIA is used to identify when such instances are projected to occur.

A TIA should be prepared by a licensed Engineer skilled in the principles of traffic and transportation engineering and planning. The general methodologies, processes, and guidelines used in a TIA are established by industry standards—which are maintained by organizations such as the Institute of Transportation Engineers (ITE) and others—although, the project-specific parameters of the study (e.g., study locations, analysis scenarios, analytical assumptions, etc.) may be advised by technical staff of the Approving Agency.

When applicable the Engineer may provide recommendations or suggested modifications that, in the Engineer's opinion could improve overall traffic operations, safety, site access, circulation, etc. Such recommendations may or may not be directly related to the Project. However, implementation of any modifications is subject to approval of the respective agency that is responsible for

the operation of the facilities. Also, the Engineer's suggested or recommended modifications should not be considered mandatory and are not intended to assign or imply funding responsibility.

A TIA is not a detailed site plan review nor a substitute for local or regional transportation planning.

Project Description

The 14-acre subject site is bisected by a private alley known as Frederick Square. South of the alley is the existing Saint Michael & All Angels Episcopal Church (SMAA), which houses the Episcopal School of Dallas (ESD) and the Saint Michael Episcopal School (SMES). In conjunction with the project, the ESD plans to relocate from the site. North of the alley is an existing 39,324-SF office building in the northwest corner of the site and a surface parking lot used by the church.

The proposed development will occur on the northern portion of the site and displace an existing surface parking lot. A summary of the existing and proposed uses is provided in **Table 1.**

Table 1. Development Program Summary

USE	EXISTING AMOUNT	FUTURE AMOUNT
Saint Michael & All Angels Episcopal Church	113,000 SF* *(Approximate)*	113,000 SF* *(Approximate)*
Episcopal School of Dallas *(Pre-K – 4th Grade)*	491 Students	0 Students
Saint Michael Episcopal School *(Mother's Day Out, Kindergarten/Primer)*	211 Students**	300 Students**
Office Use	39,324 SF	39,324 SF + 225,000 SF (new) 264,324 SF
Retail/Restaurant Use	--	10,000 SF
Multifamily Use	--	185 DU

NOTE: The development program provided above is based upon the most current and complete information available at the time of this study publication.

** SMAA hosts various worship services on Sunday mornings. Small group services and functions occur throughout the week, typically during the mid-day or evening periods. Special services, such as weddings and funerals, occur on occasion but not regularly scheduled. No significant changes to the existing church activity is planned, and no significant change in historical attendance is anticipated.*

*** SMES is a Pre-K and Kindergarten school. Students arrive between 8:40-9:00 AM and are dismissed 2:40 PM. The majority of students attend only two days per week, while some students attend Monday-Thursday.*

The project will also replace the existing, on-site, surface parking lots with structured parking integrated into the new development. Existing on-street parking around the perimeter of the site is to remain.

The current property zoning is described below:

- Church/School (south of the alley): *R-7.5(A) with SUP #1172*
- Existing office building (north of the alley): *PD 314-Preston Center Special Purpose District (Tract 2) Subarea C*
- Remaining area east of existing office building (north of alley): *MF-1(A)*

Buildout of the project is assumed to occur by 2021.

Study Parameters

The study parameters used in this TIA are based upon the requirements of the City of Dallas and are consistent with the standard industry practices used in similar studies. Specific study parameters were discussed with City staff at the outset of the study.

This TIA analyzed the day-to-day traffic operations at time periods that were considered representative of the overall most critical conditions on the public roadway system with some effect from the proposed Project. Based upon the prevailing background traffic conditions and the trip generation characteristics of the proposed development, the following periods were analyzed:

- traditional weekday AM and PM peak hours of adjacent street traffic
  - at existing conditions ("Existing" scenario)
  - at site buildout year without site-generated traffic ("Background" scenario)
  - at site buildout year with site-generated traffic ("Buildout" scenario)
  - at 5 years after site buildout without site-generated traffic
  - at 5 years after site buildout with site-generated traffic ("Horizon" or "Regional" scenario)

NOTE: Analyses of all future conditions scenarios utilize projected traffic volume data derived by Pacheco Koch using reasonable and customary assumptions that are based upon existing conditions where available. Industry publications appropriately point out that the margin of error for projecting traffic volumes is directly related to the length of time of the projection, and projections beyond five years from current conditions should take into consideration that natural changes in traffic characteristics will occur that cannot be anticipated.

The following technical assumptions were also made in this analysis.

- Traffic volumes generated by the existing church, schools, and office building were <u>not</u> deducted from the background traffic counts.

Study Area

The study area for a TIA is typically defined to allow an assessment of the most relevant traffic impacts to the local area. The extent of the study area is discretionary but is generally commensurate with the scale of the proposed development. Special localized factors may also be considered. The specific locations included in the study area of this TIA are listed below and depicted in **Exhibit *1***.

Traffic Signal-controlled Intersections:

(a) Loop 12/W. Northwest Highway and Douglas Avenue
(b) Douglas Avenue and Sherry Lane
(c) Preston Road and Sherry Lane

STOP-sign-controlled Intersections:

(d) Douglas Avenue and Fredrick Square (North)
(e) Douglas Avenue and Weldon Howell Parkway/Fredrick Square (South)
(f) Douglas Avenue and Colgate Avenue*
(g) Lomo Alto Drive and Fredrick Square (North)
(h) Lomo Alto Drive and Colgate Avenue*
(i) Major site driveways

* All-way STOP-controlled.

Roadway Links:

(A) Douglas Avenue, south of Sherry Lane
- Existing operation and cross-section: *two lanes, two-way operation*
- City of Dallas Thoroughfare Plan Designation: *Community Collector/Existing*
- Current Daily Traffic Volume: *7,654 (Tuesday, February 6, 2018)*

(B) Lomo Alto Drive north of Colgate Avenue
- Existing operation and cross-section: *two lanes, two-way operation*
- City of Dallas Thoroughfare Plan Designation: *none (local street)*
- Current Daily Traffic Volume: *3,648 (Tuesday, February 6, 2018)*

TRAFFIC IMPACT ANALYSIS

The following is a description of the analyses performed as part of this Traffic Impact Analysis.

Approach

The TIA presented in this report analyzed the operational conditions for the peak hours and study area as defined above using standardized analytical methodologies where applicable. Current (or recent) traffic volume data were collected on a typical day throughout the study area to represent existing traffic

conditions. Where applicable, growth factors were applied to the existing volumes to project future background traffic at the site buildout year conditions. Then, traffic generated by the proposed development was projected using the standard three-step approach: Trip Generation, Trip Distribution, and Traffic Assignment. By adding the site-generated traffic to the background traffic, the resulting site-plus-background traffic impact to operational conditions may be assessed from which approach mitigation measures may be recommended, if needed.

Background Traffic Volume Data

Existing Volumes

Current traffic volumes were collected during the analysis periods at the study area intersections on Tuesday, February 6, 2018. Traffic volumes are graphically summarized in **Appendix A**; detailed data sheets are provided in **Appendix B**.

Projected Background Traffic Volumes

Background traffic growth is defined as the normal growth of traffic that is not directly related to the subject development of this study. A review of historical traffic volume data can provide an indication of the local traffic growth patterns. **Table 2** provides a comparison of recent traffic volumes with prior traffic volumes in the vicinity of the subject site, from which PK calculated an annual growth rate.

Table 2. Historical Daily Traffic Volume Data

ROADWAY SEGMENT	HISTORICAL DAILY VOLUME (DATE)	ANNUAL GROWTH RATE
Douglas Avenue, south of Sherry Lane	7,317 ('09)[A] 9,308 ('04)[A] 9,643 ('99)[A]	-4.70% -0.70%

Data Source: A = Texas Department of Transportation

According to these data, traffic volumes in the vicinity of the subject site appear to generally appear to be decreasing. Although no positive growth is evident, Pacheco Koch assumed a growth rate of 1.0 percent per year to estimate future background traffic volumes.

By applying the assumed growth rate(s) described previously, future background traffic volumes at the Project buildout year were calculated for the study area intersections. These volumes are graphically summarized in **Appendix A.**

Site-Related Traffic

Trip Generation

Trip generation is calculated in terms of "trip ends" – a trip end is a one-way vehicular trip entering or exiting a site driveway (i.e., a single vehicle entering and exiting a site represents two trip ends). Trip generation for this Project was calculated using the Institute of Transportation Engineers (ITE) *Trip Generation* manual (10th Edition). ITE *Trip Generation* is a compilation of actual, vehicular traffic volume generation data and statistics by land use as collected over several

decades by creditable sources across the country. Using the ITE equations and rates is an accepted methodology to calculate the projected site-generated traffic volumes for many land uses (though engineering judgment is strongly advised).

The base trip generation data from ITE generally reflect average conditions for a standalone use on a typical day. However, in some cases, the Engineer may judge that other factors may be of sufficient significance to warrant adjusting the base ITE calculations in order to more accurately reflect Project-specific conditions. For this analysis "internal trip capture" was considered to be of sufficient significance to justify adjustment of the base ITE data.

"Internal trip capture" refers to the phenomenon that some portion of the trips generated by a given use originates from within the same site and, therefore, do not impact the external roadway network. The methodology used to calculate internal trip capture is recognized by ITE. The most current research and data collection is presented in the Transportation Research Board's *NCHRP Report 684* (2011).

"Mode split" is the consideration of trips being conducted by all modes of transportation, including public transit, bicycle, walking, etc. The default trip generation data from ITE are assumed to incorporate "typical" mode split characteristics. Additional adjustments to account for mode split are only applied in special cases when mode split is expected to be especially high. For this analysis no additional mode split adjustments to the base ITE data were applied.

Table 3 provides a summary of the calculated net increase in trip ends generated by the project. Supplemental information used in the trip generation calculations is provided in **Appendix C.**

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)
Proposed Uses	4,175	**300** (221/79)	**370** (123/247)

** Incorporates internal trip reduction.*

Trip Distribution and Assignment

The distribution and assignment of site-generated trip ends to the surrounding roadway system is determined by proportionally estimating the orientation of travel via various travel routes. This is a subjective exercise based upon professional judgment considering such factors as directional characteristics of existing local traffic, trip attributes (e.g., trip purpose, trip length, travel time, etc.), roadway features (e.g., capacity, operational conditions, character of environment), regional demographics, etc.

Traffic for the proposed redevelopment was distributed and assigned to the study area roadway network based upon consideration of the factors listed above.

Separate traffic assignments were generated for residential and for office-retail trips. Detailed trip distribution and traffic assignment calculations and results are summarized in **Appendix C**.

Site-Generated Traffic Volumes

Site-generated traffic is calculated by multiplying the trip generation value (from **Table 3**) by the corresponding traffic assignments (from **Appendix C**). The resulting cumulative (for all uses) peak period site-generated traffic volumes at buildout of the Project are graphically summarized in **Appendix A**.

Traffic Operational Analysis —Roadway Intersections

Description

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 over a 60-minute period 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 in urban conditions; 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.

NOTE: The HCM unsignalized intersection analysis methodology was developed and calibrated for low-to-moderate volume intersections. When applied to intersections with one or more high-volume or high-

capacity approaches, the analyses often reflect poor results (i.e., low Level of Service). However, the actual delay/operational conditions are typical of similar locations and do not necessarily represent unique conditions. Low-performing, high-volume, unsignalized intersections cannot be analytically mitigated unless a traffic signal is installed. (Traffic signal installation is subject to a detailed analysis of established criteria AND approval of the responsible agency. Neither Level of Service nor vehicle delay is a warrant for traffic signal installation.)

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 Traffic Volumes

Determination of the traffic impact associated with the Project is measured by comparing the incremental change in operational conditions during peak periods with and without site-related traffic. **Appendix A** provides exhibits summarizing the following:

- Existing traffic volumes during study peak hours
- Projected Background traffic volumes at the Site Buildout Year during study peak hours
- Projected Site-Generated traffic volumes during study peak hours
- Projected Background-plus-Site-Generated traffic volumes at the Site Buildout Year during study peak hours
- Projected 5 years after site buildout traffic volumes, including Site-Generated traffic during study peak hours

A summary of the existing intersection/roadway geometry and traffic control devices is also graphically summarized in **Appendix A**.

Summary of Results

Intersection capacity analyses presented in this study were performed using the *Synchro* software package. **Table 4** and **Table 5** provide a summary of the peak period intersection operational conditions under the analysis conditions presented previously. Detailed software output is provided in **Appendix D**.

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

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

INTERSECTION	EXISTING CONDITIONS		BACKGROUND CONDITIONS		BUILDOUT CONDITIONS		HORIZON CONDITIONS	
	AM	PM	AM	PM	AM	PM	AM	PM
Northwest Highway @ Douglas Avenue	D (41.9)	C (26.1)	D (46.1)	C (27.8)	D (52.5)	C (30.1)	E (61.6)	D (37.5)
Douglas Avenue @ Sherry Lane	C (23.4)	C (32.3)	C (23.8)	C (33.3)	C (29.5)	D (41.6)	C (30.9)	D (46.0)
Preston Road @ Sherry Lane	A (3.1)	C (22.8)	A (3.2)	C (24.2)	A (4.0)	C (33.2)	A (4.1)	D (36.4)

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

INTERSECTION	TRAFFIC MANEUVER	EXISTING CONDITIONS		BACKGROUND CONDITIONS		BUILDOUT CONDITIONS	
		AM	PM	AM	PM	AM	PM
Lomo Alto Drive @ Fredrick Square "North"	WB	B (10.6)	B (10.3)	B (10.7)	B (10.3)	B (10.7)	A (9.9)
	SBL	A (0.0)	A (7.6)	A (0.0)	A (7.6)	A (0.0)	A (7.6)
Lomo Alto Drive @ Colgate Avenue	NB	B (12.3)	A (8.2)	B (12.7)	A (8.3)	B (13.0)	A (8.4)
	WB	A (9.1)	A (8.1)	A (9.2)	A (8.2)	A (9.3)	A (8.2)
	SB	A (8.0)	A (8.2)	A (8.1)	A (8.2)	A (8.1)	A (8.3)
Douglas Avenue @ Fredrick Square "North"	NBL	A (8.1)	A (8.2)	A (8.1)	A (8.2)	A (8.9)	A (8.6)
	EB	C (20.3)	B (13.2)	C (20.9)	B (13.4)	E (42.1)	F (64.2)
	WB	C (16.1)	B (11.3)	C (16.5)	B (11.5)	C (21.5)	B (12.1)
	SBL	A (8.6)	A (0.0)	A (8.7)	A (0.0)	A (8.7)	A (0.0)
Douglas Avenue @ Weldon Howell Parkway	NBL	A (7.9)	A (8.2)	A (7.9)	A (8.2)	A (7.9)	A (8.3)
	WB	C (19.8)	C (17.4)	C (20.9)	C (18.3)	C (22.5)	C (20.8)
	SBL	A (9.1)	A (7.9)	A (9.2)	A (7.9)	A (9.4)	A (8.0)
Douglas Avenue @ Fredrick Square "South"	NBL	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)	A (0.0)
	EB	B (14.8)	B (13.4)	C (15.3)	B (13.7)	C (15.9)	B (14.0)
Douglas Avenue @ Town and Country Lane	WB	C (18.7)	A (9.7)	C (19.3)	A (9.7)	C (20.3)	A (9.8)
	SBL	A (9.7)	A (7.8)	A (9.2)	A (7.8)	A (9.3)	A (7.9)
Douglas Avenue @ Colgate Avenue	NB	C (18.9)	A (9.9)	C (20.4)	A (10.0)	C (23.3)	B (10.3)
	EB	B (11.2)	A (9.2)	B (11.5)	A (9.3)	B (11.8)	A (9.4)
	WB	B (10.5)	A (9.1)	B (10.7)	A (9.2)	B (11.1)	A (9.3)
	SB	B (11.0)	B (14.3)	B (11.3)	B (15.0)	B (11.7)	C (16.5)
Fredrick Square "North" @ Site Driveway 1	NB	-	-	-	-	A (8.9)	A (9.1)
	WBL	-	-	-	-	A (7.3)	A (7.4)
Fredrick Square "North" @ Site Driveway 2	NB	-	-	-	-	A (9.1)	B (10.1)
	WBL	-	-	-	-	A (7.5)	A (7.6)
Fredrick Square "South" @ Site Driveway 3	EBL	-	-	-	-	A (7.3)	A (7.3)
	SB	-	-	-	-	A (9.0)	A (8.7)

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

Traffic Operational Analysis —Roadway Links

Description

A roadway link is a segment of roadway between two intersections. Roadway link capacity analysis is a comparison of actual or forecasted traffic volumes to the theoretically optimum roadway capacity. The capacity of the roadway link is predominantly a function of the roadway's cross-section (i.e., number of lanes, lane widths, type of center divider, etc.). However, other more theoretical factors also apply, such as the character of environment and the functional classification of the roadway. Generally, roadway link capacity is less critical than intersection capacity; however, it can provide a gage of the utilization of given roadway.

A specific industry standard for roadway link capacity does not exist, but the typical concept is derived from a base saturation flow rate (i.e., the maximum theoretical rate of continuous flow under ideal, unobstructed conditions -- in the traffic engineering industry, this value is generally considered to range between 1,900-2,100 vehicles per lane per hour). A series of adjustment factors are then applied to the saturation flow rate to reflect the characteristics of a given location.

The North Central Texas Council of Governments (NCTCOG) – the metropolitan planning agency for the Dallas-Fort Worth region – has derived internal "hourly service volume" guidelines used for transportation modelling purposes. The NCTCOG values were based upon the principals presented in the *Highway Capacity Manual* with "regional calibration" factors applied. Though these per-lane capacities, or "Service Volumes" (summarized in the table below), are intended for modelling purposes, they do provide a reasonable gage of theoretical capacity.

Area Type	Hourly Service Volumes By Roadway Function					
	Principal Arterial		Minor Arterial & Frontage Road		Collector & Local Street	
	Median-Divided or One-Way	Undivided Two-Way	Median-Divided or One-Way	Undivided Two-Way	Median-Divided or One-Way	Undivided Two-Way
CBD	725	650	725	650	475	425
Urban/ Commercial	850	775	825	750	525	475
Residential	925	875	900	825	575	**525**
Rural	1,025	925	975	875	600	550

To determine the utilization of a roadway, the volume:capacty ratio can be calculated – a v/c ratio of less than 1.0 indicates that the roadway is operating under capacity. NCTCOG's Level of Service denominations are as follows:

Volume:Capacity Ratio ≤ 25% is LOS *A*,
Volume:Capacity Ratio > 25% and ≤ 45% is LOS *B*,
Volume:Capacity Ratio > 45% and ≤ 65% is LOS *C*,
Volume:Capacity Ratio > 65% and ≤ 80% is LOS *D*,
Volume:Capacity Ratio > 80% and ≤ 100% is LOS *E*,
Volume:Capacity Ratio ≥ 100% is LOS *F*

Summary of Results

For roadways adjacent to or in the vicinity of the subject site, the volume/capacity ratio was calculated for existing and site buildout conditions. A summary of the link capacity analysis is provided in **Table 6**. See specific recommendations in the *Recommendations* section of this report.

Table 6. Roadway Link Capacity Analysis Results Summary

ROADWAY/ SCENARIO	DAILY VOLUME	THEORETICAL DAILY CAPACITY	V:C RATIO/ LEVEL OF SERVICE
Douglas Avenue			
Existing Conditions	7,654	10,500	0.73 – *D*
Background Conditions	8,044	10,500	0.77 – *D*
Background-Plus-Site Traffic Condition	9,790	10,500	*0.93 – E*
Lomo Alto Drive			
Existing Conditions	3,648	10,500	0.35 – *B*
Background Conditions	3,834	10,500	0.37 – *B*
Background-Plus-Site Traffic Condition	16,166	10,500	*0.41 – B*

SUMMARY OF FINDINGS AND RECOMMENDATIONS

NOTE: Recommendations presented in this report reflect the opinion of Pacheco Koch based solely upon technical analysis and professional judgment but are not intended to infer mandates or funding responsibility. Any proposed improvements in the public right-of-way are subject to approval of the responsible agency(-ies). Should the approving agency determine that any off-site improvements are required for approval of the Project, legal precedents apply with regard to jurisdiction and funding allocation.

The following findings and recommendations are based upon buildout of the subject property in accordance with the hypothetical development scenario outlined in the Project Description section of this report.

FINDING: Under typical-day peak traffic periods, the traffic operations at the signalized intersections on major thoroughfares (Northwest Highway and Preston Road) operate near capacity. Unsignalized intersections within the study area generally operate efficiently and achieve acceptable Levels of Service.

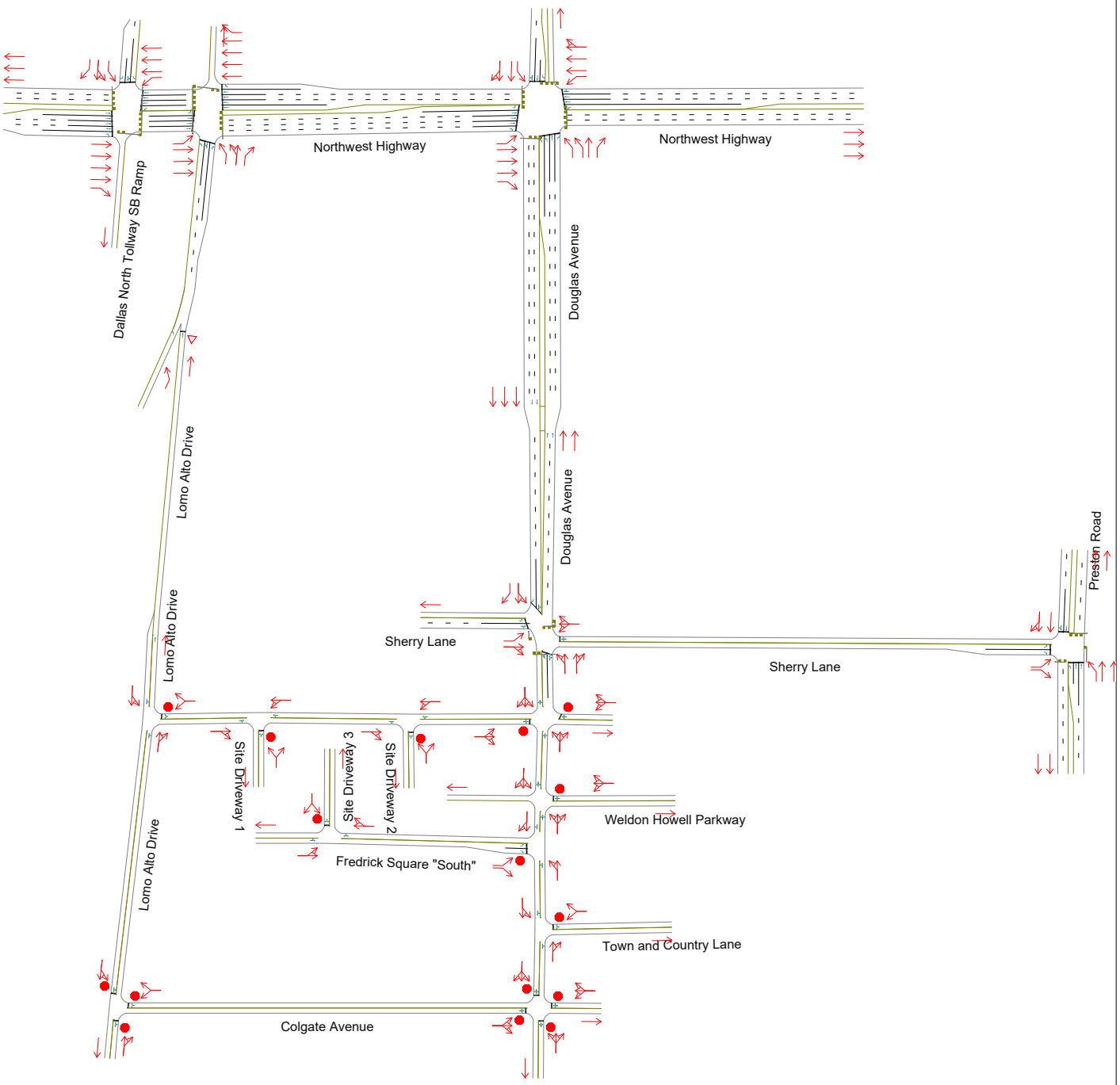
FINDING: With the addition of estimated background traffic growth and the net increase in site-generated traffic from the proposed development, some individual traffic movements will experience a slight increase in average delay. However, the increases are not sufficient to result in any significant change in the existing traffic operational conditions. Therefore, no mitigation measures are considered to be warranted by the proposed development.

END OF MEMO

Appendix A. Traffic Volume Exhibits

Appendix A1 - Roadway Geometry

North ^
Not to Scale



2386-16.242
HWL

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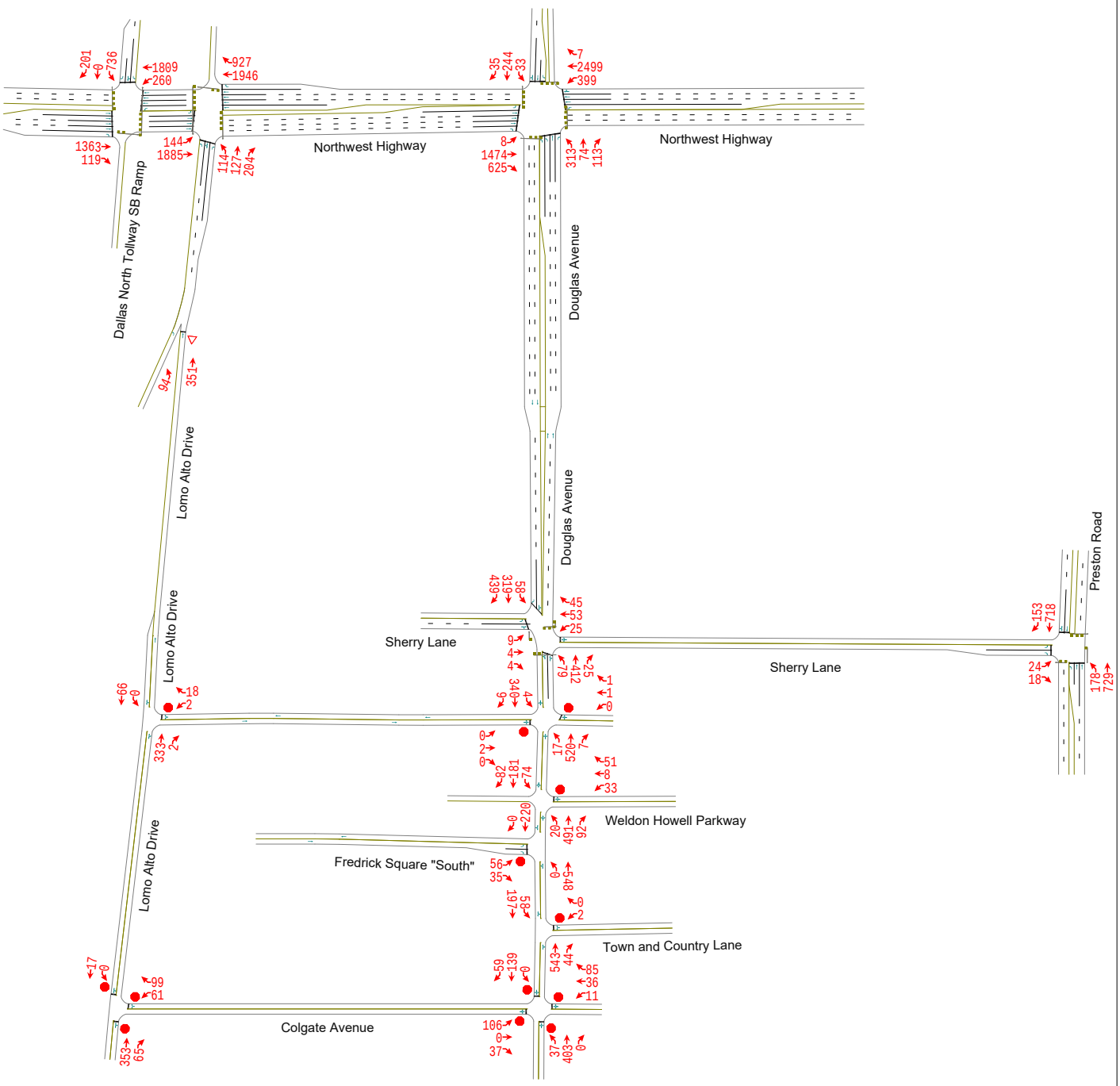
Appendix A2 - Existing AM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
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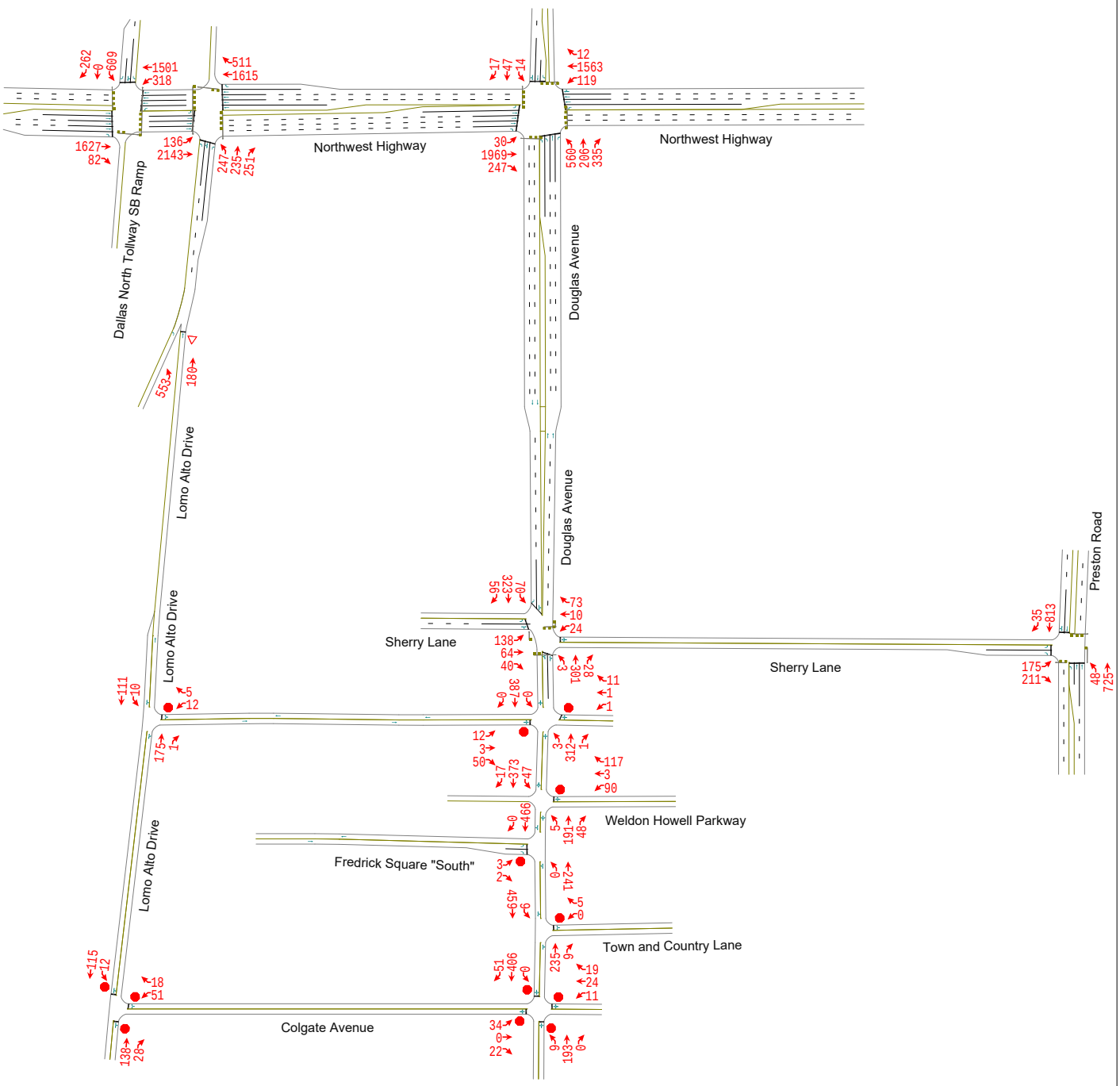
Appendix A3 - Existing PM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
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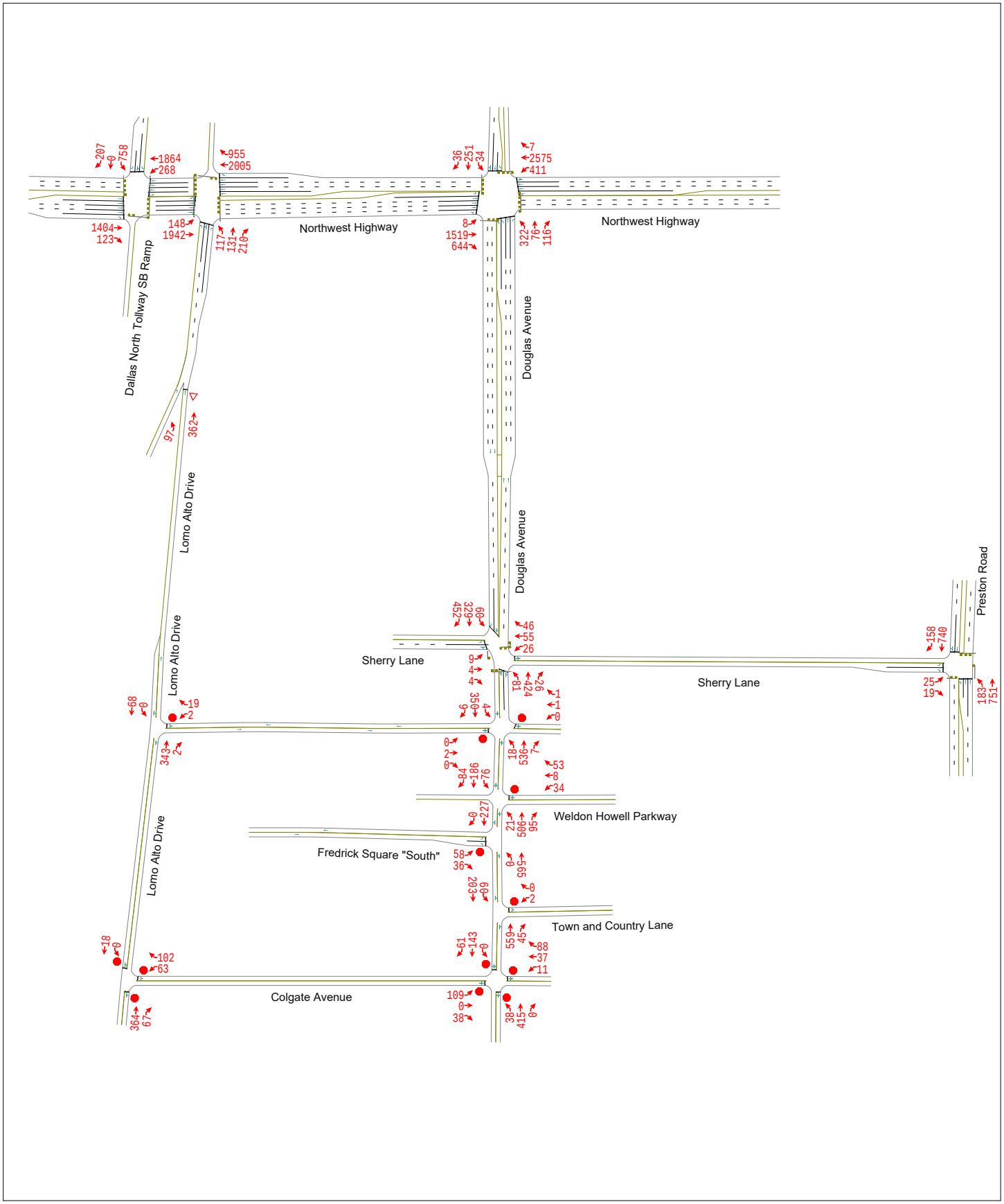
Appendix A4 - Background AM Peak Hour Traffic Volumes

North ^
Not to Scale



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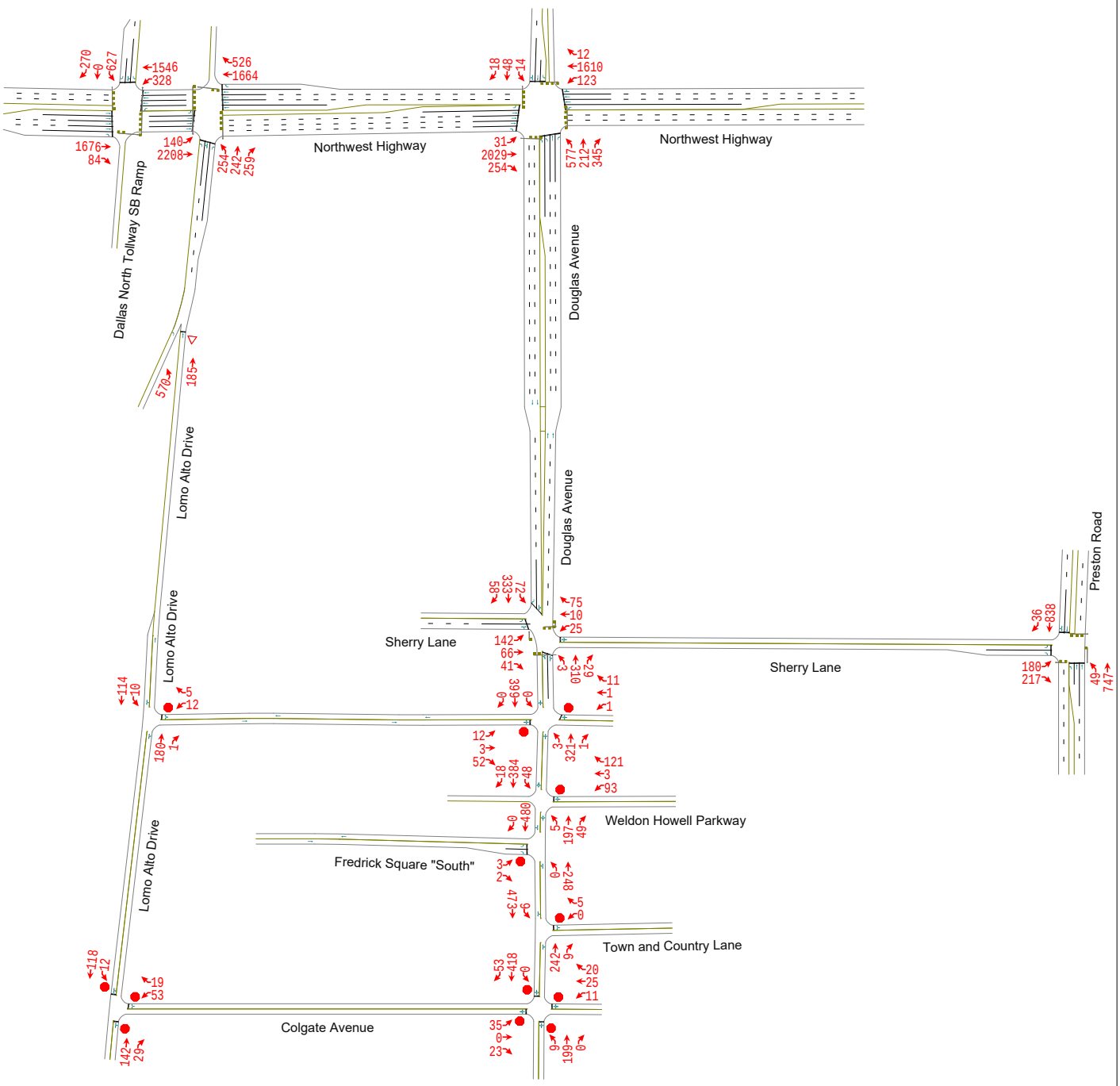
Appendix A5 - Background PM Peak Hour Traffic Volumes

North ^
Not to Scale



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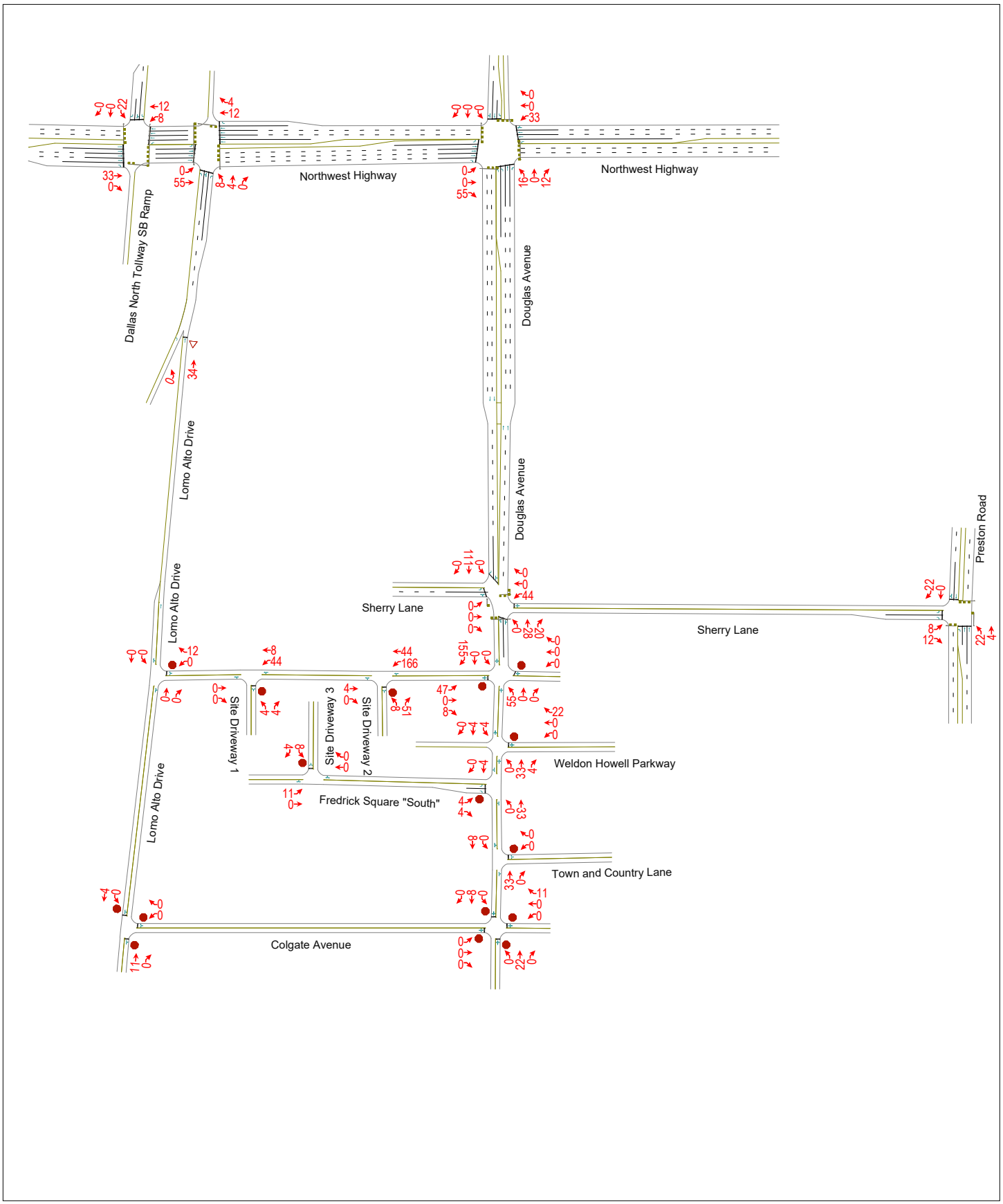
Appendix A6 - Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
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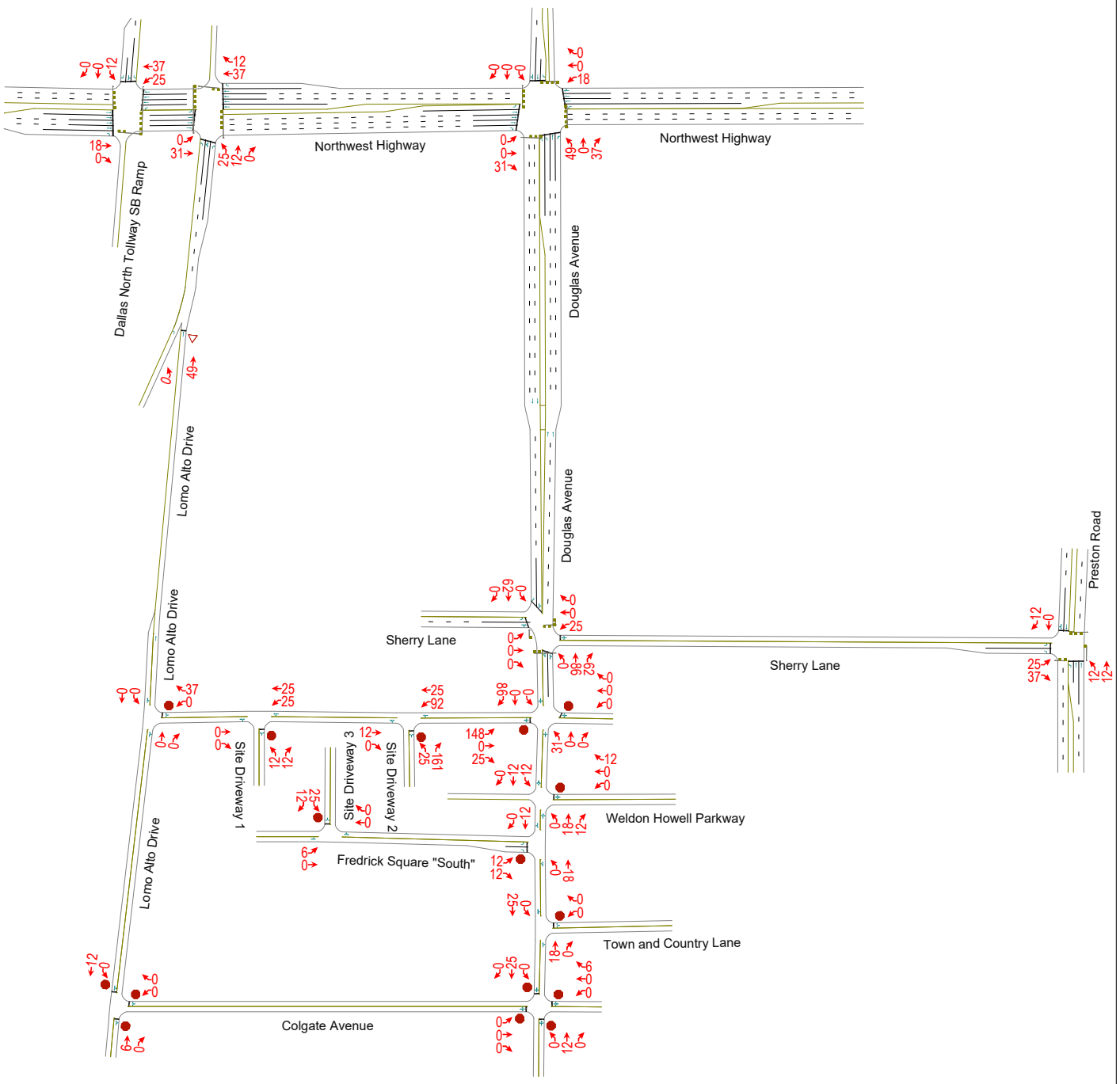
Appendix A7 - Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
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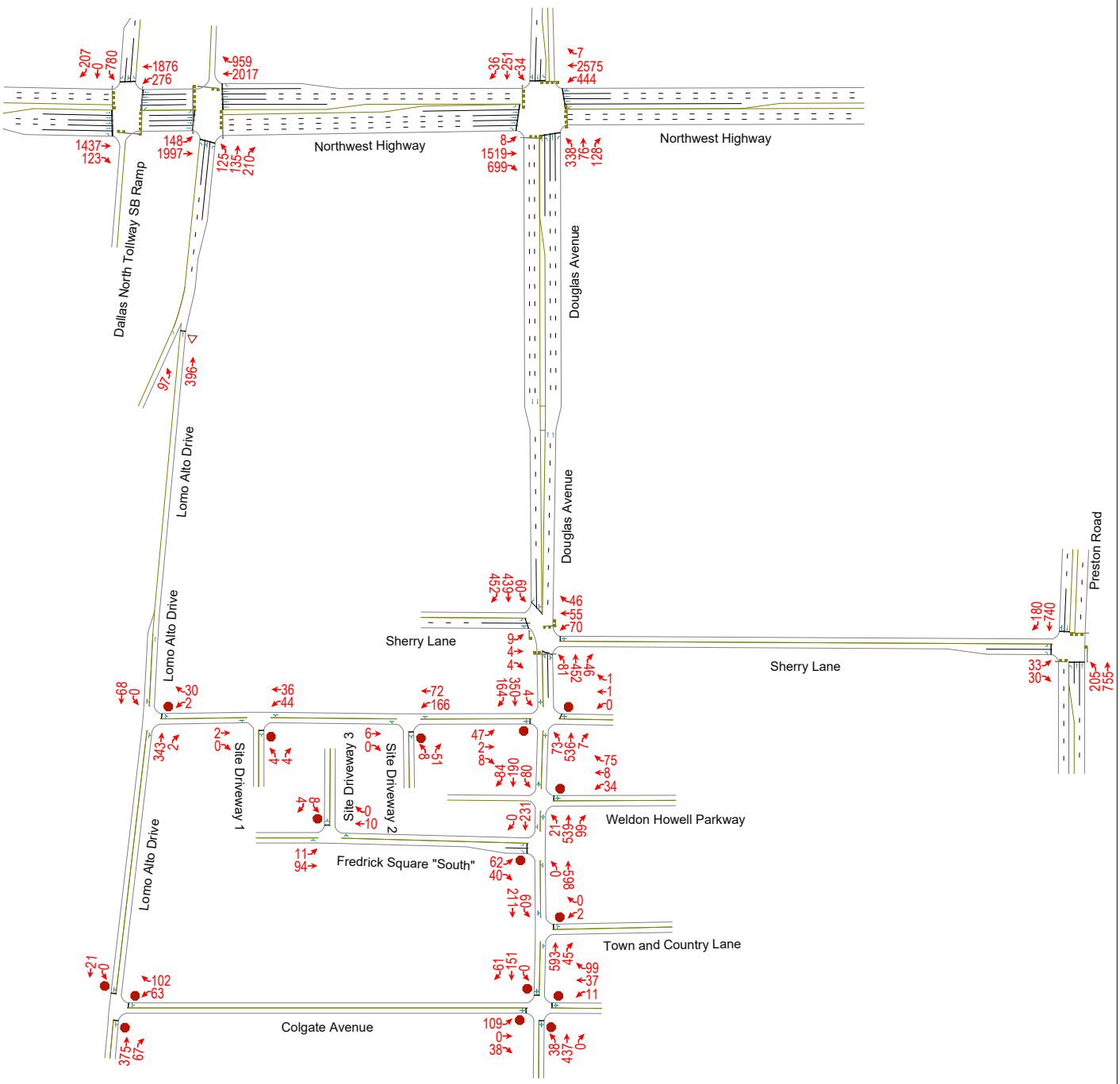
Appendix A8 - Background Plus Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
HWL

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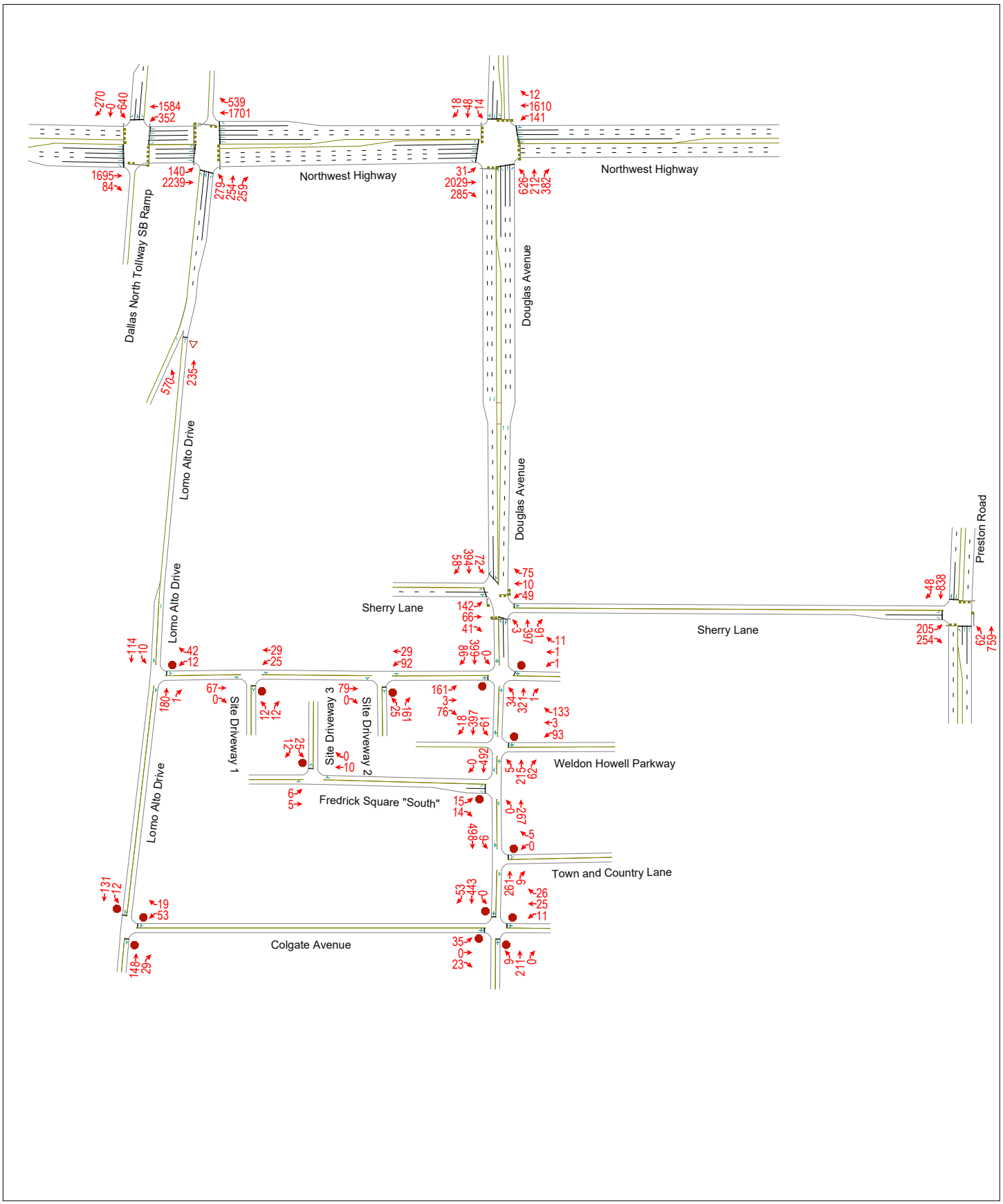
Appendix A9 - Background Plus Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



2386-16.242
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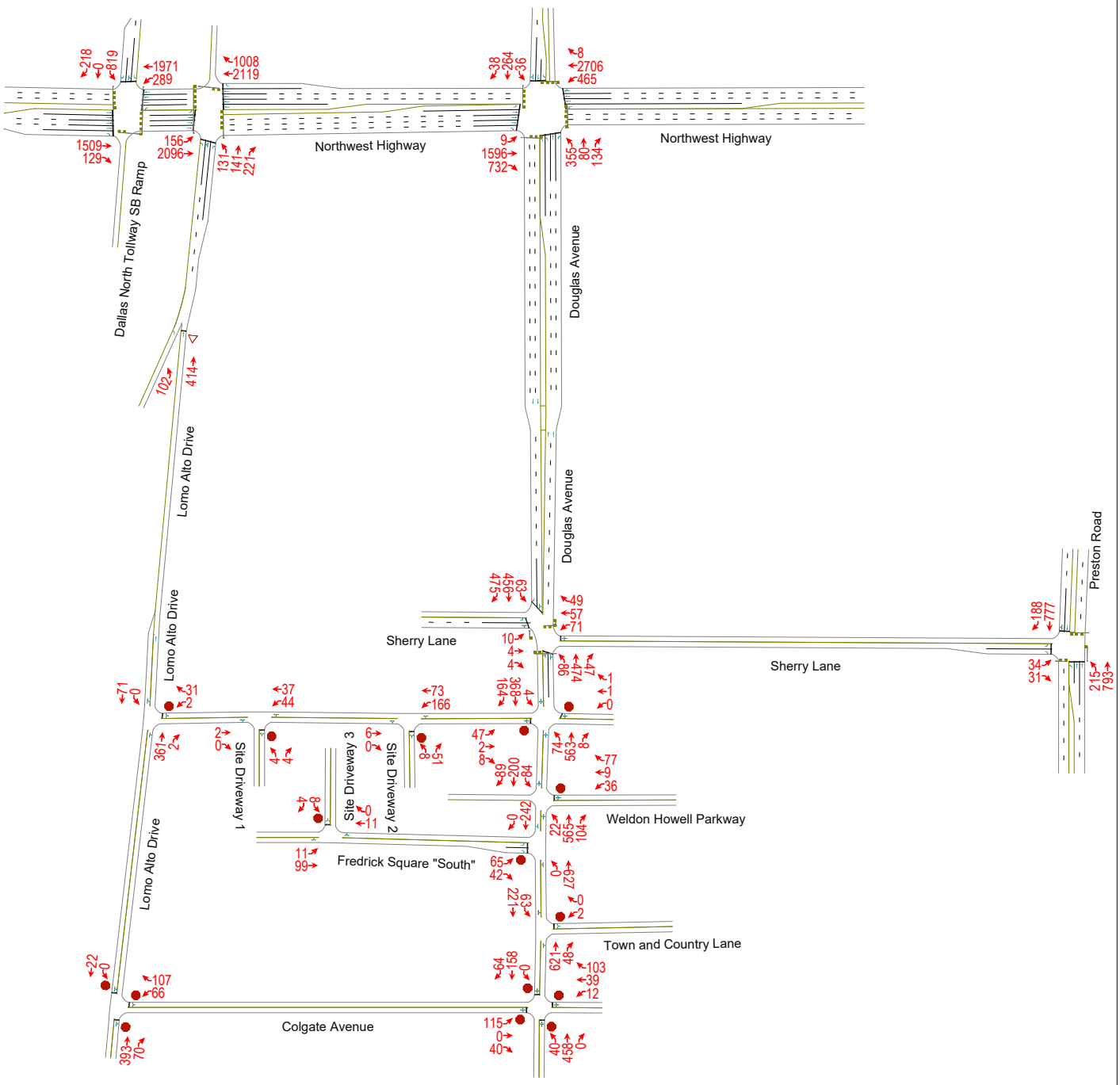
Appendix A10 - Horizon AM Peak Hour Traffic Volumes

North ^
Not to Scale



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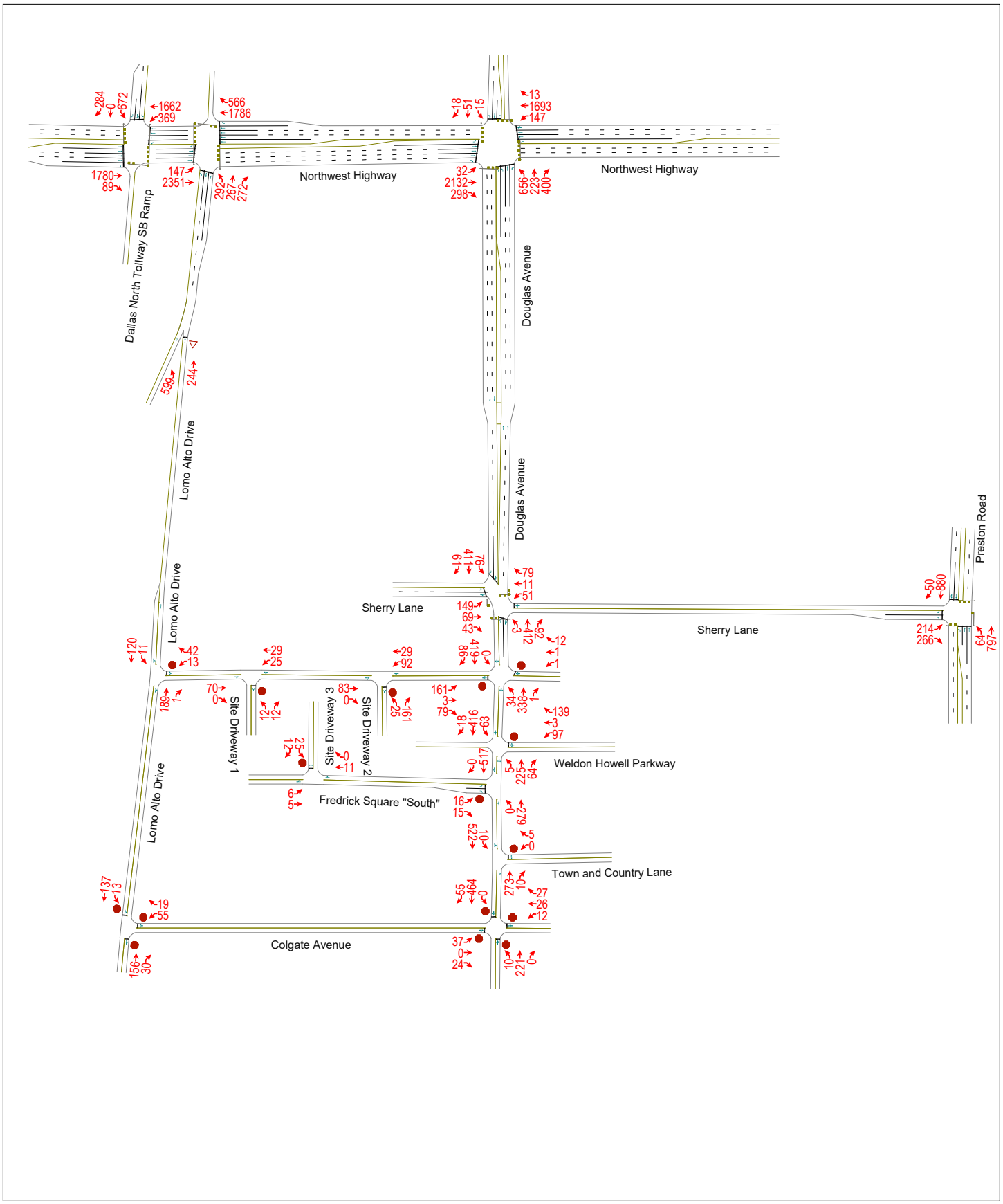
Appendix A11 - Horizon AM Peak Hour Traffic Volumes

North ^
Not to Scale



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Appendix B. Detailed Traffic Volume Data

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG										WEST LEG					
				Southbound Approach on Dallas North Tollway SB Ramp						Westbound Approach on Northwest Highway										Eastbound Approach on Northwest Highway					
				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
City:	*Dallas*	7:00 AM	7:15 AM		140	0	69				43	459	-								-	203	10		
State:	*Texas*	7:15 AM	7:30 AM		164	0	60				42	482	-								-	226	16		
Day:	*Tuesday*	***7:30 AM***	***7:45 AM***		***189***	***0***	***62***				***55***	***475***	***-***								***-***	***312***	***24***		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***193***	***0***	***49***				***68***	***431***	***-***								***-***	***325***	***27***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***191***	***0***	***51***				***62***	***501***	***-***								***-***	***353***	***35***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***163***	***0***	***39***				***75***	***402***	***-***								***-***	***373***	***33***		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		130	0	34				101	402	-								-	364	29		
Traffic Control:	*Traffic Signal*	8:45 AM	9:00 AM		142	0	41				80	415	-								-	409	29		
Observations:																									
		4:30 PM	4:45 PM		172	1	56				49	367	-								-	389	12		
		4:45 PM	*5:00 PM*		*157*	*0*	*59*				*49*	*414*	-								-	*470*	*15*		
		5:00 PM	***5:15 PM***		***183***	***0***	***67***				***57***	***362***	***-***								***-***	***417***	***25***		
		5:15 PM	***5:30 PM***		***155***	***0***	***61***				***90***	***425***	***-***								***-***	***357***	***18***		
		5:30 PM	***5:45 PM***		***115***	***0***	***53***				***79***	***380***	***-***								***-***	***412***	***19***		
		5:45 PM	**6:00 PM**		**156**	**0**	**81**				**92**	**334**	**-**								**-**	**441**	**20**		
		6:00 PM	6:15 PM		176	0	56				81	370	-								-	338	15		
		6:15 PM	6:30 PM		192	1	68				63	337	-								-	457	12		
AM Peak Hour	*Intersection PHF:*	*0.94*	*Intersection PHV:*		*736*	*0*	*201*				*260*	*1,809*	*0*								*0*	*1,363*	*119*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.95*	*0.00*	*0.81*				*0.87*	*0.90*	*0.00*								*0.00*	*0.91*	*0.85*		
	Study Area PHF:	**0.94**	**Study Area PHV:**		**736**	**0**	**201**				**260**	**1,809**	**0**								**0**	**1,363**	**119**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.95**	**0.00**	**0.81**				**0.87**	**0.90**	**0.00**								**0.00**	**0.91**	**0.85**		
PM Peak Hour	*Intersection PHF:*	*0.95*	*Intersection PHV:*		*610*	*0*	*240*				*275*	*1,581*	*0*								*0*	*1,656*	*77*		
	Peak Hour	*4:45 PM - 5:45 PM*	*PHF:*		*0.83*	*0.00*	*0.90*				*0.76*	*0.93*	*0.00*								*0.00*	*0.88*	*0.77*		
	Study Area PHF:	**0.98**	**Study Area PHV:**		**609**	**0**	**262**				**318**	**1,501**	**0**								**0**	**1,627**	**82**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.83**	**0.00**	**0.81**				**0.86**	**0.88**	**0.00**								**0.00**	**0.92**	**0.82**		

Pacheco Koch

PK# 2386-16.242

Dallas North Tollway SB Ramp at Northwest Highway

Intersection Turning Movement Counts

										EAST LEG						SOUTH LEG						WEST LEG					
										Westbound Approach on Northwest Highway						Northbound Approach on Dallas North Tollway NB Ramp						Eastbound Approach on Northwest Highway					
										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
City:	*Dallas*	7:00 AM	7:15 AM								-	478	191				19	21	35				25	315	-		
State:	*Texas*	7:15 AM	7:30 AM								-	484	240				27	34	35				31	360	-		
Day:	*Tuesday*	**7:30 AM**	**7:45 AM**								**-**	**508**	**226**				**16**	**29**	**39**				**42**	**445**	**-**		
Date:	*February 6th*	**7:45 AM**	**8:00 AM**								**-**	**465**	**263**				**34**	**31**	**52**				**37**	**461**	**-**		
Year:	*2018*	***8:00 AM***	***8:15 AM***								***-***	***522***	***243***				***36***	***34***	***60***				***34***	***500***	***-***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***								***-***	***451***	***195***				***28***	***33***	***53***				***31***	***479***	***-***		
Data Source:	*CJ Hensch & Associates, Inc.*	*8:30 AM*	*8:45 AM*								*-*	*490*	*205*				*25*	*24*	*74*				*43*	*454*	*-*		
Traffic Control:	*Traffic Signal*	*8:45 AM*	*9:00 AM*								*-*	*453*	*184*				*49*	*39*	*83*				*36*	*516*	*-*		
Observations:																											
		4:30 PM	4:45 PM								-	343	143				71	63	64				48	496	-		
		4:45 PM	*5:00 PM*								*-*	*389*	*138*				*61*	*47*	*70*				*34*	*606*	*-*		
		5:00 PM	***5:15 PM***								***-***	***358***	***126***				***71***	***57***	***67***				***34***	***593***	***-***		
		5:15 PM	***5:30 PM***								***-***	***449***	***114***				***57***	***67***	***61***				***28***	***539***	***-***		
		5:30 PM	***5:45 PM***								***-***	***427***	***149***				***56***	***49***	***71***				***31***	***477***	***-***		
		5:45 PM	**6:00 PM**								**-**	**381**	**122**				**63**	**62**	**52**				**43**	**534**	**-**		
		6:00 PM	6:15 PM								-	392	112				62	60	72				26	471	-		
		6:15 PM	6:30 PM								-	366	115				47	31	70				46	554	-		
AM Peak Hour	*Intersection PHF:*	*0.94*	*Intersection PHV:*								*0*	*1,916*	*827*				*138*	*130*	*270*				*144*	*1,949*	*0*		
	Peak Hour	*8:00 AM - 9:00 AM*	*PHF:*								*0.00*	*0.92*	*0.85*				*0.70*	*0.83*	*0.81*				*0.84*	*0.94*	*0.00*		
	Study Area PHF:	**0.94**	**Study Area PHV:**								**0**	**1,946**	**927**				**114**	**127**	**204**				**144**	**1,885**	**0**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**								**0.00**	**0.93**	**0.88**				**0.79**	**0.93**	**0.85**				**0.86**	**0.94**	**0.00**		
PM Peak Hour	*Intersection PHF:*	*0.97*	*Intersection PHV:*								*0*	*1,623*	*527*				*245*	*220*	*269*				*127*	*2,215*	*0*		
	Peak Hour	*4:45 PM - 5:45 PM*	*PHF:*								*0.00*	*0.90*	*0.88*				*0.86*	*0.82*	*0.95*				*0.93*	*0.91*	*0.00*		
	Study Area PHF:	**0.98**	**Study Area PHV:**								**0**	**1,615**	**511**				**247**	**235**	**251**				**136**	**2,143**	**0**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**								**0.00**	**0.90**	**0.86**				**0.87**	**0.88**	**0.88**				**0.79**	**0.90**	**0.00**		

Pacheco Koch

PK# 2386-16.242

Dallas North Tollway NB Ramp at Northwest Highway

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Northwest Highway						Northbound Approach on Douglas Avenue						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	10	8				79	629	1				30	5	15				2	225	111		
State:	Texas	7:15 AM	7:30 AM		5	27	7				87	674	3				49	3	10				1	253	120		
Day:	Tuesday	**7:30 AM**	**7:45 AM**		**7**	**45**	**7**				**95**	**651**	**2**				**87**	**15**	**15**				**2**	**321**	**146**		
Date:	February 6th	***7:45 AM***	***8:00 AM***		***12***	***88***	***7***				***101***	***598***	***1***				***90***	***36***	***44***				***3***	***352***	***155***		
Year:	2018	***8:00 AM***	***8:15 AM***		***7***	***48***	***14***				***99***	***667***	***1***				***76***	***17***	***33***				***3***	***404***	***168***		
Data Collector:	Camera	***8:15 AM***	***8:30 AM***		***7***	***63***	***7***				***104***	***583***	***3***				***60***	***6***	***21***				***0***	***397***	***156***		
Data Source:	CJ Hensch & Associates, Inc.	*8:30 AM*	*8:45 AM*		*3*	*58*	*5*				*100*	*645*	*1*				*59*	*8*	*26*				*0*	*381*	*148*		
Traffic Control:	Traffic Signal	8:45 AM	9:00 AM		8	54	5				100	578	3				69	12	34				2	450	146		
Observations:																											
		4:30 PM	4:45 PM		6	11	7				29	357	0				139	40	90				5	470	68		
		4:45 PM	*5:00 PM*		*3*	*18*	*9*				*34*	*366*	*2*				*116*	*35*	*72*				*6*	*544*	*70*		
		5:00 PM	***5:15 PM***		***5***	***9***	***4***				***25***	***345***	***2***				***173***	***59***	***105***				***11***	***509***	***57***		
		5:15 PM	***5:30 PM***		***2***	***8***	***3***				***33***	***412***	***2***				***130***	***55***	***78***				***2***	***468***	***66***		
		5:30 PM	***5:45 PM***		***1***	***11***	***5***				***31***	***427***	***7***				***133***	***39***	***76***				***10***	***503***	***53***		
		5:45 PM	**6:00 PM**		**6**	**19**	**5**				**30**	**379**	**1**				**124**	**53**	**76**				**7**	**489**	**71**		
		6:00 PM	6:15 PM		1	12	5				26	339	1				125	36	84				9	494	41		
		6:15 PM	6:30 PM		1	6	3				27	346	2				100	24	45				6	578	53		
AM Peak Hour	*Intersection PHF:*	*0.95*	*Intersection PHV:*		*29*	*257*	*33*				*404*	*2,493*	*6*				*285*	*67*	*124*				*6*	*1,534*	*627*		
	Peak Hour	*7:45 AM - 8:45 AM*	*PHF:*		*0.60*	*0.73*	*0.59*				*0.97*	*0.93*	*0.50*				*0.79*	*0.47*	*0.70*				*0.50*	*0.95*	*0.93*		
	Study Area PHF:	**0.95**	**Study Area PHV:**		**33**	**244**	**35**				**399**	**2,499**	**7**				**313**	**74**	**113**				**8**	**1,474**	**625**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.69**	**0.69**	**0.63**				**0.96**	**0.94**	**0.58**				**0.87**	**0.51**	**0.64**				**0.67**	**0.91**	**0.93**		
PM Peak Hour	*Intersection PHF:*	*0.98*	*Intersection PHV:*		*11*	*46*	*21*				*123*	*1,550*	*13*				*552*	*188*	*331*				*29*	*2,024*	*246*		
	Peak Hour	*4:45 PM - 5:45 PM*	*PHF:*		*0.55*	*0.64*	*0.58*				*0.90*	*0.91*	*0.46*				*0.80*	*0.80*	*0.79*				*0.66*	*0.93*	*0.88*		
	Study Area PHF:	**0.98**	**Study Area PHV:**		**14**	**47**	**17**				**119**	**1,563**	**12**				**560**	**206**	**335**				**30**	**1,969**	**247**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.58**	**0.62**	**0.85**				**0.90**	**0.92**	**0.43**				**0.81**	**0.87**	**0.80**				**0.68**	**0.97**	**0.87**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Northwest Highway

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Sherry Lane						Northbound Approach on Douglas Avenue						Eastbound Approach on Sherry Lane					
				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		4	44	72				0	3	4				5	22	2				4	1	1		
State:	***Texas***	7:15 AM	7:30 AM		8	64	87				1	7	5				7	36	2				1	0	1		
Day:	***Tuesday***	***7:30 AM***	***7:45 AM***		***13***	***96***	***98***				***6***	***13***	***5***				***11***	***104***	***4***				***0***	***0***	***0***		
Date:	***February 6th***	***7:45 AM***	***8:00 AM***		***15***	***106***	***111***				***7***	***15***	***14***				***25***	***137***	***8***				***2***	***0***	***1***		
Year:	***2018***	***8:00 AM***	***8:15 AM***		***17***	***63***	***102***				***5***	***17***	***15***				***21***	***97***	***7***				***6***	***1***	***1***		
Data Collector:	***Camera***	***8:15 AM***	***8:30 AM***		***13***	***54***	***128***				***7***	***8***	***11***				***22***	***74***	***6***				***1***	***3***	***2***		
Data Source:	***CJ Hensch & Associates, Inc.***	8:30 AM	8:45 AM		9	55	91				1	21	14				27	81	8				5	0	3		
Traffic Control:	***Traffic Signal***	8:45 AM	9:00 AM		12	65	81				9	16	11				21	70	11				19	12	6		
Observations:																											
		4:30 PM	4:45 PM		11	49	16				4	1	15				2	81	5				38	7	7		
		4:45 PM	*5:00 PM*		*17*	*76*	*17*				*6*	*5*	*30*				*3*	*89*	*10*				*32*	*19*	*2*		
		5:00 PM	***5:15 PM***		***20***	***73***	***15***				***5***	***4***	***24***				***1***	***87***	***6***				***49***	***11***	***7***		
		5:15 PM	***5:30 PM***		***17***	***85***	***12***				***7***	***4***	***14***				***0***	***67***	***10***				***34***	***16***	***13***		
		5:30 PM	***5:45 PM***		***21***	***82***	***10***				***4***	***2***	***18***				***1***	***62***	***6***				***36***	***27***	***13***		
		5:45 PM	**6:00 PM**		**12**	**83**	**19**				**8**	**0**	**17**				**1**	**85**	**6**				**19**	**10**	**7**		
		6:00 PM	6:15 PM		11	77	10				2	2	17				3	62	10				28	5	5		
		6:15 PM	6:30 PM		12	72	22				1	1	18				4	40	13				21	1	4		
AM Peak Hour	*Intersection PHF:*	*0.83*	*Intersection PHV:*		*58*	*319*	*439*				*25*	*53*	*45*				*79*	*412*	*25*				*9*	*4*	*4*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.85*	*0.75*	*0.86*				*0.89*	*0.78*	*0.75*				*0.79*	*0.75*	*0.78*				*0.38*	*0.33*	*0.50*		
	Study Area PHF:	**0.83**	**Study Area PHV:**		**58**	**319**	**439**				**25**	**53**	**45**				**79**	**412**	**25**				**9**	**4**	**4**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.85**	**0.75**	**0.86**				**0.89**	**0.78**	**0.75**				**0.79**	**0.75**	**0.78**				**0.38**	**0.33**	**0.50**		
PM Peak Hour	*Intersection PHF:*	*0.96*	*Intersection PHV:*		*75*	*316*	*54*				*22*	*15*	*86*				*5*	*305*	*32*				*151*	*73*	*35*		
	Peak Hour	*4:45 PM - 5:45 PM*	*PHF:*		*0.89*	*0.93*	*0.79*				*0.79*	*0.75*	*0.72*				*0.42*	*0.86*	*0.80*				*0.77*	*0.68*	*0.67*		
	Study Area PHF:	**0.94**	**Study Area PHV:**		**70**	**323**	**56**				**24**	**10**	**73**				**3**	**301**	**28**				**138**	**64**	**40**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.83**	**0.95**	**0.74**				**0.75**	**0.63**	**0.76**				**0.75**	**0.86**	**0.70**				**0.70**	**0.59**	**0.77**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Sherry Lane

Intersection Turning Movement Counts

				NORTH LEG										SOUTH LEG						WEST LEG					
				Southbound Approach on Preston Road										Northbound Approach on Preston Road						Eastbound Approach on Sherry Lane					
				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
City:	*Dallas*	7:00 AM	7:15 AM		-	91	16								8	62	-				5	-	1		
State:	*Texas*	7:15 AM	7:30 AM		-	109	22								22	106	-				6	-	5		
Day:	*Tuesday*	**7:30 AM**	**7:45 AM**		**-**	**186**	**34**								**29**	**158**	**-**				**5**	**-**	**2**		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***-***	***212***	***38***								***49***	***186***	***-***				***7***	***-***	***4***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***-***	***144***	***38***								***45***	***189***	***-***				***6***	***-***	***8***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***-***	***176***	***43***								***55***	***196***	***-***				***6***	***-***	***4***		
Data Source:	*CJ Hensch & Associates, Inc.*	*8:30 AM*	*8:45 AM*		-	*161*	*44*								*44*	*165*	-				*6*	-	*2*		
Traffic Control:	*Traffic Signal*	8:45 AM	9:00 AM		-	202	36								42	161	-				13	-	11		
Observations:																									
		4:30 PM	4:45 PM		-	181	15								13	161	-				39	-	38		
		4:45 PM	*5:00 PM*		-	*179*	*21*								*12*	*176*	-				*53*	-	*50*		
		5:00 PM	***5:15 PM***		***-***	***200***	***9***								***13***	***177***	***-***				***57***	***-***	***68***		
		5:15 PM	***5:30 PM***		***-***	***213***	***5***								***10***	***168***	***-***				***44***	***-***	***47***		
		5:30 PM	***5:45 PM***		***-***	***212***	***8***								***12***	***210***	***-***				***31***	***-***	***56***		
		5:45 PM	**6:00 PM**		**-**	**188**	**13**								**13**	**170**	**-**				**43**	**-**	**40**		
		6:00 PM	6:15 PM		-	234	6								10	199	-				23	-	37		
		6:15 PM	6:30 PM		-	166	11								6	166	-				33	-	22		
AM Peak Hour	*Intersection PHF:*	*0.92*	*Intersection PHV:*		*0*	*693*	*163*								*193*	*736*	*0*				*25*	*0*	*18*		
	Peak Hour	*7:45 AM - 8:45 AM*	*PHF:*		*0.00*	*0.82*	*0.93*								*0.88*	*0.94*	*0.00*				*0.89*	*0.00*	*0.56*		
	Study Area PHF:	**0.92**	**Study Area PHV:**		**0**	**718**	**153**								**178**	**729**	**0**				**24**	**0**	**18**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.00**	**0.85**	**0.89**								**0.81**	**0.93**	**0.00**				**0.86**	**0.00**	**0.56**		
PM Peak Hour	*Intersection PHF:*	*0.96*	*Intersection PHV:*		*0*	*804*	*43*								*47*	*731*	*0*				*185*	*0*	*221*		
	Peak Hour	*4:45 PM - 5:45 PM*	*PHF:*		*0.00*	*0.94*	*0.51*								*0.90*	*0.87*	*0.00*				*0.81*	*0.00*	*0.81*		
	Study Area PHF:	**0.95**	**Study Area PHV:**		**0**	**813**	**35**								**48**	**725**	**0**				**175**	**0**	**211**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.00**	**0.95**	**0.67**								**0.92**	**0.86**	**0.00**				**0.77**	**0.00**	**0.78**		

Pacheco Koch

PK# 2386-16.242

Preston Road at Sherry Lane

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG					
				Southbound Approach on Lomo Alto Drive						Westbound Approach on Frederick Square						Northbound Approach on Lomo Alto Drive					
				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
City:	*Dallas*	7:00 AM	7:15 AM		0	4	-				0	-	0				-	35	0		
State:	*Texas*	7:15 AM	7:30 AM		1	4	-				0	-	0				-	55	0		
Day:	*Tuesday*	***7:30 AM***	***7:45 AM***		***0***	***17***	***-***				***0***	***-***	***6***				***-***	***67***	***0***		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***0***	***35***	***-***				***1***	***-***	***2***				***-***	***95***	***0***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***0***	***11***	***-***				***0***	***-***	***1***				***-***	***86***	***0***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***0***	***3***	***-***				***1***	***-***	***9***				***-***	***85***	***2***		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		0	7	-				1	-	2				-	75	0		
Traffic Control:	*Minor Approach Stop*	8:45 AM	9:00 AM		1	8	-				0	-	3				-	80	1		
Observations:																					
		4:30 PM	*4:45 PM*		*0*	*20*	*-*				*4*	*-*	*1*				*-*	*53*	*1*		
		4:45 PM	*5:00 PM*		*1*	*30*	*-*				*2*	*-*	*0*				*-*	*44*	*0*		
		5:00 PM	***5:15 PM***		***3***	***38***	***-***				***8***	***-***	***1***				***-***	***53***	***0***		
		5:15 PM	***5:30 PM***		***2***	***26***	***-***				***0***	***-***	***2***				***-***	***41***	***1***		
		5:30 PM	**5:45 PM**		**2**	**24**	**-**				**1**	**-**	**0**				**-**	**41**	**0**		
		5:45 PM	**6:00 PM**		**3**	**23**	**-**				**3**	**-**	**2**				**-**	**40**	**0**		
		6:00 PM	6:15 PM		0	15	-				0	-	1				-	48	1		
		6:15 PM	6:30 PM		1	10	-				0	-	1				-	33	0		
AM Peak Hour	*Intersection PHF:*	*0.79*	*Intersection PHV:*		*0*	*66*	*0*				*2*	*0*	*18*				*0*	*333*	*2*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.00*	*0.47*	*0.00*				*0.50*	*0.00*	*0.50*				*0.00*	*0.88*	*0.25*		
	Study Area PHF:	**0.79**	**Study Area PHV:**		**0**	**66**	**0**				**2**	**0**	**18**				**0**	**333**	**2**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.00**	**0.47**	**0.00**				**0.50**	**0.00**	**0.50**				**0.00**	**0.88**	**0.25**		
PM Peak Hour	*Intersection PHF:*	*0.80*	*Intersection PHV:*		*6*	*114*	*0*				*14*	*0*	*4*				*0*	*191*	*2*		
	Peak Hour	*4:30 PM - 5:30 PM*	*PHF:*		*0.50*	*0.75*	*0.00*				*0.44*	*0.00*	*0.50*				*0.00*	*0.90*	*0.50*		
	Study Area PHF:	**0.76**	**Study Area PHV:**		**10**	**111**	**0**				**12**	**0**	**5**				**0**	**175**	**1**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.83**	**0.73**	**0.00**				**0.38**	**0.00**	**0.63**				**0.00**	**0.83**	**0.25**		

Pacheco Koch

PK# 2386-16.242

Lomo Alto Drive at Frederick Square

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG					
				Southbound Approach on Lomo Alto Drive						Westbound Approach on Colgate Avenue						Northbound Approach on Lomo Alto Drive					
				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
City:	*Dallas*	7:00 AM	7:15 AM		0	2	-				3	-	3				-	42	3		
State:	*Texas*	7:15 AM	7:30 AM		0	1	-				3	-	9				-	55	7		
Day:	*Tuesday*	***7:30 AM***	***7:45 AM***		***0***	***3***	***-***				***21***	***-***	***13***				***-***	***77***	***21***		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***0***	***5***	***-***				***18***	***-***	***63***				***-***	***115***	***12***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***0***	***6***	***-***				***17***	***-***	***19***				***-***	***79***	***13***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***0***	***3***	***-***				***5***	***-***	***4***				***-***	***82***	***19***		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		0	3	-				5	-	9				-	79	11		
Traffic Control:	*Minor Approach Stop*	8:45 AM	9:00 AM		0	9	-				0	-	5				-	85	13		
Observations:																					
		4:30 PM	*4:45 PM*		*1*	*28*	*-*				*7*	*-*	*6*				*-*	*41*	*5*		
		4:45 PM	*5:00 PM*		*1*	*31*	*-*				*10*	*-*	*3*				*-*	*35*	*7*		
		5:00 PM	***5:15 PM***		***5***	***40***	***-***				***16***	***-***	***6***				***-***	***40***	***8***		
		5:15 PM	***5:30 PM***		***3***	***24***	***-***				***17***	***-***	***2***				***-***	***34***	***10***		
		5:30 PM	**5:45 PM**		**3**	**23**	**-**				**10**	**-**	**5**				**-**	**38**	**6**		
		5:45 PM	**6:00 PM**		**1**	**28**	**-**				**8**	**-**	**5**				**-**	**26**	**4**		
		6:00 PM	6:15 PM		1	16	-				14	-	3				-	39	13		
		6:15 PM	6:30 PM		0	11	-				8	-	1				-	34	6		
AM Peak Hour	*Intersection PHF:*	*0.70*	*Intersection PHV:*		*0*	*17*	*0*				*61*	*0*	*99*				*0*	*353*	*65*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.00*	*0.71*	*0.00*				*0.73*	*0.00*	*0.39*				*0.00*	*0.77*	*0.77*		
	Study Area PHF:	**0.70**	**Study Area PHV:**		**0**	**17**	**0**				**61**	**0**	**99**				**0**	**353**	**65**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.00**	**0.71**	**0.00**				**0.73**	**0.00**	**0.39**				**0.00**	**0.77**	**0.77**		
PM Peak Hour	*Intersection PHF:*	*0.83*	*Intersection PHV:*		*10*	*123*	*0*				*50*	*0*	*17*				*0*	*150*	*30*		
	Peak Hour	*4:30 PM - 5:30 PM*	*PHF:*		*0.50*	*0.77*	*0.00*				*0.74*	*0.00*	*0.71*				*0.00*	*0.91*	*0.75*		
	Study Area PHF:	**0.79**	**Study Area PHV:**		**12**	**115**	**0**				**51**	**0**	**18**				**0**	**138**	**28**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.60**	**0.72**	**0.00**				**0.75**	**0.00**	**0.75**				**0.00**	**0.86**	**0.70**		

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Fredrick Square "North"						Northbound Approach on Douglas Avenue						Eastbound Approach on Fredrick Square "North"					
				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	44	0				0	0	0				0	31	0				0	0	0		
State:	Texas	7:15 AM	7:30 AM		1	64	1				0	0	0				0	49	0				0	0	0		
Day:	Tuesday	***7:30 AM***	***7:45 AM***		***0***	***99***	***4***				***0***	***1***	***0***				***3***	***122***	***1***				***0***	***0***	***0***		
Date:	February 6th	***7:45 AM***	***8:00 AM***		***0***	***114***	***1***				***0***	***0***	***0***				***5***	***170***	***2***				***0***	***0***	***0***		
Year:	2018	***8:00 AM***	***8:15 AM***		***3***	***69***	***0***				***0***	***0***	***0***				***4***	***119***	***3***				***0***	***1***	***0***		
Data Collector:	Camera	***8:15 AM***	***8:30 AM***		***1***	***58***	***4***				***0***	***0***	***1***				***5***	***109***	***1***				***0***	***1***	***0***		
Data Source:	CJ Hensch & Associates, Inc.	8:30 AM	8:45 AM		0	58	2				0	0	1				0	111	0				0	0	2		
Traffic Control:	Minor Approach Stop	8:45 AM	9:00 AM		2	77	1				0	0	1				6	98	0				2	0	2		
Observations:																											
		4:30 PM	4:45 PM		0	59	2				2	0	3				0	89	0				0	0	3		
		4:45 PM	5:00 PM		2	81	0				0	0	2				0	93	0				1	2	7		
		5:00 PM	***5:15 PM***		***0***	***87***	***0***				***1***	***1***	***8***				***2***	***79***	***0***				***6***	***0***	***15***		
		5:15 PM	***5:30 PM***		***0***	***103***	***0***				***0***	***0***	***3***				***1***	***75***	***0***				***3***	***1***	***16***		
		5:30 PM	***5:45 PM***		***0***	***99***	***0***				***0***	***0***	***0***				***0***	***69***	***1***				***1***	***1***	***8***		
		5:45 PM	***6:00 PM***		***0***	***98***	***0***				***0***	***0***	***0***				***0***	***89***	***0***				***2***	***1***	***11***		
		6:00 PM	6:15 PM		0	82	0				0	0	0				0	70	0				2	1	2		
		6:15 PM	6:30 PM		0	81	0				0	0	0				1	55	0				1	1	4		
AM Peak Hour	*Intersection PHF:*	*0.77*	*Intersection PHV:*		*4*	*340*	*9*				*0*	*1*	*1*				*17*	*520*	*7*				*0*	*2*	*0*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.33*	*0.75*	*0.56*				*0.00*	*0.25*	*0.25*				*0.85*	*0.76*	*0.58*				*0.00*	*0.50*	*0.00*		
	Study Area PHF:	**0.77**	**Study Area PHV:**		**4**	**340**	**9**				**0**	**1**	**1**				**17**	**520**	**7**				**0**	**2**	**0**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.33**	**0.75**	**0.56**				**0.00**	**0.25**	**0.25**				**0.85**	**0.76**	**0.58**				**0.00**	**0.50**	**0.00**		
PM Peak Hour	*Intersection PHF:*	*0.97*	*Intersection PHV:*		*0*	*387*	*0*				*1*	*1*	*11*				*3*	*312*	*1*				*12*	*3*	*50*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.00*	*0.94*	*0.00*				*0.25*	*0.25*	*0.34*				*0.38*	*0.88*	*0.25*				*0.50*	*0.75*	*0.78*		
	Study Area PHF:	**0.97**	**Study Area PHV:**		**0**	**387**	**0**				**1**	**1**	**11**				**3**	**312**	**1**				**12**	**3**	**50**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.00**	**0.94**	**0.00**				**0.25**	**0.25**	**0.34**				**0.38**	**0.88**	**0.25**				**0.50**	**0.75**	**0.78**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Fredrick Square "North"

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Weldon Howell Parkway						Northbound Approach on Douglas Avenue						Eastbound Approach on Private Driveway					
				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		11	28	5				5	1	5				2	26	11				0	0	0		
State:	Texas	7:15 AM	7:30 AM		19	40	5				3	2	7				9	41	11				1	0	0		
Day:	Tuesday	***7:30 AM***	***7:45 AM***		***16***	***65***	***18***				***12***	***3***	***18***				***3***	***118***	***15***				***0***	***0***	***1***		
Date:	February 6th	***7:45 AM***	***8:00 AM***		***17***	***64***	***33***				***11***	***3***	***11***				***8***	***155***	***27***				***2***	***0***	***2***		
Year:	2018	***8:00 AM***	***8:15 AM***		***27***	***26***	***14***				***4***	***2***	***9***				***6***	***117***	***19***				***1***	***1***	***0***		
Data Collector:	Camera	***8:15 AM***	***8:30 AM***		***14***	***26***	***17***				***6***	***0***	***13***				***3***	***101***	***31***				***0***	***0***	***3***		
Data Source:	CJ Hensch & Associates, Inc.	8:30 AM	8:45 AM		13	34	14				4	2	8				12	103	24				1	0	1		
Traffic Control:	Minor Approach Stop	8:45 AM	9:00 AM		17	37	27				4	3	11				17	83	21				9	0	15		
Observations:																											
		4:30 PM	4:45 PM		5	55	4				16	1	32				2	54	5				4	5	4		
		4:45 PM	5:00 PM		9	70	9				22	0	28				4	66	13				2	0	0		
		5:00 PM	***5:15 PM***		***12***	***83***	***8***				***29***	***2***	***36***				***2***	***43***	***11***				***3***	***1***	***1***		
		5:15 PM	***5:30 PM***		***11***	***103***	***3***				***31***	***0***	***29***				***1***	***43***	***14***				***3***	***5***	***2***		
		5:30 PM	***5:45 PM***		***9***	***94***	***6***				***15***	***1***	***27***				***2***	***41***	***13***				***2***	***0***	***1***		
		5:45 PM	***6:00 PM***		***15***	***93***	***0***				***15***	***0***	***25***				***0***	***64***	***10***				***5***	***3***	***1***		
		6:00 PM	6:15 PM		3	77	4				18	0	21				0	45	7				0	2	5		
		6:15 PM	6:30 PM		9	69	6				17	1	13				0	39	3				4	0	2		
AM Peak Hour	*Intersection PHF:*	*0.78*	*Intersection PHV:*		*74*	*181*	*82*				*33*	*8*	*51*				*20*	*491*	*92*				*3*	*1*	*6*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.69*	*0.70*	*0.62*				*0.69*	*0.67*	*0.71*				*0.63*	*0.79*	*0.74*				*0.38*	*0.25*	*0.50*		
	Study Area PHF:	**0.78**	**Study Area PHV:**		**74**	**181**	**82**				**33**	**8**	**51**				**20**	**491**	**92**				**3**	**1**	**6**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.69**	**0.70**	**0.62**				**0.69**	**0.67**	**0.71**				**0.63**	**0.79**	**0.74**				**0.38**	**0.25**	**0.50**		
PM Peak Hour	*Intersection PHF:*	*0.94*	*Intersection PHV:*		*47*	*373*	*17*				*90*	*3*	*117*				*5*	*191*	*48*				*13*	*9*	*5*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.78*	*0.91*	*0.53*				*0.73*	*0.38*	*0.81*				*0.63*	*0.75*	*0.86*				*0.65*	*0.45*	*0.63*		
	Study Area PHF:	**0.94**	**Study Area PHV:**		**47**	**373**	**17**				**90**	**3**	**117**				**5**	**191**	**48**				**13**	**9**	**5**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.78**	**0.91**	**0.53**				**0.73**	**0.38**	**0.81**				**0.63**	**0.75**	**0.86**				**0.65**	**0.45**	**0.63**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Weldon Howell Parkway

Intersection Turning Movement Counts

				NORTH LEG										SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue										Northbound Approach on Douglas Avenue						Eastbound Approach on Fredrick Square "South"					
				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
City:	*Dallas*	7:00 AM	7:15 AM		-	33	-								-	39	-				0	-	0		
State:	*Texas*	7:15 AM	7:30 AM		-	43	-								-	60	-				1	-	1		
Day:	*Tuesday*	***7:30 AM***	***7:45 AM***		***-***	***77***	***-***								***-***	***121***	***-***				***15***	***-***	***2***		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***-***	***77***	***-***								***-***	***162***	***-***				***30***	***-***	***23***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***-***	***31***	***-***								***-***	***130***	***-***				***10***	***-***	***10***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***-***	***35***	***-***								***-***	***135***	***-***				***1***	***-***	***0***		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		-	39	-								-	138	-				0	-	1		
Traffic Control:	*Minor Approach Stop*	8:45 AM	9:00 AM		-	55	-								-	118	-				4	-	4		
Observations:																									
		4:30 PM	4:45 PM		-	75	-								-	59	-				1	-	1		
		4:45 PM	5:00 PM		-	92	-								-	80	-				0	-	0		
		5:00 PM	***5:15 PM***		***-***	***113***	***-***								***-***	***55***	***-***				***0***	***-***	***1***		
		5:15 PM	***5:30 PM***		***-***	***135***	***-***								***-***	***58***	***-***				***1***	***-***	***1***		
		5:30 PM	***5:45 PM***		***-***	***110***	***-***								***-***	***54***	***-***				***1***	***-***	***0***		
		5:45 PM	***6:00 PM***		***-***	***108***	***-***								***-***	***74***	***-***				***1***	***-***	***0***		
		6:00 PM	6:15 PM		-	101	-								-	51	-				0	-	0		
		6:15 PM	6:30 PM		-	86	-								-	42	-				0	-	1		
AM Peak Hour	*Intersection PHF:*	*0.74*	*Intersection PHV:*		*0*	*220*	*0*								*0*	*548*	*0*				*56*	*0*	*35*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.00*	*0.71*	*0.00*								*0.00*	*0.85*	*0.00*				*0.47*	*0.00*	*0.38*		
	Study Area PHF:	**0.74**	**Study Area PHV:**		**0**	**220**	**0**								**0**	**548**	**0**				**56**	**0**	**35**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.00**	**0.71**	**0.00**								**0.00**	**0.85**	**0.00**				**0.47**	**0.00**	**0.38**		
PM Peak Hour	*Intersection PHF:*	*0.91*	*Intersection PHV:*		*0*	*466*	*0*								*0*	*241*	*0*				*3*	*0*	*2*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.00*	*0.86*	*0.00*								*0.00*	*0.81*	*0.00*				*0.75*	*0.00*	*0.50*		
	Study Area PHF:	**0.91**	**Study Area PHV:**		**0**	**466**	**0**								**0**	**241**	**0**				**3**	**0**	**2**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.00**	**0.86**	**0.00**								**0.00**	**0.81**	**0.00**				**0.75**	**0.00**	**0.50**		

Douglas Avenue at Fredrick Square "South"

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Town and Country Lane						Northbound Approach on Douglas Avenue					
				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
City:	*Dallas*	7:00 AM	7:15 AM		3	30	-				0	-	0				-	40	0		
State:	*Texas*	7:15 AM	7:30 AM		9	35	-				1	-	0				-	60	5		
Day:	*Tuesday*	***7:30 AM***	***7:45 AM***		***38***	***40***	***-***				***0***	***-***	***0***				***-***	***120***	***32***		
Date:	*February 6th*	***7:45 AM***	***8:00 AM***		***18***	***82***	***-***				***1***	***-***	***0***				***-***	***161***	***8***		
Year:	*2018*	***8:00 AM***	***8:15 AM***		***2***	***40***	***-***				***0***	***-***	***0***				***-***	***129***	***2***		
Data Collector:	*Camera*	***8:15 AM***	***8:30 AM***		***0***	***35***	***-***				***1***	***-***	***0***				***-***	***133***	***2***		
Data Source:	*CJ Hensch & Associates, Inc.*	8:30 AM	8:45 AM		2	38	-				1	-	1				-	138	1		
Traffic Control:	*Other*	8:45 AM	9:00 AM		0	59	-				1	-	2				-	116	0		
Observations:																					
		4:30 PM	4:45 PM		3	74	-				0	-	6				-	52	2		
		4:45 PM	5:00 PM		6	87	-				1	-	1				-	78	4		
		5:00 PM	***5:15 PM***		***1***	***111***	***-***				***0***	***-***	***1***				***-***	***54***	***4***		
		5:15 PM	***5:30 PM***		***0***	***136***	***-***				***0***	***-***	***0***				***-***	***59***	***1***		
		5:30 PM	***5:45 PM***		***3***	***109***	***-***				***0***	***-***	***0***				***-***	***53***	***2***		
		5:45 PM	***6:00 PM***		***5***	***103***	***-***				***0***	***-***	***4***				***-***	***69***	***2***		
		6:00 PM	6:15 PM		4	99	-				0	-	1				-	50	5		
		6:15 PM	6:30 PM		0	86	-				0	-	1				-	41	1		
AM Peak Hour	*Intersection PHF:*	*0.78*	*Intersection PHV:*		*58*	*197*	*0*				*2*	*0*	*0*				*0*	*543*	*44*		
	Peak Hour	*7:30 AM - 8:30 AM*	*PHF:*		*0.38*	*0.60*	*0.00*				*0.50*	*0.00*	*0.00*				*0.00*	*0.84*	*0.34*		
	Study Area PHF:	**0.78**	**Study Area PHV:**		**58**	**197**	**0**				**2**	**0**	**0**				**0**	**543**	**44**		
	Peak Hour:	**7:30 AM - 8:30 AM**	**PHF:**		**0.38**	**0.60**	**0.00**				**0.50**	**0.00**	**0.00**				**0.00**	**0.84**	**0.34**		
PM Peak Hour	*Intersection PHF:*	*0.91*	*Intersection PHV:*		*9*	*459*	*0*				*0*	*0*	*5*				*0*	*235*	*9*		
	Peak Hour	*5:00 PM - 6:00 PM*	*PHF:*		*0.45*	*0.84*	*0.00*				*0.00*	*0.00*	*0.31*				*0.00*	*0.85*	*0.56*		
	Study Area PHF:	**0.91**	**Study Area PHV:**		**9**	**459**	**0**				**0**	**0**	**5**				**0**	**235**	**9**		
	Peak Hour:	**5:00 PM - 6:00 PM**	**PHF:**		**0.45**	**0.84**	**0.00**				**0.00**	**0.00**	**0.31**				**0.00**	**0.85**	**0.56**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Town and Country Lane

Intersection Turning Movement Counts

				NORTH LEG						EAST LEG						SOUTH LEG						WEST LEG					
				Southbound Approach on Douglas Avenue						Westbound Approach on Colgate Avenue						Northbound Approach on Douglas Avenue						Eastbound Approach on Colgate 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	14	15				1	4	1				6	29	0				9	0	3		
State:	***Texas***	7:15 AM	7:30 AM		0	24	12				1	6	10				7	51	0				6	0	0		
Day:	***Tuesday***	***7:30 AM***	***7:45 AM***		***0***	***25***	***15***				***4***	***15***	***40***				***12***	***89***	***0***				***25***	***0***	***5***		
Date:	***February 6th***	***7:45 AM***	***8:00 AM***		***0***	***48***	***30***				***5***	***9***	***29***				***13***	***107***	***0***				***34***	***0***	***23***		
Year:	***2018***	***8:00 AM***	***8:15 AM***		***0***	***34***	***10***				***1***	***6***	***9***				***10***	***99***	***0***				***24***	***0***	***7***		
Data Collector:	***Camera***	***8:15 AM***	***8:30 AM***		***0***	***32***	***4***				***1***	***6***	***7***				***2***	***108***	***0***				***23***	***0***	***2***		
Data Source:	***CJ Hensch & Associates, Inc.***	8:30 AM	8:45 AM		0	31	6				2	5	11				6	111	0				16	0	1		
Traffic Control:	***Minor Approach Stop***	8:45 AM	9:00 AM		0	54	7				1	3	12				2	95	0				11	0	5		
Observations:																											
		4:30 PM	4:45 PM		0	64	8				2	3	6				1	38	0				11	0	4		
		4:45 PM	*5:00 PM*		*0*	*75*	*15*				*3*	*5*	*7*				*5*	*65*	*0*				*9*	*0*	*2*		
		5:00 PM	***5:15 PM***		***1***	***93***	***18***				***2***	***9***	***3***				***3***	***47***	***0***				***9***	***0***	***6***		
		5:15 PM	***5:30 PM***		***0***	***114***	***19***				***2***	***3***	***8***				***2***	***41***	***0***				***10***	***0***	***5***		
		5:30 PM	***5:45 PM***		***0***	***102***	***9***				***3***	***8***	***4***				***3***	***47***	***0***				***6***	***0***	***7***		
		5:45 PM	**6:00 PM**		**0**	**97**	**5**				**4**	**4**	**4**				**1**	**58**	**0**				**9**	**0**	**4**		
		6:00 PM	6:15 PM		0	90	10				2	6	7				0	32	0				14	0	5		
		6:15 PM	6:30 PM		0	75	9				2	3	4				4	30	0				9	0	1		
AM Peak Hour	*Intersection PHF:*	*0.77*		*Intersection PHV:*	*0*	*139*	*59*				*11*	*36*	*85*				*37*	*403*	*0*				*106*	*0*	*37*		
	Peak Hour	*7:30 AM - 8:30 AM*		*PHF:*	*0.00*	*0.72*	*0.49*				*0.55*	*0.60*	*0.53*				*0.71*	*0.93*	*0.00*				*0.78*	*0.00*	*0.40*		
	Study Area PHF:	**0.77**		**Study Area PHV:**	**0**	**139**	**59**				**11**	**36**	**85**				**37**	**403**	**0**				**106**	**0**	**37**		
	Peak Hour:	**7:30 AM - 8:30 AM**		**PHF:**	**0.00**	**0.72**	**0.49**				**0.55**	**0.60**	**0.53**				**0.71**	**0.93**	**0.00**				**0.78**	**0.00**	**0.40**		
PM Peak Hour	*Intersection PHF:*	*0.94*		*Intersection PHV:*	*1*	*384*	*61*				*10*	*25*	*22*				*13*	*200*	*0*				*34*	*0*	*20*		
	Peak Hour	*4:45 PM - 5:45 PM*		*PHF:*	*0.25*	*0.84*	*0.80*				*0.83*	*0.69*	*0.69*				*0.65*	*0.77*	*0.00*				*0.85*	*0.00*	*0.71*		
	Study Area PHF:	**0.94**		**Study Area PHV:**	**1**	**406**	**51**				**11**	**24**	**19**				**9**	**193**	**0**				**34**	**0**	**22**		
	Peak Hour:	**5:00 PM - 6:00 PM**		**PHF:**	**0.25**	**0.89**	**0.67**				**0.69**	**0.67**	**0.59**				**0.75**	**0.83**	**0.00**				**0.85**	**0.00**	**0.79**		

Pacheco Koch

PK# 2386-16.242

Douglas Avenue at Colgate Avenue

ROADWAY: Douglas Avenue
LOCATION: Between Frederick Square - North and Weldon Howell Pkwy
DAY: Tuesday
DATE: February 6th
YEAR: 2018
SOURCE: CJ Hensch & Associates, Inc.

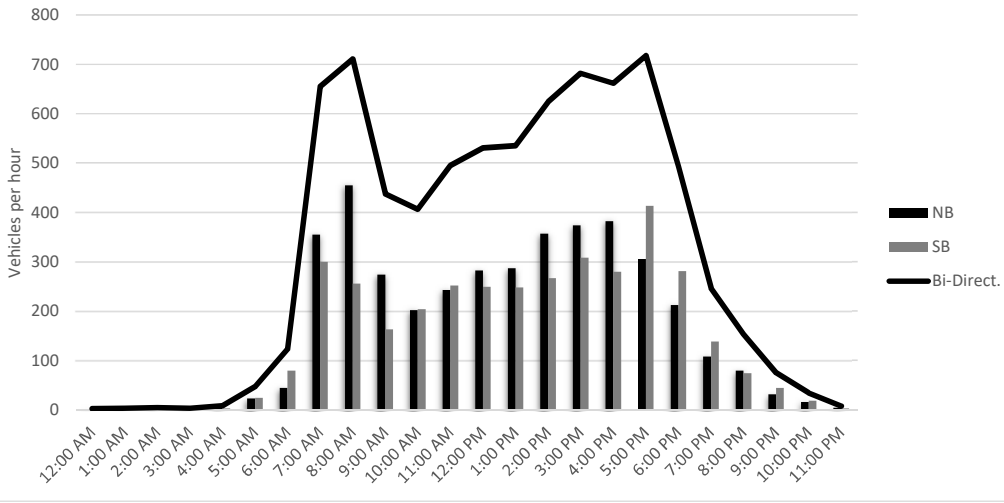
24-HOUR, BI-DIRECTIONAL VOLUME
7,654
(WEEKDAY)

Douglas Avenue

	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	0	0	0	0	1	0	1	1	2
1:00 AM	0	1	0	0	1	0	1	0	1	2	3
2:00 AM	0	0	1	1	0	1	0	1	2	2	4
3:00 AM	0	0	0	2	0	0	0	1	2	1	3
4:00 AM	0	1	0	4	1	0	0	2	5	3	8
5:00 AM	1	4	5	13	3	2	7	12	23	24	47
6:00 AM	5	7	12	20	4	11	26	38	44	79	123
7:00 AM	30	43	126	156	42	58	95	105	355	300	655
8:00 AM	128	110	111	106	68	56	52	80	455	256	711
9:00 AM	91	62	61	60	39	50	40	34	274	163	437
10:00 AM	47	37	56	62	48	36	64	56	202	204	406
11:00 AM	56	55	67	65	59	51	73	69	243	252	495
12:00 PM	72	66	69	75	68	67	49	65	282	249	531
1:00 PM	86	59	83	59	69	59	68	52	287	248	535
2:00 PM	81	71	118	87	50	72	73	72	357	267	624
3:00 PM	52	115	129	78	72	88	74	74	374	308	682
4:00 PM	94	107	87	94	68	73	59	80	382	280	662
5:00 PM	81	70	69	85	101	111	103	98	305	413	718
6:00 PM	70	58	47	37	92	80	63	46	212	281	493
7:00 PM	24	30	26	28	44	39	23	32	108	138	246
8:00 PM	25	19	15	20	36	15	12	11	79	74	153
9:00 PM	9	8	8	6	15	17	8	4	31	44	75
10:00 PM	6	4	6	0	10	0	5	3	16	18	34
11:00 PM	3	1	0	0	0	0	3	0	4	3	7

			NB	SB	Bi-Direct.
		24-Hour Total:	4,044	3,610	7,654
7:30 AM	8:30 AM	(Bi-Direct.) AM Peak Hour Total:	520	324	844
3:15 PM	4:15 PM	(Bi-Direct.) PM Peak Hour Total:	416	304	720
7:30 AM	8:30 AM	Highest By Direction (NB):	520		
5:00 PM	6:00 PM	Highest By Direction (SB):		413	

Graph



PK# 2386-16.242

Pacheco Koch

ROADWAY: Lomo Alto Drive
LOCATION: North of Colgate Avenue
DAY: Tuesday
DATE: February 6th
YEAR: 2018
SOURCE: CJ Hensch & Associates, Inc.

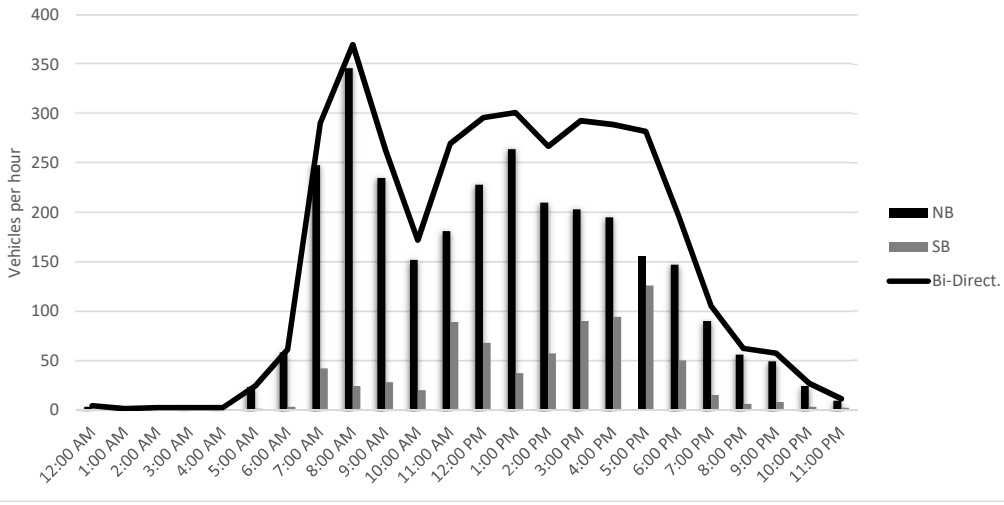
24-HOUR, BI-DIRECTIONAL VOLUME
3,648
(WEEKDAY)

Lomo Alto Drive

	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	2	0	1	1	0	0	0	3	1	4
1:00 AM	0	0	0	1	0	0	0	0	1	0	1
2:00 AM	1	0	0	0	1	0	0	0	1	1	2
3:00 AM	1	0	1	0	0	0	0	0	2	0	2
4:00 AM	0	0	2	0	0	0	0	0	2	0	2
5:00 AM	4	5	2	12	0	0	0	1	23	1	24
6:00 AM	7	12	16	23	0	0	1	2	58	3	61
7:00 AM	36	55	64	93	3	2	12	25	248	42	290
8:00 AM	87	85	83	91	9	4	1	10	346	24	370
9:00 AM	67	64	54	50	6	6	10	6	235	28	263
10:00 AM	43	27	36	46	4	6	3	7	152	20	172
11:00 AM	36	37	48	60	12	22	28	27	181	89	270
12:00 PM	40	52	53	83	23	14	14	17	228	68	296
1:00 PM	75	64	63	62	11	7	10	9	264	37	301
2:00 PM	49	45	71	45	9	15	20	13	210	57	267
3:00 PM	50	53	50	50	20	24	26	20	203	90	293
4:00 PM	52	55	52	36	18	17	25	34	195	94	289
5:00 PM	47	35	35	39	43	27	27	29	156	126	282
6:00 PM	38	33	44	32	19	9	13	9	147	50	197
7:00 PM	21	23	26	20	4	4	2	5	90	15	105
8:00 PM	11	11	15	19	2	2	1	1	56	6	62
9:00 PM	16	15	11	7	5	1	2	0	49	8	57
10:00 PM	12	8	2	2	1	1	0	1	24	3	27
11:00 PM	2	1	3	3	1	1	0	0	9	2	11

			NB	SB	Bi-Direct.
		24-Hour Total:	2,883	765	3,648
7:45 AM	8:45 AM	(Bi-Direct.) AM Peak Hour Total:	348	39	387
12:45 PM	1:45 PM	(Bi-Direct.) PM Peak Hour Total:	285	45	330
7:45 AM	8:45 AM	Highest By Direction (NB):	348		
4:45 PM	5:45 PM	Highest By Direction (SB):		131	

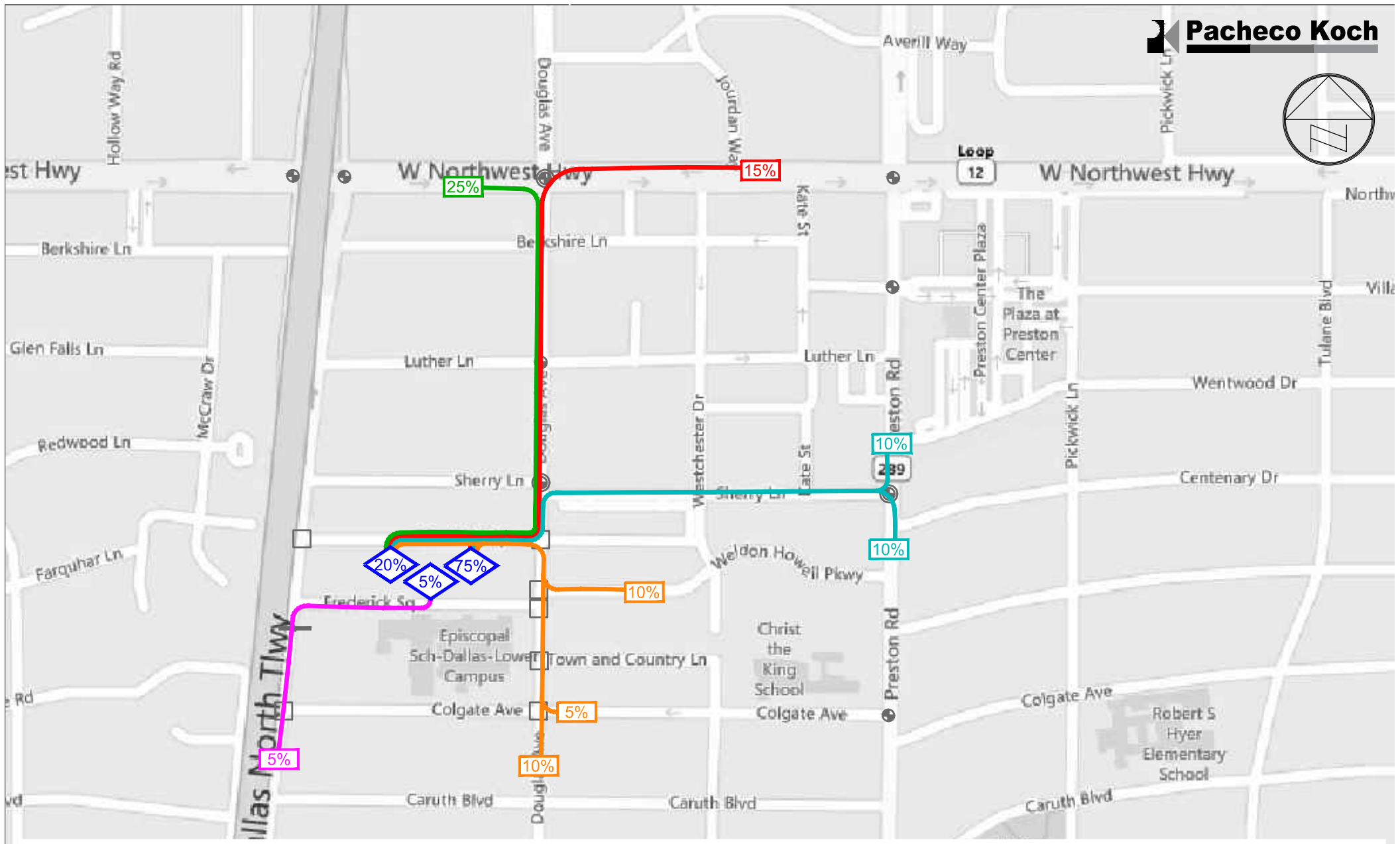
Graph



PK# 2386-16.242

Pacheco Koch

Appendix C. Site-Generated Traffic Supplement

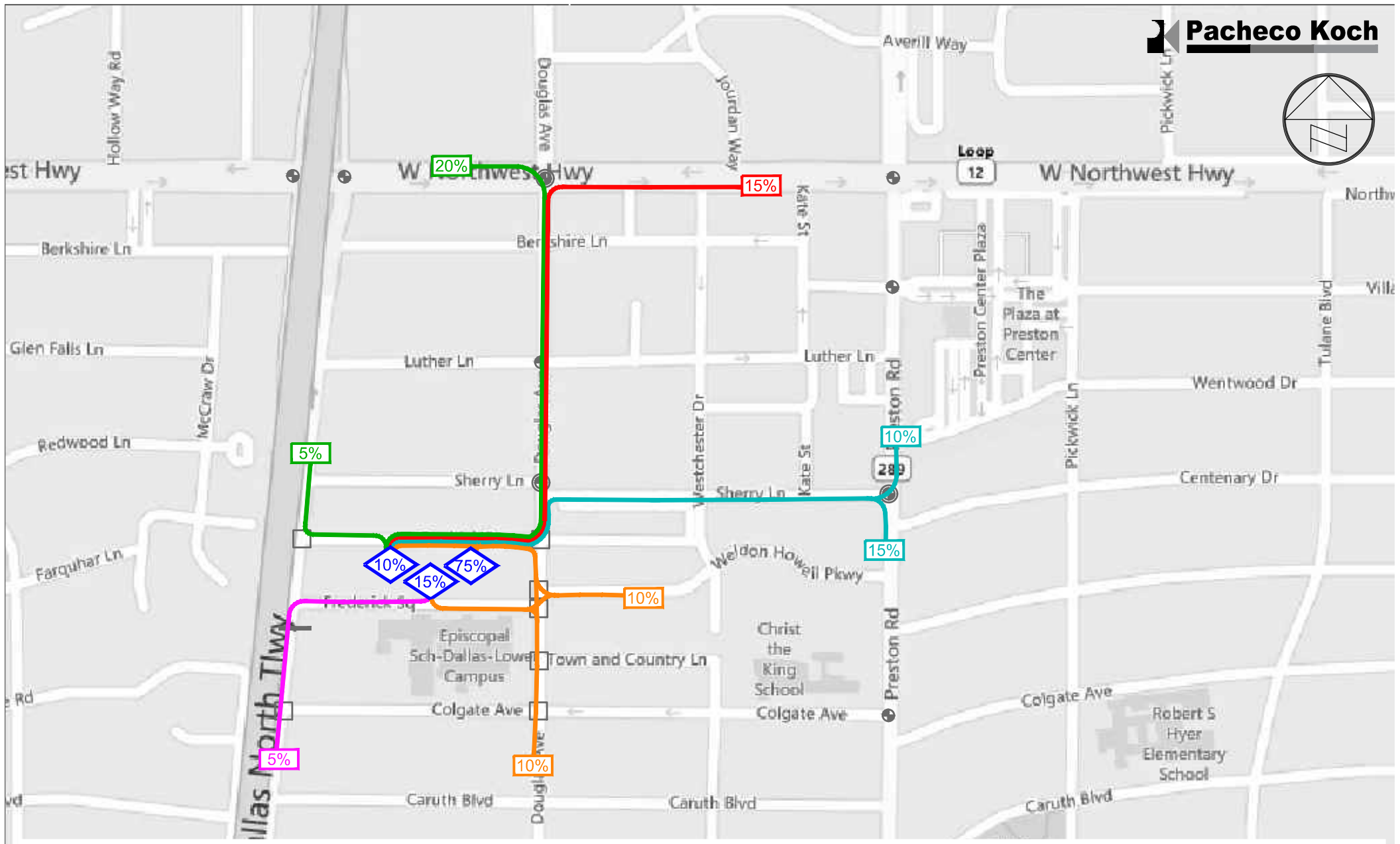


Site Generated Trip Distribution - Inbound

Preston Center-SMAA Development, Dallas, Texas

PK #2386-16.242 (HWL: 03/07/18)

APPENDIX **C1**



Site Generated Trip Distribution - Outbound

Preston Center-SMAA Development, Dallas, Texas

PK #2386-16.242 (HWL: 03/07/18)

APPENDIX **C2**

Development Program			Weekday Trip Ends						
			Weekday	AM Peak - Adjacent Street			PM Peak - Adjacent Street		
Land Use	Quantity	Units	Daily	In	Out	**Total**	In	Out	**Total**
Office	225,000	SF	2330	205	33	**238**	39	207	**246**
Quality Restaurant	10,000	SF	838	4	3	**7**	52	26	**78**
Multifamily	185	DU	1007	16	47	**63**	49	31	**80**
				4	4	8	17	17	34
			4175	221	79	300	123	247	370

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Preston Center-SMAA Development	**Organization:**	Pacheco Koch
Project Location:	Dallas, TX	**Performed By:**	AJV
Scenario Description:	Mixed Use	**Date:**	8/3/2018
Analysis Year:	2018	**Checked By:**	HWL
Analysis Period:	**AM Street Peak Hour**	**Date:**	9/5/2018

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		225,000	square footage	238	205	33
Retail				0		
Restaurant		10,000	square footage	7	4	3
Cinema/Entertainment				0		
Residential		184	dwelling units	63	16	47
Hotel				0		
All Other Land Uses[2]				0		
				308	225	83

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00		0%	1.00		0%
Retail	1.00		0%	1.00		0%
Restaurant	1.00		0%	1.00		0%
Cinema/Entertainment	1.00		0%	1.00		0%
Residential	1.00		0%	1.00		0%
Hotel	1.00		0%	1.00		0%
All Other Land Uses[2]	1.00		0%	1.00		0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	0	0
Retail	0		0	0	0	0
Restaurant	1	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	1	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	308	225	83
Internal Capture Percentage	3%	2%	5%
External Vehicle-Trips[5]	300	221	79
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	1%	3%
Retail	N/A	N/A
Restaurant	50%	33%
Cinema/Entertainment	N/A	N/A
Residential	0%	4%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	Preston Center-SMAA Development
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	33	33
Retail	1.00	0	0	1.00	0	0
Restaurant	1.00	4	4	1.00	3	3
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	16	16	1.00	47	47
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		9	21	0	0	0
Retail	0		0	0	0	0
Restaurant	1	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	9	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	0	0
Retail	8		2	0	0	0
Restaurant	29	0		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	0	1	0		0
Hotel	6	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	203	205	203	0	0
Retail	0	0	0	0	0	0
Restaurant	2	2	4	2	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	16	16	16	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	1	32	33	32	0	0
Retail	0	0	0	0	0	0
Restaurant	1	2	3	2	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	45	47	45	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Preston Center-SMAA Development	**Organization:**	Pacheco Koch
Project Location:	Dallas, TX	**Performed By:**	AJV
Scenario Description:	Mixed Use	**Date:**	8/3/2018
Analysis Year:	2018	**Checked By:**	HWL
Analysis Period:	**PM Street Peak Hour**	**Date:**	9/5/2018

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office		225,000	square footage	246	39	207
Retail				0		
Restaurant		10,000	square footage	78	52	26
Cinema/Entertainment				0		
Residential		184	dwelling units	80	49	31
Hotel				0		
All Other Land Uses[2]				0		
				404	140	264

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.00		0%	1.00		0%
Retail	1.00		0%	1.00		0%
Restaurant	1.00		0%	1.00		0%
Cinema/Entertainment	1.00		0%	1.00		0%
Residential	1.00		0%	1.00		0%
Hotel	1.00		0%	1.00		0%
All Other Land Uses[2]	1.00		0%	1.00		0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	2	0
Retail	0		0	0	0	0
Restaurant	1	0		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	1	0	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	404	140	264
Internal Capture Percentage	8%	12%	6%
External Vehicle-Trips[5]	370	123	247
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	5%	1%
Retail	N/A	N/A
Restaurant	15%	23%
Cinema/Entertainment	N/A	N/A
Residential	14%	26%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Project Name:	Preston Center-SMAA Development
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	39	39	1.00	207	207
Retail	1.00	0	0	1.00	0	0
Restaurant	1.00	52	52	1.00	26	26
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	49	49	1.00	31	31
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		41	8	0	4	0
Retail	0		0	0	0	0
Restaurant	1	11		2	5	2
Cinema/Entertainment	0	0	0		0	0
Residential	1	13	7	0		1
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	1	0	2	0
Retail	12		15	0	23	0
Restaurant	12	0		0	8	0
Cinema/Entertainment	2	0	2		2	0
Residential	22	0	7	0		0
Hotel	0	0	3	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	2	37	39	37	0	0
Retail	0	0	0	0	0	0
Restaurant	8	44	52	44	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	7	42	49	42	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	3	204	207	204	0	0
Retail	0	0	0	0	0	0
Restaurant	6	20	26	20	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	8	23	31	23	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Appendix D. Detailed Intersection Capacity Analysis Results

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1474	625	399	2499	7	313	74	113	33	244	35
Future Volume (vph)	8	1474	625	399	2499	7	313	74	113	33	244	35
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
Adj. Flow (vph)	9	1602	679	434	2716	8	340	80	123	36	265	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1602	679	434	2724	0	340	80	123	36	303	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	51.0	51.0	18.0	55.0		17.0	34.0	34.0	17.0	34.0	
Total Split (%)	11.7%	42.5%	42.5%	15.0%	45.8%		14.2%	28.3%	28.3%	14.2%	28.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	61.1	61.1	61.1	76.9	76.9		23.9	23.9	23.9	15.4	15.4	
Actuated g/C Ratio	0.51	0.51	0.51	0.64	0.64		0.20	0.20	0.20	0.13	0.13	
v/c Ratio	0.06	0.62	0.68	1.51	0.84		0.62	0.22	0.29	0.22	0.66	
Control Delay	18.1	23.3	12.9	278.3	21.4		51.0	42.3	7.1	48.5	54.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.1	23.3	12.9	278.3	21.4		51.0	42.3	7.1	48.5	54.9	
LOS	B	C	B	F	C		D	D	A	D	D	
Approach Delay		20.2			56.7			39.8			54.2	
Approach LOS		C			E			D			D	
Queue Length 50th (ft)	3	316	149	~393	524		127	55	0	25	114	
Queue Length 95th (ft)	14	418	334	#643	#944		167	97	42	56	157	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	199	2588	1003	287	3256		584	457	491	203	862	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.62	0.68	1.51	0.84		0.58	0.18	0.25	0.18	0.35	

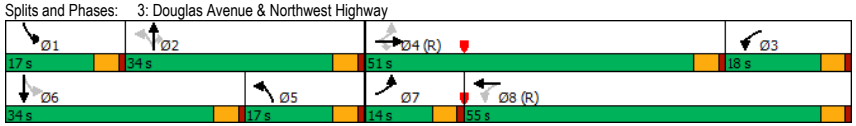
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.51

Intersection Signal Delay: 41.9 — Intersection LOS: D
Intersection Capacity Utilization 84.4% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	4	4	25	53	45	79	412	25	58	319	439
Future Volume (vph)	9	4	4	25	53	45	79	412	25	58	319	439
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
Adj. Flow (vph)	10	4	4	27	58	49	86	448	27	63	347	477
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	8	0	0	134	0	0	561	0	0	410	477
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	10.0	10.0		20.0	20.0		25.0	25.0		35.0	35.0	35.0
Total Split (%)	11.1%	11.1%		22.2%	22.2%		27.8%	27.8%		38.9%	38.9%	38.9%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	5.6	5.6			10.8			35.7			26.0	26.0
Actuated g/C Ratio	0.06	0.06			0.12			0.40			0.29	0.29
v/c Ratio	0.09	0.07			0.57			0.41			0.77	0.60
Control Delay	41.9	32.7			35.7			23.8			38.9	5.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	41.9	32.7			35.7			23.8			38.9	5.7
LOS	D	C			D			C			D	A
Approach Delay		37.8			35.7			23.8			21.0	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	6	2			58			110			207	0
Queue Length 95th (ft)	22	16			109			211			298	65
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	110	110			325			1384			626	851
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.09	0.07			0.41			0.41			0.65	0.56

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77

Intersection Signal Delay: 23.4 — Intersection LOS: C
Intersection Capacity Utilization 59.8% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	24	18	178	729	718	153
Future Volume (vph)	24	18	178	729	718	153
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	20	193	792	780	166
Shared Lane Traffic (%)						
Lane Group Flow (vph)	26	20	193	792	946	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	10.0	10.0	10.0	80.0	70.0	
Total Split (%)	11.1%	11.1%	11.1%	88.9%	77.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	5.5	5.5	79.5	81.3	69.5	
Actuated g/C Ratio	0.06	0.06	0.88	0.90	0.77	
v/c Ratio	0.24	0.17	0.37	0.25	0.35	
Control Delay	28.7	13.3	3.1	1.3	3.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	28.7	13.3	3.1	1.3	3.8	
LOS	C	B	A	A	A	
Approach Delay	22.0			1.6	3.8	
Approach LOS	C			A	A	
Queue Length 50th (ft)	14	4	13	31	78	
Queue Length 95th (ft)	m23	m9	22	42	105	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	108	115	516	3196	2678	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.24	0.17	0.37	0.25	0.35	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.37

Intersection Signal Delay: 3.1 — Intersection LOS: A
Intersection Capacity Utilization 50.0% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	99	353	65	0	17
Future Vol, veh/h	61	99	353	65	0	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	108	384	71	0	18
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.1	12.3	8
HCM LOS	A	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	38%	0%
Vol Thru, %	84%	0%	100%
Vol Right, %	16%	62%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	418	160	17
LT Vol	0	61	0
Through Vol	353	0	17
RT Vol	65	99	0
Lane Flow Rate	454	174	18
Geometry Grp	1	1	1
Degree of Util (X)	0.541	0.227	0.025
Departure Headway (Hd)	4.287	4.7	4.844
Convergence, Y/N	Yes	Yes	Yes
Cap	841	763	737
Service Time	2.311	2.733	2.885
HCM Lane V/C Ratio	0.54	0.228	0.024
HCM Control Delay	12.3	9.1	8
HCM Lane LOS	B	A	A
HCM 95th-tile Q	3.3	0.9	0.1

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	106	0	37	11	36	85	37	403	0	0	139	59
Future Vol, veh/h	106	0	37	11	36	85	37	403	0	0	139	59
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	115	0	40	12	39	92	40	438	0	0	151	64
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	11.2	10.5	18.9	11
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	74%	8%	0%
Vol Thru, %	92%	0%	27%	70%
Vol Right, %	0%	26%	64%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	440	143	132	198
LT Vol	37	106	11	0
Through Vol	403	0	36	139
RT Vol	0	37	85	59
Lane Flow Rate	478	155	143	215
Geometry Grp	1	1	1	1
Degree of Util (X)	0.688	0.26	0.227	0.321
Departure Headway (Hd)	5.178	6.026	5.703	5.37
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	698	594	626	667
Service Time	3.219	4.09	3.769	3.425
HCM Lane V/C Ratio	0.685	0.261	0.228	0.322
HCM Control Delay	18.9	11.2	10.5	11
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	5.5	1	0.9	1.4

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	18	333	2	0	66
Future Vol, veh/h	2	18	333	2	0	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	20	362	2	0	72

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	435	363	0	0	364	0
Stage 1	363	-	-	-	-	-
Stage 2	72	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	578	682	-	-	1195	-
Stage 1	704	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	578	682	-	-	1195	-
Mov Cap-2 Maneuver	578	-	-	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	670	1195	-
HCM Lane V/C Ratio	-	-	0.032	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	0	1	1	17	520	7	4	340	9
Future Vol, veh/h	0	2	0	0	1	1	17	520	7	4	340	9
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	0	2	0	0	1	1	18	565	8	4	370	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	990	993	374	990	994	569	379	0	0	573	0	0
Stage 1	383	383	-	606	606	-	-	-	-	-	-	-
Stage 2	607	610	-	384	388	-	-	-	-	-	-	-
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	225	245	672	225	245	522	1179	-	-	1000	-	-
Stage 1	640	612	-	484	487	-	-	-	-	-	-	-
Stage 2	483	485	-	639	609	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	219	238	672	219	238	522	1179	-	-	1000	-	-
Mov Cap-2 Maneuver	219	238	-	219	238	-	-	-	-	-	-	-
Stage 1	626	609	-	473	476	-	-	-	-	-	-	-
Stage 2	470	474	-	634	606	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	16.1	0.3	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1179	-	-	238	327	1000	-	-
HCM Lane V/C Ratio	0.016	-	-	0.009	0.007	0.004	-	-
HCM Control Delay (s)	8.1	0	-	20.3	16.1	8.6	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

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	0	0	0	33	8	51	20	491	92	74	181	82
Future Vol, veh/h	0	0	0	33	8	51	20	491	92	74	181	82
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	-
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	0	36	9	55	22	534	100	80	197	89

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1029	1074	584	286	0	0	634	0	0
Stage 1	627	627	-	-	-	-	-	-	-
Stage 2	402	447	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	259	220	512	1276	-	-	949	-	-
Stage 1	532	476	-	-	-	-	-	-	-
Stage 2	676	573	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	227	0	512	1276	-	-	949	-	-
Mov Cap-2 Maneuver	227	0	-	-	-	-	-	-	-
Stage 1	518	0	-	-	-	-	-	-	-
Stage 2	608	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.8	0.3	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	343	949	-	-
HCM Lane V/C Ratio	0.017	-	-	0.292	0.085	-	-
HCM Control Delay (s)	7.9	0	-	19.8	9.1	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.3	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	56	35	0	548	220	0
Future Vol, veh/h	56	35	0	548	220	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	61	38	0	596	239	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	835	239	239	0	-	0
Stage 1	239	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	338	800	1328	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	338	800	1328	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	550	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1328	-	338	800	-	-
HCM Lane V/C Ratio	-	-	0.18	0.048	-	-
HCM Control Delay (s)	0	-	18	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	543	44	58	197
Future Vol, veh/h	2	0	543	44	58	197
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	0	590	48	63	214

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	954	614	0	0	638	0
Stage 1	614	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	287	492	-	-	946	-
Stage 1	540	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	265	492	-	-	946	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.7	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	265	946	-
HCM Lane V/C Ratio	-	-	0.008	0.067	-
HCM Control Delay (s)	-	-	18.7	9.1	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2	-

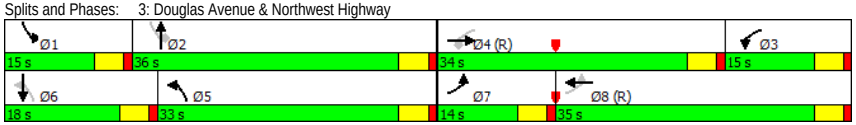
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	1969	247	119	1563	12	560	206	335	14	47	17
Future Volume (vph)	30	1969	247	119	1563	12	560	206	335	14	47	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	2140	268	129	1699	13	609	224	364	15	51	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	33	2140	268	129	1712	0	609	224	364	15	69	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4			6		2	2		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	34.0	34.0	15.0	35.0		33.0	36.0	36.0	15.0	18.0	
Total Split (%)	14.0%	34.0%	34.0%	15.0%	35.0%		33.0%	36.0%	36.0%	15.0%	18.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	59.1	46.8	46.8	57.3	55.0		25.6	24.6	24.6	27.4	7.0	
Actuated g/C Ratio	0.59	0.47	0.47	0.57	0.55		0.26	0.25	0.25	0.27	0.07	
v/c Ratio	0.17	0.90	0.32	0.48	0.61		0.74	0.49	0.55	0.05	0.27	
Control Delay	11.8	32.3	7.2	32.4	18.9		39.0	36.1	6.8	22.2	36.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.8	32.3	7.2	32.4	18.9		39.0	36.1	6.8	22.2	36.4	
LOS	B	C	A	C	B		D	D	A	C	D	
Approach Delay		29.3			19.8			28.6			33.9	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	8	454	27	32	289		169	113	0	7	16	
Queue Length 95th (ft)	24	#663	89	90	408		200	193	70	19	37	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	243	2380	843	267	2795		1130	586	747	343	474	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	0.90	0.32	0.48	0.61		0.54	0.38	0.49	0.04	0.15	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 4:EBWB and 8:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90

Intersection Signal Delay: 26.1 Intersection LOS: C
Intersection Capacity Utilization 78.5% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	64	40	24	10	73	3	301	28	70	323	56
Future Volume (vph)	138	64	40	24	10	73	3	301	28	70	323	56
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
Adj. Flow (vph)	150	70	43	26	11	79	3	327	30	76	351	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	113	0	0	116	0	0	360	0	0	427	61
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	16.0	16.0		15.0	15.0		22.0	22.0		27.0	27.0	27.0
Total Split (%)	20.0%	20.0%		18.8%	18.8%		27.5%	27.5%		33.8%	33.8%	33.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		Max	Max		C-Max	C-Max	C-Max
Act Effct Green (s)	10.4	10.4			7.6			23.5			22.5	22.5
Actuated g/C Ratio	0.13	0.13			0.10			0.29			0.28	0.28
v/c Ratio	0.65	0.44			0.51			0.35			0.82	0.11
Control Delay	46.8	28.8			21.6			24.5			42.2	0.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	46.8	28.8			21.6			24.5			42.2	0.4
LOS	D	C			C			C			D	A
Approach Delay		39.1			21.6			24.5			36.9	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	71	37			18			75			199	0
Queue Length 95th (ft)	#132	85			64			121			#349	0
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	254	279			288			1035			519	548
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.59	0.41			0.40			0.35			0.82	0.11

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82

Intersection Signal Delay: 32.3 Intersection LOS: C
Intersection Capacity Utilization 55.7% ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	175	211	48	725	813	35
Future Volume (vph)	175	211	48	725	813	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	229	52	788	884	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	190	229	52	788	922	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	12.0	12.0	11.0	78.0	67.0	
Total Split (%)	13.3%	13.3%	12.2%	86.7%	74.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	7.5	7.5	73.5	73.5	67.1	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.75	
v/c Ratio	1.29	0.67	0.11	0.27	0.35	
Control Delay	209.0	16.4	2.0	2.2	4.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	209.0	16.4	2.0	2.2	4.9	
LOS	F	B	A	A	A	
Approach Delay	103.7			2.2	4.9	
Approach LOS	F			A	A	
Queue Length 50th (ft)	~139	0	4	38	94	
Queue Length 95th (ft)	#270	#72	9	51	126	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	147	341	500	2890	2625	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.29	0.67	0.10	0.27	0.35	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29

Intersection Signal Delay: 22.8 Intersection LOS: C
Intersection Capacity Utilization 48.7% ICU Level of Service A
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	18	138	28	12	115
Future Vol, veh/h	51	18	138	28	12	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	20	150	30	13	125
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.1	8.2	8.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	74%	9%
Vol Thru, %	83%	0%	91%
Vol Right, %	17%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	166	69	127
LT Vol	0	51	12
Through Vol	138	0	115
RT Vol	28	18	0
Lane Flow Rate	180	75	138
Geometry Grp	1	1	1
Degree of Util (X)	0.204	0.096	0.162
Departure Headway (Hd)	4.071	4.618	4.223
Convergence, Y/N	Yes	Yes	Yes
Cap	868	781	835
Service Time	2.163	2.618	2.321
HCM Lane V/C Ratio	0.207	0.096	0.165
HCM Control Delay	8.2	8.1	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.3	0.6

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	0	22	11	24	19	9	193	0	0	406	51
Future Vol, veh/h	34	0	22	11	24	19	9	193	0	0	406	51
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	0	24	12	26	21	10	210	0	0	441	55
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	9.2	9.1	9.9	14.3
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	61%	20%	0%
Vol Thru, %	96%	0%	44%	89%
Vol Right, %	0%	39%	35%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	56	54	457
LT Vol	9	34	11	0
Through Vol	193	0	24	406
RT Vol	0	22	19	51
Lane Flow Rate	220	61	59	497
Geometry Grp	1	1	1	1
Degree of Util (X)	0.293	0.093	0.089	0.613
Departure Headway (Hd)	4.802	5.51	5.458	4.444
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	645	650	810
Service Time	2.858	3.595	3.543	2.487
HCM Lane V/C Ratio	0.296	0.095	0.091	0.614
HCM Control Delay	9.9	9.2	9.1	14.3
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.2	0.3	0.3	4.3

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	5	175	1	10	111
Future Vol, veh/h	12	5	175	1	10	111
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	13	5	190	1	11	121

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	333	191	0	0	191	0
Stage 1	191	-	-	-	-	-
Stage 2	142	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	662	851	-	-	1383	-
Stage 1	841	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	656	851	-	-	1383	-
Mov Cap-2 Maneuver	656	-	-	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	877	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	703	1383	-
HCM Lane V/C Ratio	-	-	0.026	0.008	-
HCM Control Delay (s)	-	-	10.3	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	3	50	1	1	11	3	312	1	0	387	0
Future Vol, veh/h	12	3	50	1	1	11	3	312	1	0	387	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	-	-	-	-	-	-	-	-	-	-	-	-
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	13	3	54	1	1	12	3	339	1	0	421	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	774	768	421	795	767	340	421	0	0	340	0	0
Stage 1	421	421	-	346	346	-	-	-	-	-	-	-
Stage 2	353	347	-	449	421	-	-	-	-	-	-	-
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	316	332	632	305	332	702	1138	-	-	1219	-	-
Stage 1	610	589	-	670	635	-	-	-	-	-	-	-
Stage 2	664	635	-	589	589	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	309	331	632	276	331	702	1138	-	-	1219	-	-
Mov Cap-2 Maneuver	309	331	-	276	331	-	-	-	-	-	-	-
Stage 1	608	589	-	668	633	-	-	-	-	-	-	-
Stage 2	650	633	-	535	589	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	11.3	0.1	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1138	-	-	512	583	1219	-	-
HCM Lane V/C Ratio	0.003	-	-	0.138	0.024	-	-	-
HCM Control Delay (s)	8.2	0	-	13.2	11.3	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	90	3	117	5	191	48	47	373	17
Future Vol, veh/h	0	0	0	90	3	117	5	191	48	47	373	17
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	-
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	0	98	3	127	5	208	52	51	405	18

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	762	771	234	424	0	0	260	0	0
Stage 1	245	245	-	-	-	-	-	-	-
Stage 2	517	526	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	373	331	805	1135	-	-	1304	-	-
Stage 1	796	703	-	-	-	-	-	-	-
Stage 2	598	529	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	352	0	805	1135	-	-	1304	-	-
Mov Cap-2 Maneuver	352	0	-	-	-	-	-	-	-
Stage 1	792	0	-	-	-	-	-	-	-
Stage 2	568	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.4	0.2	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1135	-	-	516	1304	-	-
HCM Lane V/C Ratio	0.005	-	-	0.442	0.039	-	-
HCM Control Delay (s)	8.2	0	-	17.4	7.9	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.2	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	0	241	466	0
Future Vol, veh/h	3	2	0	241	466	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	3	2	0	262	507	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	769	507	507	0	-	0
Stage 1	507	-	-	-	-	-
Stage 2	262	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	369	566	1058	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	369	566	1058	-	-	-
Mov Cap-2 Maneuver	369	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	782	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1058	-	369	566	-	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-	-
HCM Control Delay (s)	0	-	14.8	11.4	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	235	9	9	459
Future Vol, veh/h	0	5	235	9	9	459
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	0	5	255	10	10	499

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	778	260	0	0	265	0
Stage 1	260	-	-	-	-	-
Stage 2	518	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	365	779	-	-	1299	-
Stage 1	783	-	-	-	-	-
Stage 2	598	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	361	779	-	-	1299	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	591	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

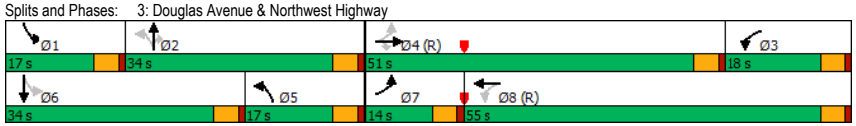
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	779	1299	-
HCM Lane V/C Ratio	-	-	0.007	0.008	-
HCM Control Delay (s)	-	-	9.7	7.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1519	644	411	2575	7	322	76	116	34	251	36
Future Volume (vph)	8	1519	644	411	2575	7	322	76	116	34	251	36
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
Adj. Flow (vph)	9	1651	700	447	2799	8	350	83	126	37	273	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1651	700	447	2807	0	350	83	126	37	312	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	51.0	51.0	18.0	55.0		17.0	34.0	34.0	17.0	34.0	
Total Split (%)	11.7%	42.5%	42.5%	15.0%	45.8%		14.2%	28.3%	28.3%	14.2%	28.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	60.5	60.5	60.5	76.2	76.2		24.5	24.5	24.5	15.7	15.7	
Actuated g/C Ratio	0.50	0.50	0.50	0.64	0.64		0.20	0.20	0.20	0.13	0.13	
v/c Ratio	0.06	0.64	0.70	1.61	0.87		0.63	0.22	0.29	0.23	0.67	
Control Delay	18.5	24.2	14.5	323.7	23.1		50.7	41.9	7.4	48.2	54.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.5	24.2	14.5	323.7	23.1		50.7	41.9	7.4	48.2	54.8	
LOS	B	C	B	F	C		D	D	A	D	D	
Approach Delay		21.3			64.4			39.6			54.1	
Approach LOS		C			E			D			D	
Queue Length 50th (ft)	3	333	173	~433	568		130	57	0	26	118	
Queue Length 95th (ft)	14	441	374	#678	#1002		171	99	44	57	161	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	198	2561	994	277	3230		591	457	491	205	862	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.64	0.70	1.61	0.87		0.59	0.18	0.26	0.18	0.36	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.61

Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 86.3% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	4	4	26	55	46	81	424	26	60	329	452
Future Volume (vph)	9	4	4	26	55	46	81	424	26	60	329	452
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
Adj. Flow (vph)	10	4	4	28	60	50	88	461	28	65	358	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	8	0	0	138	0	0	577	0	0	423	491
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	10.0	10.0		20.0	20.0		25.0	25.0		35.0	35.0	35.0
Total Split (%)	11.1%	11.1%		22.2%	22.2%		27.8%	27.8%		38.9%	38.9%	38.9%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	5.6	5.6			11.0			35.0			26.5	26.5
Actuated g/C Ratio	0.06	0.06			0.12			0.39			0.29	0.29
v/c Ratio	0.09	0.07			0.58			0.42			0.78	0.60
Control Delay	41.9	32.7			36.3			24.4			39.2	5.7
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	41.9	32.7			36.3			24.4			39.2	5.7
LOS	D	C			D			C			D	A
Approach Delay		37.8			36.3			24.4			21.2	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	6	2			60			117			211	0
Queue Length 95th (ft)	22	16			113			217			309	66
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	110	110			324			1358			626	861
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.09	0.07			0.43			0.42			0.68	0.57

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78

Intersection Signal Delay: 23.8 — Intersection LOS: C
Intersection Capacity Utilization 61.3% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	25	19	183	751	740	158
Future Volume (vph)	25	19	183	751	740	158
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	21	199	816	804	172
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	21	199	816	976	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	10.0	10.0	10.0	80.0	70.0	
Total Split (%)	11.1%	11.1%	11.1%	88.9%	77.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	5.5	5.5	79.5	81.3	69.5	
Actuated g/C Ratio	0.06	0.06	0.88	0.90	0.77	
v/c Ratio	0.25	0.18	0.40	0.26	0.36	
Control Delay	29.3	13.2	3.4	1.3	3.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	29.3	13.2	3.4	1.3	3.8	
LOS	C	B	A	A	A	
Approach Delay	22.2			1.7	3.8	
Approach LOS	C			A	A	
Queue Length 50th (ft)	15	4	13	33	83	
Queue Length 95th (ft)	m23	m9	22	43	110	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	108	116	501	3196	2678	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.18	0.40	0.26	0.36	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.40

Intersection Signal Delay: 3.2 — Intersection LOS: A
Intersection Capacity Utilization 51.1% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	102	364	67	0	18
Future Vol, veh/h	63	102	364	67	0	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	111	396	73	0	20
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.2	12.7	8.1
HCM LOS	A	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	38%	0%
Vol Thru, %	84%	0%	100%
Vol Right, %	16%	62%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	431	165	18
LT Vol	0	63	0
Through Vol	364	0	18
RT Vol	67	102	0
Lane Flow Rate	468	179	20
Geometry Grp	1	1	1
Degree of Util (X)	0.56	0.236	0.027
Departure Headway (Hd)	4.303	4.737	4.878
Convergence, Y/N	Yes	Yes	Yes
Cap	839	757	732
Service Time	2.331	2.773	2.922
HCM Lane V/C Ratio	0.558	0.236	0.027
HCM Control Delay	12.7	9.2	8.1
HCM Lane LOS	B	A	A
HCM 95th-tile Q	3.5	0.9	0.1

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	0	38	11	37	88	38	415	0	0	143	61
Future Vol, veh/h	109	0	38	11	37	88	38	415	0	0	143	61
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	118	0	41	12	40	96	41	451	0	0	155	66
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	11.5	10.7	20.4	11.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	74%	8%	0%
Vol Thru, %	92%	0%	27%	70%
Vol Right, %	0%	26%	65%	30%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	453	147	136	204
LT Vol	38	109	11	0
Through Vol	415	0	37	143
RT Vol	0	38	88	61
Lane Flow Rate	492	160	148	222
Geometry Grp	1	1	1	1
Degree of Util (X)	0.715	0.271	0.238	0.335
Departure Headway (Hd)	5.23	6.112	5.788	5.441
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	689	585	616	656
Service Time	3.279	4.182	3.859	3.504
HCM Lane V/C Ratio	0.714	0.274	0.24	0.338
HCM Control Delay	20.4	11.5	10.7	11.3
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	6	1.1	0.9	1.5

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	19	343	2	0	68
Future Vol, veh/h	2	19	343	2	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	21	373	2	0	74

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	448	374	0	0	375	0
Stage 1	374	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	568	672	-	-	1183	-
Stage 1	696	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	568	672	-	-	1183	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	660	1183	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	-	-	10.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	0	1	1	18	536	7	4	350	9
Future Vol, veh/h	0	2	0	0	1	1	18	536	7	4	350	9
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	0	2	0	0	1	1	20	583	8	4	380	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1021	1023	385	1021	1025	586	390	0	0	590	0	0
Stage 1	394	394	-	626	626	-	-	-	-	-	-	-
Stage 2	627	629	-	395	399	-	-	-	-	-	-	-
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	215	236	663	215	235	510	1169	-	-	985	-	-
Stage 1	631	605	-	472	477	-	-	-	-	-	-	-
Stage 2	471	475	-	630	602	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	209	229	663	209	228	510	1169	-	-	985	-	-
Mov Cap-2 Maneuver	209	229	-	209	228	-	-	-	-	-	-	-
Stage 1	615	602	-	460	465	-	-	-	-	-	-	-
Stage 2	457	463	-	625	599	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.9	16.5	0.3	0.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1169	-	-	229	315	985	-	-
HCM Lane V/C Ratio	0.017	-	-	0.009	0.007	0.004	-	-
HCM Control Delay (s)	8.1	0	-	20.9	16.5	8.7	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	34	8	53	21	506	95	76	186	84
Future Vol, veh/h	0	0	0	34	8	53	21	506	95	76	186	84
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	-
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	0	37	9	58	23	550	103	83	202	91

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1060	1106	602	293	0	0	653	0	0
Stage 1	647	647	-	-	-	-	-	-	-
Stage 2	413	459	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	248	210	500	1269	-	-	934	-	-
Stage 1	521	467	-	-	-	-	-	-	-
Stage 2	668	566	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	215	0	500	1269	-	-	934	-	-
Mov Cap-2 Maneuver	215	0	-	-	-	-	-	-	-
Stage 1	506	0	-	-	-	-	-	-	-
Stage 2	597	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0.3	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1269	-	-	329	934	-	-
HCM Lane V/C Ratio	0.018	-	-	0.314	0.088	-	-
HCM Control Delay (s)	7.9	0	-	20.9	9.2	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.3	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	58	36	0	565	227	0
Future Vol, veh/h	58	36	0	565	227	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	39	0	614	247	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	861	247	247	0	-	0
Stage 1	247	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	326	792	1319	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	326	792	1319	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	540	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1319	-	326	792	-	-
HCM Lane V/C Ratio	-	-	0.193	0.049	-	-
HCM Control Delay (s)	0	-	18.7	9.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	559	45	60	203
Future Vol, veh/h	2	0	559	45	60	203
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	0	608	49	65	221

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	983	632	0	0	657	0
Stage 1	632	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	276	480	-	-	931	-
Stage 1	530	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	480	-	-	931	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	656	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.3	0	2.1
HCM LOS	C		

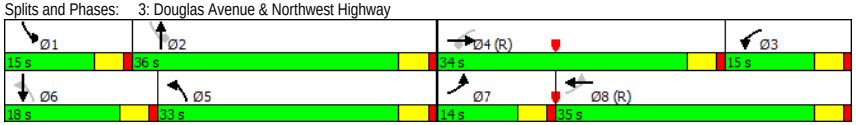
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	254	931	-
HCM Lane V/C Ratio	-	-	0.009	0.07	-
HCM Control Delay (s)	-	-	19.3	9.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	2029	254	123	1610	12	577	212	345	14	48	18
Future Volume (vph)	31	2029	254	123	1610	12	577	212	345	14	48	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
Adj. Flow (vph)	34	2205	276	134	1750	13	627	230	375	15	52	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	2205	276	134	1763	0	627	230	375	15	72	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4			6		2	2		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	34.0	34.0	15.0	35.0		33.0	36.0	36.0	15.0	18.0	
Total Split (%)	14.0%	34.0%	34.0%	15.0%	35.0%		33.0%	36.0%	36.0%	15.0%	18.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	58.6	46.3	46.3	56.8	54.5		26.1	25.1	25.1	27.9	7.0	
Actuated g/C Ratio	0.59	0.46	0.46	0.57	0.54		0.26	0.25	0.25	0.28	0.07	
v/c Ratio	0.18	0.94	0.33	0.50	0.64		0.74	0.49	0.55	0.05	0.28	
Control Delay	12.0	36.0	7.6	33.4	19.7		38.9	35.8	6.7	21.9	35.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	12.0	36.0	7.6	33.4	19.7		38.9	35.8	6.7	21.9	35.7	
LOS	B	D	A	C	B		D	D	A	C	D	
Approach Delay		32.6			20.6			28.5			33.3	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	8	483	30	34	305		173	115	0	7	16	
Queue Length 95th (ft)	25	#700	95	94	430		205	197	70	19	38	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	243	2356	836	267	2771		1129	586	755	345	475	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	0.94	0.33	0.50	0.64		0.56	0.39	0.50	0.04	0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 4:EBWB and 8:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94

Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 80.4% ICU Level of Service D
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	66	41	25	10	75	3	310	29	72	333	58
Future Volume (vph)	142	66	41	25	10	75	3	310	29	72	333	58
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
Adj. Flow (vph)	154	72	45	27	11	82	3	337	32	78	362	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	117	0	0	120	0	0	372	0	0	440	63
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	16.0	16.0		15.0	15.0		22.0	22.0		27.0	27.0	27.0
Total Split (%)	20.0%	20.0%		18.8%	18.8%		27.5%	27.5%		33.8%	33.8%	33.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		Max	Max		C-Max	C-Max	C-Max
Act Effct Green (s)	10.5	10.5			7.6			23.4			22.5	22.5
Actuated g/C Ratio	0.13	0.13			0.10			0.29			0.28	0.28
v/c Ratio	0.67	0.45			0.52			0.36			0.85	0.11
Control Delay	47.6	29.0			21.6			24.8			44.5	0.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	47.6	29.0			21.6			24.8			44.5	0.4
LOS	D	C			C			C			D	A
Approach Delay		39.5			21.6			24.8			39.0	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	73	38			18			78			206	0
Queue Length 95th (ft)	#142	87			65			125			#364	0
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	254	280			290			1030			519	548
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.61	0.42			0.41			0.36			0.85	0.11

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85

Intersection Signal Delay: 33.3 Intersection LOS: C
Intersection Capacity Utilization 56.9% ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	180	217	49	747	838	36
Future Volume (vph)	180	217	49	747	838	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	236	53	812	911	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	196	236	53	812	950	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	12.0	12.0	11.0	78.0	67.0	
Total Split (%)	13.3%	13.3%	12.2%	86.7%	74.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	7.5	7.5	73.5	73.5	67.1	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.75	
v/c Ratio	1.33	0.68	0.11	0.28	0.36	
Control Delay	224.2	16.5	2.0	2.2	5.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	224.2	16.5	2.0	2.2	5.0	
LOS	F	B	A	A	A	
Approach Delay	110.7			2.2	5.0	
Approach LOS	F			A	A	
Queue Length 50th (ft)	~146	0	4	40	98	
Queue Length 95th (ft)	#280	#76	9	53	131	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	147	348	488	2890	2624	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.33	0.68	0.11	0.28	0.36	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.33

Intersection Signal Delay: 24.2 Intersection LOS: C
Intersection Capacity Utilization 49.7% ICU Level of Service A
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	19	142	29	12	118
Future Vol, veh/h	53	19	142	29	12	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	21	154	32	13	128
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.3	8.2
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	74%	9%
Vol Thru, %	83%	0%	91%
Vol Right, %	17%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	171	72	130
LT Vol	0	53	12
Through Vol	142	0	118
RT Vol	29	19	0
Lane Flow Rate	186	78	141
Geometry Grp	1	1	1
Degree of Util (X)	0.211	0.101	0.17
Departure Headway (Hd)	4.18	4.635	4.337
Convergence, Y/N	Yes	Yes	Yes
Cap	864	776	832
Service Time	2.18	2.643	2.337
HCM Lane V/C Ratio	0.215	0.101	0.169
HCM Control Delay	8.3	8.2	8.2
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.3	0.6

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	23	11	25	20	9	199	0	0	418	53
Future Vol, veh/h	35	0	23	11	25	20	9	199	0	0	418	53
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	38	0	25	12	27	22	10	216	0	0	454	58
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	9.3	9.2	10	15
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	60%	20%	0%
Vol Thru, %	96%	0%	45%	89%
Vol Right, %	0%	40%	36%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	58	56	471
LT Vol	9	35	11	0
Through Vol	199	0	25	418
RT Vol	0	23	20	53
Lane Flow Rate	226	63	61	512
Geometry Grp	1	1	1	1
Degree of Util (X)	0.304	0.097	0.093	0.635
Departure Headway (Hd)	4.833	5.56	5.507	4.464
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	739	637	643	804
Service Time	2.896	3.655	3.602	2.513
HCM Lane V/C Ratio	0.306	0.099	0.095	0.637
HCM Control Delay	10	9.3	9.2	15
HCM Lane LOS	A	A	A	B
HCM 95th-tile Q	1.3	0.3	0.3	4.6

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	5	180	1	10	114
Future Vol, veh/h	12	5	180	1	10	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	13	5	196	1	11	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	342	196	0	0	197	0
Stage 1	196	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	654	845	-	-	1376	-
Stage 1	837	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	648	845	-	-	1376	-
Mov Cap-2 Maneuver	648	-	-	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	873	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	696	1376	-
HCM Lane V/C Ratio	-	-	0.027	0.008	-
HCM Control Delay (s)	-	-	10.3	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	3	52	1	1	11	3	321	1	0	399	0
Future Vol, veh/h	12	3	52	1	1	11	3	321	1	0	399	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	-	-	-	-	-	-	-	-	-	-	-	-
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	13	3	57	1	1	12	3	349	1	0	434	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	797	791	434	820	790	349	434	0	0	350	0	0
Stage 1	434	434	-	356	356	-	-	-	-	-	-	-
Stage 2	363	357	-	464	434	-	-	-	-	-	-	-
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	305	322	622	294	322	694	1126	-	-	1209	-	-
Stage 1	600	581	-	661	629	-	-	-	-	-	-	-
Stage 2	656	628	-	578	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	298	321	622	265	321	694	1126	-	-	1209	-	-
Mov Cap-2 Maneuver	298	321	-	265	321	-	-	-	-	-	-	-
Stage 1	598	581	-	659	627	-	-	-	-	-	-	-
Stage 2	642	626	-	523	581	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	11.5	0.1	0
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1126	-	-	503	572	1209	-	-
HCM Lane V/C Ratio	0.003	-	-	0.145	0.025	-	-	-
HCM Control Delay (s)	8.2	0	-	13.4	11.5	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	93	3	121	5	197	49	48	384	18
Future Vol, veh/h	0	0	0	93	3	121	5	197	49	48	384	18
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	-
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	0	101	3	132	5	214	53	52	417	20

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	784	793	241	437	0	0	267	0	0
Stage 1	252	252	-	-	-	-	-	-	-
Stage 2	532	541	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	362	321	798	1123	-	-	1297	-	-
Stage 1	790	698	-	-	-	-	-	-	-
Stage 2	589	521	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	341	0	798	1123	-	-	1297	-	-
Mov Cap-2 Maneuver	341	0	-	-	-	-	-	-	-
Stage 1	786	0	-	-	-	-	-	-	-
Stage 2	558	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.3	0.2	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1123	-	-	504	1297	-	-
HCM Lane V/C Ratio	0.005	-	-	0.468	0.04	-	-
HCM Control Delay (s)	8.2	0	-	18.3	7.9	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	2.5	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	0	248	480	0
Future Vol, veh/h	3	2	0	248	480	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	3	2	0	270	522	0

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	792	522	522	0	-	0
Stage 1	522	-	-	-	-	-
Stage 2	270	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	358	555	1044	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	775	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	358	555	1044	-	-	-
Mov Cap-2 Maneuver	358	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	775	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1044	-	358	555	-	-
HCM Lane V/C Ratio	-	-	0.009	0.004	-	-
HCM Control Delay (s)	0	-	15.1	11.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	242	9	9	473
Future Vol, veh/h	0	5	242	9	9	473
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	0	5	263	10	10	514

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	802	268	0	0	273	0
Stage 1	268	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	353	771	-	-	1290	-
Stage 1	777	-	-	-	-	-
Stage 2	588	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	349	771	-	-	1290	-
Mov Cap-2 Maneuver	349	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	771	1290	-
HCM Lane V/C Ratio	-	-	0.007	0.008	-
HCM Control Delay (s)	-	-	9.7	7.8	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1519	699	444	2575	7	338	76	128	34	251	36
Future Volume (vph)	8	1519	699	444	2575	7	338	76	128	34	251	36
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
Adj. Flow (vph)	9	1651	760	483	2799	8	367	83	139	37	273	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	1651	760	483	2807	0	367	83	139	37	312	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	51.0	51.0	18.0	55.0		17.0	34.0	34.0	17.0	34.0	
Total Split (%)	11.7%	42.5%	42.5%	15.0%	45.8%		14.2%	28.3%	28.3%	14.2%	28.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	59.9	59.9	59.9	75.7	75.7		25.1	25.1	25.1	15.7	15.7	
Actuated g/C Ratio	0.50	0.50	0.50	0.63	0.63		0.21	0.21	0.21	0.13	0.13	
v/c Ratio	0.06	0.65	0.77	1.76	0.88		0.64	0.21	0.32	0.23	0.67	
Control Delay	18.9	24.7	18.2	384.6	23.8		50.6	41.3	8.5	48.2	54.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	24.7	18.2	384.6	23.8		50.6	41.3	8.5	48.2	54.8	
LOS	B	C	B	F	C		D	D	A	D	D	
Approach Delay		22.6			76.7			39.4			54.1	
Approach LOS		C			E			D			D	
Queue Length 50th (ft)	3	336	232	~495	577		136	56	0	26	118	
Queue Length 95th (ft)	14	445	478	#746	#1009		177	99	53	57	161	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	198	2538	988	275	3206		601	457	493	205	862	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.65	0.77	1.76	0.88		0.61	0.18	0.28	0.18	0.36	

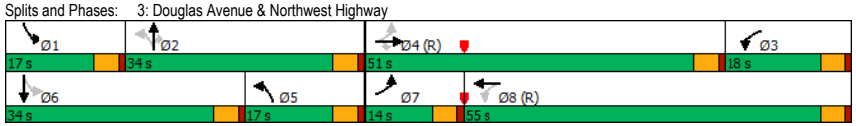
Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.76

Intersection Signal Delay: 52.5 — Intersection LOS: D
Intersection Capacity Utilization 87.2% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	4	4	70	55	46	81	452	46	60	439	452
Future Volume (vph)	9	4	4	70	55	46	81	452	46	60	439	452
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
Adj. Flow (vph)	10	4	4	76	60	50	88	491	50	65	477	491
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	8	0	0	186	0	0	629	0	0	542	491
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	10.0	10.0		20.0	20.0		25.0	25.0		35.0	35.0	35.0
Total Split (%)	11.1%	11.1%		22.2%	22.2%		27.8%	27.8%		38.9%	38.9%	38.9%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	5.5	5.5			13.0			30.0			29.5	29.5
Actuated g/C Ratio	0.06	0.06			0.14			0.33			0.33	0.33
v/c Ratio	0.09	0.07			0.69			0.54			0.89	0.58
Control Delay	42.0	32.9			42.8			28.5			47.8	5.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	42.0	32.9			42.8			28.5			47.8	5.2
LOS	D	C			D			C			D	A
Approach Delay		37.9			42.8			28.5			27.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	6	2			91			143			285	0
Queue Length 95th (ft)	22	16			158			#240			#469	66
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	108	109			318			1164			627	861
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.09	0.07			0.58			0.54			0.86	0.57

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.5 — Intersection LOS: C
Intersection Capacity Utilization 70.2% — ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	30	205	755	740	180
Future Volume (vph)	33	30	205	755	740	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	33	223	821	804	196
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	33	223	821	1000	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	10.0	10.0	10.0	80.0	70.0	
Total Split (%)	11.1%	11.1%	11.1%	88.9%	77.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	5.5	5.5	77.5	78.4	67.5	
Actuated g/C Ratio	0.06	0.06	0.86	0.87	0.75	
v/c Ratio	0.33	0.26	0.47	0.27	0.38	
Control Delay	34.9	15.5	4.5	1.5	4.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.9	15.5	4.5	1.5	4.3	
LOS	C	B	A	A	A	
Approach Delay	25.6			2.2	4.3	
Approach LOS	C			A	A	
Queue Length 50th (ft)	18	4	15	33	84	
Queue Length 95th (ft)	m28	m11	25	43	112	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	108	127	477	3082	2599	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.33	0.26	0.47	0.27	0.38	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.47

Intersection Signal Delay: 4.0	Intersection LOS: A
Intersection Capacity Utilization 53.0%	ICU Level of Service A
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	102	375	67	0	21
Future Vol, veh/h	63	102	375	67	0	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	111	408	73	0	23
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.3	13	8.1
HCM LOS	A	B	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	38%	0%
Vol Thru, %	85%	0%	100%
Vol Right, %	15%	62%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	442	165	21
LT Vol	0	63	0
Through Vol	375	0	21
RT Vol	67	102	0
Lane Flow Rate	480	179	23
Geometry Grp	1	1	1
Degree of Util (X)	0.575	0.238	0.031
Departure Headway (Hd)	4.311	4.771	4.893
Convergence, Y/N	Yes	Yes	Yes
Cap	836	751	729
Service Time	2.341	2.808	2.941
HCM Lane V/C Ratio	0.574	0.238	0.032
HCM Control Delay	13	9.3	8.1
HCM Lane LOS	B	A	A
HCM 95th-tile Q	3.7	0.9	0.1

Intersection	
Intersection Delay, s/veh	17.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	109	0	38	11	37	99	38	437	0	0	151	61
Future Vol, veh/h	109	0	38	11	37	99	38	437	0	0	151	61
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	118	0	41	12	40	108	41	475	0	0	164	66
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	11.8	11.1	23.3	11.7
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	8%	74%	7%	0%
Vol Thru, %	92%	0%	25%	71%
Vol Right, %	0%	26%	67%	29%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	475	147	147	212
LT Vol	38	109	11	0
Through Vol	437	0	37	151
RT Vol	0	38	99	61
Lane Flow Rate	516	160	160	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.761	0.278	0.261	0.356
Departure Headway (Hd)	5.304	6.256	5.89	5.556
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	682	570	604	643
Service Time	3.362	4.342	3.978	3.631
HCM Lane V/C Ratio	0.757	0.281	0.265	0.358
HCM Control Delay	23.3	11.8	11.1	11.7
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	7.1	1.1	1	1.6

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	30	343	2	0	68
Future Vol, veh/h	2	30	343	2	0	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	33	373	2	0	74

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	448	374	0	0	375	0
Stage 1	374	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	568	672	-	-	1183	-
Stage 1	696	-	-	-	-	-
Stage 2	949	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	568	672	-	-	1183	-
Mov Cap-2 Maneuver	568	-	-	-	-	-
Stage 1	696	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	664	1183	-
HCM Lane V/C Ratio	-	-	0.052	-	-
HCM Control Delay (s)	-	-	10.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

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	47	2	8	0	1	1	73	536	7	4	350	164
Future Vol, veh/h	47	2	8	0	1	1	73	536	7	4	350	164
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	51	2	9	0	1	1	79	583	8	4	380	178

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1223	1226	469	1228	1311	587	558	0	0	591	0	0
Stage 1	477	477	-	745	745	-	-	-	-	-	-	-
Stage 2	746	749	-	483	566	-	-	-	-	-	-	-
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	156	179	594	155	159	510	1013	-	-	985	-	-
Stage 1	569	556	-	406	421	-	-	-	-	-	-	-
Stage 2	405	419	-	565	507	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	140	157	594	137	140	510	1013	-	-	985	-	-
Mov Cap-2 Maneuver	140	157	-	137	140	-	-	-	-	-	-	-
Stage 1	503	553	-	359	372	-	-	-	-	-	-	-
Stage 2	356	370	-	551	504	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42.1	21.5	1	0.1
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1013	-	-	157	220	985	-	-
HCM Lane V/C Ratio	0.078	-	-	0.395	0.01	0.004	-	-
HCM Control Delay (s)	8.9	0	-	42.1	21.5	8.7	0	-
HCM Lane LOS	A	A	-	E	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1.7	0	0	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Vol, veh/h	0	0	0	34	8	75	21	539	99	80	190	84
Future Vol, veh/h	0	0	0	34	8	75	21	539	99	80	190	84
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	-
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	0	37	9	82	23	586	108	87	207	91

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1113	1158	640	298	0	0	694	0	0
Stage 1	686	686	-	-	-	-	-	-	-
Stage 2	427	472	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	231	196	475	1263	-	-	901	-	-
Stage 1	500	448	-	-	-	-	-	-	-
Stage 2	658	559	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	198	0	475	1263	-	-	901	-	-
Mov Cap-2 Maneuver	198	0	-	-	-	-	-	-	-
Stage 1	429	0	-	-	-	-	-	-	-
Stage 2	658	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.5	0.3	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1263	-	-	331	901	-	-
HCM Lane V/C Ratio	0.018	-	-	0.384	0.097	-	-
HCM Control Delay (s)	7.9	0	-	22.5	9.4	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.8	0.3	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰	↱		↑	↑	
Traffic Vol, veh/h	62	40	0	598	231	0
Future Vol, veh/h	62	40	0	598	231	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	67	43	0	650	251	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	901	251	251	0	-	0
Stage 1	251	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	309	788	1314	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	309	788	1314	-	-	-
Mov Cap-2 Maneuver	309	-	-	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1314	-	309	788	-	-
HCM Lane V/C Ratio	-	-	0.218	0.055	-	-
HCM Control Delay (s)	0	-	19.9	9.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0	-	0.8	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	0	593	45	60	211
Future Vol, veh/h	2	0	593	45	60	211
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	2	0	645	49	65	229

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1029	670	0	0	694	0
Stage 1	670	-	-	-	-	-
Stage 2	359	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	259	457	-	-	901	-
Stage 1	509	-	-	-	-	-
Stage 2	707	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	238	457	-	-	901	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	467	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.3	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	238	901	-
HCM Lane V/C Ratio	-	-	0.009	0.072	-
HCM Control Delay (s)	-	-	20.3	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0.2	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	2	0	44	36	4	4
Future Vol, veh/h	2	0	44	36	4	4
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	2	0	48	39	4	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	2	0	137	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	135	-
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	-	-	1620	-	856	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1620	-	830	1082
Mov Cap-2 Maneuver	-	-	-	-	830	-
Stage 1	-	-	-	-	990	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	939	-	-	1620	-
HCM Lane V/C Ratio	0.009	-	-	0.03	-
HCM Control Delay (s)	8.9	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	6	0	166	72	8	51
Future Vol, veh/h	6	0	166	72	8	51
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	7	0	180	78	9	55

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	7	0	445	7
Stage 1	-	-	-	-	7	-
Stage 2	-	-	-	-	438	-
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	-	-	1614	-	571	1075
Stage 1	-	-	-	-	1016	-
Stage 2	-	-	-	-	651	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1614	-	504	1075
Mov Cap-2 Maneuver	-	-	-	-	504	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	651	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.2	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	932	-	-	1614	-
HCM Lane V/C Ratio	0.069	-	-	0.112	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.4	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	94	10	0	8	4
Future Vol, veh/h	11	94	10	0	8	4
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	12	102	11	0	9	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	11	0	-	0	137	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	126	-
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	1608	-	-	-	856	1070
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1608	-	-	-	849	1070
Mov Cap-2 Maneuver	-	-	-	-	849	-
Stage 1	-	-	-	-	1004	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	9
HCM LOS			A

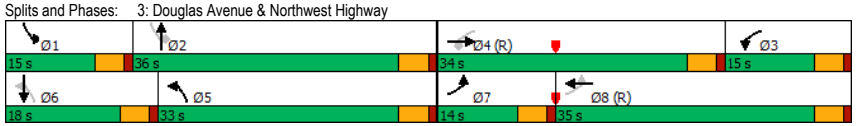
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1608	-	-	-	912
HCM Lane V/C Ratio	0.007	-	-	-	0.014
HCM Control Delay (s)	7.3	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	2029	285	141	1610	12	626	212	382	14	48	18
Future Volume (vph)	31	2029	285	141	1610	12	626	212	382	14	48	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
Adj. Flow (vph)	34	2205	310	153	1750	13	680	230	415	15	52	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	34	2205	310	153	1763	0	680	230	415	15	72	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4			6		2	2		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	34.0	34.0	15.0	35.0		33.0	36.0	36.0	15.0	18.0	
Total Split (%)	14.0%	34.0%	34.0%	15.0%	35.0%		33.0%	36.0%	36.0%	15.0%	18.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	57.1	44.8	44.8	55.3	52.9		27.6	26.7	26.7	29.4	7.0	
Actuated g/C Ratio	0.57	0.45	0.45	0.55	0.53		0.28	0.27	0.27	0.29	0.07	
v/c Ratio	0.18	0.97	0.37	0.57	0.66		0.76	0.46	0.57	0.05	0.28	
Control Delay	12.6	41.6	8.1	37.3	21.0		38.4	33.9	6.5	20.9	35.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	12.6	41.6	8.1	37.3	21.0		38.4	33.9	6.5	20.9	35.7	
LOS	B	D	A	D	C		D	C	A	C	D	
Approach Delay		37.1			22.3			27.6			33.2	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	9	500	35	41	317		186	112	0	7	16	
Queue Length 95th (ft)	25	#708	107	112	436		221	195	73	19	38	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	244	2278	828	268	2689		1129	590	784	364	475	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	0.97	0.37	0.57	0.66		0.60	0.39	0.53	0.04	0.15	

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 4:EBWB and 8:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97

Intersection Signal Delay: 30.1 — Intersection LOS: C
Intersection Capacity Utilization 82.8% — ICU Level of Service E
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	66	41	49	10	75	3	397	91	72	394	58
Future Volume (vph)	142	66	41	49	10	75	3	397	91	72	394	58
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
Adj. Flow (vph)	154	72	45	53	11	82	3	432	99	78	428	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	117	0	0	146	0	0	534	0	0	506	63
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	16.0	16.0		15.0	15.0		22.0	22.0		27.0	27.0	27.0
Total Split (%)	20.0%	20.0%		18.8%	18.8%		27.5%	27.5%		33.8%	33.8%	33.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	10.5	10.5			8.6			20.4			22.5	22.5
Actuated g/C Ratio	0.13	0.13			0.11			0.26			0.28	0.28
v/c Ratio	0.67	0.45			0.61			0.59			0.97	0.11
Control Delay	47.6	29.0			30.4			28.6			64.7	0.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	47.6	29.0			30.4			28.6			64.7	0.4
LOS	D	C			C			C			E	A
Approach Delay		39.5			30.4			28.6			57.6	
Approach LOS		D			C			C			E	
Queue Length 50th (ft)	73	38			38			119			249	0
Queue Length 95th (ft)	#142	87			93			175			#443	0
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	254	280			279			901			519	548
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.61	0.42			0.52			0.59			0.97	0.11

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97

Intersection Signal Delay: 41.6 — Intersection LOS: D
Intersection Capacity Utilization 64.5% — ICU Level of Service C
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	205	254	62	759	838	48
Future Volume (vph)	205	254	62	759	838	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	276	67	825	911	52
Shared Lane Traffic (%)						
Lane Group Flow (vph)	223	276	67	825	963	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	12.0	12.0	11.0	78.0	67.0	
Total Split (%)	13.3%	13.3%	12.2%	86.7%	74.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	7.5	7.5	73.5	73.5	64.9	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.72	
v/c Ratio	1.52	0.72	0.14	0.29	0.38	
Control Delay	296.1	17.0	2.2	2.2	5.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	296.1	17.0	2.2	2.2	5.6	
LOS	F	B	A	A	A	
Approach Delay	141.7			2.2	5.6	
Approach LOS	F			A	A	
Queue Length 50th (ft)	~178	0	5	41	100	
Queue Length 95th (ft)	#318	#95	11	54	133	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	147	384	478	2890	2537	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.52	0.72	0.14	0.29	0.38	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.52

Intersection Signal Delay: 33.2 — Intersection LOS: C
Intersection Capacity Utilization 51.5% — ICU Level of Service A
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Preston Road & Sherry Lane

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	19	148	29	12	131
Future Vol, veh/h	53	19	148	29	12	131
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	21	161	32	13	142
Number of Lanes	1	0	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	8.2	8.4	8.3
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	74%	8%
Vol Thru, %	84%	0%	92%
Vol Right, %	16%	26%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	177	72	143
LT Vol	0	53	12
Through Vol	148	0	131
RT Vol	29	19	0
Lane Flow Rate	192	78	155
Geometry Grp	1	1	1
Degree of Util (X)	0.224	0.102	0.187
Departure Headway (Hd)	4.2	4.681	4.336
Convergence, Y/N	Yes	Yes	Yes
Cap	860	768	830
Service Time	2.2	2.697	2.348
HCM Lane V/C Ratio	0.223	0.102	0.187
HCM Control Delay	8.4	8.2	8.3
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.9	0.3	0.7

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	0	23	11	25	26	9	211	0	0	443	53
Future Vol, veh/h	35	0	23	11	25	26	9	211	0	0	443	53
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	38	0	25	12	27	28	10	229	0	0	482	58
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	9.4	9.3	10.3	16.5
HCM LOS	A	A	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	60%	18%	0%
Vol Thru, %	96%	0%	40%	89%
Vol Right, %	0%	40%	42%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	220	58	62	496
LT Vol	9	35	11	0
Through Vol	211	0	25	443
RT Vol	0	23	26	53
Lane Flow Rate	239	63	67	539
Geometry Grp	1	1	1	1
Degree of Util (X)	0.325	0.101	0.106	0.675
Departure Headway (Hd)	4.893	5.778	5.67	4.509
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	624	635	798
Service Time	2.971	3.781	3.673	2.571
HCM Lane V/C Ratio	0.329	0.101	0.106	0.675
HCM Control Delay	10.3	9.4	9.3	16.5
HCM Lane LOS	B	A	A	C
HCM 95th-tile Q	1.4	0.3	0.4	5.3

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	42	180	1	10	114
Future Vol, veh/h	12	42	180	1	10	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	13	46	196	1	11	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	343	197	0	0	197	0
Stage 1	197	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	653	844	-	-	1376	-
Stage 1	836	-	-	-	-	-
Stage 2	881	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	647	844	-	-	1376	-
Mov Cap-2 Maneuver	647	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	881	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	791	1376	-
HCM Lane V/C Ratio	-	-	0.074	0.008	-
HCM Control Delay (s)	-	-	9.9	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	14.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	161	3	76	1	1	11	34	321	1	0	399	86
Future Vol, veh/h	161	3	76	1	1	11	34	321	1	0	399	86
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	175	3	83	1	1	12	37	349	1	0	434	93

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	911	905	481	948	951	350	527	0	0	350	0	0
Stage 1	481	481	-	424	424	-	-	-	-	-	-	-
Stage 2	430	424	-	524	527	-	-	-	-	-	-	-
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	255	276	585	241	260	693	1040	-	-	1209	-	-
Stage 1	566	554	-	608	587	-	-	-	-	-	-	-
Stage 2	603	587	-	537	528	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	241	264	585	198	249	693	1040	-	-	1209	-	-
Mov Cap-2 Maneuver	241	264	-	198	249	-	-	-	-	-	-	-
Stage 1	541	554	-	581	561	-	-	-	-	-	-	-
Stage 2	565	561	-	458	528	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	64.2	12.1	0.8	0
HCM LOS	F	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1040	-	-	297	521	1209	-	-
HCM Lane V/C Ratio	0.036	-	-	0.878	0.027	-	-	-
HCM Control Delay (s)	8.6	0	-	64.2	12.1	0	-	-
HCM Lane LOS	A	A	-	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	7.9	0.1	0	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	93	3	133	5	215	62	61	397	18
Future Vol, veh/h	0	0	0	93	3	133	5	215	62	61	397	18
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	-
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	0	101	3	145	5	234	67	66	432	20

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	852	862	268	452	0	0	301	0	0
Stage 1	278	278	-	-	-	-	-	-	-
Stage 2	574	584	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	330	293	771	1109	-	-	1260	-	-
Stage 1	769	680	-	-	-	-	-	-	-
Stage 2	563	498	-	-	-	-	-	-	-
Platoon blocked, %					-	-		-	-
Mov Cap-1 Maneuver	305	0	771	1109	-	-	1260	-	-
Mov Cap-2 Maneuver	305	0	-	-	-	-	-	-	-
Stage 1	711	0	-	-	-	-	-	-	-
Stage 2	563	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.8	0.1	1
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1109	-	-	473	1260	-	-
HCM Lane V/C Ratio	0.005	-	-	0.526	0.053	-	-
HCM Control Delay (s)	8.3	0	-	20.8	8	0	-
HCM Lane LOS	A	A	-	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	3	0.2	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	14	0	267	492	0
Future Vol, veh/h	15	14	0	267	492	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	-	-	-	-
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	16	15	0	290	535	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	825	535	535	0	-	0
Stage 1	535	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	342	545	1033	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	545	1033	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1033	-	342	545	-	-
HCM Lane V/C Ratio	-	-	0.048	0.028	-	-
HCM Control Delay (s)	0	-	16.1	11.8	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	5	261	9	9	498
Future Vol, veh/h	0	5	261	9	9	498
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	0	5	284	10	10	541

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	850	289	0	0	294	0
Stage 1	289	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	331	750	-	-	1268	-
Stage 1	760	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	327	750	-	-	1268	-
Mov Cap-2 Maneuver	327	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	750	1268	-
HCM Lane V/C Ratio	-	-	0.007	0.008	-
HCM Control Delay (s)	-	-	9.8	7.9	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	67	0	25	29	12	12
Future Vol, veh/h	67	0	25	29	12	12
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	73	0	27	32	13	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	159	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	86	-
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	-	-	1527	-	832	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1527	-	817	989
Mov Cap-2 Maneuver	-	-	-	-	817	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	937	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1527	-
HCM Lane V/C Ratio	0.029	-	-	0.018	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	79	0	92	29	25	161
Future Vol, veh/h	79	0	92	29	25	161
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	86	0	100	32	27	175

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	86	0	318	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	232	-
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	-	-	1510	-	675	973
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1510	-	630	973
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	807	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.7	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	907	-	-	1510	-
HCM Lane V/C Ratio	0.223	-	-	0.066	-
HCM Control Delay (s)	10.1	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.2	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	5	10	0	25	12
Future Vol, veh/h	6	5	10	0	25	12
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	7	5	11	0	27	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	11	0	-	0	30	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	19	-
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	1608	-	-	-	984	1070
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	1004	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1608	-	-	-	980	1070
Mov Cap-2 Maneuver	-	-	-	-	980	-
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	1004	-

Approach	EB	WB	SB
HCM Control Delay, s	4	0	8.7
HCM LOS			A

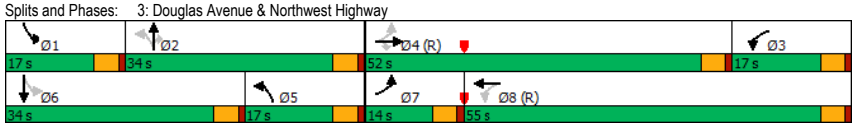
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1608	-	-	-	1007
HCM Lane V/C Ratio	0.004	-	-	-	0.04
HCM Control Delay (s)	7.2	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1596	732	465	2706	8	355	80	134	36	264	38
Future Volume (vph)	9	1596	732	465	2706	8	355	80	134	36	264	38
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
Adj. Flow (vph)	10	1735	796	505	2941	9	386	87	146	39	287	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	10	1735	796	505	2950	0	386	87	146	39	328	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	52.0	52.0	17.0	55.0		17.0	34.0	34.0	17.0	34.0	
Total Split (%)	11.7%	43.3%	43.3%	14.2%	45.8%		14.2%	28.3%	28.3%	14.2%	28.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	59.8	59.8	59.8	74.6	74.6		26.0	26.0	26.0	16.3	16.3	
Actuated g/C Ratio	0.50	0.50	0.50	0.62	0.62		0.22	0.22	0.22	0.14	0.14	
v/c Ratio	0.07	0.68	0.81	1.97	0.93		0.65	0.22	0.32	0.23	0.68	
Control Delay	18.9	25.6	20.7	476.9	28.5		50.3	40.5	8.1	47.8	54.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.9	25.6	20.7	476.9	28.5		50.3	40.5	8.1	47.8	54.7	
LOS	B	C	C	F	C		D	D	A	D	D	
Approach Delay		24.0			94.0			39.0			54.0	
Approach LOS		C			F			D			D	
Queue Length 50th (ft)	4	363	273	~549	665		143	58	0	27	124	
Queue Length 95th (ft)	15	480	#608	#801	#1108		184	101	53	59	167	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	198	2535	986	256	3161		614	460	501	208	862	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.05	0.68	0.81	1.97	0.93		0.63	0.19	0.29	0.19	0.38	

Intersection Summary
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.97

Intersection Signal Delay: 61.6 Intersection LOS: E
Intersection Capacity Utilization 90.8% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	4	4	71	57	49	86	474	47	63	456	475
Future Volume (vph)	10	4	4	71	57	49	86	474	47	63	456	475
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
Adj. Flow (vph)	11	4	4	77	62	53	93	515	51	68	496	516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	8	0	0	192	0	0	659	0	0	564	516
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	10.0	10.0		20.0	20.0		25.0	25.0		35.0	35.0	35.0
Total Split (%)	11.1%	11.1%		22.2%	22.2%		27.8%	27.8%		38.9%	38.9%	38.9%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	5.5	5.5			13.1			29.5			29.8	29.8
Actuated g/C Ratio	0.06	0.06			0.15			0.33			0.33	0.33
v/c Ratio	0.10	0.07			0.71			0.58			0.92	0.59
Control Delay	42.2	32.9			43.3			29.5			51.4	5.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	42.2	32.9			43.3			29.5			51.4	5.3
LOS	D	C			D			C			D	A
Approach Delay		38.3			43.3			29.5			29.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	6	2			94			152			301	0
Queue Length 95th (ft)	23	16			162			#271			#497	67
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	108	109			317			1145			627	877
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.10	0.07			0.61			0.58			0.90	0.59

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92

Intersection Signal Delay: 30.9 Intersection LOS: C
Intersection Capacity Utilization 72.4% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	34	31	215	793	777	188
Future Volume (vph)	34	31	215	793	777	188
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	34	234	862	845	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	37	34	234	862	1049	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	10.0	10.0	10.0	80.0	70.0	
Total Split (%)	11.1%	11.1%	11.1%	88.9%	77.8%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	5.5	5.5	77.5	78.4	67.5	
Actuated g/C Ratio	0.06	0.06	0.86	0.87	0.75	
v/c Ratio	0.34	0.27	0.51	0.28	0.40	
Control Delay	34.6	14.9	5.4	1.6	4.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	34.6	14.9	5.4	1.6	4.5	
LOS	C	B	A	A	A	
Approach Delay	25.2			2.4	4.5	
Approach LOS	C			A	A	
Queue Length 50th (ft)	19	3	16	35	91	
Queue Length 95th (ft)	m27	m10	26	46	120	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	108	128	455	3082	2599	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.34	0.27	0.51	0.28	0.40	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.51

Intersection Signal Delay: 4.1 — Intersection LOS: A
Intersection Capacity Utilization 54.8% — ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Preston Road & Sherry Lane

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	2132	298	147	1693	13	656	223	400	15	51	18
Future Volume (vph)	32	2132	298	147	1693	13	656	223	400	15	51	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
Adj. Flow (vph)	35	2317	324	160	1840	14	713	242	435	16	55	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	2317	324	160	1854	0	713	242	435	16	75	0
Turn Type	D.P+P	NA	Perm	D.P+P	NA		D.P+P	NA	Perm	D.P+P	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	8		4	4			6		2	2		
Detector Phase	7	4	4	3	8		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5		9.5	22.5	22.5	9.5	22.5	
Total Split (s)	14.0	34.0	34.0	15.0	35.0		33.0	36.0	36.0	15.0	18.0	
Total Split (%)	14.0%	34.0%	34.0%	15.0%	35.0%		33.0%	36.0%	36.0%	15.0%	18.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lead/Lag	Lead	Lead	Lead	Lag	Lag		Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	56.2	43.9	43.9	54.4	52.0		28.5	27.6	27.6	30.3	7.1	
Actuated g/C Ratio	0.56	0.44	0.44	0.54	0.52		0.28	0.28	0.28	0.30	0.07	
v/c Ratio	0.18	1.04	0.40	0.59	0.70		0.77	0.47	0.58	0.05	0.29	
Control Delay	13.1	59.8	9.1	38.7	22.8		38.1	33.4	6.4	20.5	36.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	13.1	59.8	9.1	38.7	22.8		38.1	33.4	6.4	20.5	36.0	
LOS	B	E	A	D	C		D	C	A	C	D	
Approach Delay		53.0			24.0			27.4			33.3	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	9	~614	43	46	357		192	115	0	7	17	
Queue Length 95th (ft)	26	#773	120	#119	#514		230	202	74	20	40	
Internal Link Dist (ft)		700			654			636			255	
Turn Bay Length (ft)	215			400			180			50		
Base Capacity (vph)	243	2230	814	269	2640		1131	597	802	368	476	
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	
Reduced v/c Ratio	0.14	1.04	0.40	0.59	0.70		0.63	0.41	0.54	0.04	0.16	

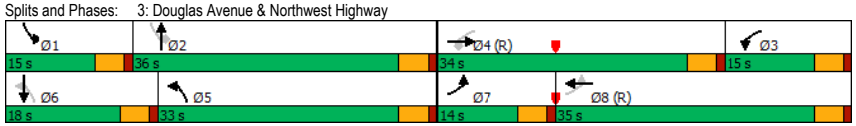
Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 4:EBWB and 8:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04

Intersection Signal Delay: 37.5 — Intersection LOS: D
Intersection Capacity Utilization 86.0% — ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Douglas Avenue & Northwest Highway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	69	43	51	11	79	3	412	92	76	411	61
Future Volume (vph)	149	69	43	51	11	79	3	412	92	76	411	61
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
Adj. Flow (vph)	162	75	47	55	12	86	3	448	100	83	447	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	122	0	0	153	0	0	551	0	0	530	66
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	Perm
Protected Phases	4	4		8	8		1	1		2	2	
Permitted Phases												2
Detector Phase	4	4		8	8		1	1		2	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	22.5
Total Split (s)	16.0	16.0		15.0	15.0		22.0	22.0		27.0	27.0	27.0
Total Split (%)	20.0%	20.0%		18.8%	18.8%		27.5%	27.5%		33.8%	33.8%	33.8%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0			0.0			0.0			0.0	0.0
Total Lost Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lead/Lag							Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None		None	None		C-Max	C-Max		None	None	None
Act Effct Green (s)	10.6	10.6			8.7			20.1			22.5	22.5
Actuated g/C Ratio	0.13	0.13			0.11			0.25			0.28	0.28
v/c Ratio	0.69	0.47			0.63			0.62			1.02	0.12
Control Delay	49.1	29.4			31.7			29.4			76.0	0.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	49.1	29.4			31.7			29.4			76.0	0.4
LOS	D	C			C			C			E	A
Approach Delay		40.6			31.7			29.4			67.7	
Approach LOS		D			C			C			E	
Queue Length 50th (ft)	77	41			41			125			~273	0
Queue Length 95th (ft)	#153	91			98			182			#471	0
Internal Link Dist (ft)		203			1284			111			433	
Turn Bay Length (ft)												
Base Capacity (vph)	254	280			279			889			519	548
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.64	0.44			0.55			0.62			1.02	0.12

Intersection Summary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 1:NBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02

Intersection Signal Delay: 46.0 Intersection LOS: D
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Douglas Avenue & Sherry Lane

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	214	266	64	797	880	50
Future Volume (vph)	214	266	64	797	880	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	233	289	70	866	957	54
Shared Lane Traffic (%)						
Lane Group Flow (vph)	233	289	70	866	1011	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	9.5	22.5	22.5	
Total Split (s)	12.0	12.0	11.0	78.0	67.0	
Total Split (%)	13.3%	13.3%	12.2%	86.7%	74.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	7.5	7.5	73.5	73.5	64.9	
Actuated g/C Ratio	0.08	0.08	0.82	0.82	0.72	
v/c Ratio	1.59	0.77	0.16	0.30	0.40	
Control Delay	323.8	22.5	2.3	2.3	5.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	323.8	22.5	2.3	2.3	5.8	
LOS	F	C	A	A	A	
Approach Delay	157.0			2.3	5.8	
Approach LOS	F			A	A	
Queue Length 50th (ft)	~190	13	5	44	107	
Queue Length 95th (ft)	#334	#126	11	57	142	
Internal Link Dist (ft)	1284			211	88	
Turn Bay Length (ft)		150	50			
Base Capacity (vph)	147	374	457	2890	2536	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	1.59	0.77	0.15	0.30	0.40	

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.59

Intersection Signal Delay: 36.4 — Intersection LOS: D
Intersection Capacity Utilization 53.2% — ICU Level of Service A
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Preston Road & Sherry Lane