TRAFFIC IMPACT ANALYSIS FOR

CENTER STAGE MIXED-USE DEVELOPMENT

IN CITY OF KELLER, TEXAS

DeShazo Project No. 19125

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Texas Registered Engineering Firm F-3199

Traffic Impact Analysis for

Center Stage Mixed-Use Development in City of Keller, Texas

~ DeShazo Project No. 19125~

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EXECUTIVE SUMMARY

The services of **DeShazo Group, Inc.** (DeShazo) were retained by **Realty Capital Management**, to conduct a traffic impact analysis (TIA) for the proposed mixed-use development in City of Keller, Texas. The subject property will be located at the northeast corner of the intersection of US 377/ Denton Highway and Mount Gilead Road in the City of Keller, Texas.

The proposed project is planned to be built in two phases and will be fully constructed by 2025. **Table 1** shows the development program summary for the site development.

Table 1. Development Program Summary

Use	Quantity	Buildout Year
Single Family Homes	57 DU	2021
Multifamily Housing	275 DU	2021
Retail/Commercial	20,000 SF	2021
Multifamily Housing	275 DU	2025
Retail/Commercial	20,000 SF	2025
Restaurant	15,000 SF	2025

The analysis of the traffic generated by the proposed development resulted in moderate impact on the local roadway system. Below is a summary of findings from this TIA.

FINDING: Based upon the existing 2019 analysis, all study intersections are currently operating at LOS D or better during the peak hour periods.

FINDING: Based upon the 2025 background & 2025 background plus full site buildout analysis all the study intersections are operating at LOS D or better with the exception of:

US 377/Denton Highway at Ridge Point Parkway-

- The signalized intersection is expected to operate at LOS E at 2025 background conditions during the AM peak hour without the proposed site.
- The signalized intersection is operating at LOS E during both the AM and PM peak hour for 2025 background plus site conditions. The proposed site traffic at the intersection increases the overall signal delay by less than 5 seconds only. The major contributor for the change in LOS is the projected background traffic.

Driveway 1 at US 377/Denton Highway-

- The WB left turning movement is expected to operate at LOS F during the both AM and PM peak hour periods for 2021 background plus site condition.

RECOMMENDATIONS:

US 377/Denton Highway at Ridge Point Parkway: The intersection is expected to operate at LOS E at 2025 full buildout conditions during the AM and PM peak hour periods for various movements. It is recommended that TxDOT revise the existing signal splits based on the actual volumes at the intersection after full site buildout. However, **Appendix D** shows the recommended splits for the intersection at 2025 conditions for projected volumes. The synchro results of the signal optimization are attached in **Appendix D**.

Driveway 1 at US 377/Denton Highway: The WB left turning movement is expected to operate at LOS F with a maximum 95th percentile queue of about 6 vehicles. This is because of heavy background volume on US 377/Denton Highway. The queuing will be inside the subject property and will not have an effect on the US 377/Denton Highway. Therefore, no improvements are needed.

FINDING: The proposed site will have 4 driveways on US 377 which allows a proportional distribution of traffic at all the driveways. Also, there are 6 driveways on Mount Gilead Road and Ridge Point Parkway combined. This will help reduce heavy movements on all the driveways.

FINDING: Based upon the projected volumes derived in this study, the installation of an auxiliary deceleration lane is not necessary as per TxDOT's standards at any of the driveways on US 377. The proposed site plan shows deceleration lanes at all the driveways on US 377. Even though, the volumes do not meet the requirements, it is beneficial to provide deceleration lanes on a highway like US 377. The projected traffic volume on Ridge Point Parkway and Mount Gilead Road are less, no right turn lanes are needed at driveways on Ridge Point Parkway and Mount Gilead.

FINDING: Driveways 2, 3, 4, 6, 7, and 11 do not meet the TxDOT's driveway spacing requirements.

RECOMMENDATION: It is recommended to move Driveway 3 about 40 feet north to meet the spacing requirements with Driveway 2. All the driveways on Mount Gilead are expected to operate at acceptable level of service. Also, the inadequate spacing is not significantly less than the requirements. Therefore, an exception to the access criteria may be pursued with TxDOT and City to request a lesser spacing requirement.

FINDING: Based on a cursory review, the proposed site driveways meet the required intersection sight distance.

FINDING:

US 377/Denton Highway:

- Currently operates at LOS C or better for both NB and SB approach at existing conditions.
- Expected to operate at LOS C or better for NB approach and at LOS D for SB approach at 2025 full buildout conditions. The change in level of service from LOS C to LOS D for SB approach is due to the background traffic growth till 2025 not due to the site traffic. The proposed site traffic has very low impact on US 377/Denton Highway.

INTRODUCTION

The services of **DeShazo Group, Inc.** (DeShazo) were retained by **Realty Capital Management**, to conduct a traffic impact analysis (TIA) for the proposed mixed-use development in City of Keller, Texas. The subject property will be located at the northeast corner of the intersection of US 377/ Denton Highway and Mount Gilead Road in the City of Keller, Texas. The proposed project is planned to be built in two phases and will be fully constructed by 2025.

A site location map and preliminary site plan are provided in **Exhibit 1** and **Exhibit 2**, respectively.

PURPOSE

City of Keller is requiring that a TIA be completed for the subject site as part of permit application. The purpose of the TIA is to determine if any improvements to the adjacent transportation system are needed in order to maintain a satisfactory level of service, an acceptable level of safety, and appropriate access for the proposed development.

TRAFFIC IMPACT ANALYSIS - METHODOLOGY

To achieve this objective, this analysis summarizes the traffic operational characteristics of the background conditions within a designated study area and the projected incremental impact of the Project as determined through standardized engineering analyses. The standard methodology used to conduct the traffic impact analysis is described below.

1. Collect current traffic volume data on a typical day throughout the study area to represent existing traffic conditions.
2. Apply growth factors to the existing volumes to project future background traffic at the site buildout year conditions.
3. Project traffic generated by the proposed development using trip generation, trip distribution and traffic assignment as described below.
   a. 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).
   b. Trip distribution and assignment of site-generated trips 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.
4. Determine site-plus-background traffic by adding the projected site-generated traffic to the background traffic.
5. Analyze existing, background and background-plus-site traffic volumes to evaluate the roadway conditions in the vicinity of the proposed development.
6. If needed, mitigation measures are recommended based upon the analysis to improve roadway operational conditions.

ANALYSIS SCENARIOS

This TIA analyzed the following peak hour periods that are considered the most critical conditions on the public roadway system related to the proposed Project. The proposed project is planned to be fully constructed by 2025.

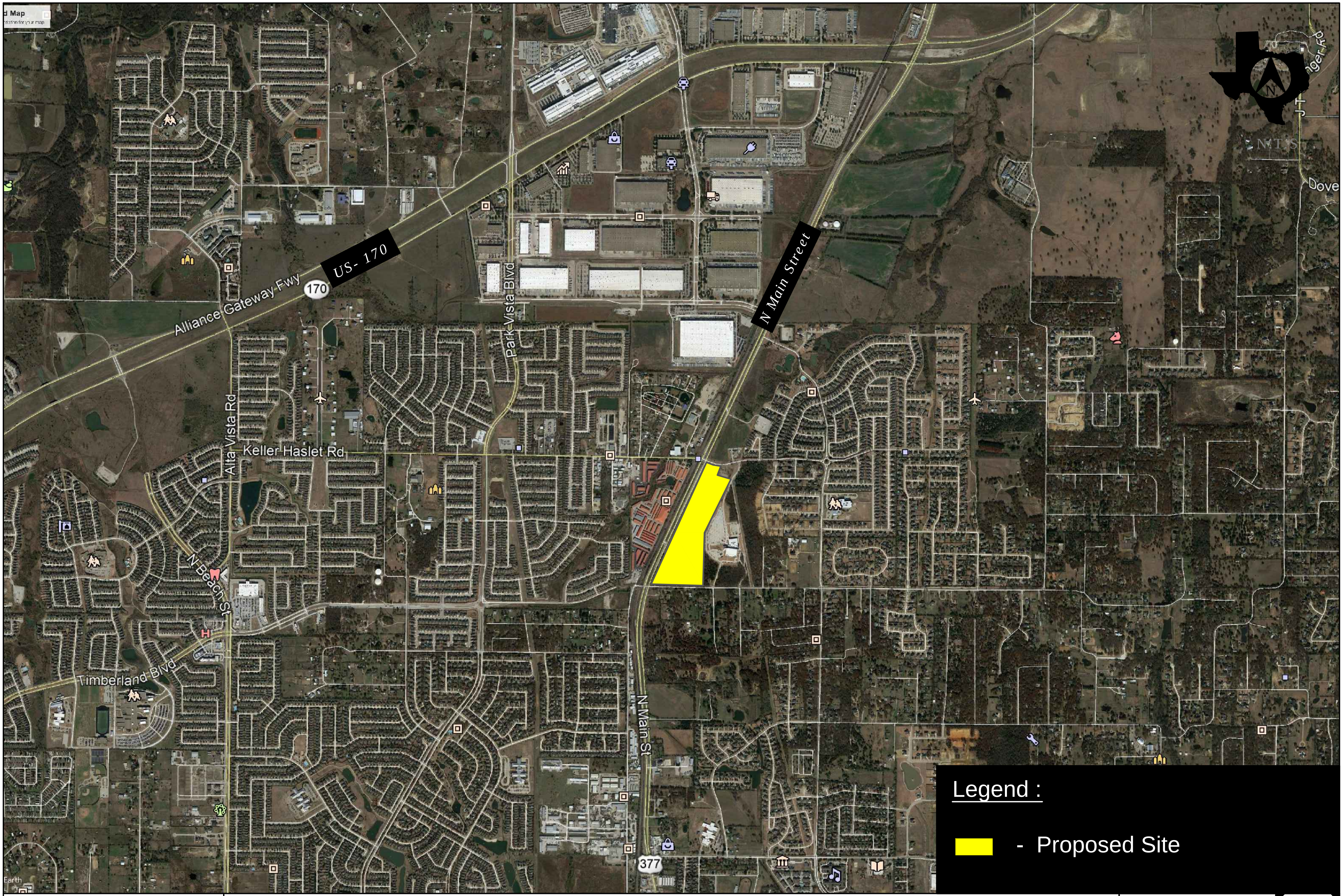
Roadway Peak Hours Analyzed:

- Weekday: AM peak hour of adjacent street traffic
- Weekday: PM peak hour of adjacent street traffic

Development scenarios considered in this analysis are summarized in **Table 2.**

Table 2. Development Scenarios Analyzed

Scenario	Development Program	Traffic Volumes
2019 Existing	None Added	Existing 2019 Volumes
2021 Background + Site	Phase 1	Existing 2019 volumes grown at 2% per year for 2 years plus site traffic
2025 Background	Phase 1	Background 2021 volumes grown at 2% per year for 4 years
2025 Background + Site	Full Buildout (Mixed-Use Development)	Background 2021 volumes grown at 2% per year for 4 years plus site traffic



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SITE LOCATION MAP

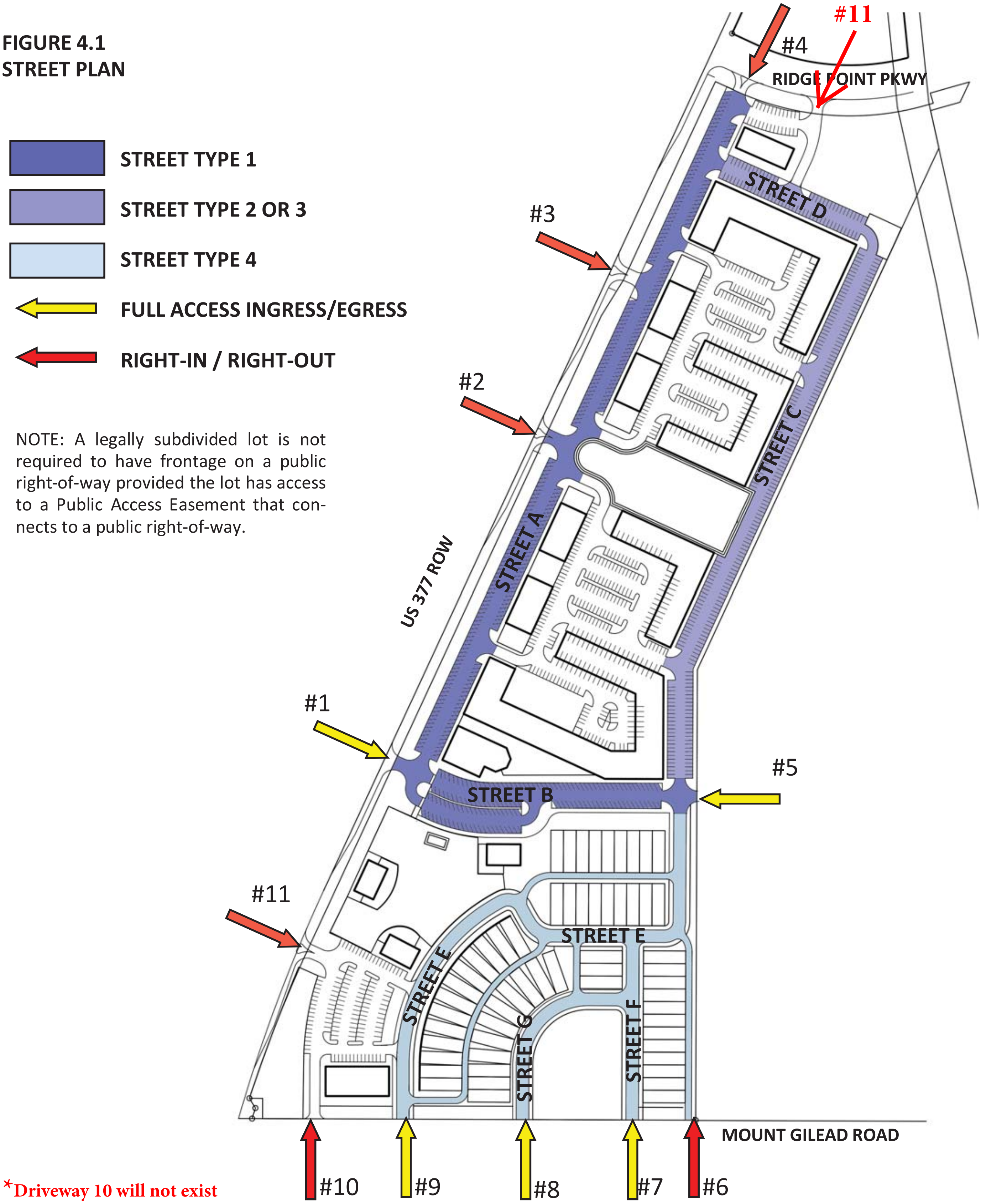
Traffic Impact Analysis for Center Stage Mixed-use Development in Keller, Texas

PROJECT #: 19125

DATE: Nov 2019

EXHIBIT 1

FIGURE 4.1
STREET PLAN



NOTE: A legally subdivided lot is not required to have frontage on a public right-of-way provided the lot has access to a Public Access Easement that connects to a public right-of-way.

*Driveway 10 will not exist

EXHIBIT 2: PRELIMINARY SITE PLAN

EXISTING AND PROPOSED LAND USE

The study parameters used in this TIA are based upon the requirements of TxDOT/City of Keller and are consistent with the standard industry practices used in similar studies.

SITE LOCATION AND STUDY AREA

The proposed Mixed-Use development, will be located at the northeast corner of the intersection of US 377, Denton highway and Mount Gilead Road in City of Keller, Texas.

Roadway Intersections:

- US 377/Denton Highway at Ridge Point Parkway: Signalized
- US 377/Denton Highway at Mount Gilead Road: Signalized
- US 377/Denton Highway at Driveway 1: Stopped Control on Driveway 1
- US 377/Denton Highway at Driveway 2: Stopped Control on Driveway 2
- US 377/Denton Highway at Driveway 3: Stopped Control on Driveway 3
- US 377/Denton Highway at Driveway 11: Stopped Control on Driveway 11
- Ridge Point Pkwy at Driveway 4: Stopped Control on Driveway 4
- Ridge Point Pkwy at Driveway 12: Stopped Control on Driveway 12
- Mount Gilead Road at Driveway 6: Stopped Control on Driveway 6
- Mount Gilead Road at Driveway 7: Stopped Control on Driveway 7
- Mount Gilead Road at Driveway 8: Stopped Control on Driveway 8
- Mount Gilead Road at Driveway 9: Stopped Control on Driveway 9
- Mount Gilead Road at Driveway 10: Stopped Control on Driveway 10

EXISTING SITE AND DEVELOPMENT

The site is currently vacant. The proposed development will consist of Mixed-use development with residential, retail, restaurant and office. The estimated buildout year is 2025. The proposed development is to be built in two phases. Phase 1 of the development is estimated to be built by 2021. Phase 2 is estimated to be built by 2022.

EXISTING AND PROPOSED TRANSPORTATION SYSTEM

Thoroughfare System

- US 377/Denton Highway:
  - Existing operation and cross-section: four lanes, two-way, divided
  - Speed Limit: 55 mph (posted speed limit)
  - TxDOT Functional Classification: Major Arterial, 4 lanes, divided

A summary of the existing and proposed intersection/roadway geometry and traffic control is shown in **Exhibit 3 and Exhibit 4** respectively.

Existing Traffic Volumes

Current traffic volumes were collected during the analysis periods at the study area intersections on Wednesday, November 20, 2019. During the traffic data collection, it was observed that the EB and WB movements on Mt Gilead Road were closed due to construction. There was only NB and SB traffic observed at the intersection of US 377 at Mt Gilead Road. The TIA assumed traffic for all the directions at this intersection based on the surrounding area and professional judgement. The traffic signal timing during the peak hours for the two signalized intersections were determined from video recordings for data collection. Traffic volumes are graphically summarized in **Appendix A** and detailed 15-minute-count data sheets are provided in **Appendix B**.

Projected Background Traffic Volumes

Background traffic growth is defined as the normal traffic growth that is not directly related to the subject development of this study. Historical traffic volumes in the area have fluctuated in the last several years. A growth rate of **2%** per year was used in this analysis throughout the buildout year of 2025. Future background traffic volumes estimate for the buildout years were calculated by applying the assumed growth rate for the study area intersections. These volumes are graphically summarized in **Appendix A.**

SITE-TRAFFIC CHARACTERISTICS

Traffic generated by the Project is projected by first determining the number of trips generated by the planned land use, then distributing and assigning projected site-related trips to the roadway system.

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation manual (10th Edition) is an accepted source for calculating trip generation for common land uses for which sufficient published data is available.

Trip generation is summarized in trip ends – a trip end is a one-way vehicular trip entering or leaving a site (i.e., one vehicle arriving and departing represents two trip ends). This analysis evaluates typical weekday AM and PM peak hour conditions of the local street traffic.

Adjustments for Internal capture were considered for adjustment of the base ITE data for this analysis. Internal Capture of 16 % for AM and 35% for PM were used for the full buildout.

A "pass-by trip" is a site-generated trip end that originates from the traffic volume that is otherwise passing by the site on the adjacent street. Hence, pass-by trips are reflected in the overall site driveway volumes but are not added to (i.e., already included in) the local roadway volume. Pass-by rates are published by ITE. For simplicity, in this analysis, the "total" site-generated trip ends were included in the driveway volumes, and only the net increase in trip ends were added to the adjacent street traffic.

Pass by trip was not considered in this study.

Table 3A & 3B provides a summary of the calculated trip ends generated by the project. Excerpts from ITE Trip Generation data are provided in the Appendix section of this report. Supplemental information used in the trip generation calculations is provided in **Appendix C**.

Table 3A. Projected Trip Generation (Phase I)

ITE Code	ITE Land Use	Quantity	Weekday Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
210	Single-Family Detached Housing	57 DU	620	45	11	34	59	37	22
221	Multifamily Housing(Mid-Rise)	275 DU	1,497	99	26	73	121	74	47
820	Shopping Center	20,000 SF	2,012	154	95	59	133	64	69
	Subtotals:		4,129	298	132	166	313	175	138
	Internal Capture: 1% AM and 18% PM		0	3	1	1	56	28	28
	Totals:		4,129	295	131	165	257	147	110

Table 3B. Projected Trip Generation (Full Buildout)

ITE Code	ITE Land Use	Quantity	Weekday Trips	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
210	Single-Family Detached Housing	57 DU	620	45	11	34	59	37	22
221	Multifamily Housing(Mid-Rise)	550 DU	2,996	198	51	147	242	148	94
710	General Office Building	10,000 SF	114	36	31	5	13	2	11
820	Shopping Center	8,000 SF	1,079	156	97	59	84	40	44
820	Shopping Center	35,000 SF	2,944	157	97	60	194	93	101
932	High-Turnover (Sit-Down) Restaurant	15,000 SF	1,683	0	0	0	147	91	56
	Subtotals:		9,436	592	287	305	739	411	328
	Internal Capture: 16% AM and 35% PM		0	95	47	47	259	129	129
	Totals:		9,436	497	240	258	480	282	199

TRIP DISTRIBUTION AND ASSIGNMENT

Traffic for the proposed development was distributed and assigned to the study area roadway network based upon the roadway network and regional travel flow [or existing traffic patterns]. The multifamily units are mainly going to attract adults between 25-35 years. The inbound and outbound traffic generated by these multifamily units will mainly be to and from the office complex to the north. The traffic assignment is separate for Phase 1 and Phase 2. 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 **Tables 3A & 3B)** 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**.

ROADWAY INTERSECTION ANALYSIS

INTERSECTION CAPACITY ANALYSIS - METHODOLGY

The level of performance of infrastructure can often be measured through an analysis of volume and capacity that considers various physical and operational characteristics of the system. For vehicular traffic, an operational analysis of roadway intersection capacity is the most detailed type of analysis. An industry-standardized methodology for this type of analysis is presented in the *Highway Capacity Manual (HCM)*. *HCM* uses the term "level of service" (LOS) to qualitatively describe the efficiency using a letter grade of *A* through *F*. Generally, LOS is 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. Nevertheless, periods of *LOS E* or *F* conditions are not uncommon for brief periods of time at major transportation facilities. In some cases, measures to add more capacity—either through operational changes and/or physical improvements—can be identified to increase efficiency and sometimes improve the 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, the average delay per vehicle for unsignalized intersections is calculated by only approach or by individual traffic maneuvers that must stop or yield right-of-way. For unsignalized intersections of a minor street or driveway and a major roadway, the analysis methodology often breaks down and yields low levels of service (often, *LOS F*) that cannot be mitigated unless a traffic signal is installed. However, for a traffic signal to be installed, the responsible agency that governs the right-of-way must issue its approval subject to very specific warrant criteria being met *and* several other operational considerations being satisfied. Neither level of service nor delay is considered a criterion 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

NOTE: Signalized intersection operational parameters and operational results in this TIA were obtained directly from the optimized software output and may differ slightly from actual traffic signal operations.

2019 EXISTING – INTERSECTION ANALYSIS

Existing traffic volumes were analyzed to determine current operational conditions. Intersection capacity analyses presented in this study were performed using the ***SYNCHRO*** software package. **Table 4** provides a summary of peak period intersectional operational conditions. Detailed traffic volumes and software output for all intersection analysis is provided in **Appendix A** and **Appendix D**, respectively.

Table 4. Existing Intersection Analysis

Intersections	Traffic Movement		2019 Existing AM	2019 Existing PM
Mount Gilead Rd at US 377 Denton Highway		Signalized Intersection	B *(17.6)*	B *(14.6)*
Ridge Point Pkwy at US 377 Denton Highway		Signalized Intersection	D *(48.0)*	D *(42.7)*
Driveway 1 at US 377 Denton Highway	WBL WBR SBL	Unsignalized Intersection	- - - - - -	- - - - - -
Driveway 2 at US 377 Denton Highway	WBR	Unsignalized Intersection	- -	- -
Driveway 3 at US 377 Denton Highway	WBR	Unsignalized Intersection	- -	- -
Driveway 11 at US 377 Denton Highway	WBL	Unsignalized Intersection	- -	- -
Driveway 6 at Mount Gilead Rd	EBL	Unsignalized Intersection	- -	- -
Driveway 7 at Mount Gilead Rd	EBL SBLR	Unsignalized Intersection	- - - -	- - - -
Driveway 8 at Mount Gilead Rd	EBL SBLR	Unsignalized Intersection	- - - -	- - - -
Driveway 9 at Mount Gilead Rd	EBL SBLR	Unsignalized Intersection	- - - -	- - - -
Driveway 4 at Ridge Point Pkwy	NBR	Unsignalized Intersection	- -	- -
Driveway 12 at Ridge Point Pkwy	NBLR WBL	Unsignalized Intersection	- - - -	- - - -

KEY:

A, B, C, D, E, F = Level-of-Service for each intersection approach
NB, SB, EB, WB = North-, South-, East-, Westbound approach

L, T, R = Left, Through, Right Approach turning movement
AM = AM Peak Hour of Adjacent Street
PM = AM Peak Hour of Adjacent Street

NOTE: Signalized intersection operational parameters and operational results were obtained directly from the optimized software output and may differ slightly from actual traffic signal operations.

Based upon the existing 2019 analysis, all study intersections are currently operating at LOS D or better during the peak hour periods.

2021 BACKGROUND PLUS SITE – INTERSECTION ANALYSIS

The phase one of development is expected to be completed by 2021. Therefore, year 2021 background-plus site traffic volumes were analyzed to determine the incremental change in operational conditions during peak periods *with* site-related traffic. The LOS results are provided in **Table 5**.

Table 5. 2021 Intersection Analysis

Intersections	Traffic Movement		2021 Background + Site	
			AM	PM
Mount Gilead Rd at US 377 Denton Highway		Signalized Intersection	B *(19.8)*	B *(17.2)*
Ridge Point Pkwy at US 377 Denton Highway		Signalized Intersection	D *(54.5)*	D *(48.8)*
Driveway 1 at US 377 Denton Highway	WBL	Unsignalized Intersection	F *(62.5)*	F *(80.7)*
	WBR		B *(12.5)*	B *(12.2)*
	SBL		B *(10.7)*	B *(10.5)*
Driveway 2 at US 377 Denton Highway	WBR	Unsignalized Intersection	B *(12.6)*	B *(12.2)*
Driveway 3 at US 377 Denton Highway	WBR	Unsignalized Intersection	B *(12.6)*	B *(12.2)*
Driveway 11 at US 377 Denton Highway	WBL	Unsignalized Intersection	A *(0.0)*	A *(0.0)*
Driveway 6 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(0.0)*	A *(0.0)*
Driveway 7 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*
	SBLR		A *(8.7)*	A *(8.6)*
Driveway 8 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*
	SBLR		A *(8.7)*	A *(8.6)*
Driveway 9 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*
	SBLR		A *(8.7)*	A *(8.7)*
Driveway 4 at Ridge Point Pkwy	NBR	Unsignalized Intersection	B *(10.3)*	A *(9.9)*
Driveway 12 at Ridge Point Pkwy	NBLR	Unsignalized Intersection	B *(11.9)*	B *(11.3)*
	WBL		A *(8.0)*	A *(7.8)*

Based upon the 2021 background-plus site analysis all study intersections are currently operating at LOS D or better during the peak hour periods with the exception of:

<u>Driveway 1 at US 377/Denton Highway</u>-

- The WB left turning movement is expected to operate at LOS F during the both AM and PM peak hour periods for 2021 background plus site condition.

2025 BACKGROUND AND BACKGROUND PLUS SITE – INTERSECTION ANALYSIS

The development is expected to be completed by 2025. Therefore, year 2025 background (no build) and background-plus site traffic volumes were analyzed to determine the incremental change in operational conditions during peak periods *without* and *with* site-related traffic. The LOS results are provided in **Table 6**.

Table 6. 2025 Intersection Analysis

Intersections	Traffic Movement		2025 Background AM	2025 Background PM	2025 Background + Site AM	2025 Background + Site PM
Mount Gilead Rd at US 377 Denton Highway		Signalized Intersection	C *(21.0)*	C *(20.2)*	C *(22.4)*	C *(21.3)*
Ridge Point Pkwy at US 377 Denton Highway		Signalized Intersection	E *(58.6)*	D *(54.1)*	E *(62.9)*	E *(58.7)*
with signal optimization		Signalized Intersection			D *(53.3)*	D *(48.3)*
Driveway 1 at US 377 Denton Highway	WBL	Unsignalized Intersection	F *(84.3)*	F *(>100)*	F *(>100)*	F *(>100)*
	WBR	Unsignalized Intersection	B *(13.0)*	B *(12.7)*	B *(13.4)*	B *(13.1)*
	SBL	Unsignalized Intersection	B *(11.1)*	B *(10.9)*	B *(11.8)*	B *(11.6)*
Driveway 2 at US 377 Denton Highway	WBR	Unsignalized Intersection	B *(13.1)*	B *(12.7)*	B *(13.5)*	B *(13.0)*
Driveway 3 at US 377 Denton Highway	WBR	Unsignalized Intersection	B *(13.1)*	B *(12.6)*	B *(13.6)*	B *(13.0)*
Driveway 11 at US 377 Denton Highway	WBL	Unsignalized Intersection	A *(0.0)*	A *(0.0)*	B *(13.2)*	B *(12.9)*
Driveway 6 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(0.0)*	A *(0.0)*	A *(0.0)*	A *(0.0)*
Driveway 7 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*	A *(7.4)*	A *(7.4)*
	SBLR	Unsignalized Intersection	A *(8.7)*	A *(8.7)*	B *(8.7)*	B *(8.7)*
Driveway 8 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*	A *(7.4)*	A *(7.4)*
	SBLR	Unsignalized Intersection	A *(8.7)*	A *(8.7)*	A *(8.7)*	A *(8.7)*
Driveway 9 at Mount Gilead Rd	EBL	Unsignalized Intersection	A *(7.4)*	A *(7.4)*	A *(7.4)*	A *(7.4)*
	SBLR	Unsignalized Intersection	A *(8.8)*	A *(8.7)*	A *(8.8)*	A *(8.8)*
Driveway 4 at Ridge Point Pkwy	NBR	Unsignalized Intersection	B *(10.5)*	B *(10.1)*	B *(10.7)*	B *(10.3)*
Driveway 12 at Ridge Point Pkwy	NBLR	Unsignalized Intersection	B *(12.2)*	B *(11.6)*	B *(12.6)*	B *(11.9)*
	WBL	Unsignalized Intersection	A *(8.1)*	A *(7.9)*	A *(8.1)*	A *(8.0)*

Based upon the 2021 background-plus site analysis all study intersections are currently operating at LOS D or better during the peak hour periods with the exception of**:**

US 377/Denton Highway at Ridge Point Parkway-

- The signalized intersection is operating at LOS E during both the AM and PM peak hour for 2025 background plus site conditions.

Driveway 1 at US 377/Denton Highway-

- The WB left turning movement is expected to operate at LOS F during the both AM and PM peak hour periods for 2021 background and 2021 background plus site condition.

ROADWAY LINK ANALYSIS - METHODOLGY

A roadway link is a roadway segment between two intersections. Roadway link capacity analysis is a comparison of actual or forecasted traffic volumes to the theoretically roadway capacity. The capacity of the roadway link is 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. Roadway link capacity is less critical than intersection capacity; however, it can provide a gauge 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-Melissa region, has derived internal "hourly service volume" guidelines used for transportation modelling purposes. The NCTCOG values were based upon the principles 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 gauge 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
Suburban Residential	925	8,75	900	825	575	525
Rural	1,025	925	975	875	600	550

To determine the utilization of a roadway, the volume to capacity ratio is 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 ≤ 45% is *LOS A/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*

ROADWAY LINK ANALYSIS - RESULTS

For purpose of the roadway link analysis, the area is considered suburban residential. Existing peak hour volumes, the growth rate factor and peak hour projected site-generated trips were used to conduct the roadway link analysis which is summarized in **Table 7**.

Table 7. Roadway Link Capacity Analysis Results Summary

Roadway	Direction	Classification for Analysis	*Hourly Volume	# LANES	MEDIAN DIVIDED?	CAPACITY		V/C	LOS
						Per Lane	Roadway		
2019 Existing:									
US 377/Denton Highway (South of Ridge Point Parkway)	NB	Major Arterial	894	2	Y	925	1,850	0.48	C
	SB	Major Arterial	1,018	2	Y	925	1,850	0.55	C
2021 Background + Site:									
US 377/Denton Highway (South of Ridge Point Parkway)	NB	Major Arterial	994	2	Y	925	1,850	0.54	C
	SB	Major Arterial	1,080	2	Y	925	1,850	0.58	C
2025 Background:									
US 377/Denton Highway (South of Ridge Point Parkway)	NB	Major Arterial	1,070	2	Y	925	1,850	0.58	C
	SB	Major Arterial	1,167	2	Y	925	1,850	0.63	C
2025 Background + Site:									
US 377/Denton Highway (South of Ridge Point Parkway)	NB	Major Arterial	1,137	2	Y	925	1,850	0.61	C
	SB	Major Arterial	1,210	2	Y	925	1,850	0.65	D

Based upon the roadway link analysis:

US 377/Denton Highway:

- Currently operates at LOS C or better for both NB and SB approach at existing conditions.
- Expected to operate at LOS C or better for NB approach and at LOS D for SB approach at 2025 full buildout conditions.

SITE ACCESS REVIEW

Intersection sight distance, driveway spacing and deceleration lane requirements were also evaluated as part of this TIA.

INTERSECTION SIGHT DISTANCE

INTERSECTION SIGHT CRITERIA:

Sight distance is the metric used to describe the ability of a motorist to physically see (via a direct line of sight) objects and/or other vehicles to a degree sufficient to allow safe and efficient use of a roadway in the intended manner. The sight distance is a function of the major roadway's geometric characteristics and 85th percentile speed.

INTERSECTION SIGHT DISTANCE REVIEW FOR PROJECT

Cursory review of the proposed driveways found that all the proposed driveways satisfy the intersection sight distance criteria.

[NOTE: This does not rule out the potential that other impediments such and landscaping, signage, etc. may exist.]

DRIVEWAY SPACING REVIEW

TXDOT SPACING CRITERIA:

The TxDOT *Access Management Manual* provides guidelines for new driveways along roadways based upon the posted speed limit. Based upon Tables 2-1, 2-2 (**Appendix E**) from TxDOT's *Access Management Manual*, the minimum driveway connection spacing is 425 feet for a speed limit greater than or equal to 50 mph such as US 377. TxDOT considers the spacing between access points as inside-edge-(of driveway pavement)-to-inside-edge.

CITY OF KELLER SPACING CRITERIA:

The City of Keller driveway spacing requirements are provided in City's *Unified Development code (section 5.07 – Driveways).* The minimum spacing for arterial is 250 feet and for collector is 150 feet.

DRIVEWAY SPACING REVIEW FOR PROJECT:

A summary of the driveway spacing provided for each of the proposed site access points is presented in **Table 8.**

Table 8. Driveway Spacing Summary

Spacing Between	Required (Ft)	Provided (Ft)	Meets Requirements
Driveway 11 and Mt Gilead Road	425	~400	No
Driveway 1 and Driveway 11	425	~425	Yes
Driveway 1 and Driveway 2	425	~800	Yes
Driveway 2 and Driveway 3	425	~390	No
Driveway 3 and Ridge Point Parkway	425	~510	Yes
US 377 and Driveway 4	250	~70	No
Driveway 4 and Driveway 12	150	~150	Yes
Driveway 6 and Driveway 7	150	~110	No
Driveway 7 and Driveway 8	150	>200	Yes

Driveway 8 and Driveway 9	150	>200	Yes
Driveway 9 and US 377	250	~350	Yes
Driveway 6 and Nearest East Driveway	150	~200	Yes

All the proposed site driveways meet TxDOT/City of Keller driveway spacing criteria except for Driveway 2, Driveway 3, Driveway 4, Driveway 11, Driveway 6 and Driveway 7.

DECELERATION LANE ANALYSIS

DECELERATION LANE CRITERIA:

The TxDOT criteria for providing right-turn deceleration auxiliary lanes are outlined in *Table 2-3* (**Appendix E**) of the *Access Management Manual.* The threshold for roadways with a posted speed limit greater than 45 MPH is 50 vehicles per hour (or, 60 vehicles per hour for posted speed limit of 45 MPH or lower). For raised medians, left-turn deceleration lanes ("bays") are required for all left-turn opportunities. Additionally, table 3-11 from TxDOT Roadway Design Manual was used in the determination of left-turn deceleration auxiliary lanes.

A summary of the projected peak hour driveway volumes is included in **Appendix A** for each scenario analyzed.

DECELERATION LANE RECOMMENDATIONS:

Based upon the projected volumes derived in this study, the installation of an auxiliary deceleration lane does not meet TxDOT's requirement at all the driveways on US 377. The projected traffic volume on Ridge Point Parkway and Mount Gilead Road are less, the right turning vehicles to the site will not create an issue on these roads.

SUMMARY OF FINDINGS AND RECOMMENDATIONS

The services of **DeShazo Group, Inc.** (DeShazo) were retained by **Realty Capital Management**, to conduct a traffic impact analysis (TIA) for the proposed mixed-use development in City of Keller, Texas. The subject property will be located at the northeast corner of the intersection of US 377/ Denton Highway and Mount Gilead Road in the City of Keller, Texas.

The proposed project is planned to be built in two phases and will be fully constructed by 2025. **Table 1** shows the development program summary for the site development.

Table 1. Development Program Summary

Use	Quantity	Buildout Year
Single Family Homes	57 DU	2021
Multifamily Housing	275 DU	2021
Retail/Commercial	20,000 SF	2021
Multifamily Housing	275 DU	2025
Retail/Commercial	20,000 SF	2025
Restaurant	15,000 SF	2025

The analysis of the traffic generated by the proposed development resulted in moderate impact on the local roadway system. Below is a summary of findings from this TIA.

FINDING: Based upon the existing 2019 analysis, all study intersections are currently operating at LOS D or better during the peak hour periods.

FINDING: Based upon the 2025 background & 2025 background plus full site buildout analysis all the study intersections are operating at LOS D or better with the exception of:

US 377/Denton Highway at Ridge Point Parkway-

- The signalized intersection is expected to operate at LOS E at 2025 background conditions during the AM peak hour without the proposed site.
- The signalized intersection is operating at LOS E during both the AM and PM peak hour for 2025 background plus site conditions. The proposed site traffic at the intersection increases the overall signal delay by less than 5 seconds only. The major contributor for the change in LOS is the projected background traffic.

Driveway 1 at US 377/Denton Highway-

- The WB left turning movement is expected to operate at LOS F during the both AM and PM peak hour periods for 2021 background plus site condition.

RECOMMENDATIONS:

US 377/Denton Highway at Ridge Point Parkway: The intersection is expected to operate at LOS E at 2025 full buildout conditions during the AM and PM peak hour periods for various movements. It is recommended that TxDOT revise the existing signal splits based on the actual volumes at the intersection after full site buildout. However, **Appendix D** shows the recommended splits for the intersection at 2025 conditions for projected volumes. The synchro results of the signal optimization are attached in **Appendix D**.

<u>Driveway 1 at US 377/Denton Highway</u>: The WB left turning movement is expected to operate at LOS F with a maximum 95th percentile queue of about 6 vehicles. This is because of heavy background volume on US 377/Denton Highway. The queuing will be inside the subject property and will not have an effect on the US 377/Denton Highway. Therefore, no improvements are needed.

<u>FINDING:</u> The proposed site will have 4 driveways on US 377 which allows a proportional distribution of traffic at all the driveways. Also, there are 6 driveways on Mount Gilead Road and Ridge Point Parkway combined. This will help reduce heavy movements on all the driveways.

<u>FINDING:</u> Based upon the projected volumes derived in this study, the installation of an auxiliary deceleration lane is not necessary as per TxDOT's standards at any of the driveways on US 377. The proposed site plan shows deceleration lanes at all the driveways on US 377. Even though, the volumes do not meet the requirements, it is beneficial to provide deceleration lanes on a highway like US 377. The projected traffic volume on Ridge Point Parkway and Mount Gilead Road are less, no right turn lanes are needed at driveways on Ridge Point Parkway and Mount Gilead.

<u>FINDING:</u> Driveways 2, 3, 4, 6, 7, and 11 do not meet the TxDOT's driveway spacing requirements.

<u>RECOMMENDATION:</u> It is recommended to move Driveway 3 about 40 feet north to meet the spacing requirements with Driveway 2. All the driveways on Mount Gilead are expected to operate at acceptable level of service. Also, the inadequate spacing is not significantly less than the requirements. Therefore, an exception to the access criteria may be pursued with TxDOT and City to request a lesser spacing requirement.

<u>FINDING:</u> Based on a cursory review, the proposed site driveways meet the required intersection sight distance.

<u>FINDING:</u>

<u>US 377/Denton Highway:</u>

- Currently operates at LOS C or better for both NB and SB approach at existing conditions.
- Expected to operate at LOS C or better for NB approach and at LOS D for SB approach at 2025 full buildout conditions. The change in level of service from LOS C to LOS D for SB approach is due to the background traffic growth till 2025 not due to the site traffic. The proposed site traffic has very low impact on US 377/Denton Highway.

END OF MEMO

Exhibit 3. Existing Roadway Geometry and Traffic Control

North ^
Not to Scale

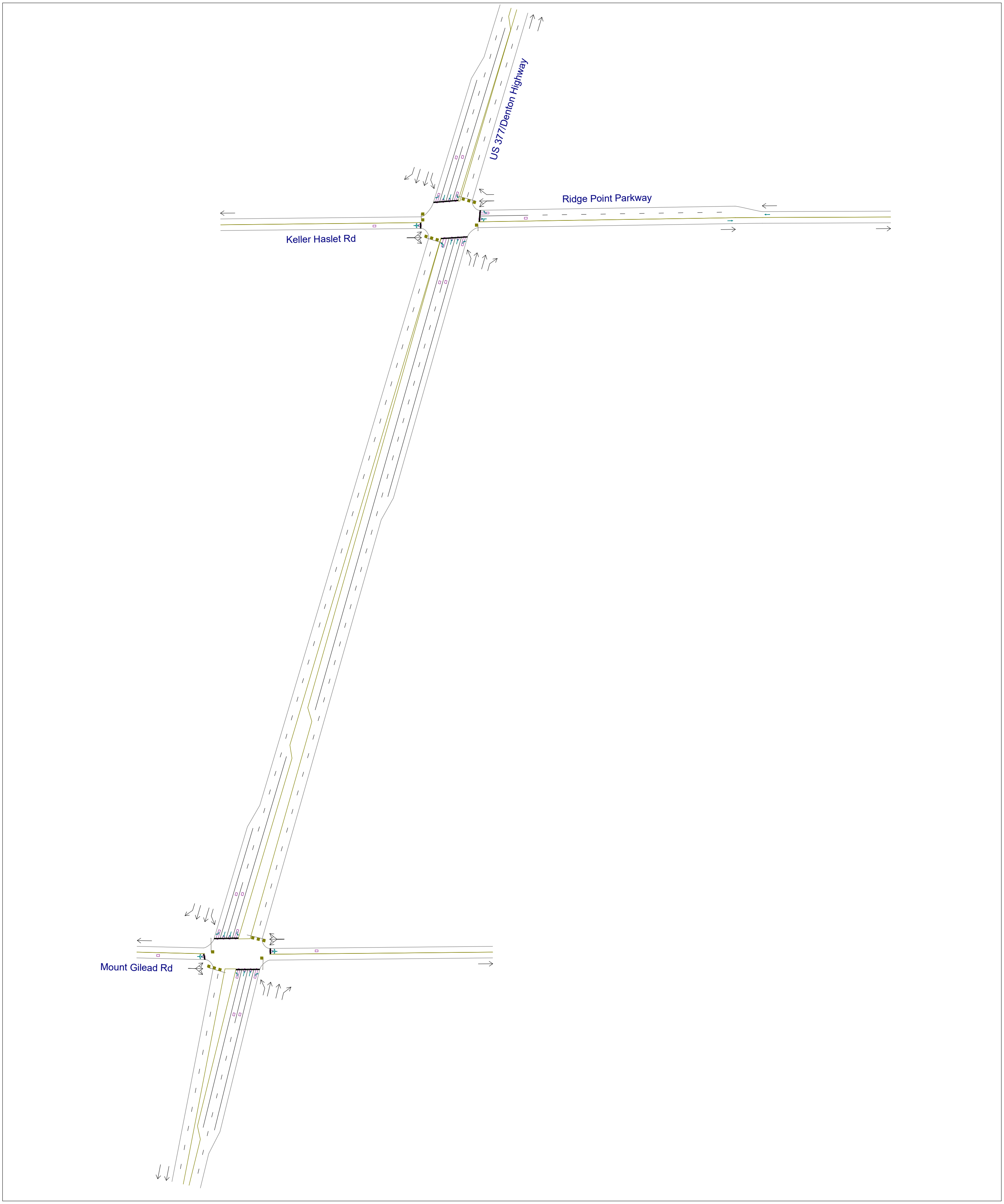
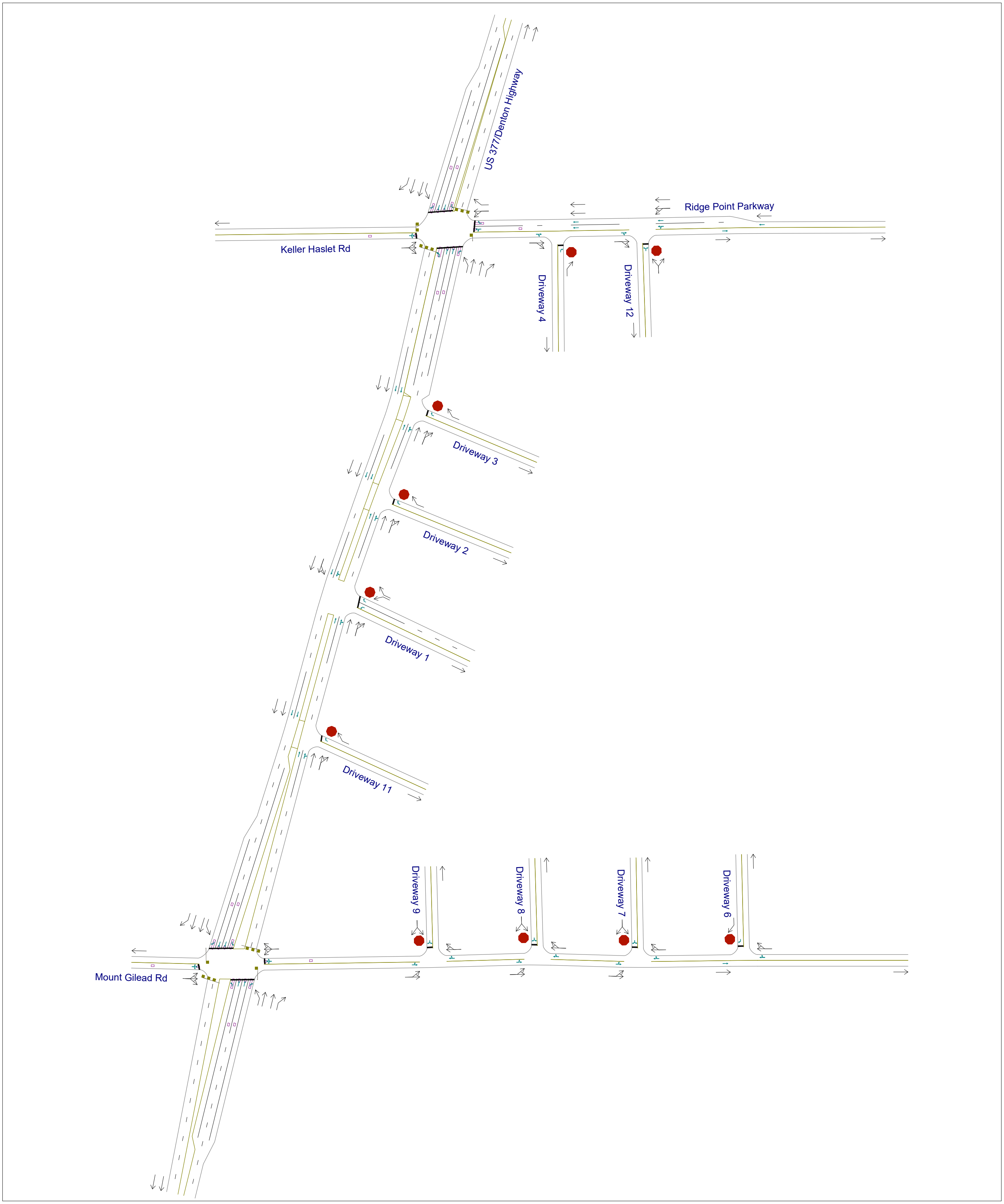


Exhibit 4. Proposed Roadway Geometry and Traffic Control

North ^
Not to Scale

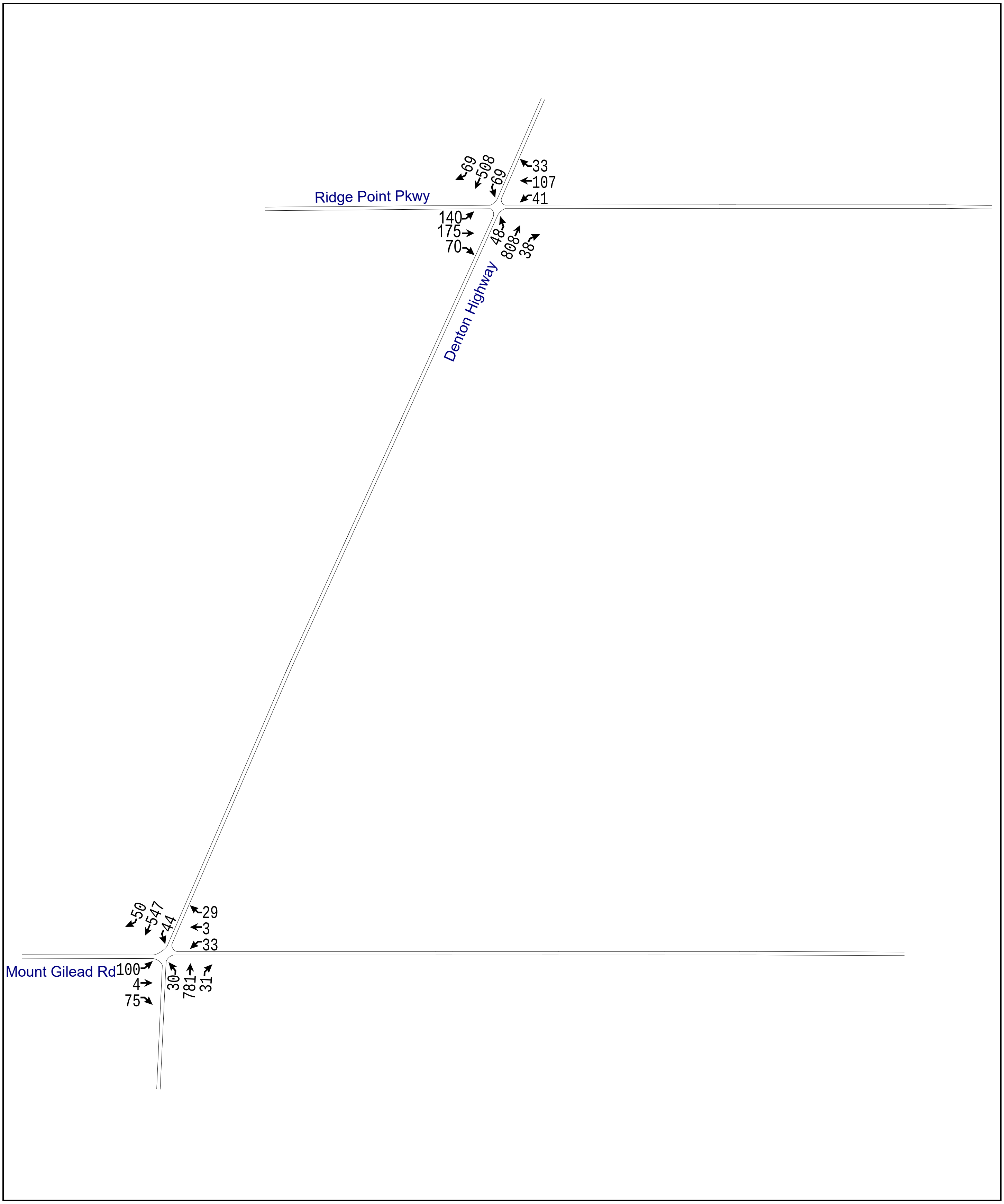


Appendix A. Traffic Volume Exhibits

A1. 2019 Existing AM Peak Hour Traffic Volumes

North ^

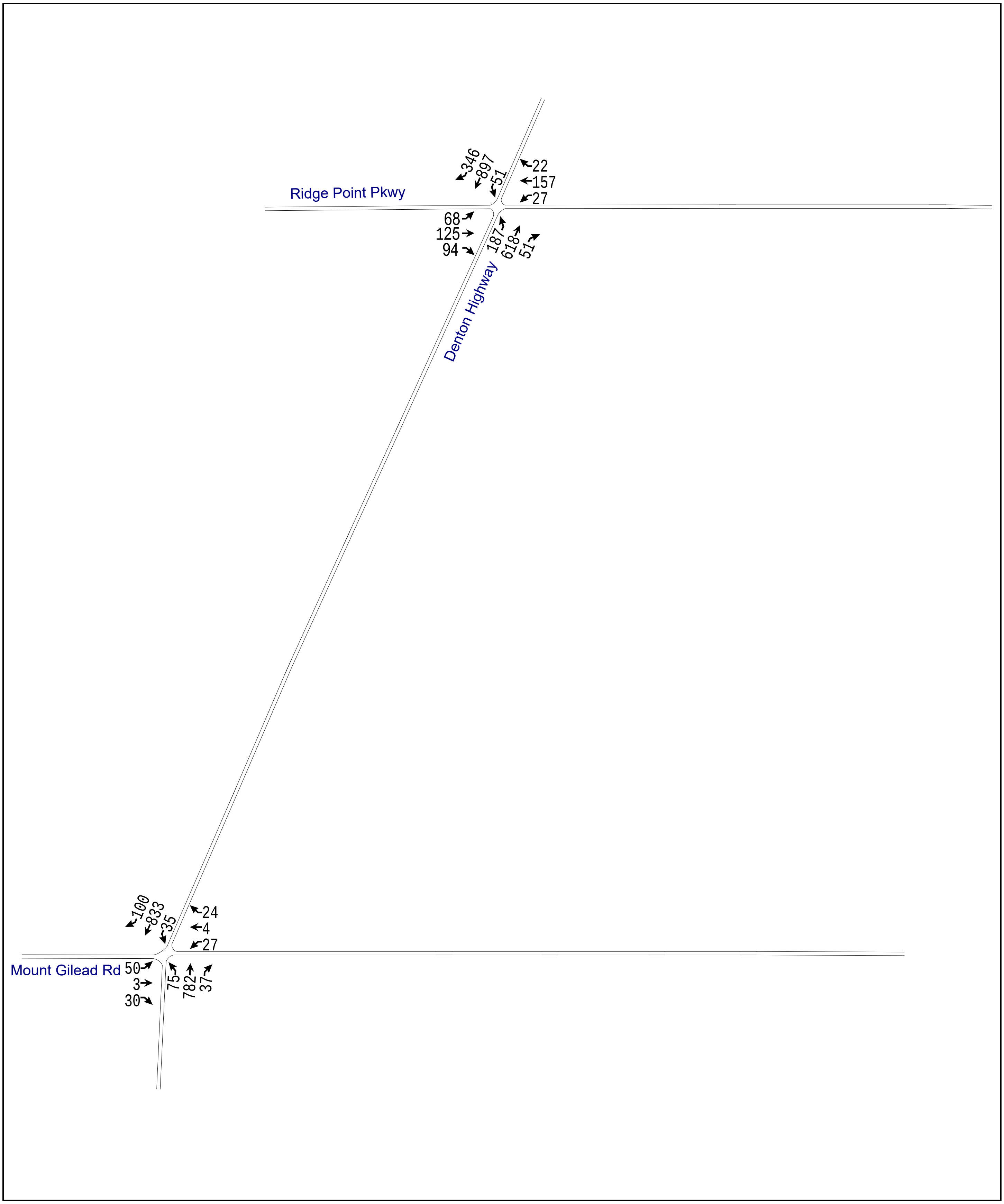
Not to Scale



A2. 2019 Existing PM Peak Hour Traffic Volumes

North ^

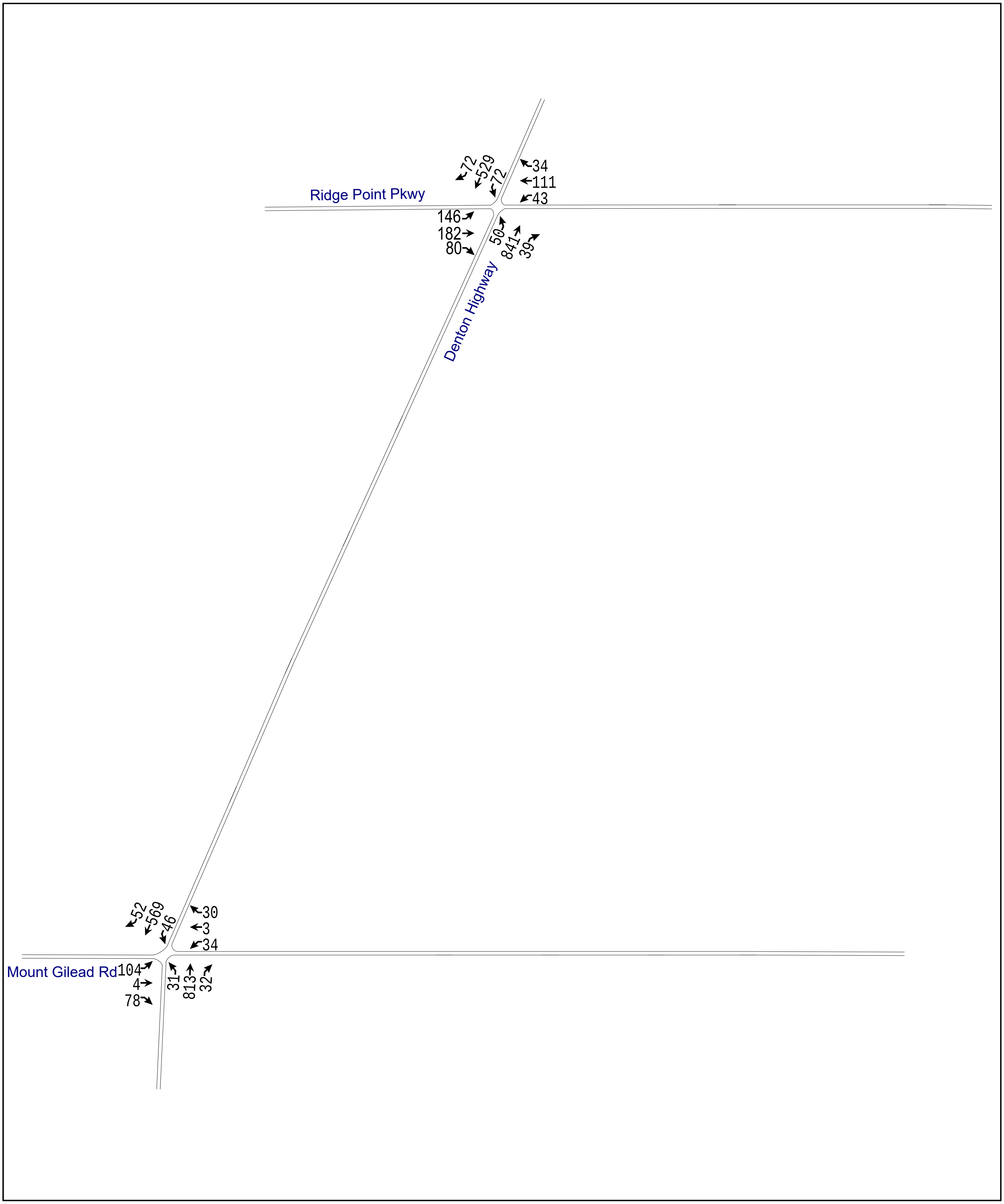
Not to Scale



A3. 2021 Background AM Peak Hour Traffic Volumes

North ^

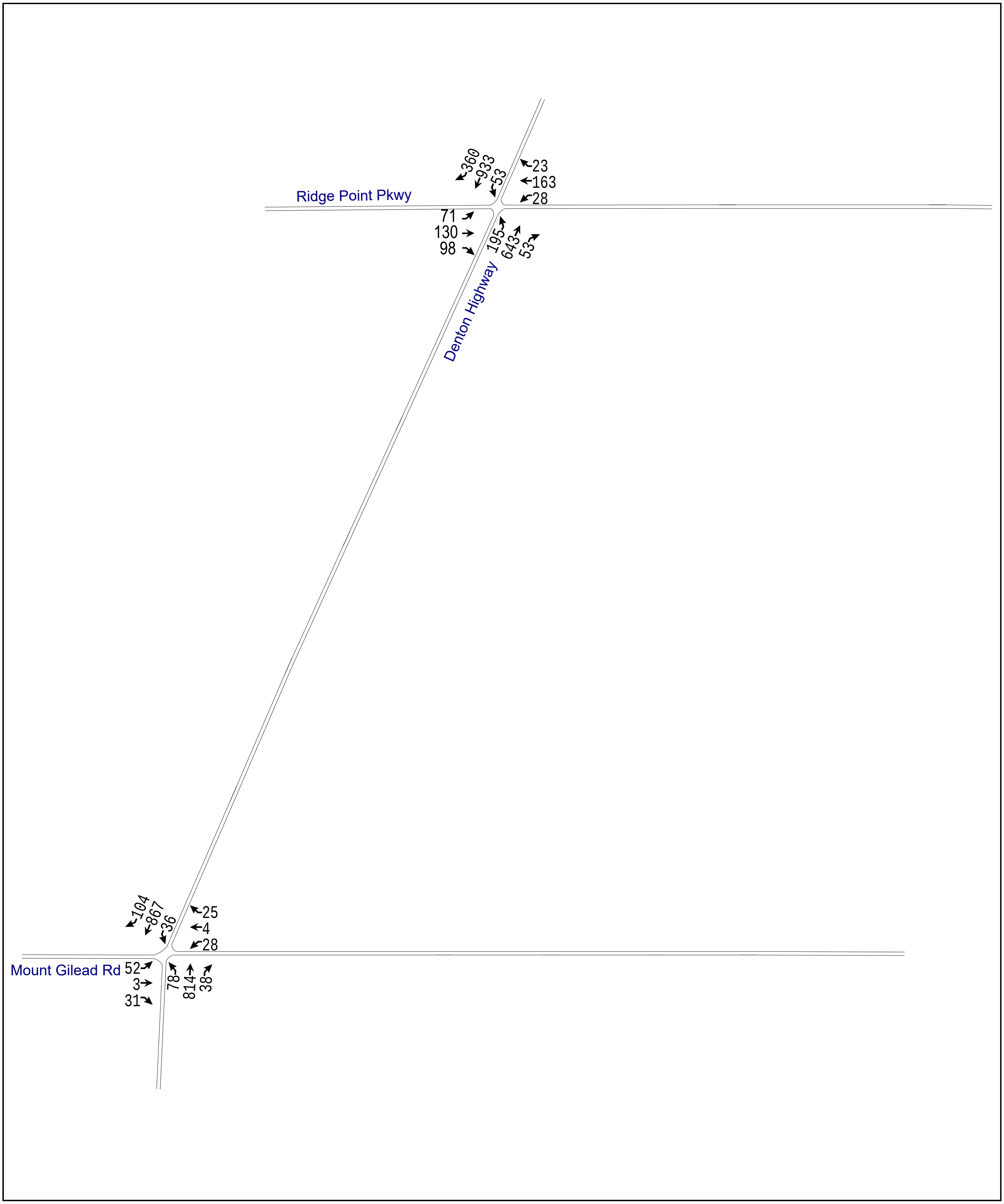
Not to Scale



A4. 2021 Background PM Peak Hour Traffic Volumes

North ^

Not to Scale



TIA for Engler Tract in City of Keller, Texas

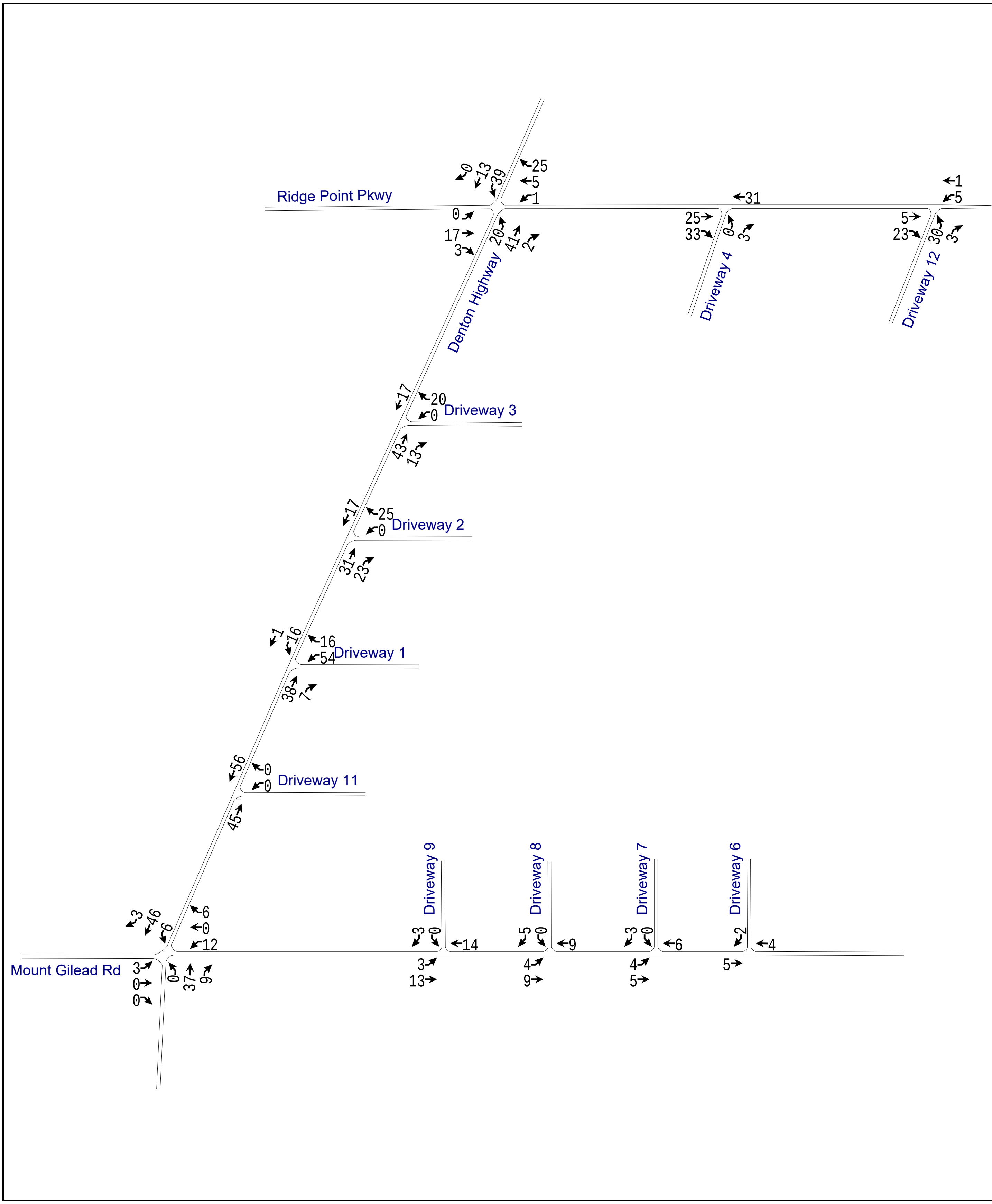
DeShazo Group

OD

A5. 2021 Site Generated AM Peak Hour Traffic Volumes

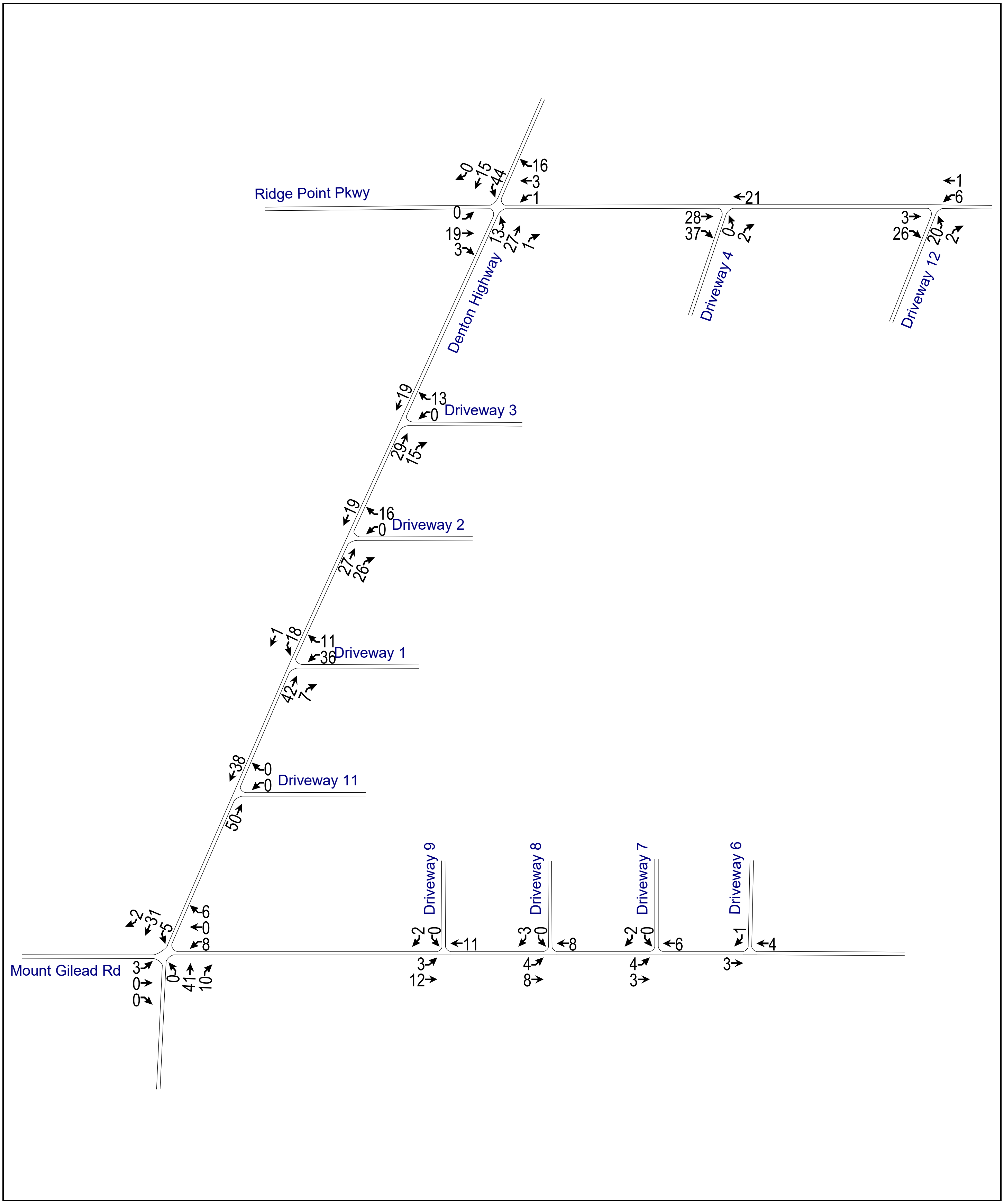
North ^

Not to Scale



A6. 2021 Site Generated PM Peak Hour Traffic Volumes

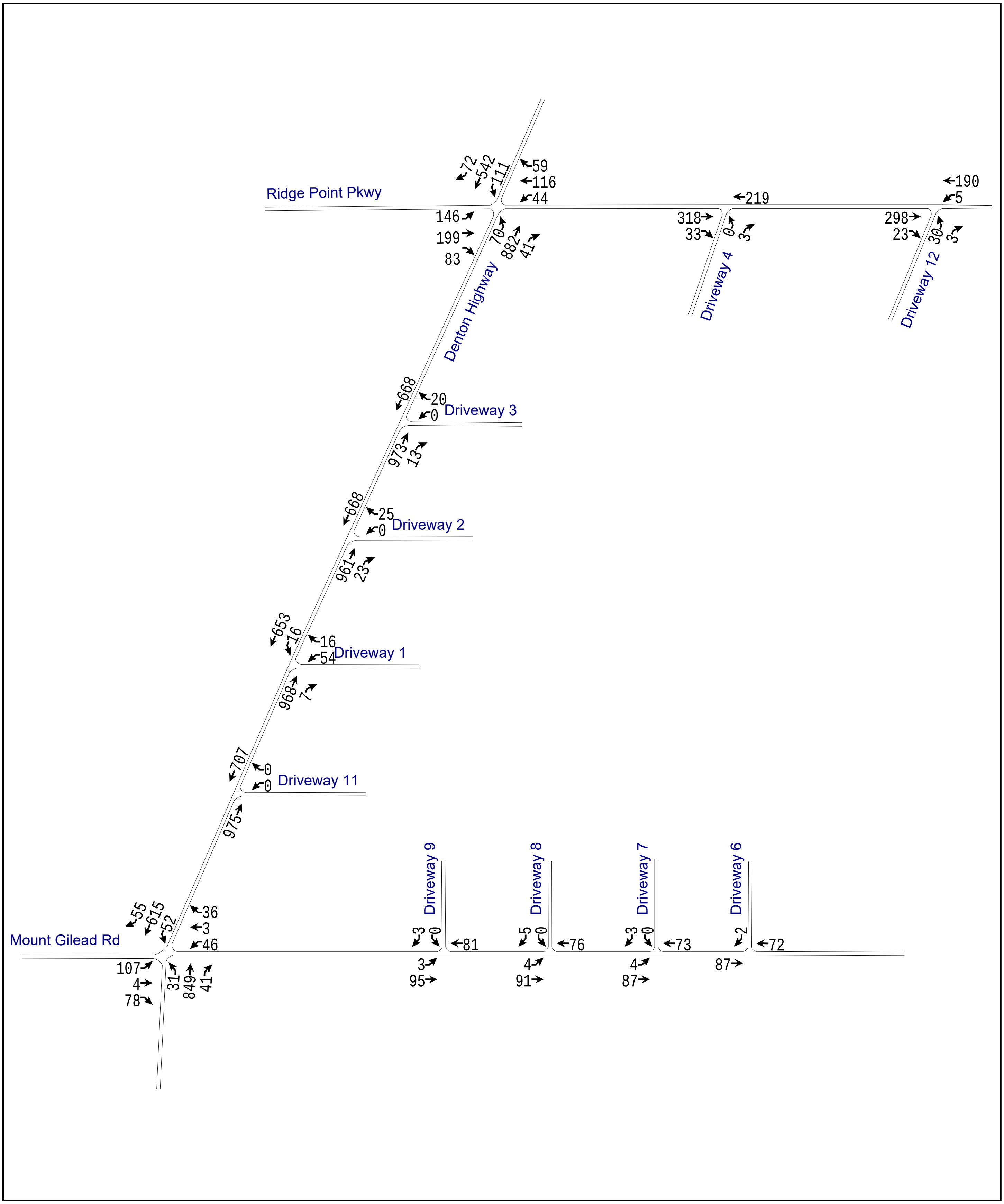
North ^
Not to Scale



A7. 2021 Background Plus Site Generated AM Peak Hour Traffic Volumes

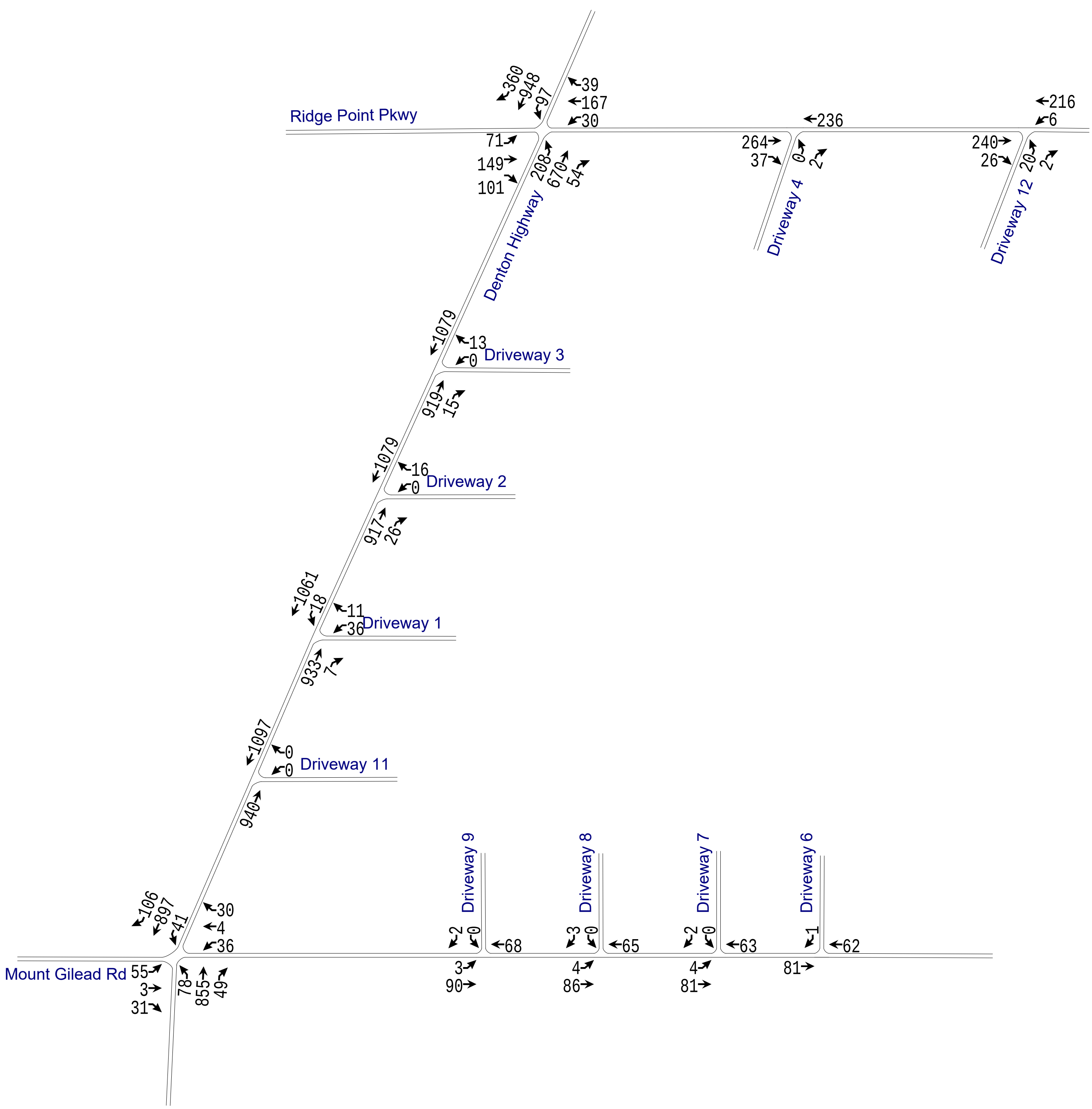
North ^

Not to Scale



A8. 2021 Background Plus Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



TIA for Engler Tract in City of Keller, Texas

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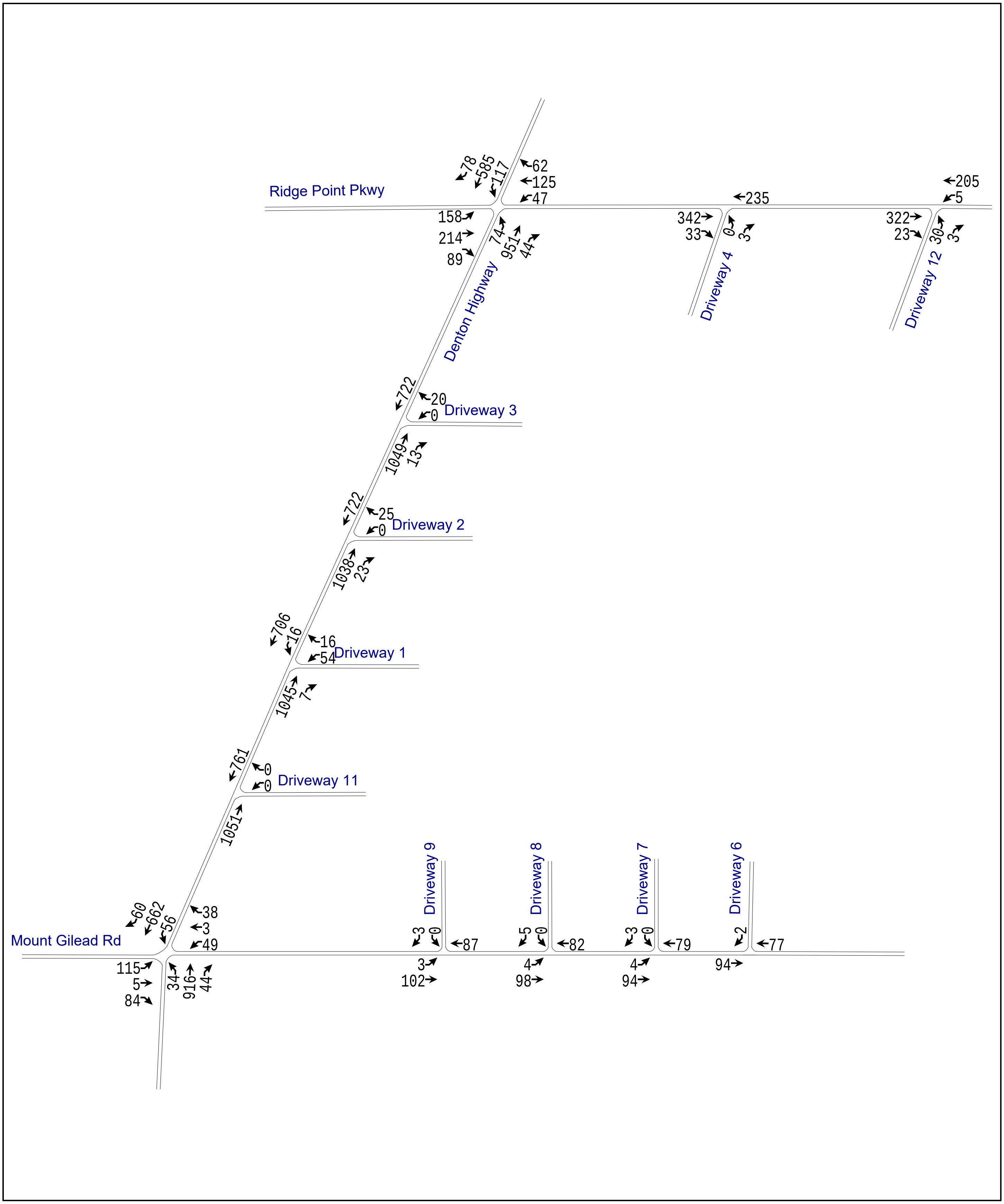
A9. 2025 Background AM Peak Hour Traffic Volumes

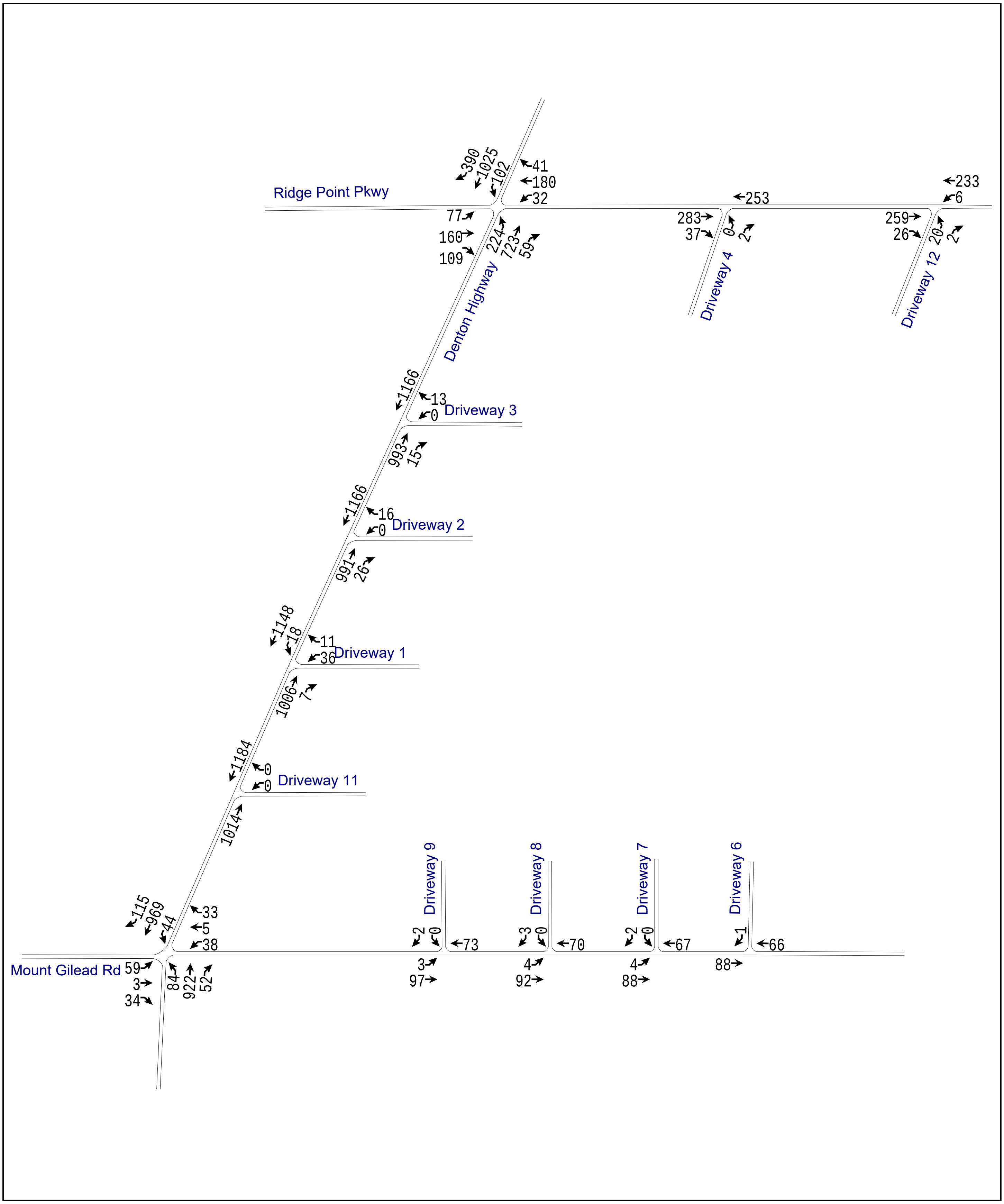
North ^

Not to Scale



A10. 2025 Background PM Peak Hour Traffic Volumes

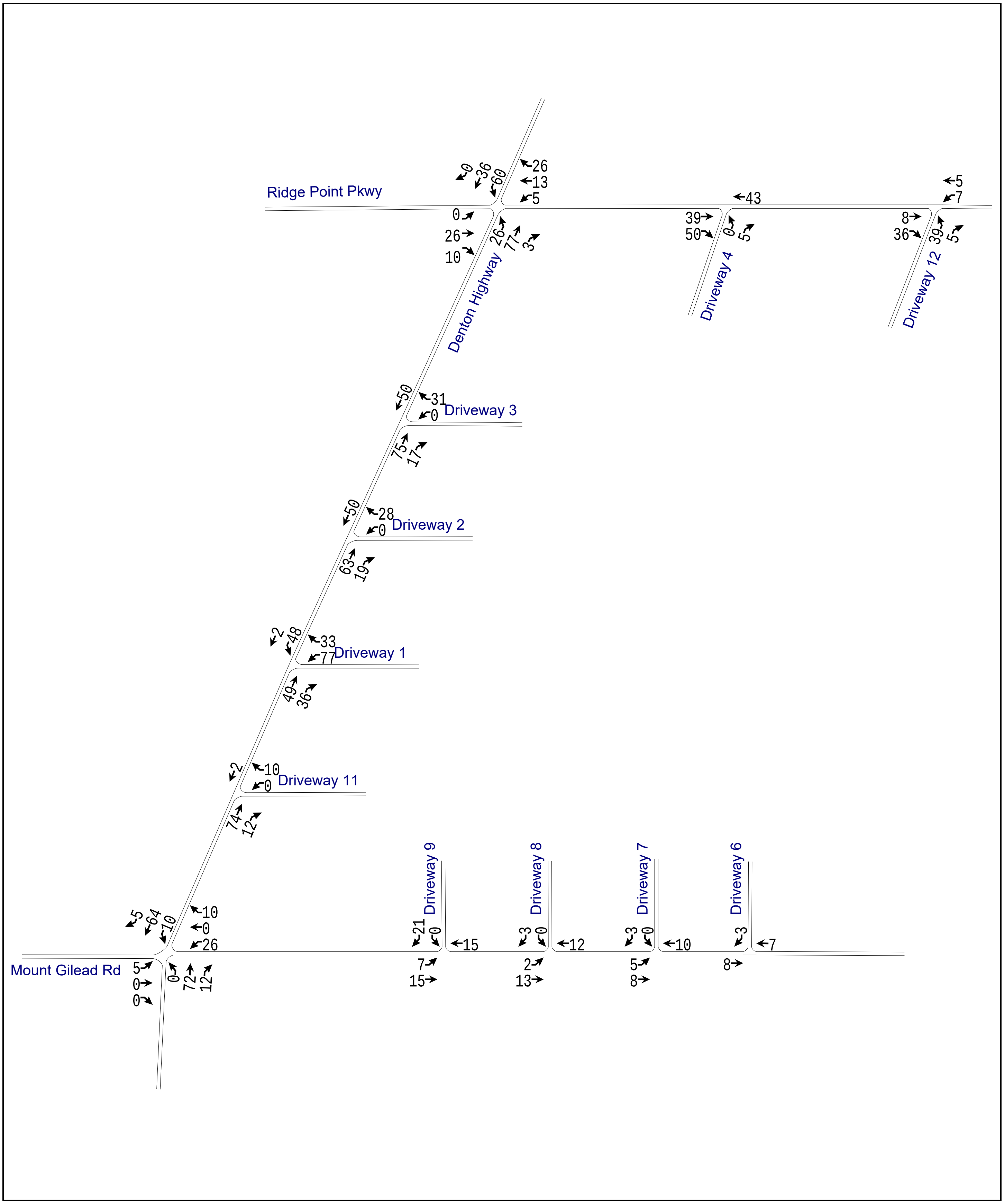
North ^
Not to Scale



A11. 2025 Site Generated AM Peak Hour Traffic Volumes

North ^

Not to Scale



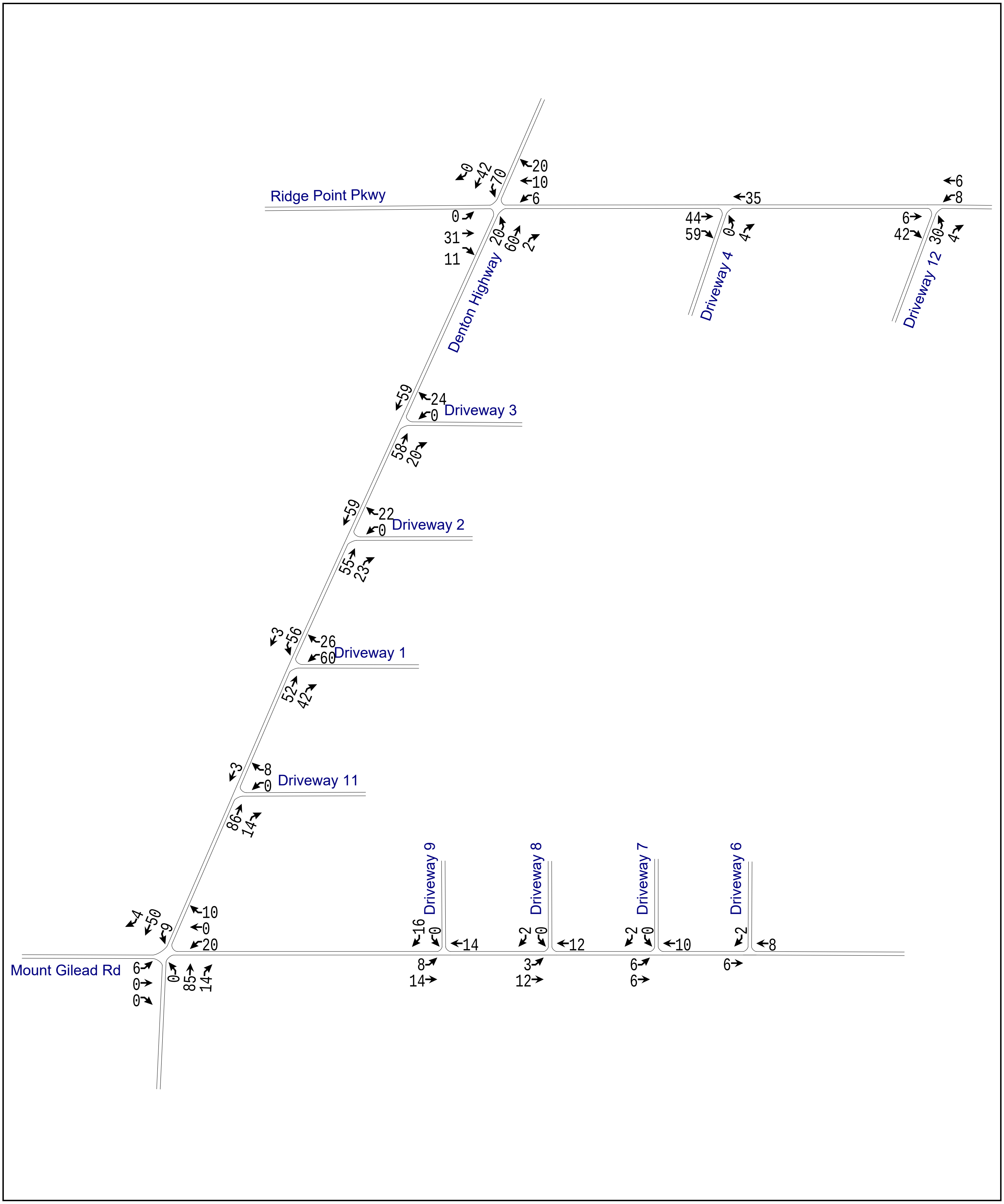
TIA for Engler Tract in City of Keller, Texas

DeShazo Group

OD

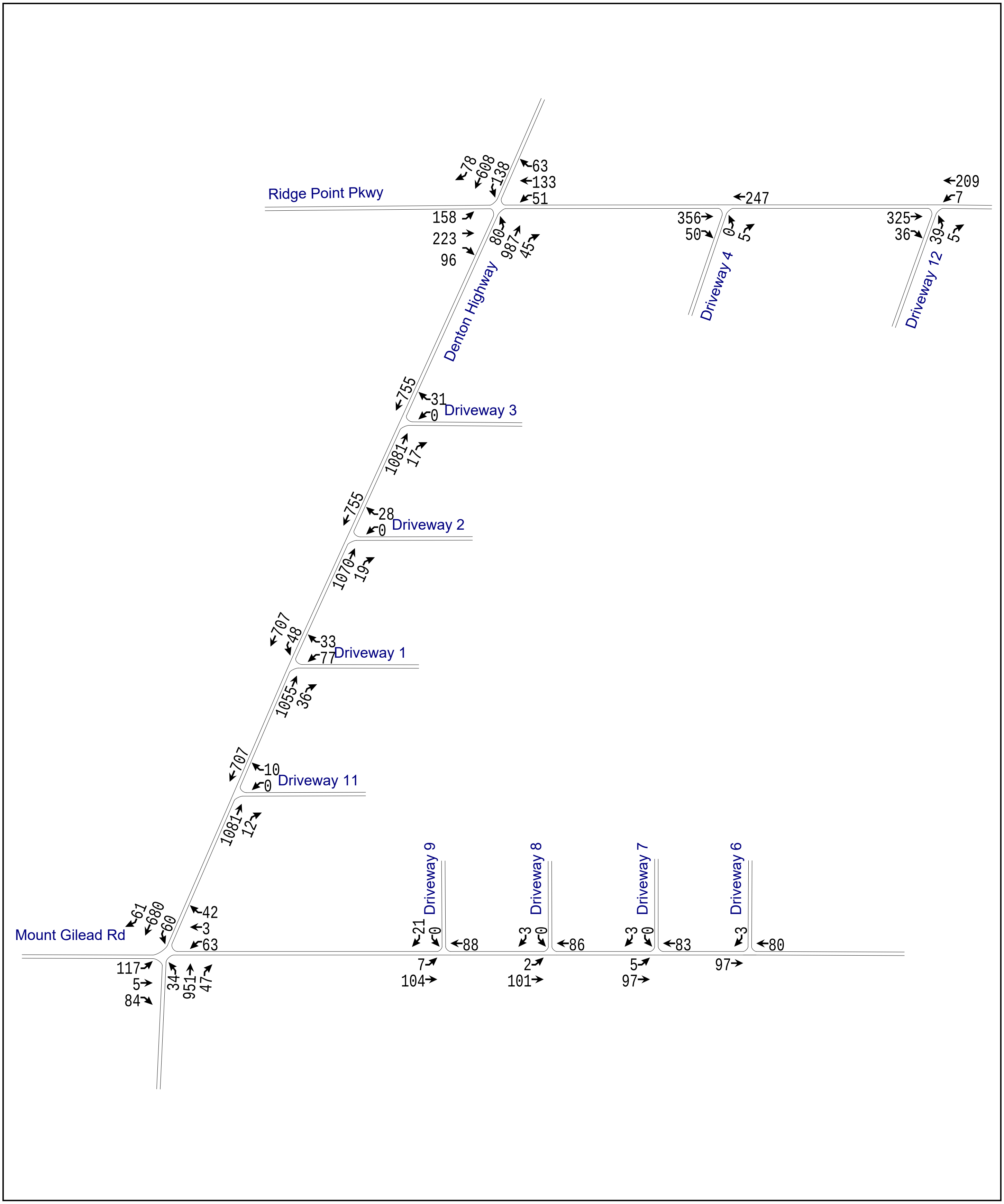
A12. 2025 Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



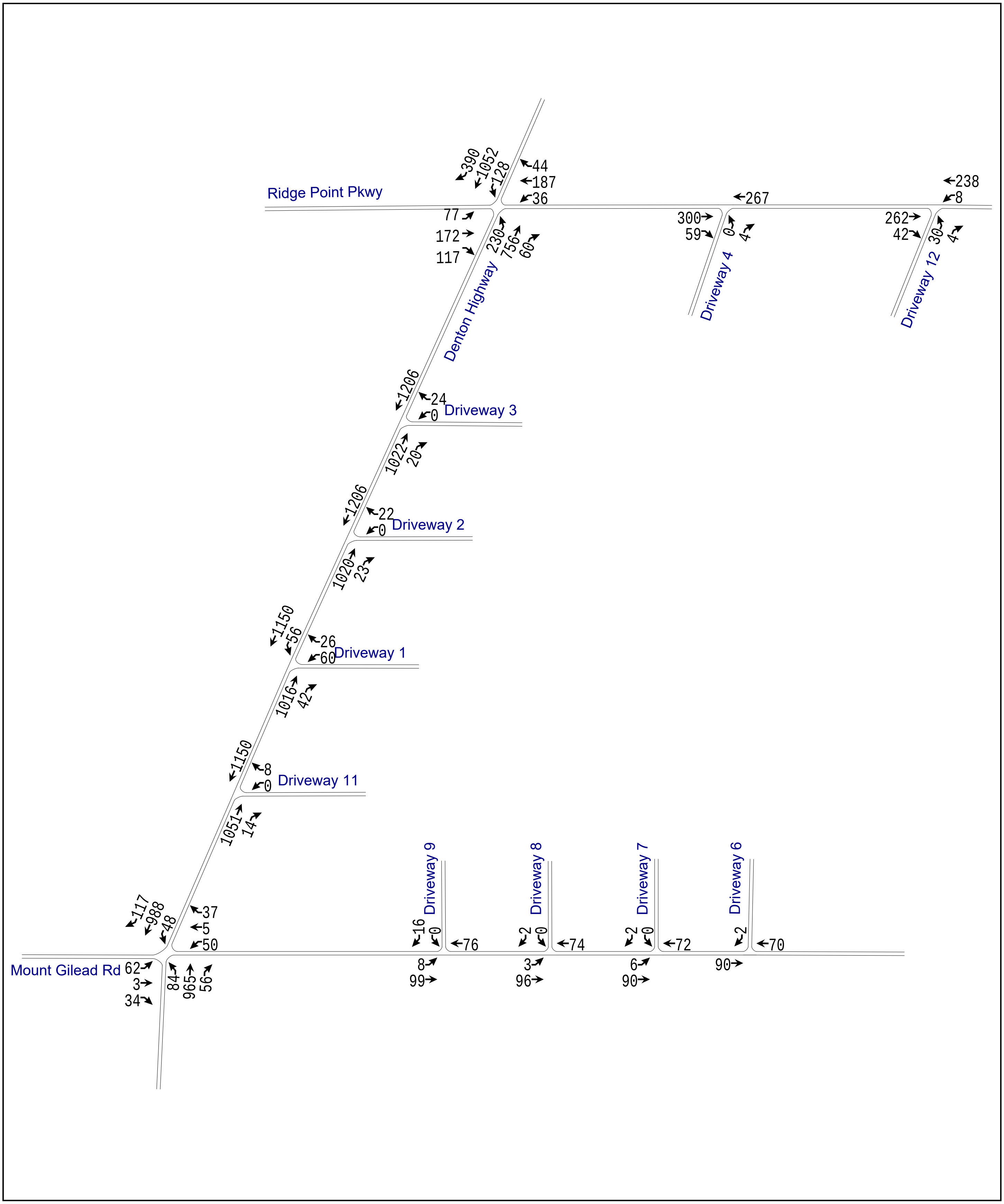
A13. 2025 Background Plus Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



A14. 2025 Background Plus Site Generated PM Peak Hour Traffic Volumes **North ^**

Not to Scale



TIA for Engler Tract in City of Keller, Texas **DeShazo Group**

OD

Appendix B. Existing Traffic Count Data

Intersection Traffic Movements

DeShazo Group, Inc.

Location: **US 377 at Ridge Point Parkway**
City/State: **Keller, Texas**
Day/Date: **Monday, November 25, 2019**
Project-ID #: **19125 (1)**
Data Source: **CJ Hensch**

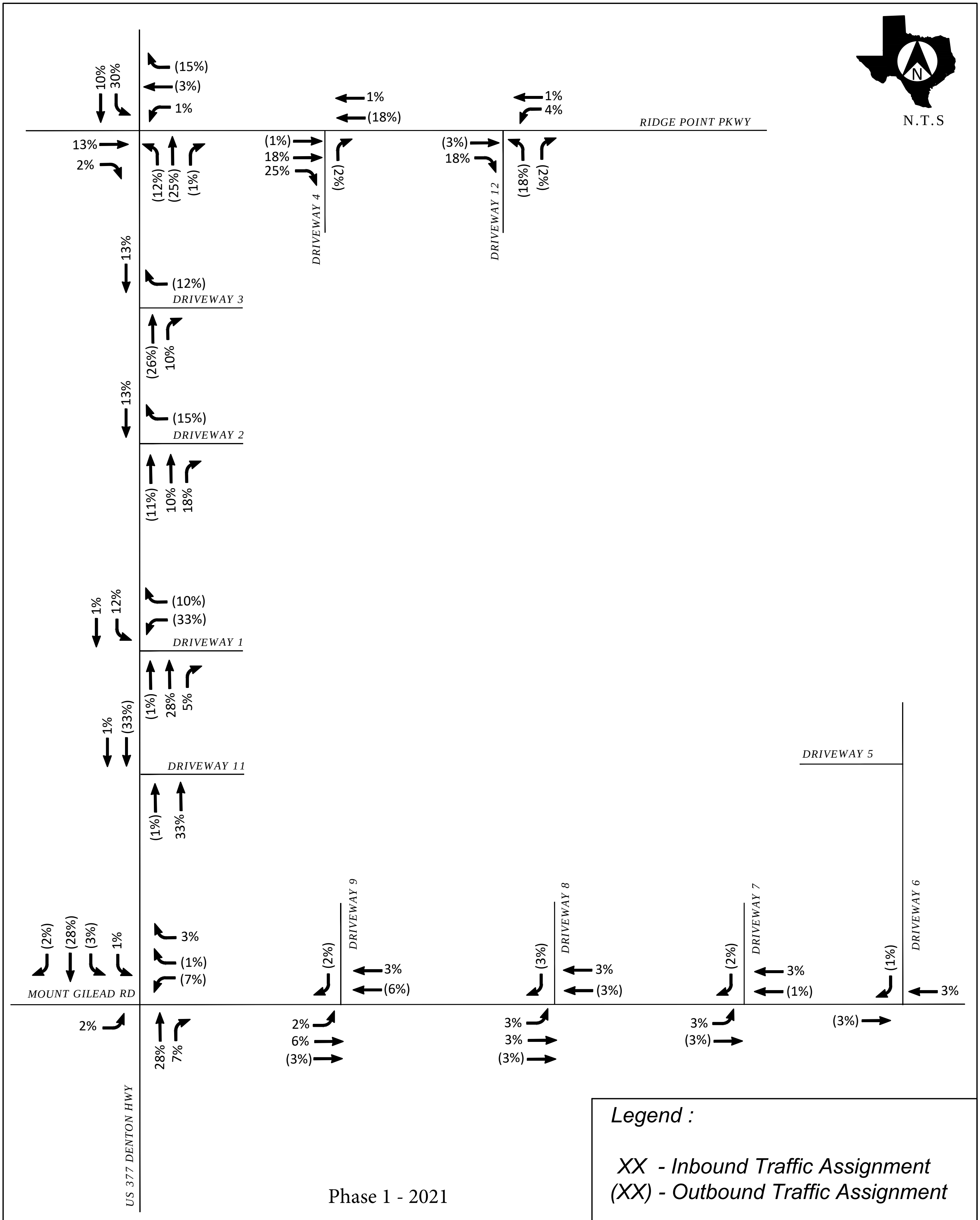
Data Collector(s): **Camera**
Weather Conditions: **Mild/Normal Conditions**
Traffic Control: **Signalized**

Time of Count		Northbound on US 377				Southbound on US 377				Eastbound on Keller Haslet Road				Westbound on Ridge Point Parkway			
Begin	End	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
7:00 AM	7:15 AM	0	9	194	7	0	15	98	17	0	47	42	23	0	8	6	4
7:15 AM	7:30 AM	0	11	218	15	0	27	130	14	0	36	46	10	0	16	14	5
7:30 AM	7:45 AM	0	14	199	15	0	30	127	21	0	29	49	23	0	16	31	24
7:45 AM	8:00 AM	0	14	183	17	0	26	124	17	0	28	38	21	0	18	56	14
8:00 AM	8:15 AM	0	25	164	8	0	9	109	12	0	39	24	23	0	10	18	9
8:15 AM	8:30 AM	0	22	196	18	0	8	136	11	0	36	21	26	0	7	10	6
8:30 AM	8:45 AM	0	22	155	6	0	11	110	21	0	30	18	33	0	15	10	6
8:45 AM	9:00 AM	0	8	147	7	0	8	111	14	0	25	18	30	0	11	8	1
Intersection PHV:		0	48	794	54	0	98	479	69	0	140	175	77	0	58	107	47
PHF:		0.00	0.86	0.91	0.79	0.00	0.82	0.92	0.82	0.00	0.74	0.89	0.84	0.00	0.81	0.48	0.49
Intersection Peak Hour: 7:00 AM - 8:00 AM														Intersection PHF: 0.93			
Study Area PHV:		**0**	**48**	**794**	**54**	**0**	**98**	**479**	**69**	**0**	**140**	**175**	**77**	**0**	**58**	**107**	**47**
PHF:		**0.00**	**0.86**	**0.91**	**0.79**	**0.00**	**0.82**	**0.92**	**0.82**	**0.00**	**0.74**	**0.89**	**0.84**	**0.00**	**0.81**	**0.48**	**0.49**
Study Peak Hour: 7:00 AM - 8:00 AM														**Study Area PHF: 0.93**			
4:30 PM	4:45 PM	0	34	120	11	0	16	241	74	0	24	22	29	0	9	21	15
4:45 PM	5:00 PM	0	51	134	19	0	21	201	101	0	18	20	25	0	11	53	9
5:00 PM	5:15 PM	0	54	149	12	0	20	244	103	0	13	20	24	0	9	49	3
5:15 PM	5:30 PM	0	39	160	20	0	13	222	83	0	13	28	27	0	10	38	11
5:30 PM	5:45 PM	0	39	159	19	0	16	209	65	0	26	35	21	0	10	33	7
5:45 PM	6:00 PM	0	55	141	22	0	24	202	95	0	16	42	22	0	10	37	10
6:00 PM	6:15 PM	0	39	109	33	0	26	190	83	0	16	36	25	0	18	36	8
6:15 PM	6:30 PM	0	42	109	14	0	39	212	69	0	15	38	16	0	25	39	13
Intersection PHV:		0	187	609	73	0	73	877	346	0	68	125	94	0	39	157	31
PHF:		0.00	0.85	0.95	0.83	0.00	0.76	0.90	0.84	0.00	0.65	0.74	0.87	0.00	0.98	0.80	0.70
Intersection Peak Hour: 5:00 PM - 6:00 PM														Intersection PHF: 0.96			
Study Area PHV:		**0**	**187**	**609**	**73**	**0**	**73**	**877**	**346**	**0**	**68**	**125**	**94**	**0**	**39**	**157**	**31**
PHF:		**0.00**	**0.85**	**0.95**	**0.83**	**0.00**	**0.76**	**0.90**	**0.84**	**0.00**	**0.65**	**0.74**	**0.87**	**0.00**	**0.98**	**0.80**	**0.70**
Study Peak Hour: 5:00 PM - 6:00 PM														**Study Area PHF: 0.96**			

Observations:

File: C2X3HRS - 4L&12Mv_Peds.XLS

Appendix C. Site-Generated Traffic Supplement



DeShazo Group
TRAFFIC & TRANSPORTATION ENGINEERS
400 S. Houston Street Ste. 330
Dallas, Texas 75202
(214) 748-6740

TRAFFIC ASSIGNMENT(PHASE I) - INBOUND AND OUTBOUND

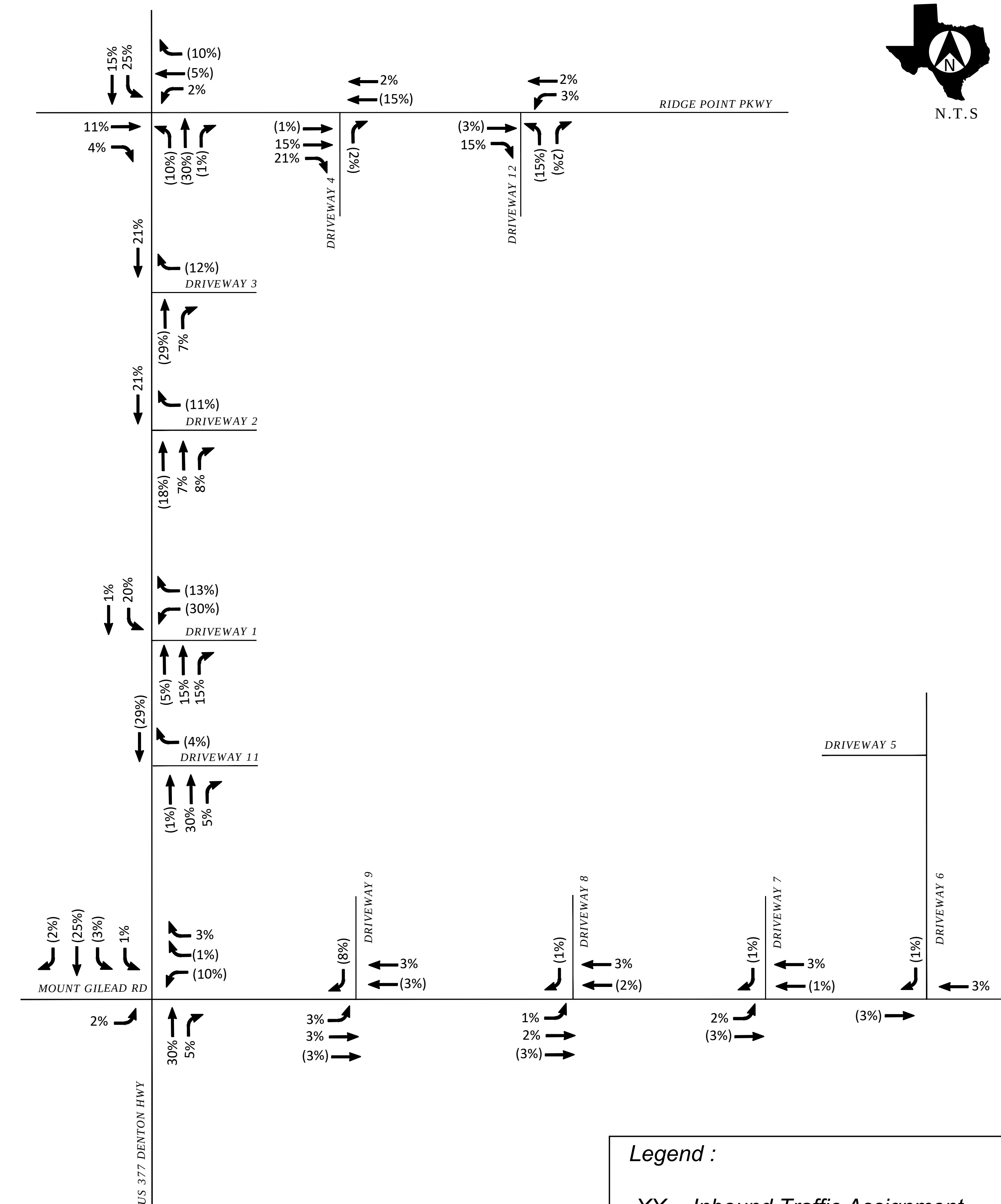
TIA for Center Stage Mixed-Use Development in Keller Texas

PROJECT #: 19125

DATE: NOV 2019

EXHIBIT

C1



Full Buildout -2025

Legend :

XX - Inbound Traffic Assignment
(XX) - Outbound Traffic Assignment

DeShazo Group
TRAFFIC & TRANSPORTATION ENGINEERS
400 S. Houston Street Ste. 330
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(214) 748-6740

TRAFFIC ASSIGNMENT - INBOUND AND OUTBOUND

TIA for Center Stage Mixed-Use Development in Keller Texas

PROJECT #: 19125

DATE: NOV 2019

EXHIBIT

C2

Appendix D. Detailed Intersection Capacity Analysis Results

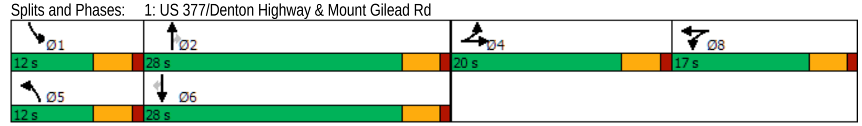
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	4	75	33	3	29	30	781	31	44	547	50
Future Volume (vph)	100	4	75	33	3	29	30	781	31	44	547	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	4	82	36	3	32	33	849	34	48	595	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	71	0	33	849	34	48	595	54
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	20.0	20.0		17.0	17.0		12.0	28.0	28.0	12.0	28.0	28.0
Total Split (%)	26.0%	26.0%		22.1%	22.1%		15.6%	36.4%	36.4%	15.6%	36.4%	36.4%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		11.0			7.4		6.8	28.1	28.1	6.9	30.2	30.2
Actuated g/C Ratio		0.18			0.12		0.11	0.46	0.46	0.11	0.49	0.49
v/c Ratio		0.57			0.31		0.17	0.53	0.04	0.24	0.34	0.06
Control Delay		26.5			22.0		31.6	18.0	0.1	32.4	14.4	0.1
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		26.5			22.0		31.6	18.0	0.1	32.4	14.4	0.1
LOS		C			C		C	B	A	C	B	A
Approach Delay		26.5			22.0			17.8			14.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)		58			15		13	153	0	18	67	0
Queue Length 95th (ft)		124			52		40	252	0	52	167	0
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		483			388		226	1616	804	226	1740	854
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.40			0.18		0.15	0.53	0.04	0.21	0.34	0.06

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 61.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 17.6 Intersection LOS: B

Intersection Capacity Utilization 50.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd

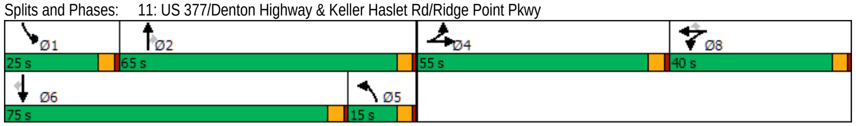


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	175	77	41	107	33	48	808	38	69	508	69
Future Volume (vph)	140	175	77	41	107	33	48	808	38	69	508	69
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	151	188	83	44	115	35	52	869	41	74	546	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	422	0	0	159	35	52	869	41	74	546	74
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	55.0	55.0		40.0	40.0	40.0	15.0	65.0	65.0	25.0	75.0	75.0
Total Split (%)	29.7%	29.7%		21.6%	21.6%	21.6%	8.1%	35.1%	35.1%	13.5%	40.5%	40.5%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		41.6			19.2	19.2	8.9	66.2	66.2	12.1	72.0	72.0
Actuated g/C Ratio		0.26			0.12	0.12	0.06	0.42	0.42	0.08	0.46	0.46
v/c Ratio		0.89			0.71	0.13	0.46	0.58	0.06	0.55	0.34	0.10
Control Delay		76.6			85.9	1.0	90.0	39.5	3.1	88.6	31.0	6.6
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		76.6			85.9	1.0	90.0	39.5	3.1	88.6	31.0	6.6
LOS		E			F	A	F	D	A	F	C	A
Approach Delay		76.6			70.6			40.7			34.5	
Approach LOS		E			E			D			C	
Queue Length 50th (ft)		422			165	0	54	371	0	77	201	0
Queue Length 95th (ft)		#609			259	0	111	530	14	142	290	36
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		584			421	430	136	1489	701	234	1620	765
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.72			0.38	0.08	0.38	0.58	0.06	0.32	0.34	0.10

Intersection Summary
Cycle Length: 185
Actuated Cycle Length: 157.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 48.0 Intersection LOS: D

Intersection Capacity Utilization 66.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	3	30	27	4	24	75	782	37	35	833	100
Future Volume (vph)	50	3	30	27	4	24	75	782	37	35	833	100
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)	54	3	33	29	4	26	82	850	40	38	905	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	59	0	82	850	40	38	905	109
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	22.0		18.0	18.0		12.0	25.0	25.0	12.0	25.0	25.0
Total Split (%)	28.6%	28.6%		23.4%	23.4%		15.6%	32.5%	32.5%	15.6%	32.5%	32.5%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		7.8			7.1		7.3	33.2	33.2	6.9	31.1	31.1
Actuated g/C Ratio		0.15			0.14		0.14	0.64	0.64	0.13	0.60	0.60
v/c Ratio		0.32			0.23		0.33	0.38	0.04	0.16	0.43	0.11
Control Delay		19.9			19.2		28.8	13.1	0.1	26.9	15.7	2.1
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		19.9			19.2		28.8	13.1	0.1	26.9	15.7	2.1
LOS		B			B		C	B	A	C	B	A
Approach Delay		19.9			19.2			13.9			14.7	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		19			11		28	87	0	13	148	0
Queue Length 95th (ft)		57			42		70	225	0	39	#268	18
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		641			495		274	2252	1061	274	2110	1004
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.14			0.12		0.30	0.38	0.04	0.14	0.43	0.11

Intersection Summary

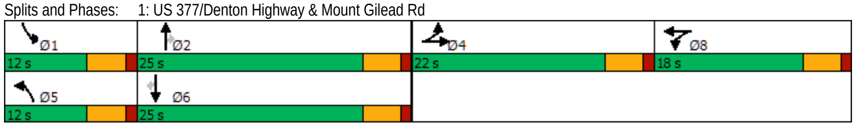
Cycle Length: 77
Actuated Cycle Length: 52.2
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.43
Intersection Signal Delay: 14.6 Intersection LOS: B

2010 HCM Intersection Capacity Analysis
1: US 377/Denton Highway & Mount Gilead Rd

2019 Existing
Timing Plan: PM

Intersection Capacity Utilization 44.9% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd



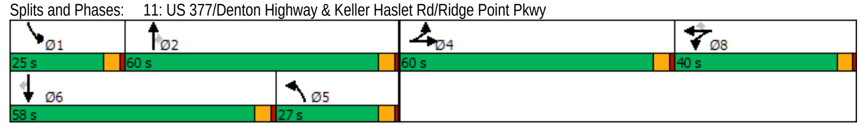
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	125	94	27	157	22	187	618	51	51	897	346
Future Volume (vph)	68	125	94	27	157	22	187	618	51	51	897	346
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	71	130	98	28	164	23	195	644	53	53	934	360
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	299	0	0	192	23	195	644	53	53	934	360
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	60.0	60.0		40.0	40.0	40.0	27.0	60.0	60.0	25.0	58.0	58.0
Total Split (%)	32.4%	32.4%		21.6%	21.6%	21.6%	14.6%	32.4%	32.4%	13.5%	31.4%	31.4%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		28.7			20.2	20.2	18.8	66.0	66.0	9.8	54.3	54.3
Actuated g/C Ratio		0.20			0.14	0.14	0.13	0.47	0.47	0.07	0.39	0.39
v/c Ratio		0.81			0.72	0.08	0.72	0.39	0.07	0.43	0.68	0.49
Control Delay		68.6			74.8	0.5	76.4	28.3	5.6	77.7	41.7	17.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		68.6			74.8	0.5	76.4	28.3	5.6	77.7	41.7	17.1
LOS		E			E	A	E	C	A	E	D	B
Approach Delay		68.6			66.8			37.5			36.5	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)		252			170	0	172	203	0	47	376	97
Queue Length 95th (ft)		391			283	0	297	339	25	104	575	237
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		714			475	471	326	1663	777	262	1369	742
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.42			0.40	0.05	0.60	0.39	0.07	0.20	0.68	0.49

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 140.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 42.7 Intersection LOS: D

Intersection Capacity Utilization 76.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



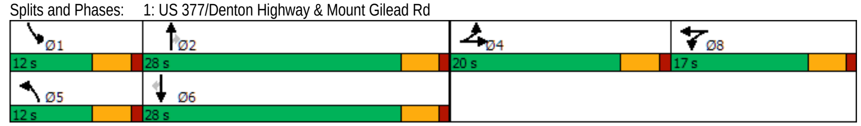
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	4	78	46	3	36	31	849	41	52	615	55
Future Volume (vph)	107	4	78	46	3	36	31	849	41	52	615	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	4	85	50	3	39	34	923	45	57	668	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	205	0	0	92	0	34	923	45	57	668	60
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	20.0	20.0		17.0	17.0		12.0	28.0	28.0	12.0	28.0	28.0
Total Split (%)	26.0%	26.0%		22.1%	22.1%		15.6%	36.4%	36.4%	15.6%	36.4%	36.4%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		11.2			7.8		6.6	27.6	27.6	6.9	29.9	29.9
Actuated g/C Ratio		0.17			0.12		0.10	0.43	0.43	0.11	0.46	0.46
v/c Ratio		0.62			0.38		0.19	0.61	0.06	0.30	0.41	0.07
Control Delay		29.4			23.4		32.7	20.9	0.1	34.4	16.1	0.2
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		29.4			23.4		32.7	20.9	0.1	34.4	16.1	0.2
LOS		C			C		C	C	A	C	B	A
Approach Delay		29.4			23.4			20.3			16.2	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		64			21		13	177	0	22	81	0
Queue Length 95th (ft)		133			63		41	#311	0	60	194	0
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		451			370		210	1516	763	210	1640	813
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.45			0.25		0.16	0.61	0.06	0.27	0.41	0.07

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 64.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 19.8 Intersection LOS: B

Intersection Capacity Utilization 52.5% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd



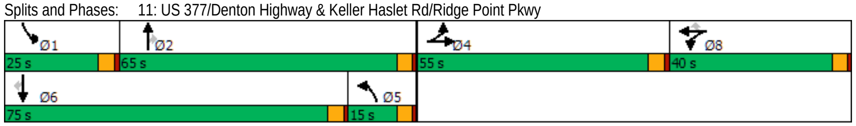
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	199	83	44	116	59	70	882	41	111	542	72
Future Volume (vph)	146	199	83	44	116	59	70	882	41	111	542	72
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	157	214	89	47	125	63	75	948	44	119	583	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	460	0	0	172	63	75	948	44	119	583	77
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	55.0	55.0		40.0	40.0	40.0	15.0	65.0	65.0	25.0	75.0	75.0
Total Split (%)	29.7%	29.7%		21.6%	21.6%	21.6%	8.1%	35.1%	35.1%	13.5%	40.5%	40.5%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		46.6			20.9	20.9	9.8	64.7	64.7	16.0	70.9	70.9
Actuated g/C Ratio		0.28			0.13	0.13	0.06	0.39	0.39	0.10	0.43	0.43
v/c Ratio		0.91			0.74	0.23	0.64	0.69	0.07	0.70	0.39	0.11
Control Delay		80.6			90.5	6.2	102.1	47.7	3.9	95.7	35.1	6.6
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		80.6			90.5	6.2	102.1	47.7	3.9	95.7	35.1	6.6
LOS		F			F	A	F	D	A	F	D	A
Approach Delay		80.6			67.9			49.7			41.6	
Approach LOS		F			E			D			D	
Queue Length 50th (ft)		485			189	0	83	474	0	131	240	0
Queue Length 95th (ft)		#726			278	22	#160	617	17	211	316	37
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		548			394	408	127	1376	653	219	1507	718
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.84			0.44	0.15	0.59	0.69	0.07	0.54	0.39	0.11

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 166.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 54.5 Intersection LOS: D

Intersection Capacity Utilization 72.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	95	81	0	0	3
Future Vol, veh/h	3	95	81	0	0	3
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	3	103	88	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	88	0	-	0	197	88
Stage 1	-	-	-	-	88	-
Stage 2	-	-	-	-	109	-
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	1508	-	-	-	792	970
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1508	-	-	-	790	970
Mov Cap-2 Maneuver	-	-	-	-	790	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1508	-	-	-	970
HCM Lane V/C Ratio	0.002	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	91	76	0	0	5
Future Vol, veh/h	4	91	76	0	0	5
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	4	99	83	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	83	0	-	0	190	83
Stage 1	-	-	-	-	83	-
Stage 2	-	-	-	-	107	-
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	1514	-	-	-	799	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1514	-	-	-	797	976
Mov Cap-2 Maneuver	-	-	-	-	797	-
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	917	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1514	-	-	-	976
HCM Lane V/C Ratio	0.003	-	-	-	0.006
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	87	73	0	0	3
Future Vol, veh/h	4	87	73	0	0	3
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	4	95	79	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	79	0	-	0	182	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	103	-
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	1519	-	-	-	807	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	921	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1519	-	-	-	805	981
Mov Cap-2 Maneuver	-	-	-	-	805	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	921	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1519	-	-	-	981
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	975	0	0	707
Future Vol, veh/h	0	0	975	0	0	707
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	-	150	-	-
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	0	1060	0	0	768

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	530	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	493	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	493	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	16	968	7	16	653
Future Vol, veh/h	54	16	968	7	16	653
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	0	-	150	-	-
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	59	17	1052	8	17	710

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1441	526	0	0	1060	0
Stage 1	1052	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	123	496	-	-	653	-
Stage 1	297	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	118	496	-	-	653	-
Mov Cap-2 Maneuver	118	-	-	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	626	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	51.1	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	118	496	653	-
HCM Lane V/C Ratio	-	-	0.497	0.035	0.027	-
HCM Control Delay (s)	-	-	62.5	12.5	10.7	0.2
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	2.3	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	961	23	0	668
Future Vol, veh/h	0	25	961	23	0	668
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	-	150	-	-
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	27	1045	25	0	726

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	523	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	499	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	499	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	499	-
HCM Lane V/C Ratio	-	-	0.054	-
HCM Control Delay (s)	-	-	12.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	973	13	0	668
Future Vol, veh/h	0	20	973	13	0	668
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	-	150	-	-
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	22	1058	14	0	726

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	529	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	494	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	494	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	494	-
HCM Lane V/C Ratio	-	-	0.044	-
HCM Control Delay (s)	-	-	12.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	318	33	0	219	0	3
Future Vol, veh/h	318	33	0	219	0	3
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	346	36	0	238	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	364
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	680
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	680
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	680	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-
HCM Control Delay (s)	10.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	298	23	5	190	30	3
Future Vol, veh/h	298	23	5	190	30	3
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	324	25	5	207	33	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	349	0	451	337
Stage 1	-	-	-	-	337	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1208	-	551	704
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	899	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1208	-	548	704
Mov Cap-2 Maneuver	-	-	-	-	548	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	895	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	1208	-
HCM Lane V/C Ratio	0.064	-	-	0.004	-
HCM Control Delay (s)	11.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

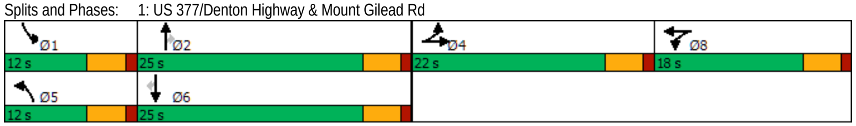
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	3	31	36	4	30	78	855	49	41	897	106
Future Volume (vph)	55	3	31	36	4	30	78	855	49	41	897	106
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	3	34	39	4	33	85	929	53	45	975	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	97	0	0	76	0	85	929	53	45	975	115
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	22.0		18.0	18.0		12.0	25.0	25.0	12.0	25.0	25.0
Total Split (%)	28.6%	28.6%		23.4%	23.4%		15.6%	32.5%	32.5%	15.6%	32.5%	32.5%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		7.9			7.3		7.1	31.7	31.7	6.8	26.7	26.7
Actuated g/C Ratio		0.14			0.13		0.13	0.57	0.57	0.12	0.48	0.48
v/c Ratio		0.36			0.30		0.37	0.46	0.05	0.21	0.57	0.14
Control Delay		21.4			19.8		31.0	15.2	0.1	28.3	19.3	2.6
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		21.4			19.8		31.0	15.2	0.1	28.3	19.3	2.6
LOS		C			B		C	B	A	C	B	A
Approach Delay		21.4			19.8			15.7			18.0	
Approach LOS		C			B			B			B	
Queue Length 50th (ft)		22			15		29	101	0	15	167	0
Queue Length 95th (ft)		62			50		73	#289	0	45	#312	21
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		584			455		247	2012	964	247	1699	837
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.17			0.17		0.34	0.46	0.05	0.18	0.57	0.14

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 55.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 17.2 Intersection LOS: B

Intersection Capacity Utilization 47.2% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd



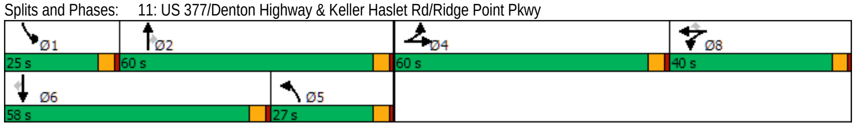
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	149	101	30	167	39	208	670	54	97	948	360
Future Volume (vph)	71	149	101	30	167	39	208	670	54	97	948	360
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	74	155	105	31	174	41	217	698	56	101	988	375
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	334	0	0	205	41	217	698	56	101	988	375
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	60.0	60.0		40.0	40.0	40.0	27.0	60.0	60.0	25.0	58.0	58.0
Total Split (%)	32.4%	32.4%		21.6%	21.6%	21.6%	14.6%	32.4%	32.4%	13.5%	31.4%	31.4%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		32.7			21.9	21.9	20.7	61.0	61.0	14.0	54.2	54.2
Actuated g/C Ratio		0.22			0.15	0.15	0.14	0.41	0.41	0.09	0.37	0.37
v/c Ratio		0.83			0.75	0.13	0.78	0.48	0.08	0.60	0.76	0.53
Control Delay		71.8			78.9	0.9	81.7	36.3	7.4	82.4	48.0	20.4
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		71.8			78.9	0.9	81.7	36.3	7.4	82.4	48.0	20.4
LOS		E			E	A	F	D	A	F	D	C
Approach Delay		71.8			65.9			44.8			43.3	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)		301			193	0	203	255	0	96	445	123
Queue Length 95th (ft)		449			312	0	#385	424	31	176	#667	277
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		680			449	451	309	1460	689	249	1298	713
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.49			0.46	0.09	0.70	0.48	0.08	0.41	0.76	0.53

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 147.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 48.8 Intersection LOS: D

Intersection Capacity Utilization 81.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	90	68	0	0	2
Future Vol, veh/h	3	90	68	0	0	2
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	3	98	74	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	74	0	-	0	178	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	104	-
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	1526	-	-	-	812	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	920	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1526	-	-	-	810	988
Mov Cap-2 Maneuver	-	-	-	-	810	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1526	-	-	-	988
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	86	65	0	0	3
Future Vol, veh/h	4	86	65	0	0	3
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	4	93	71	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	71	0	-	0	172	71
Stage 1	-	-	-	-	71	-
Stage 2	-	-	-	-	101	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1529	-	-	-	818	991
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1529	-	-	-	816	991
Mov Cap-2 Maneuver	-	-	-	-	816	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1529	-	-	-	991
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	81	63	0	0	2
Future Vol, veh/h	4	81	63	0	0	2
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	4	88	68	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	164	68
Stage 1	-	-	-	-	68	-
Stage 2	-	-	-	-	96	-
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	1533	-	-	-	827	995
Stage 1	-	-	-	-	955	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1533	-	-	-	825	995
Mov Cap-2 Maneuver	-	-	-	-	825	-
Stage 1	-	-	-	-	952	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	995
HCM Lane V/C Ratio	0.003	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	940	0	0	1097
Future Vol, veh/h	0	0	940	0	0	1097
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	-	150	-	-
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	0	1022	0	0	1192

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	511	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	508	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	508	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	11	933	7	18	1061
Future Vol, veh/h	36	11	933	7	18	1061
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	0	-	150	-	-
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	39	12	1014	8	20	1153

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1631	507	0	0	1022	0
Stage 1	1014	-	-	-	-	-
Stage 2	617	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	92	511	-	-	675	-
Stage 1	311	-	-	-	-	-
Stage 2	501	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	84	511	-	-	675	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	64.7	0	0.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	84	511	675	-
HCM Lane V/C Ratio	-	-	0.466	0.023	0.029	-
HCM Control Delay (s)	-	-	80.7	12.2	10.5	0.4
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	1.9	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	16	917	26	0	1079
Future Vol, veh/h	0	16	917	26	0	1079
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	-	150	-	-
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	17	997	28	0	1173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	499	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	517	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	517	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	517	-
HCM Lane V/C Ratio	-	-	0.034	-
HCM Control Delay (s)	-	-	12.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	13	919	15	0	1079
Future Vol, veh/h	0	13	919	15	0	1079
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	-	150	-	-
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	14	999	16	0	1173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	500	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	516	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	516	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	516	-
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	12.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	264	37	0	236	0	2
Future Vol, veh/h	264	37	0	236	0	2
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	287	40	0	257	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	307
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	732
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	732
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	732	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-
HCM Control Delay (s)	9.9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	240	26	6	216	20	2
Future Vol, veh/h	240	26	6	216	20	2
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	261	28	7	235	22	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	289	0	407	275
Stage 1	-	-	-	-	275	-
Stage 2	-	-	-	-	132	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1271	-	586	763
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	881	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1271	-	582	763
Mov Cap-2 Maneuver	-	-	-	-	582	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	876	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	595	-	-	1271	-
HCM Lane V/C Ratio	0.04	-	-	0.005	-
HCM Control Delay (s)	11.3	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	5	84	49	3	38	34	916	44	56	662	60
Future Volume (vph)	115	5	84	49	3	38	34	916	44	56	662	60
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)	125	5	91	53	3	41	37	996	48	61	720	65
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	221	0	0	97	0	37	996	48	61	720	65
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	20.0	20.0		17.0	17.0		12.0	28.0	28.0	12.0	28.0	28.0
Total Split (%)	26.0%	26.0%		22.1%	22.1%		15.6%	36.4%	36.4%	15.6%	36.4%	36.4%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		11.7			7.9		6.7	27.1	27.1	7.0	29.3	29.3
Actuated g/C Ratio		0.18			0.12		0.10	0.42	0.42	0.11	0.45	0.45
v/c Ratio		0.64			0.39		0.20	0.67	0.06	0.32	0.45	0.08
Control Delay		30.4			23.6		33.1	22.7	0.2	35.1	16.9	0.2
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.4			23.6		33.1	22.7	0.2	35.1	16.9	0.2
LOS		C			C		C	C	A	D	B	A
Approach Delay		30.4			23.6			22.1			16.9	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		71			22		15	202	0	25	92	0
Queue Length 95th (ft)		146			65		44	#355	0	63	212	0
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		455			374		212	1487	751	212	1609	801
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.49			0.26		0.17	0.67	0.06	0.29	0.45	0.08

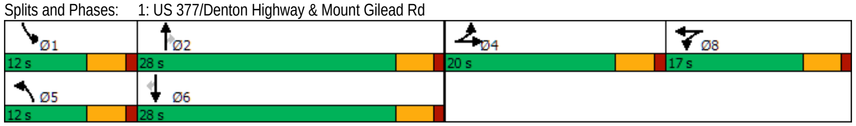
Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 64.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 21.0 Intersection LOS: C

2010 HCM Intersection Capacity Analysis
1: US 377/Denton Highway & Mount Gilead Rd
2025 Background
Timing Plan: AM

Intersection Capacity Utilization 55.4% 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: 1: US 377/Denton Highway & Mount Gilead Rd



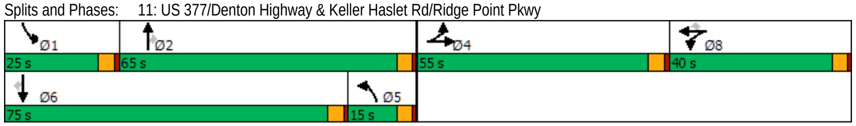
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	214	89	47	125	62	74	951	44	117	585	78
Future Volume (vph)	158	214	89	47	125	62	74	951	44	117	585	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	170	230	96	51	134	67	80	1023	47	126	629	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	496	0	0	185	67	80	1023	47	126	629	84
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	55.0	55.0		40.0	40.0	40.0	15.0	65.0	65.0	25.0	75.0	75.0
Total Split (%)	29.7%	29.7%		21.6%	21.6%	21.6%	8.1%	35.1%	35.1%	13.5%	40.5%	40.5%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		50.6			22.5	22.5	10.0	63.9	63.9	16.7	70.6	70.6
Actuated g/C Ratio		0.29			0.13	0.13	0.06	0.37	0.37	0.10	0.41	0.41
v/c Ratio		0.94			0.77	0.24	0.68	0.78	0.07	0.73	0.43	0.12
Control Delay		84.4			93.2	6.9	108.1	53.7	4.6	99.9	38.0	6.4
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		84.4			93.2	6.9	108.1	53.7	4.6	99.9	38.0	6.4
LOS		F			F	A	F	D	A	F	D	A
Approach Delay		84.4			70.3			55.5			44.1	
Approach LOS		F			E			E			D	
Queue Length 50th (ft)		544			205	0	90	538	0	140	266	0
Queue Length 95th (ft)		#834			298	26	#178	691	20	224	350	39
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		529			380	397	122	1317	628	211	1455	700
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.94			0.49	0.17	0.66	0.78	0.07	0.60	0.43	0.12

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 171.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 58.6 Intersection LOS: E

Intersection Capacity Utilization 82.4% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	102	87	0	0	3
Future Vol, veh/h	3	102	87	0	0	3
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	3	111	95	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	95	0	-	0	212	95
Stage 1	-	-	-	-	95	-
Stage 2	-	-	-	-	117	-
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	1499	-	-	-	776	962
Stage 1	-	-	-	-	929	-
Stage 2	-	-	-	-	908	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1499	-	-	-	774	962
Mov Cap-2 Maneuver	-	-	-	-	774	-
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	908	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1499	-	-	-	962
HCM Lane V/C Ratio	0.002	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.4					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	98	82	0	0	5
Future Vol, veh/h	4	98	82	0	0	5
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	4	107	89	0	0	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	89	0	-	0	204	89
Stage 1	-	-	-	-	89	-
Stage 2	-	-	-	-	115	-
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	1506	-	-	-	784	969
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1506	-	-	-	782	969
Mov Cap-2 Maneuver	-	-	-	-	782	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	910	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1506	-	-	-	969
HCM Lane V/C Ratio	0.003	-	-	-	0.006
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	94	79	0	0	3
Future Vol, veh/h	4	94	79	0	0	3
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	4	102	86	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	86	0	-	0	196	86
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	110	-
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	-	-	-	793	973
Stage 1	-	-	-	-	937	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1510	-	-	-	791	973
Mov Cap-2 Maneuver	-	-	-	-	791	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1510	-	-	-	973
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1051	0	0	761
Future Vol, veh/h	0	0	1051	0	0	761
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	-	150	-	-
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	0	1142	0	0	827

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	571	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	464	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	464	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	16	1045	7	16	706
Future Vol, veh/h	54	16	1045	7	16	706
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	0	-	150	-	-
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	59	17	1136	8	17	767

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1554	568	0	0	1144	0
Stage 1	1136	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	104	466	-	-	606	-
Stage 1	268	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	99	466	-	-	606	-
Mov Cap-2 Maneuver	99	-	-	-	-	-
Stage 1	268	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	68	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	99	466	606	-
HCM Lane V/C Ratio	-	-	0.593	0.037	0.029	-
HCM Control Delay (s)	-	-	84.3	13	11.1	0.3
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	2.8	0.1	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	1038	23	0	722
Future Vol, veh/h	0	25	1038	23	0	722
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	-	150	-	-
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	27	1128	25	0	785

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	564	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	469	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	469	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	469	-
HCM Lane V/C Ratio	-	-	0.058	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection						
Int Delay, s/veh	0.1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	1049	13	0	722
Future Vol, veh/h	0	20	1049	13	0	722
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	-	150	-	-
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	22	1140	14	0	785

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	570	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	465	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	465	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	465	-
HCM Lane V/C Ratio	-	-	0.047	-
HCM Control Delay (s)	-	-	13.1	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	342	33	0	235	0	3
Future Vol, veh/h	342	33	0	235	0	3
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	372	36	0	255	0	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	390
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	658
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	658
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	658	-	-	-
HCM Lane V/C Ratio	0.005	-	-	-
HCM Control Delay (s)	10.5	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	322	23	5	205	30	3
Future Vol, veh/h	322	23	5	205	30	3
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	350	25	5	223	33	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	375	0	485	363
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	122	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1182	-	526	681
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	891	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1182	-	523	681
Mov Cap-2 Maneuver	-	-	-	-	523	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	534	-	-	1182	-
HCM Lane V/C Ratio	0.067	-	-	0.005	-
HCM Control Delay (s)	12.2	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

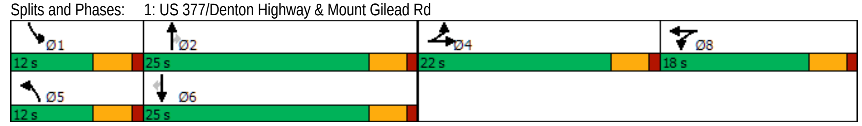
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	3	34	38	5	33	84	922	52	44	969	115
Future Volume (vph)	59	3	34	38	5	33	84	922	52	44	969	115
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	3	37	41	5	36	91	1002	57	48	1053	125
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	104	0	0	82	0	91	1002	57	48	1053	125
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	22.0		18.0	18.0		12.0	25.0	25.0	12.0	25.0	25.0
Total Split (%)	28.6%	28.6%		23.4%	23.4%		15.6%	32.5%	32.5%	15.6%	32.5%	32.5%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		8.1			7.4		7.2	29.4	29.4	6.8	26.9	26.9
Actuated g/C Ratio		0.14			0.13		0.12	0.51	0.51	0.12	0.46	0.46
v/c Ratio		0.39			0.33		0.42	0.56	0.07	0.23	0.64	0.15
Control Delay		22.7			20.2		33.0	19.3	0.2	29.3	22.3	3.2
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		22.7			20.2		33.0	19.3	0.2	29.3	22.3	3.2
LOS		C			C		C	B	A	C	C	A
Approach Delay		22.7			20.2			19.4			20.6	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)		24			16		32	173	0	16	188	0
Queue Length 95th (ft)		66			53		78	#332	0	48	#357	26
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		558			438		236	1784	872	236	1635	811
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.19			0.19		0.39	0.56	0.07	0.20	0.64	0.15

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 58.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 20.2 Intersection LOS: C

Intersection Capacity Utilization 50.2% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	160	109	32	180	41	224	723	59	102	1025	390
Future Volume (vph)	77	160	109	32	180	41	224	723	59	102	1025	390
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	167	114	33	188	43	233	753	61	106	1068	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	361	0	0	221	43	233	753	61	106	1068	406
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	60.0	60.0		40.0	40.0	40.0	27.0	60.0	60.0	25.0	58.0	58.0
Total Split (%)	32.4%	32.4%		21.6%	21.6%	21.6%	14.6%	32.4%	32.4%	13.5%	31.4%	31.4%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		36.1			23.9	23.9	22.0	61.7	61.7	14.5	54.2	54.2
Actuated g/C Ratio		0.23			0.15	0.15	0.14	0.40	0.40	0.09	0.35	0.35
v/c Ratio		0.86			0.78	0.14	0.81	0.53	0.09	0.64	0.86	0.59
Control Delay		74.4			82.3	0.9	87.6	40.5	9.0	87.5	56.2	24.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		74.4			82.3	0.9	87.6	40.5	9.0	87.5	56.2	24.8
LOS		E			F	A	F	D	A	F	E	C
Approach Delay		74.4			69.1			49.2			50.3	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)		339			216	0	229	301	0	104	525	161
Queue Length 95th (ft)		501			344	0	#456	494	37	193	#842	342
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		649			430	436	295	1413	669	238	1241	691
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.56			0.51	0.10	0.79	0.53	0.09	0.45	0.86	0.59

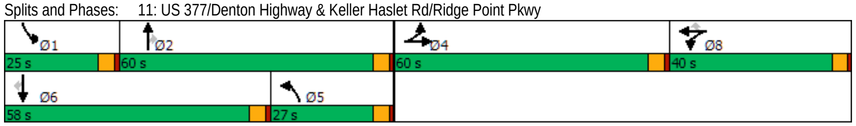
Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 154.4
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 54.1 Intersection LOS: D

2010 HCM Intersection Capacity Analysis 2025 Background
11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy Timing Plan: PM

Intersection Capacity Utilization 86.3% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	97	73	0	0	2
Future Vol, veh/h	3	97	73	0	0	2
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	3	105	79	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	79	0	-	0	190	79
Stage 1	-	-	-	-	79	-
Stage 2	-	-	-	-	111	-
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	1519	-	-	-	799	981
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1519	-	-	-	797	981
Mov Cap-2 Maneuver	-	-	-	-	797	-
Stage 1	-	-	-	-	942	-
Stage 2	-	-	-	-	914	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1519	-	-	-	981
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	92	70	0	0	3
Future Vol, veh/h	4	92	70	0	0	3
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	4	100	76	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	76	0	-	0	184	76
Stage 1	-	-	-	-	76	-
Stage 2	-	-	-	-	108	-
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	1523	-	-	-	805	985
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1523	-	-	-	803	985
Mov Cap-2 Maneuver	-	-	-	-	803	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1523	-	-	-	985
HCM Lane V/C Ratio	0.003	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	88	67	0	0	2
Future Vol, veh/h	4	88	67	0	0	2
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	4	96	73	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	73	0	-	0	177	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	104	-
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	-	-	-	813	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	920	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	811	989
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	920	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	989
HCM Lane V/C Ratio	0.003	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1014	0	0	1184
Future Vol, veh/h	0	0	1014	0	0	1184
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	-	150	-	-
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	0	1102	0	0	1287

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	551	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	478	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	478	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	11	1006	7	18	1148
Future Vol, veh/h	36	11	1006	7	18	1148
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	0	-	150	-	-
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	39	12	1093	8	20	1248

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1757	547	0	0	1101	0
Stage 1	1093	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	76	481	-	-	630	-
Stage 1	283	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	68	481	-	-	630	-
Mov Cap-2 Maneuver	68	-	-	-	-	-
Stage 1	283	-	-	-	-	-
Stage 2	425	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	89.9	0	0.7
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	68	481	630	-
HCM Lane V/C Ratio	-	-	0.575	0.025	0.031	-
HCM Control Delay (s)	-	-	113.5	12.7	10.9	0.5
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	2.4	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	16	991	26	0	1166
Future Vol, veh/h	0	16	991	26	0	1166
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	-	150	-	-
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	17	1077	28	0	1267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	539	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	487	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	487	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	487	-
HCM Lane V/C Ratio	-	-	0.036	-
HCM Control Delay (s)	-	-	12.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	13	993	15	0	1166
Future Vol, veh/h	0	13	993	15	0	1166
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	-	150	-	-
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	14	1079	16	0	1267

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	540	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	486	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	486	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	486	-
HCM Lane V/C Ratio	-	-	0.029	-
HCM Control Delay (s)	-	-	12.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	283	37	0	253	0	2
Future Vol, veh/h	283	37	0	253	0	2
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	308	40	0	275	0	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	328
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	713
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	713
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	713	-	-	-
HCM Lane V/C Ratio	0.003	-	-	-
HCM Control Delay (s)	10.1	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	259	26	6	233	20	2
Future Vol, veh/h	259	26	6	233	20	2
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	282	28	7	253	22	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	437	296
Stage 1	-	-	-	-	296	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1249	-	562	743
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1249	-	558	743
Mov Cap-2 Maneuver	-	-	-	-	558	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	866	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	571	-	-	1249	-
HCM Lane V/C Ratio	0.042	-	-	0.005	-
HCM Control Delay (s)	11.6	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

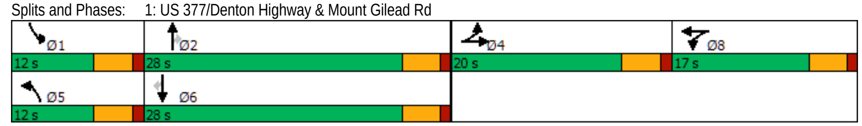
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	5	84	63	3	42	34	951	47	60	680	61
Future Volume (vph)	117	5	84	63	3	42	34	951	47	60	680	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	5	91	68	3	46	37	1034	51	65	739	66
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	223	0	0	117	0	37	1034	51	65	739	66
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	20.0	20.0		17.0	17.0		12.0	28.0	28.0	12.0	28.0	28.0
Total Split (%)	26.0%	26.0%		22.1%	22.1%		15.6%	36.4%	36.4%	15.6%	36.4%	36.4%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		12.0			8.7		6.8	26.8	26.8	7.0	29.0	29.0
Actuated g/C Ratio		0.18			0.13		0.10	0.41	0.41	0.11	0.45	0.45
v/c Ratio		0.64			0.45		0.20	0.71	0.07	0.34	0.47	0.08
Control Delay		30.7			27.0		33.7	24.6	0.2	36.0	17.8	0.2
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		30.7			27.0		33.7	24.6	0.2	36.0	17.8	0.2
LOS		C			C		C	C	A	D	B	A
Approach Delay		30.7			27.0			23.8			17.8	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		74			33		15	220	0	27	99	0
Queue Length 95th (ft)		150			81		44	#382	0	67	222	0
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		452			370		211	1454	738	211	1574	786
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.49			0.32		0.18	0.71	0.07	0.31	0.47	0.08

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 65.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 22.4 Intersection LOS: C

Intersection Capacity Utilization 55.9% 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: 1: US 377/Denton Highway & Mount Gilead Rd



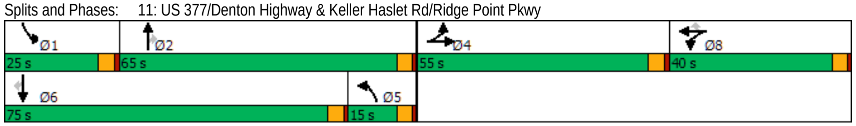
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	223	96	51	133	63	80	987	45	138	608	78
Future Volume (vph)	158	223	96	51	133	63	80	987	45	138	608	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	170	240	103	55	143	68	86	1061	48	148	654	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	513	0	0	198	68	86	1061	48	148	654	84
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	55.0	55.0		40.0	40.0	40.0	15.0	65.0	65.0	25.0	75.0	75.0
Total Split (%)	29.7%	29.7%		21.6%	21.6%	21.6%	8.1%	35.1%	35.1%	13.5%	40.5%	40.5%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		50.6			23.8	23.8	10.2	62.5	62.5	18.3	70.6	70.6
Actuated g/C Ratio		0.29			0.14	0.14	0.06	0.36	0.36	0.11	0.41	0.41
v/c Ratio		0.98			0.79	0.23	0.74	0.83	0.08	0.80	0.45	0.12
Control Delay		92.8			93.5	6.9	113.6	58.1	5.0	104.3	39.2	7.2
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		92.8			93.5	6.9	113.6	58.1	5.0	104.3	39.2	7.2
LOS		F			F	A	F	E	A	F	D	A
Approach Delay		92.8			71.3			60.0			47.1	
Approach LOS		F			E			E			D	
Queue Length 50th (ft)		576			221	0	98	590	0	165	283	2
Queue Length 95th (ft)		#890			317	27	#201	737	22	#281	371	42
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		525			377	395	121	1276	610	209	1442	693
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.98			0.53	0.17	0.71	0.83	0.08	0.71	0.45	0.12

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 173.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 62.9 Intersection LOS: E

Intersection Capacity Utilization 86.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	104	88	0	0	21
Future Vol, veh/h	7	104	88	0	0	21
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	8	113	96	0	0	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	96	0	-	0	225	96
Stage 1	-	-	-	-	96	-
Stage 2	-	-	-	-	129	-
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	1498	-	-	-	763	960
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	897	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	758	960
Mov Cap-2 Maneuver	-	-	-	-	758	-
Stage 1	-	-	-	-	922	-
Stage 2	-	-	-	-	897	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	960
HCM Lane V/C Ratio	0.005	-	-	-	0.024
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	101	86	0	0	3
Future Vol, veh/h	2	101	86	0	0	3
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	110	93	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	93	0	-	0	207	93
Stage 1	-	-	-	-	93	-
Stage 2	-	-	-	-	114	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1501	-	-	-	781	964
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1501	-	-	-	780	964
Mov Cap-2 Maneuver	-	-	-	-	780	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	911	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1501	-	-	-	964
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	97	83	0	0	3
Future Vol, veh/h	5	97	83	0	0	3
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	5	105	90	0	0	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	90	0	-	0	205	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	115	-
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	1505	-	-	-	783	968
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	910	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1505	-	-	-	780	968
Mov Cap-2 Maneuver	-	-	-	-	780	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	910	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	968
HCM Lane V/C Ratio	0.004	-	-	-	0.003
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	1081	12	0	707
Future Vol, veh/h	0	10	1081	12	0	707
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	-	150	-	-
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	11	1175	13	0	768

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	588	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	452	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	452	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	452	-
HCM Lane V/C Ratio	-	-	0.024	-
HCM Control Delay (s)	-	-	13.2	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection						
Int Delay, s/veh	9.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	77	33	1055	36	48	707
Future Vol, veh/h	77	33	1055	36	48	707
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	0	-	150	-	-
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	84	36	1147	39	52	768

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1635	574	0	0	1186	0
Stage 1	1147	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	92	462	-	-	585	-
Stage 1	265	-	-	-	-	-
Stage 2	583	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 78	462	-	-	585	-
Mov Cap-2 Maneuver	~ 78	-	-	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	156.5	0	1.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	78	462	585	-
HCM Lane V/C Ratio	-	-	1.073	0.078	0.089	-
HCM Control Delay (s)	-	-	217.8	13.4	11.8	0.8
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	6	0.3	0.3	-

Notes

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

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	28	1070	19	0	755
Future Vol, veh/h	0	28	1070	19	0	755
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	-	150	-	-
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	30	1163	21	0	821

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	582	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	456	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	456	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	456	-
HCM Lane V/C Ratio	-	-	0.067	-
HCM Control Delay (s)	-	-	13.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

10: US 377/Denton Highway & Driveway 3

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	31	1081	17	0	755
Future Vol, veh/h	0	31	1081	17	0	755
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	-	150	-	-
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	34	1175	18	0	821

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	588	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	452	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	452	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	452	-
HCM Lane V/C Ratio	-	-	0.075	-
HCM Control Delay (s)	-	-	13.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

12: Driveway 4 & Ridge Point Pkwy

Intersection						
Int Delay, s/veh	0.1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	356	50	0	247	0	5
Future Vol, veh/h	356	50	0	247	0	5
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	387	54	0	268	0	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	414
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	637
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	637
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	637	-	-	-
HCM Lane V/C Ratio	0.009	-	-	-
HCM Control Delay (s)	10.7	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	325	36	7	209	39	5
Future Vol, veh/h	325	36	7	209	39	5
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	353	39	8	227	42	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	392	0	503	373
Stage 1	-	-	-	-	373	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1165	-	513	672
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	883	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1165	-	509	672
Mov Cap-2 Maneuver	-	-	-	-	509	-
Stage 1	-	-	-	-	696	-
Stage 2	-	-	-	-	876	-

Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		12.6	
HCM LOS					B	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	523	-	-	1165	-
HCM Lane V/C Ratio	0.091	-	-	0.007	-
HCM Control Delay (s)	12.6	-	-	8.1	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

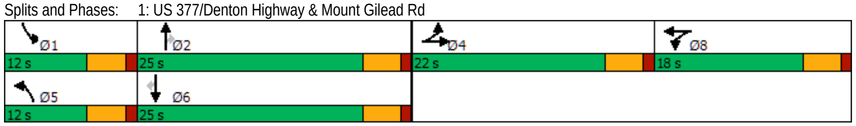
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	3	34	50	5	37	84	965	56	48	988	117
Future Volume (vph)	62	3	34	50	5	37	84	965	56	48	988	117
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	3	37	54	5	40	91	1049	61	52	1074	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	107	0	0	99	0	91	1049	61	52	1074	127
Turn Type	Split	NA		Split	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases									2			6
Detector Phase	4	4		8	8		5	2	2	1	6	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)	22.5	22.5		22.5	22.5		9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	22.0	22.0		18.0	18.0		12.0	25.0	25.0	12.0	25.0	25.0
Total Split (%)	28.6%	28.6%		23.4%	23.4%		15.6%	32.5%	32.5%	15.6%	32.5%	32.5%
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
Total Lost Time (s)		4.5			4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None		None	Max	Max	None	Max	Max
Act Effct Green (s)		8.3			7.9		7.2	29.4	29.4	6.9	27.0	27.0
Actuated g/C Ratio		0.14			0.13		0.12	0.50	0.50	0.12	0.46	0.46
v/c Ratio		0.40			0.38		0.42	0.59	0.07	0.25	0.66	0.16
Control Delay		23.5			21.8		33.6	20.7	0.2	30.1	23.4	3.4
Queue Delay		0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		23.5			21.8		33.6	20.7	0.2	30.1	23.4	3.4
LOS		C			C		C	C	A	C	C	A
Approach Delay		23.5			21.8			20.7			21.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		26			21		32	190	0	18	198	0
Queue Length 95th (ft)		69			62		80	#366	0	51	#378	27
Internal Link Dist (ft)		140			409			743			739	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)		553			436		233	1769	866	233	1623	807
Starvation Cap Reductn		0			0		0	0	0	0	0	0
Spillback Cap Reductn		0			0		0	0	0	0	0	0
Storage Cap Reductn		0			0		0	0	0	0	0	0
Reduced v/c Ratio		0.19			0.23		0.39	0.59	0.07	0.22	0.66	0.16

Intersection Summary

Cycle Length: 77
Actuated Cycle Length: 58.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 21.3 Intersection LOS: C

Intersection Capacity Utilization 50.6% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Mount Gilead Rd



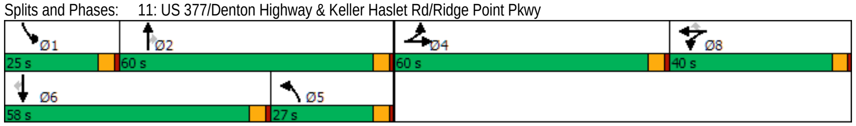
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	172	117	36	187	44	230	756	60	128	1052	390
Future Volume (vph)	77	172	117	36	187	44	230	756	60	128	1052	390
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	179	122	38	195	46	240	788	63	133	1096	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	381	0	0	233	46	240	788	63	133	1096	406
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	60.0	60.0		40.0	40.0	40.0	27.0	60.0	60.0	25.0	58.0	58.0
Total Split (%)	32.4%	32.4%		21.6%	21.6%	21.6%	14.6%	32.4%	32.4%	13.5%	31.4%	31.4%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		38.7			25.2	25.2	22.8	60.4	60.4	16.5	54.1	54.1
Actuated g/C Ratio		0.24			0.16	0.16	0.14	0.38	0.38	0.10	0.34	0.34
v/c Ratio		0.87			0.80	0.14	0.84	0.59	0.10	0.73	0.91	0.60
Control Delay		76.1			85.6	0.9	91.4	45.0	9.6	93.7	62.5	27.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		76.1			85.6	0.9	91.4	45.0	9.6	93.7	62.5	27.0
LOS		E			F	A	F	D	A	F	E	C
Approach Delay		76.1			71.7			53.2			56.2	
Approach LOS		E			E			D			E	
Queue Length 50th (ft)		368			234	0	244	344	0	134	569	174
Queue Length 95th (ft)		535			371	0	#490	539	41	241	#913	360
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		631			417	425	287	1344	640	231	1205	673
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.60			0.56	0.11	0.84	0.59	0.10	0.58	0.91	0.60

Intersection Summary

Cycle Length: 185
Actuated Cycle Length: 158.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 58.7 Intersection LOS: E

Intersection Capacity Utilization 89.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Intersection						
Int Delay, s/veh	1					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	99	76	0	0	16
Future Vol, veh/h	8	99	76	0	0	16
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	9	108	83	0	0	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	83	0	-	0	209	83
Stage 1	-	-	-	-	83	-
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	1514	-	-	-	779	976
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	900	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1514	-	-	-	774	976
Mov Cap-2 Maneuver	-	-	-	-	774	-
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1514	-	-	-	976
HCM Lane V/C Ratio	0.006	-	-	-	0.018
HCM Control Delay (s)	7.4	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.2					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	96	74	0	0	2
Future Vol, veh/h	3	96	74	0	0	2
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	3	104	80	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	80	0	-	0	190	80
Stage 1	-	-	-	-	80	-
Stage 2	-	-	-	-	110	-
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	1518	-	-	-	799	980
Stage 1	-	-	-	-	943	-
Stage 2	-	-	-	-	915	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1518	-	-	-	797	980
Mov Cap-2 Maneuver	-	-	-	-	797	-
Stage 1	-	-	-	-	941	-
Stage 2	-	-	-	-	915	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1518	-	-	-	980
HCM Lane V/C Ratio	0.002	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	90	72	0	0	2
Future Vol, veh/h	6	90	72	0	0	2
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	98	78	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	78	0	-	0	190	78
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	112	-
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	1520	-	-	-	799	983
Stage 1	-	-	-	-	945	-
Stage 2	-	-	-	-	913	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1520	-	-	-	795	983
Mov Cap-2 Maneuver	-	-	-	-	795	-
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1520	-	-	-	983
HCM Lane V/C Ratio	0.004	-	-	-	0.002
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	8	1051	14	0	1150
Future Vol, veh/h	0	8	1051	14	0	1150
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	-	150	-	-
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	9	1142	15	0	1250

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	571	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	464	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	464	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	464	-
HCM Lane V/C Ratio	-	-	0.019	-
HCM Control Delay (s)	-	-	12.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	12.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	60	26	1016	42	56	1150
Future Vol, veh/h	60	26	1016	42	56	1150
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	0	-	150	-	-
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	65	28	1104	46	61	1250

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1851	552	0	0	1150	0
Stage 1	1104	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	66	477	-	-	603	-
Stage 1	279	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 44	477	-	-	603	-
Mov Cap-2 Maneuver	~ 44	-	-	-	-	-
Stage 1	279	-	-	-	-	-
Stage 2	287	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 319.9	0	2.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	44	477	603	-
HCM Lane V/C Ratio	-	-	1.482	0.059	0.101	-
HCM Control Delay (s)	-	-	$ 452.9	13	11.6	1.8
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	6.4	0.2	0.3	-

Notes

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

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	1020	23	0	1206
Future Vol, veh/h	0	22	1020	23	0	1206
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	-	150	-	-
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	24	1109	25	0	1311

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	555	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	475	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	475	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	475	-
HCM Lane V/C Ratio	-	-	0.05	-
HCM Control Delay (s)	-	-	13	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	24	1022	20	0	1206
Future Vol, veh/h	0	24	1022	20	0	1206
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	-	150	-	-
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	26	1111	22	0	1311

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	556	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	475	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	475	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	475	-
HCM Lane V/C Ratio	-	-	0.055	-
HCM Control Delay (s)	-	-	13	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	300	59	0	267	0	4
Future Vol, veh/h	300	59	0	267	0	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	326	64	0	290	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	358
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.319
Pot Cap-1 Maneuver	-	-	0	-	0	685
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	685
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	685	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-
HCM Control Delay (s)	10.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	262	42	8	238	30	4
Future Vol, veh/h	262	42	8	238	30	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	285	46	9	259	33	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	331	0	456	308
Stage 1	-	-	-	-	308	-
Stage 2	-	-	-	-	148	-
Critical Hdwy	-	-	4.13	-	6.63	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.83	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1227	-	547	731
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1227	-	542	731
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	857	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	1227	-
HCM Lane V/C Ratio	0.066	-	-	0.007	-
HCM Control Delay (s)	11.9	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

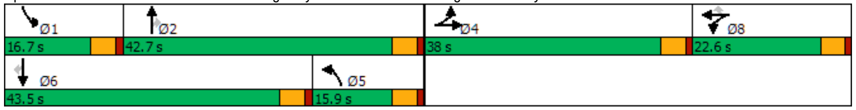
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	223	96	51	133	63	80	987	45	138	608	78
Future Volume (vph)	158	223	96	51	133	63	80	987	45	138	608	78
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	170	240	103	55	143	68	86	1061	48	148	654	84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	513	0	0	198	68	86	1061	48	148	654	84
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	38.0	38.0		22.6	22.6	22.6	15.9	42.7	42.7	16.7	43.5	43.5
Total Split (%)	31.7%	31.7%		18.8%	18.8%	18.8%	13.3%	35.6%	35.6%	13.9%	36.3%	36.3%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		33.5			16.3	16.3	10.4	38.2	38.2	11.9	42.0	42.0
Actuated g/C Ratio		0.28			0.14	0.14	0.09	0.32	0.32	0.10	0.36	0.36
v/c Ratio		1.00			0.78	0.20	0.49	0.93	0.08	0.84	0.52	0.13
Control Delay		81.7			70.6	1.4	61.1	52.9	0.5	87.9	33.2	5.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		81.7			70.6	1.4	61.1	52.9	0.5	87.9	33.2	5.1
LOS		F			E	A	E	D	A	F	C	A
Approach Delay		81.7			52.9			51.4			39.6	
Approach LOS		F			D			D			D	
Queue Length 50th (ft)		~404			148	0	64	420	0	114	220	0
Queue Length 95th (ft)		#631			#249	0	118	#556	2	#229	281	30
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		513			282	358	194	1147	577	182	1262	625
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		1.00			0.70	0.19	0.44	0.93	0.08	0.81	0.52	0.13

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 117.9
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 53.3 Intersection LOS: D

Intersection Capacity Utilization 86.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



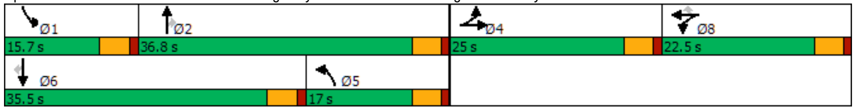
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	172	117	36	187	44	230	756	60	128	1052	390
Future Volume (vph)	77	172	117	36	187	44	230	756	60	128	1052	390
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	80	179	122	38	195	46	240	788	63	133	1096	406
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	381	0	0	233	46	240	788	63	133	1096	406
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8			2			6
Detector Phase	4	4		8	8	8	5	2	2	1	6	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	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	22.5
Total Split (s)	25.0	25.0		22.5	22.5	22.5	17.0	36.8	36.8	15.7	35.5	35.5
Total Split (%)	25.0%	25.0%		22.5%	22.5%	22.5%	17.0%	36.8%	36.8%	15.7%	35.5%	35.5%
Yellow Time (s)	3.5	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	1.0
Lost Time Adjust (s)		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
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)		20.5			16.0	16.0	12.5	33.1	33.1	10.5	31.0	31.0
Actuated g/C Ratio		0.21			0.16	0.16	0.13	0.34	0.34	0.11	0.32	0.32
v/c Ratio		0.99			0.77	0.12	0.94	0.66	0.10	0.70	0.98	0.53
Control Delay		81.7			57.2	0.6	87.2	31.5	1.0	63.4	56.8	6.2
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		81.7			57.2	0.6	87.2	31.5	1.0	63.4	56.8	6.2
LOS		F			E	A	F	C	A	E	E	A
Approach Delay		81.7			47.8			42.0			44.8	
Approach LOS		F			D			D			D	
Queue Length 50th (ft)		~235			141	0	154	228	0	83	365	8
Queue Length 95th (ft)		#429			#240	0	#305	296	5	#164	#514	79
Internal Link Dist (ft)		1078			111			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		385			339	424	255	1193	609	202	1119	766
Starvation Cap Reductn		0			0	0	0	0	0	0	0	0
Spillback Cap Reductn		0			0	0	0	0	0	0	0	0
Storage Cap Reductn		0			0	0	0	0	0	0	0	0
Reduced v/c Ratio		0.99			0.69	0.11	0.94	0.66	0.10	0.66	0.98	0.53

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 98.1
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 48.3 Intersection LOS: D

Intersection Capacity Utilization 89.1% 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: 11: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



Appendix E. TxDOT/City's Driveway Spacing and Deceleration Lane Criteria

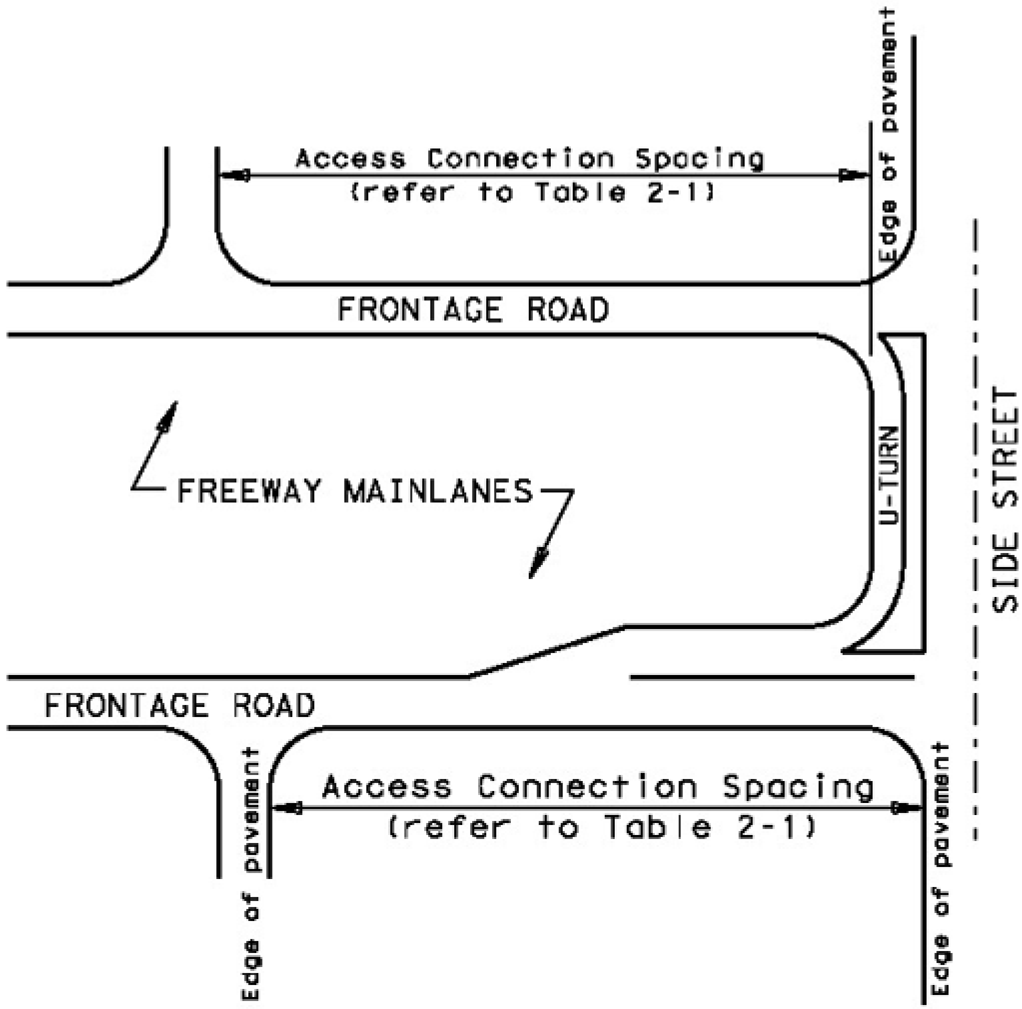


Figure 2-3. Frontage Road U-Turn Spacing Diagram

Table 2-1: Frontage Road Connection Spacing Criteria

Minimum Connection Spacing Criteria for Frontage Roads (1)(2)		
	Minimum Connection Spacing (feet)	
Posted Speed (mph)	**One-Way Frontage Roads**	**Two-Way Frontage Roads**
≤ 30	200	200
35	250	300
40	305	360
45	360	435
≥ 50	425	510

(1) Distances are for passenger cars on level grade. These distances may be adjusted for downgrades and/or significant truck traffic. Where present or projected traffic operations indicate specific needs, consideration may be given to intersection sight distance and operational gap acceptance measurement adjustments.

(2) When these values are not attainable, refer to the variance process as described in Chapter 2, Section 5.

Other State System Highways

This section applies to all state highway system routes that are not new highways on new alignments, freeway mainlanes, or frontage roads.

Table 2-2 provides minimum connection spacing criteria for other state system highways. However, a lesser connection spacing than set forth in this document may be allowed without variance in the situations described in Chapter 2, Section 5.

Table 2-2 does not apply to rural highways outside of metropolitan planning organization boundaries where there is little, if any, potential for development with current ADT volumes below 2000. For those highways, access location and design will be evaluated based on safety and traffic operation considerations. Such considerations may include traffic volumes, posted speed, turning volumes, presence or absence of shoulders, and roadway geometrics.

Table 2-2: Other State Highways Connection Spacing Criteria

Other State Highways Minimum Connection Spacing (1)(2)(3)	
Posted Speed (mph)	**Distance (ft)**
≤ 30	200
35	250
40	305
45	360
≥ 50	425
(1) Distances are for passenger cars on level grade. These distances may be adjusted for downgrades and/or significant truck traffic. Where present or projected traffic operations indicate specific needs, consideration may be given to intersection sight distance and operational gap acceptance measurement adjustments. (2) When these values are not attainable, refer to the variance process as described in Chapter 2, Section 5. (3) Access spacing values shown in this table do not apply to rural highways outside of metropolitan planning organization boundaries where there is little, if any, potential for development with current ADT levels below 2000. Access connection spacing below the values shown in this table may be approved based on safety and operational considerations as determined by TxDOT.	

Corner clearance refers to the separation of access connections from roadway intersections. Table 2-2 provides minimum corner clearance criteria.

Where adequate access connection spacing cannot be achieved, the permitting authority may allow for a lesser spacing when shared access is established with an abutting property. Where no other alternatives exist, construction of an access connection may be allowed along the property line farthest from the intersection. To provide reasonable access under these conditions but also provide the safest operation, consideration should be given to designing the driveway connection to allow only the right-in turning movement or only the right-in/right out turning movements if feasible.

Auxiliary Lanes

This subsection describes the basic use and functional criteria associated with auxiliary lanes. Auxiliary lanes consist of left-turn and right-turn movements, deceleration, acceleration, and their associated transitions and storage requirements. Left-turn movements may pose challenges at driveways and street intersections. They may increase conflicts, delays, and crashes and often complicate traffic signal timing. These problems are especially acute at major highway intersections where heavy left-turn movements take place, but also occur where left-turn movements enter or leave driveways serving adjacent land development. As with left-turn movements, right-turn movements pose problems at both driveways and street intersections. Right-turn movements increase conflicts, delays, and crashes, particularly where a speed differential of 10 mph or more exists between the speed of through traffic and the vehicles that are turning right.

Table 2-3 presents thresholds for auxiliary lanes. These thresholds represent examples of where left turn and right turn lanes should be considered. Refer to the TxDOT *Roadway Design Manual*, Chapter 3, for proper acceleration and deceleration lengths.

Table 2-3: Auxiliary Lane Thresholds

Median Type	**Left Turn to or from Property**		**Right Turn to or from Property (5)**	
	Acceleration	**Deceleration**	**Acceleration**	**Deceleration**
Non-Traversable (Raised Median)	(2)	All	Right turn egress > 200 vph (4)	◆ > 45 mph where right turn volume is > 50 vph (3) ◆ ≤ 45 where right turn volume is > 60 vph (3)
Traversable (Undivided Road)	(2)	(1)	Same as above	Same as Above

(1) Refer to Table 3-11, TxDOT *Roadway Design Manual*, for alternative left-turn-bay operational considerations.

(2) A left-turn acceleration lane may be required if it would provide a benefit to the safety and operation of the roadway. A left-turn acceleration lane would interfere with the left-turn ingress movements to any other access connection.

(3) Additional right-turn considerations:

- Conditions for providing an exclusive right-turn lane when the right-turn traffic volume projections are less than indicated in Table 2-3:
  - High crash experience
  - Heavier than normal peak flow movements on the main roadway
  - Large volume of truck traffic
  - Highways where sight distance is limited
- Conditions for NOT requiring a right-turn lane where right-turn volumes are more than indicated in Table 2-3:
  - Dense or built-out corridor where space is limited
  - Where queues of stopped vehicles would block the access to the right turn lane
  - Where sufficient length of property width is not available for the appropriate design

(4) The acceleration lane should not interfere with any downstream access connection.

- The distance from the end of the acceleration lane taper to the next unsignalized downstream access connection should be equal to or greater than the distances found in Table 2-2.
- Additionally, if the next access connection is signalized, the distance from the end of the acceleration lane taper to the back of the 90th percentile queue should be greater than or equal to the distances found Table 2-2.

(5) Continuous right-turn lanes can provide mobility benefits both for through movements and for the turning vehicles.[a] Access connections within a continuous right turn lane should meet the spacing requirements found in Table 2-2. However, when combined with crossing left in movements, a continuous right-turn lane can introduce additional operational conflicts.

Table 3-11: Guide for Left-Turn Lanes on Two-Lane Highways

Opposing Volume (vph)	**Advancing Volume (vph)**			
-	5 % Left Turns	10 % Left Turns	20 % Left Turns	30 % Left Turns
40 mph [60 km/h] Design Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph [80 km/h] Design Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60 mph [100 km/h] Design Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

Right-Turn Deceleration Lanes. Shoulders 10 ft [3.0 m] wide alongside the traffic lanes generally provide sufficient area for acceleration or deceleration of right-turning vehicles. Where the right turn lane is being constructed in addition to the through lanes and shoulders, the minimum right turn lane width is 10 ft [3.0 m] with a 2 ft [0.6 m] surfaced shoulder. Where speed change lanes are used, they should be provided symmetrically along both sides of the highway for both directions of traffic, thus presenting drivers with a balanced section.

A deceleration-acceleration lane on one side of a two-lane highway, such as at a “tee” intersection, results in the appearance of a three-lane highway and may result in driver confusion. In this regard, right-turn speed change lanes are generally inappropriate for “tee” intersection design except where a four lane (2 through, 1 median left turn, 1 right acceleration/deceleration) section is provided.

Section 5.07 - Driveways

All driveways in the City of Keller shall be constructed with a permit from the Public Works Department. A permit will be granted by the City Engineer only after due consideration of safety, traffic flow, and conflicts with existing and proposed facilities. In addition to the above, access to State controlled highways shall require State and City permits.

A. Residential Driveway Approaches

1. Residential driveway approaches shall follow these guidelines:

   Residential driveways shall be permitted onto residential streets only, unless an access from a residential street is not available. Driveways (either individual or the entry drive of a subdivision) shall be located a minimum of seventy-five feet (75’) from any intersection of residential streets and a minimum of two hundred fifty feet (250’) from any intersection of arterial or collector streets. This may be waived by the DRC on a case-by-case basis for reasons of hardship not created by the applicant, nor solely financial in nature. Driveways shall not be located within the entry drive of a subdivision.

2. Width shall be twelve feet (12’) minimum and twenty-four feet (24’) maximum, plus a five-foot (5’) radii (if access is onto street) or a five-foot (5’) flare (if access is onto alley).

3. The radius or flare point at the street or alley of any driveway shall not extend beyond the intersection of the side property line(s) with the street or alley when projected.

4. All residential driveway approaches shall be constructed in accordance with the City Standard Driveway Construction Details and be maintained by the property owners or property associations.

5. Maximum slope of a residential driveway shall not exceed eight percent (8%) up to the right-of-way line. Sidewalk cross slopes shall not exceed two percent (2%) when crossing a driveway.

B. Non-Residential and Multi-Family Driveway Approaches

   Non-Residential and Multi-Family driveway approaches shall follow these guidelines:

1. Required widths:

   a. One-Way Driveway: Fifteen feet (15’) plus ten-foot (10’) radii.

   b. Two-Way Driveway: Thirty feet (30’) plus fifteen-foot (15’) radii.

   c. A maximum width of forty-five feet (45’) plus twenty-foot (20’) radii will be allowed where significant traffic is projected for two-way access as determined by the Director of Public Works.

2. Maximum slope of a commercial driveway shall not exceed six percent (6%) up to the right-of-way line and ten percent (10%) beyond the right-of-way line on a case-by-case basis (as determined by the Fire Department), except in areas required for accessibility purposes. Sidewalk cross slopes shall not exceed two percent (2%) when crossing a driveway.

3. The minimum spacing (measured at inside edge of driveway to inside edge of driveway at the right-of-way line) between driveways along:

   a. Principal arterial streets (A6D) (A4D) (C4U) shall be two hundred fifty feet (250’) on the same platted lot, and two hundred feet (200’) between adjacent lots. Joint access shall be strongly considered for adjacent properties. All properties shall extend access points to the adjacent property for future connection.

b. Collector streets (C2U) (C3U) shall be one hundred fifty feet (150’).

c. Driveways shall be located a minimum of two hundred fifty feet (250’) from arterial street intersections and two hundred feet (200’) from collector street intersections.

4. All two-way driveways shall intersect at ninety degrees (90°).

5. Parking lots shall be designed with adequate internal circulation. There shall be a minimum of sixty feet (60’) driveway (throat length) between the street and the internal traffic lane at driveway locations. Adequate site distances and on-site maneuvering shall be available from every driveway. The parking lot and driveways shall be so designed to allow vehicles to exit the street in a forward manner, to park, load and unload totally within the site, and to enter onto the street in a forward manner. In no instance shall vehicles use street right-of-way to travel in reverse unless approved by a Planned Development or in the Old Town/Town Center Zoning Districts.

6. All non-residential driveway approaches shall be constructed in accordance with the City Standard Driveway Construction Details and be maintained by the property owners or property associations.

7. All driveways for non-residential uses shall have a minimum ten-foot (10’) wide band of brick/concrete pavers or stamped concrete at the entry drives and crosswalks. The color and materials shall be consistent with the existing or proposed pattern of the non-residential use(s). The band of brick/concrete pavers or stamped concrete shall be centered with the sidewalk.

C. Modifications

Modifications or alternatives to the standards in this section may be considered by the Director of Public Works. If he/she determines that the requested changes will not create a serious detriment to the safety or operation of traffic on the street or roadway, he/she may forward to the City Council for final approval. The Director of Public Works may require that the applicant submit a traffic analysis if it is determined that such an analysis is necessary in order to render a decision on the request.

D. Right-of-Way Work Permit

No construction, grading, excavation, repair or reconstruction of any street, curb or gutter, or any sidewalk or driveway between the street and the property line shall be commenced without first obtaining a Right-of-Way Work Permit from the Director of Public Works. A permit is not required for the utility companies in case of an emergency to restore service or to perform minor repair and maintenance operations.