Project: Center Stage Mixed Use Development
Document: Traffic Impact Analysis (dated November 10, 2020)
Reviewer: Alonzo Liñán, Public Works Director
Review Date: 11.20.2020

This memo confirms that the comments submitted regarding the July 30, 2020 TIA have been addressed such that a more detailed review of the study can be undertaken.

While there is agreement with the trip distribution, the trip generation manual assumptions, the traffic growth rates, the internal trip capture rates, and that a driveway spacing variance will be required from the state for driveways #1 and #4, the following are items of concern that appear to minimize the mitigating traffic improvements required of this development.

General Comments:

1. The report narrative needs to be reviewed for quality control and edited as need so that all references to the 2030 Horizon year is consistent (page 2, second bullet of the driveway findings references 2029).
   Response: The report has been reviewed for quality control. The horizon year is updated in the report.
2. The final pages of the appendix show sheets for the Milestone Church however, there is no reference to these sheets in the study. Was this intentional or were these sheets inadvertently included in this report?
   Response: Page 9- "Projected background Traffic Volumes" explained about the Milestone Church site generated traffic that are added to this study. However, to avoid confusion, report was updated with the exhibit numbers (refer exhibits A13, A14, A15 & A16).
3. Exhibit 4B does not accurately reflect the recommendations from the Executive Study for driveway #2. Please confirm which is correct and make sure all others are corrected as needed.
   Response: The exhibit has been updated. A deceleration lane is proposed on US 377 at Driveway 2 and Driveway 3. DeShazo is supportive of providing these deceleration lanes to increase the capacity of the roadway. Even though, the volumes do not meet the requirements for a right turn lane, it is beneficial to have these deceleration lanes on US 377.

Study & Analysis:

1. An existing operational deficiency (Level of Service below C) does not exempt a developer from identifying mitigation of development related contributions (page 2, 3rd bullet of intersection findings).
2. **Response:** Agreed. All the required improvements to achieve a LOS C or better for the study intersections has been provided in the report and exhibits. The contribution of the future developments like Center Stage, Milestone Church Expansion on these improvements will be determined at a later stage.
3. Exhibit 2B shows that driveway #4 is a full median break while Exhibit 2A shows it to be a right-in/right-out. I saw no reference to this in the study but all traffic analysis appears to assume only driveway #3 is full median break. If driveway #4 is to be a full median break as well, then this analysis will have to be updated.
   Response: The additional option from the previous submittal of providing a full median opening at Driveway 4 is no longer being considered. This opening would be spaced less than 600 feet

from the adjacent intersections, and this spacing is not a preferred by TxDOT. The revised site plan is as shown in Exhibit 2, which shows the only median opening proposed is at Driveway 3.

4. Trip generation and the High Turnover/Sit-Down Restaurant. While the modification to the commercial AM/PM traffic contributions have been corrected to show activity in both time periods, the morning trip generation for this item has been excluded. In discussing this with the other department heads, we are not aware of any restricting language that requires this type of operation by a future user. As such, this traffic will have to be added to the analysis.
   Response: Agreed. The traffic now added in the analysis.
5. The traffic signal timing does show an overall improvement to intersection operations/overall delay, but we can't lose sight of the failing movements. For both the Ridge Point and the Mt Gilead signalized intersections, they both show E and F movement LOS's; well beyond LOS C.
   Response: Agreed. The failing movements at both the intersections have been examined. The SYNCHRO reports in Appendix D show the recommended timings and geometric changes to achieve a LOS C or D. The overall intersection is expected to operate at LOS C and all the individual movements are expected to operate at LOS D or better with the recommendations. LOS D is generally considered acceptable for individual movements.

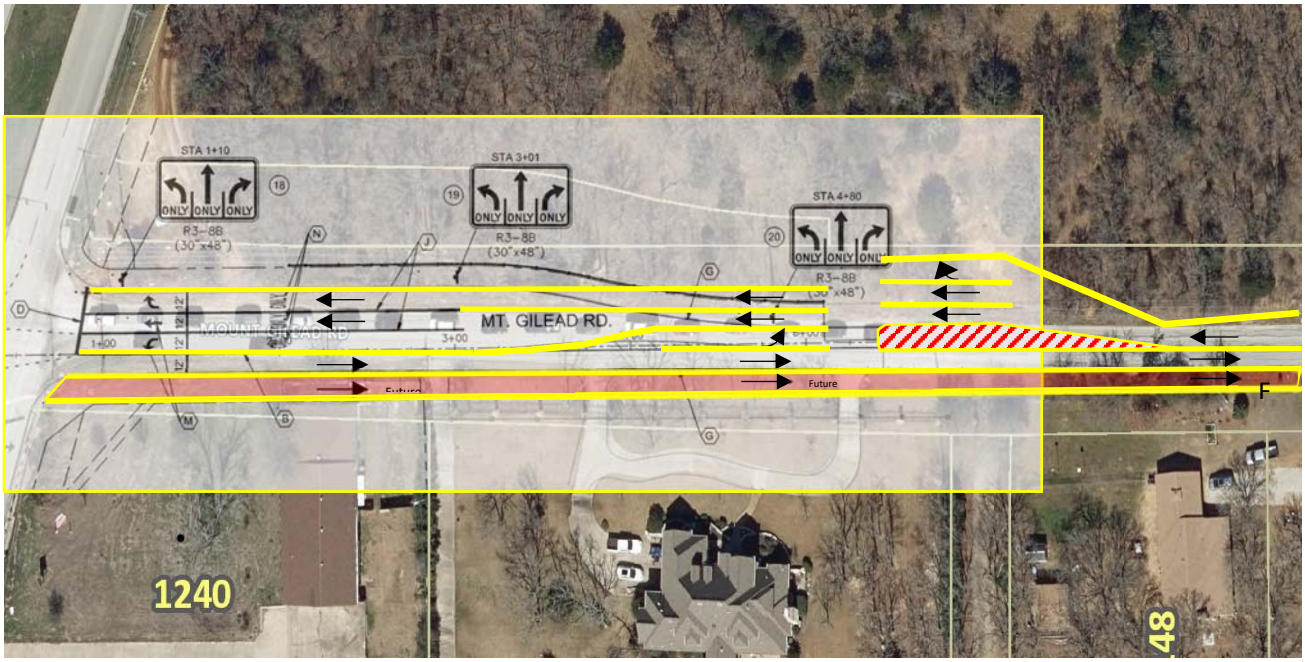
Conclusions & Recommendations:

1. Traffic signal retiming will have to be coordinated by the developer with TxDOT as the traffic signals are owned and operated by the state. (page 1, Executive Summary)
   Response: Agreed.
2. The link analysis shows that US377 will fall below the LOS C threshold in both directions by 2025 in the existing plus committed plus development traffic scenario (E+C+D), but there is no mitigating recommendation. Although this is state highway, consent and support from the state will be required to exclude this from the development improvement plan. (page 2, Executive Summary)
   Response: Agreed. The level of service of US 377 can be improved by increasing the capacity of the roadway. An additional lane will be required on both the directions to achieve a LOS C. The site is proposing to increase the capacity of the roadway in the NB direction by providing long deceleration lanes at the main driveways. It is our opinion that the traffic needs to be studied again future to determine the need for additional lanes.
3. The city disagrees with the recommendation to omit the right turn lane for Driveway #6 (Ridge Point Parkway). The narrative begins with "…meet[s the] City's requirement for installation of right turn deceleration lane…" but concludes with "…DeShazo does not recommend a right turn lane at this location.." based on the subjective consideration that there are "…low EB through volumes on Ridge Point Parkway…". (page 2, Executive Summary)
   Response: Agreed. Based on our discussion on Nov 23, 2020, we agree that providing the EB right turn lane and WB left turn lane is beneficial. Also, there is enough pavement available to restripe the roadway with these turn lanes. The recommended striping on Ridge Point Parkway is shown in Exhibit 5.
4. Driveway #6, the city also disagrees that a westbound left turn lane is not needed because "…left turn volumes…is very low…". (page 2, Executive Summary)
   Response: Same as #3 (Conclusion & Recommendations)
5. The city disagrees with the study omission of Ridge Point capacity improvements base a "…difference in volume to capacity ratio is very low…". (page 2, Executive Summary)
   Response: Same as #3 (Conclusion & Recommendations)

6. The city disagrees with the conclusion for Mt Gilead and for Driveway #5 that only an eastbound left turn lane is needed and that "…the developer is not responsible for the expansion of Mount Gilead as it is already operating at an unacceptable level of service…". (page 2, Executive Summary)
   Response: Agreed. Based on our discussion on Nov 23, 2020, we agree that providing the WB right turn lane and EB left turn lane is beneficial. Also, Mt Gilead needs to be widened to provide more capacity. Exhibit 6 shows the recommended changes to achieve a LOS C on Mt Gilead in future. The turn lanes as shown in Exhibit 6 will need to be constructed for safer movements of vehicles entering the site.

Possible Path forward for Detailed Site Plan presentation to the City Council on December 1st:

1. Driveway #6 (Ridge Point Parkway) is absent any capacity improvements, a left turn lane, and a right turn lane. It appears that there is sufficient pavement width to restripe the pavement such that an eastbound right turn lane can be accommodated, an east bound through lane, a west bound through lane and a westbound left turn lane. However, this will need to be confirmed in the field and if sufficient room does not exist, the city would still require the pursuit of these lane assignments by adjusting the curb.
   Response: Agreed. There is enough space to provide the turn lanes by restriping.
2. Driveway #5 and Mt Gilead roadway will need to reflect pavement additions that addresses the anticipated operational deficiencies. While an argument can be made for how the cost is divided up, unless we can agree that the conceptual image below is required to address anticipated operational conditions, I will be hard pressed to positively respond to a council question regarding if there is an adequate transportation system being planned for.
   Response: Agreed. The improvements as shown in the below figure are recommended for Mt Gilead to operate acceptably in future. However, these improvements are not needed when Phase 1 is planned to be constructed.



TRAFFIC IMPACT ANALYSIS FOR

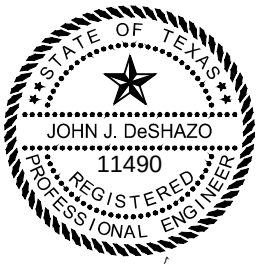
CENTER STAGE MIXED-USE DEVELOPMENT

IN CITY OF KELLER, TEXAS

DeShazo Project No. 20037

Prepared for:
Mr. AJ Glass
Realty Capital Management
9090 Lake Carolyn Parkway, Suite 150
Irving, Texas 75039

Prepared by:
DeShazo Group, Inc.
Texas Registered Engineering Firm F-3199
400 South Houston Street, Suite 150
Dallas, Texas 75202
214.748.6740



11/24/2020

REVISION

November 24, 2020

DeShazo Group

Traffic. Transportation Planning. Parking. Design.

Texas Registered Engineering Firm F-3199

Traffic Impact Analysis for

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

~ DeShazo Project No. 20037~

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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 on the northeast corner of the intersection of US 377/ Denton Highway and Mount Gilead Road.

This study is a revision of a previous TIA submitted by DeShazo in December 2019. The development plan and the driveway locations of the development have changed since then. The development is expected to be completed in two phases. The first phase consists of 475 multifamily units and 24,000 SF of retail space and is expected to be built by 2023. The remaining development program is expected to be fully built by 2025. This TIA analyzes the traffic for 2025 full buildout scenario only. **Table 1** shows the development program summary for the site development.

Table 1. Development Program Summary

Use	Quantity
Single Family Homes	57 DU
Multifamily Housing	475 DU
Office	10,000 SF
Retail/Commercial	35,000 SF
Restaurant	15,000 SF

The analysis of the traffic generated by the proposed development resulted in moderate impact on the local roadway system. The City of Keller's requires LOS C or better for an acceptable level of service for all traffic movements in an intersection. However, LOS D for each individual turning movement is generally considered acceptable as well. Therefore, the improvements provided in the report result in a LOS C or better for the overall intersections and LOS D or better for the individual movements.

RECOMMENDATIONS:

US 377/ Denton Highway at Mount Gilead Road: The intersection is expected to operate at LOS D for 2025 background-plus-site and LOS E for 2030 horizon-plus-site conditions during the PM peak hour. It is recommended to change the signal timing splits and add an additional EB through lane on Mount Gilead Road to achieve an acceptable LOS for all the movements as shown in the synchro report attached in **Appendix D** at 2025 full buildout conditions. The site traffic contribution for this additional EB through lane is negligible.

US 377/ Denton Highway at Ridge Point Parkway: The intersection is operating at LOS D at 2020 conditions and is expected to operate at LOS F at both 2025 background-plus-site and 2030 horizon-plus-site conditions. The EB approach is failing at exiting condition due to heavy traffic for a one lane approach. It is recommended to change the existing signal splits and add an EB right-turn and left-turn deceleration lane on Ridge Point Parkway at 2025 full buildout conditions. An additional WB left turn deceleration lane is recommended by 2030 to achieve an acceptable LOS for WB movement. Synchro report in **Appendix D** shows the recommended improvements at 2025 horizon-plus-site conditions and 2030 horizon-plus-site conditions.

Driveway 3 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 18 vehicles during the AM peak hour. This is because of heavy background volume on US 377/ Denton Highway. The queuing will be inside the subject property and will not affect US 377/ Denton Highway. Therefore, no improvements are recommended.

FINDING: The proposed site will have a total of six (6) driveways. Four (4) driveways on US 377, one (1) driveway on Mount Gilead Road and one (1) driveway on Ridge Point Parkway. The location and number of driveways will allow a proportional distribution of traffic, that will help reduce heavy movements on all the driveways.

RECOMMENDATION FOR DECELERATION LANE:

RIGHT TURN DECELERATION LANE:

- The developer has plans to provide a NB right turn deceleration lane on US 377 at Driveway 2 and Driveway 3. The proposed right turn lanes will provide safer movement and separates the site traffic from the NB through movement. The dimensions of the deceleration lanes is shown in the **Exhibit 2**.
- An EB right turn deceleration lane at Driveway 6 on Ridge Point Parkway is recommended as per the City of Keller's UDC. There is sufficient pavement width to restripe and provide an additional right turn lane at this Driveway. This improvement will be required before **Phase 1** is constructed. **Exhibit 6** shows the recommended roadway configuration at Driveway 6.
- A WB right turn deceleration lane at Driveway 5 on Mount Gilead Road is recommended as per the City of Keller's UDC before the project is fully built. **Exhibit 5** shows the recommended roadway configuration at Driveway 5.

LEFT TURN DECELERATION LANE:

- A WB left turn deceleration lane is recommended at Driveway 6 on Ridge Point Parkway before **Phase 1** is built. There is sufficient pavement width to restripe and provide a left turn lane at this Driveway. **Exhibit 6** shows the recommended roadway configuration at Driveway 6.
- The EB and WB through volume on Mount Gilead Road is high at existing conditions. Installation of an EB left turn deceleration lane is recommended at 2025 full buildout at Driveway 5 on Mount Gilead Road for safer movement of vehicles and to avoid spilling of traffic at the intersection of Mount Gilead and US 377/Denton Highway. **Exhibit 5** shows the recommended roadway configuration at Driveway 5.

FINDING: The following Driveways do not meet the TxDOT's driveway spacing requirements:

- Driveway 1 and Ridge Point Parkway
- Driveway 4 and Mount Gilead Road

RECOMMENDATION FOR DRIVEWAY SPACING: All the driveways are expected to operate at acceptable level of service. The difference in spacing is not significantly less than the requirements. Therefore, an exception to the access criteria may be pursued with TxDOT to request a lesser spacing requirement.

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

FINDING: Based on the roadway link analysis:

- US 377/Denton Highway: The SB approach is operating at LOS D at 2020 conditions and is expected to be LOS E at 2025 Background plus site condition as well as at 2030 horizon-plus-site conditions. The proposed site possesses minimal impact to this approach. However, to achieve a LOS C, widening of the roadway is recommended. The developer is proposing to add NB deceleration lanes at Driveway 2 and 3 that will increase the capacity of the roadway.
- Ridge Point Parkway is expected to operate at an acceptable level of service after the addition of right turn lane at Driveway 6.
- Mount Gilead Road: The EB approach at Mount Gilead road is already operating at LOS E at 2020 existing conditions. It is recommended to widen the roadway to two lanes on each direction adjacent to the site to achieve an acceptable level of service. **Exhibit 5** shows the recommended improvements for the roadway.

APPENDIX F provides all the proposed mitigation measures for the signalized intersections in a tabular form.

END OF SUMMARY

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. This study is a revision of a previous TIA submitted by DeShazo in December 2019 because of change in the development plan and location of some driveways. The proposed development is expected to be completed in two phases. The first phase of the development consists of 475 multifamily units and 24,000 SF of retails which is expected to be built by 2023. The full development is expected to be fully built by 2025. This TIA analyzes the traffic for 2025 full buildout scenario only. 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 fully built by 2025.

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

PURPOSE

The 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.

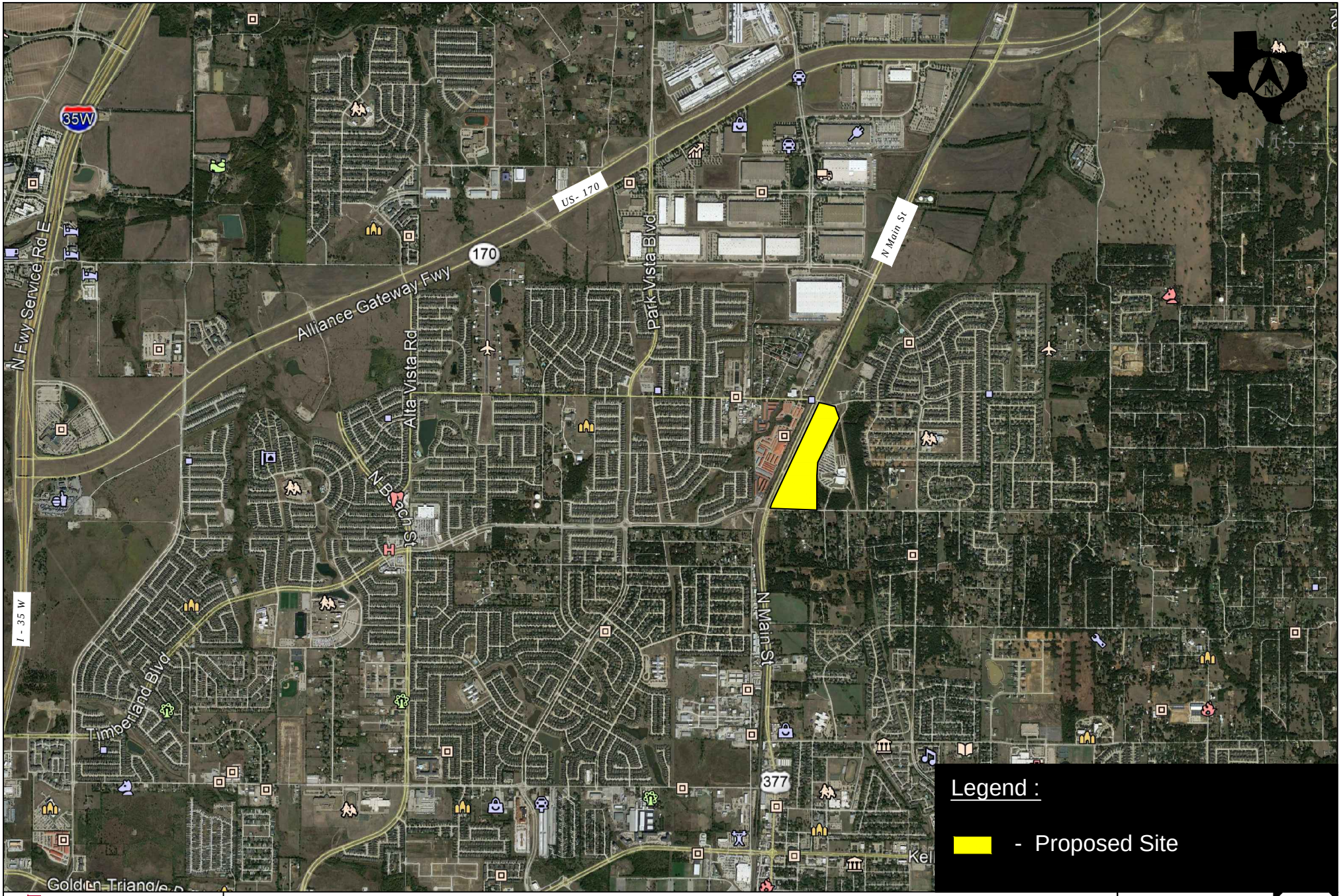
Roadway Peak Hours Analyzed:

- 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
2020 Projected	None Added	Projected 2020 Volumes
2025 Background	Milestone Church	Projected 2020 volumes grown at 2% per year for 5 years plus site traffic from Milestone Church expansion
2025 Background + Site	Mixed-Use Development	Projected 2020 volumes grown at 2% per year for 5 years with Milestone Church expansion traffic plus proposed site traffic
2030 Horizon	None Added	2025 background volumes grown at 2% per year for 5 years
2030 Horizon + Site	Mixed-Use Development	2025 background volumes grown at 2% per year for 5 years plus proposed site traffic



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

SITE LOCATION MAP

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

PROJECT #: 20037

DATE: March 2020

EXHIBIT 1

EXHIBIT 2. PRELIMINARY SITE PLAN

CENTER STAGE DEVELOPMENT

OVERALL SITE PLAN EXHIBIT

KELLER, TEXAS

SEPTEMBER, 2020

Kimley»Horn
13455 NOEL ROAD, TWO GALLERIA OFFICE TOWER
SUITE 700, DALLAS, TX 75240
PHONE: 972-770-1300 FAX: 972-239-3820
WWW.KIMLEY-HORN.COM TX F-928

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 4: Stopped Control on Driveway 4
- Mount Gilead Road at Driveway 5: Stopped Control on Driveway 5
- Ridge Point Pkwy at Driveway 6: Stopped Control on Driveway 6

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 surrounding of the proposed development is residential. There are no any sidewalks or bike lane present for pedestrian and bike activities in the vicinity of the development. The estimated full buildout year of the proposed project is 2025.

EXISTING AND PROPOSED TRANSPORTATION SYSTEM

Thoroughfare System

- US 377/Denton Highway:
  - Existing operation and cross-section: four lanes, two-way with TWLT (Two Way Left Turn Lane)
  - Speed Limit: 55 mph (posted speed limit)
  - TxDOT Functional Classification: Major Arterial, 4 lanes
- Mount Gilead Road:
  - Existing operation and cross-section: two lanes, two-way, undivided
  - Speed Limit: 40 mph (posted speed limit)
  - City of Keller Functional Classification: 4 Lane Undivided Collector (C4U)
- Ridge Point Parkway:
  - Existing operation and cross-section: two lanes, two-way, undivided
  - Speed Limit: 30 mph (posted speed limit)
  - City of Keller Functional Classification: 3 Lane Collector (C3U)

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

2020 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. Therefore, the data utilized in this study were provided by the City of Keller. The City provided data of 2018 which was grown at 2% per year to get the projected traffic volumes for 2020. The traffic signal timing during the peak hours for the intersection of ridge point parkway at US 377 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 till 2030. Future background traffic volumes estimate for the buildout years were calculated by applying the assumed growth rate for the study area intersections. The site traffic from Milestone Church expansion were added to the projected background traffic of the proposed study. These volumes are graphically summarized in **Appendix A.** The site generated traffic from Milestone Church expansion are shown in A13, A14, A15 and A16 exhibits of **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. With the consent of the city an internal Capture of 3% for AM and 20% 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 trips were not considered in this study.

Table 3 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 3. 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	57 DU	620	45	11	34	59	37	22
223	Mid-Rise Apartment	475 DU	2,587	171	44	127	209	127	82
710	General Office	10,000 SF	114	36	31	5	13	2	11
820	Shopping Center	24,000 SF	2,278	164	102	62	189	91	98
820	Shopping Center	11,000 SF	1,340	157	97	60	106	51	55
932	High-Turnover (Sit-Down) Restaurant	15,000 SF	1,683	149	82	67	147	91	56
	Subtotals:		8,622	722	367	355	723	399	324
	3% AM and 20% PM Internal Capture:		0	22	11	11	145	73	72
	Totals:		8,622	700	356	344	578	326	252

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 traffic distribution of the Center Stage development is different from that of Milestone Church expansion. The reason behind the difference in distribution is the origin and destination of multifamily units are different from other developments. The multifamily units of the proposed development 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 Charles Swab Campus (Future development) and the warehouses located to the north of proposed development around the intersection of State Highway 170 and US 377. Detailed trip distribution and traffic assignment calculations and results are summarized in **Appendix C**.

SITE-GENERATED TRAFFIC VOLUMES

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

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.

2020 – INTERSECTION ANALYSIS

2020 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.

Table 4. 2020 Intersection Analysis

Intersections	Traffic Movement		2020 Analysis AM	2020 Analysis PM
Mount Gilead Rd at US 377 Denton Highway		Signalized Intersection	B *(19.8)*	C *(28.8)*
Ridge Point Pkwy at US 377 Denton Highway			D *(46.2)*	C *(29.7)*
Driveway 1 at US 377 Denton Highway	WBR	Unsignalized Intersection	- -	- -
Driveway 2 at US 377 Denton Highway	WBR		- -	- -
Driveway 3 at US 377 Denton Highway	WBL WBR SBL		- - - - - -	- - - - - -
Driveway 4 at US 377 Denton Highway	WBR		- -	- -
Driveway 5 at Mount Gilead Rd	EBL SBLR		- - - -	- - - -
Driveway 6 at Ridge Point Pkwy	NB WBL		- - - -	- - - -

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 2020 analysis, all study intersections are currently operating at **LOS C** or better during the peak hour periods with the exception of:

Ridge Point Parkway at US 377/Denton Highway-

- The signalized intersection is currently operating at LOS D during AM peak hour at 2020 existing conditions

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 5**.

Table 5. 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 *(27.3)*	D *(43.4)*	C *(30.6)*	D *(46.2)*
With Recommendation					**C *(27.0)***	**C *(30.2)***
Ridge Point Pkwy at US 377 Denton Highway			E *(69.6)*	D *(37.1)*	F *(90.2)*	D *(44.0)*
With Recommendation					**C *(34.3)***	**C *(28.0)***
Driveway 1 at US 377 Denton Highway	WBR	Unsignalized Intersection	- -	- -	C *(15.6)*	B *(13.7)*
Driveway 2 at US 377 Denton Highway	WBR		- -	- -	C *(15.3)*	B *(13.5)*
Driveway 3 at US 377 Denton Highway	WBL		- -	- -	F *(>100)*	F *(>100)*
	WBR		- -	- -	C *(15.8)*	B *(13.9)*
	SBL		- -	- -	B *(14.7)*	B *(12.6)*
Driveway 4 at US 377 Denton Highway	WBR		- -	- -	C *(15.2)*	B *(13.6)*
Driveway 5 at Mount Gilead Rd	EBL		- -	- -	A *(7.9)*	A *(8.7)*
	SBLR		- -	- -	B *(14.1)*	B *(12.5)*
Driveway 6 at Ridge Point Pkwy	NB		- -	- -	B *(13.0)*	B *(11.7)*
	WBL		- -	- -	A *(8.0)*	A *(7.9)*

Based upon the 2025 background and 2025 background-plus site analysis all study intersections are expected to operate at LOS C or better during the peak hour periods with the exception of**:**

Mount Gilead at US 377/ Denton Highway-

- The signalized intersection is expected to operate at LOS D during PM peak hour for both 2025 background and 2025 background-plus-site conditions.

Ridge Point Pkwy at US 377/ Denton Highway-

- The signalized intersection is expected to operate at LOS E and LOS D during the AM and PM peak hour respectively, at 2025 background conditions. It is expected to operate at LOS F and LOS D during the AM and PM peak hour respectively, for 2025 background-plus-site conditions.

Driveway 3 at US 377/ Denton Highway-

- The WB left turning movement is expected to operate at LOS F during the AM peak hour for 2025 background-plus-site condition.

2030 HORIZON AND HORIZON-PLUS-SITE – INTERSECTION ANALYSIS

A five-year horizon analysis was performed for the proposed development. Year 2030 horizon (no build) and horizon-plus-buildout 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. 2030 Intersection Analysis

Intersections	Traffic Movement		2030 Horizon AM	2030 Horizon PM	2030 Horizon + Site AM	2030 Horizon + Site PM
Mount Gilead Rd at US 377 Denton Highway		Signalized Intersection	C *(30.8)*	E *(67.1)*	C *(34.1)*	E *(72.0)*
With Recommendation					**C *(30.3)***	**C *(34.8)***
Ridge Point Pkwy at US 377 Denton Highway			F *(91.2)*	D *(48.3)*	F *(>100)*	E *(60.1)*
With Recommendation					**C *(35.0)***	**C *(25.8)***
Driveway 1 at US 377 Denton Highway	WBR	Unsignalized Intersection	- -	- -	C *(16.8)*	B *(14.5)*
Driveway 2 at US 377 Denton Highway	WBR		- -	- -	C *(16.8)*	B *(14.6)*
Driveway 3 at US 377 Denton Highway	WBL		- -	- -	F *(>100)*	~~
	WBR		- -	- -	C *(17.6)*	C *(15.4)*
	SBL		- -	- -	C *(16.6)*	B *(13.8)*
Driveway 4 at US 377 Denton Highway	WBR		- -	- -	C *(16.4)*	B *(14.5)*
Driveway 5 at Mount Gilead Rd	EBL		- -	- -	A *(8.0)*	A *(9.2)*
	SBLR		- -	- -	B *(15.2)*	C *(18.3)*
Driveway 6 at Ridge Point Pkwy	NB		- -	- -	B *(13.4)*	B *(12.2)*
	WBL		- -	- -	A *(8.2)*	A *(8.0)*

~synchro software did not show the LOS for the approach.

Based upon the 2030 horizon and 2030 horizon-plus site analysis all study intersections are expected to operate at LOS C or better during the peak hour periods with the exception of**:**

Mount Gilead at US 377/ Denton Highway-

- The signalized intersection is expected to operate at LOS E during PM peak hour for both 2030 horizon and 2030 horizon-plus-site conditions.

US 377/ Denton Highway at Ridge Point Parkway-

- The signalized intersection is expected to operate at LOS F and LOSD during AM and PM peak hour respectively, for 2030 horizon conditions. It is expected to operate at LOS F and LOS E during AM and PM peak hour respectively, for 2030 horizon-plus-site conditions.

Driveway 3 at US 377/ Denton Highway -

- The WB left turning movement is expected to operate at LOS F during AM peak hour for 2030 horizon-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-Fort Worth 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	875	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 $\leq$ 45% is *LOS A/B*
Volume: Capacity Ratio > 45% and $\leq$ 65% is *LOS C*
Volume: Capacity Ratio > 65% and $\leq$ 80% is *LOS D*
Volume: Capacity Ratio < 80% and $\leq$ 100% is *LOS E*
Volume: Capacity Ratio $\geq$ 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		
2020 Existing:									
US 377/Denton Highway (between Mt. Gilead road and Driveway 1)	NB	Major Arterial	1,038	2	Y	925	1,850	0.56	C
	SB	Major Arterial	1,226	2	Y	925	1,850	0.66	D
Mount Gilead RD (Between US 377 and Driveway 5)	EB	Major Collector	431	1	N	525	525	0.82	E
	WB	Major Collector	318	1	N	525	525	0.61	C
Ridge Point Parkway (Between US 377 and Driveway 6)	EB	Major Collector	177	1	N	525	525	0.34	A/B
	WB	Major Collector	213	1	N	525	525	0.41	A/B
2025 Background:									
US 377/Denton Highway (between Mt. Gilead road and Driveway 1)	NB	Major Arterial	1,172	2	Y	925	1,850	0.63	C
	SB	Major Arterial	1,396	2	Y	925	1,850	0.75	D
Mount Gilead RD (Between US 377 and Driveway 5)	EB	Major Collector	639	1	N	525	525	1.22	F
	WB	Major Collector	488	1	N	525	525	0.93	E
Ridge Point Parkway (Between US 377 and Driveway 6)	EB	Major Collector	223	1	N	525	525	0.42	A/B
	WB	Major Collector	259	1	N	525	525	0.49	C
2025 Background + Site:									
US 377/Denton Highway (between Mt. Gilead road and Driveway 1)	NB	Major Arterial	1,329	2	Y	925	1,850	0.72	D
	SB	Major Arterial	1,542	2	Y	925	1,850	0.83	E
Mount Gilead RD (Between US 377 and Driveway 5)	EB	Major Collector	681	2	N	525	1,050	0.65	C
	WB	Major Collector	547	2	N	525	1,050	0.52	C
Ridge Point Parkway (Between US 377 and Driveway 6)	EB	Major Collector	229	1	N	525	525	0.44	A/B
	WB	Major Collector	318	1	N	525	525	0.61	C
2030 Horizon:									
US 377/Denton Highway (between Mt. Gilead road and Driveway 1)	NB	Major Arterial	1,301	2	Y	925	1,850	0.70	D
	SB	Major Arterial	1,536	2	Y	925	1,850	0.83	E
Mount Gilead RD (Between US 377 and Driveway 5)	EB	Major Collector	752	1	N	525	525	1.43	F
	WB	Major Collector	637	1	N	525	525	1.21	F
Ridge Point Parkway (Between US 377 and Driveway 6)	EB	Major Collector	278	1	N	525	525	0.53	C
	WB	Major Collector	302	1	N	525	525	0.58	C
2030 Horizon + Site:									
US 377/Denton Highway (between Mt. Gilead road and Driveway 1)	NB	Major Arterial	1,458	2	Y	925	1,850	0.79	D
	SB	Major Arterial	1,677	2	Y	925	1,850	0.91	E
Mount Gilead RD (Between US 377 and Driveway 5)	EB	Major Collector	794	2	N	525	1,050	0.76	D
	WB	Major Collector	695	2	N	525	1,050	0.66	D
Ridge Point Parkway (Between US 377 and Driveway 6)	EB	Major Collector	285	1	N	525	525	0.54	C
	WB	Major Collector	309	1	N	525	525	0.59	C

Based upon the roadway link analysis:

US 377/ Denton Highway:

- Operates at LOS C for NB approach and at LOS D for SB approach at 2020 conditions.
- Expected to operate at LOS D for NB and at LOS E for SB approach for both 2025 full buildout and 2030 horizon plus site conditions.

Mount Gilead Road:

- Operates at LOS E for EB approach and at LOS C for WB approach at 2020 conditions.
- Expected to operate at LOS F for EB and WB approach for both 2025 full buildout and 2030 horizon plus site conditions.

Ridge Point Parkway:

- Operates at LOS A/B for both EB and WB approach at 2020 conditions.
- Expected to operate at LOS A/B and LOS C for EB and WB approach respectively, for 2025 full buildout conditions.
- Expected to operate LOS C for both EB and WB approach for 2030 horizon plus site 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

The sight distance 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 1 and Ridge Point Parkway	425	~380	No
Driveway 1 and Driveway 2	425	~510	Yes
Driveway 2 and Driveway 3	425	~850	Yes
Driveway 3 and Driveway 4	425	~450	Yes
Driveway 4 and Mount Gilead Road	425	~410	No
Driveway 5 and US 377/ Denton Highway	250	~330	Yes
US 377 and Driveway 6	250	~250	Yes

All the proposed site driveways meet TxDOT/City of Keller driveway spacing criteria except for the spacing between:

- Driveway 1 and Ridge Point Parkway
- Driveway 4 and Mount Gilead Road

DECELERATION LANE ANALYSIS

TXDOT 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.

CITY OF KELLER DECELERATION LANE CRITERIA:

Section 5.08, C of the City of Keller's UDC provides the requirements for right turn deceleration lane criteria. A right turn lane is required on all approaches at intersection of arterial and collector streets.

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

RIGHT TURN DECELERATION LANE:

- The developer has plans to provide a NB right turn deceleration lane on US 377 at Driveway 2 and Driveway 3. The proposed right turn lanes will provide safer movement and separates the site traffic from the NB through movement. The dimensions of the deceleration lanes is shown in the **Exhibit 2**.
- An EB right turn deceleration lane at Driveway 6 on Ridge Point Parkway is recommended as per the City of Keller's UDC. There is sufficient pavement width to restripe and provide an additional right turn lane at this Driveway. This improvement will be required before **Phase 1** is constructed. **Exhibit 6** shows the recommended roadway configuration at Driveway 6.
- A WB right turn deceleration lane at Driveway 5 on Mount Gilead Road is recommended as per the City of Keller's UDC before the project is fully built. **Exhibit 5** shows the recommended roadway configuration at Driveway 5.

LEFT TURN DECELERATION LANE:

- A WB left turn deceleration lane is recommended at Driveway 6 on Ridge Point Parkway before **Phase 1** is built. There is sufficient pavement width to restripe and provide a left turn lane at this Driveway. **Exhibit 6** shows the recommended roadway configuration at Driveway 6.
- The EB and WB through volume on Mount Gilead Road is high at existing conditions. Installation of an EB left turn deceleration lane is recommended at 2025 full buildout at Driveway 5 on Mount Gilead Road for safer movement of vehicles and to avoid spilling of traffic at the intersection of Mount Gilead and US 377/Denton Highway. **Exhibit 5** shows the recommended roadway configuration at Driveway 5.

END OF MEMO

Exhibit 3. Existing Roadway Geometry and Traffic Control

North ^
Not to Scale

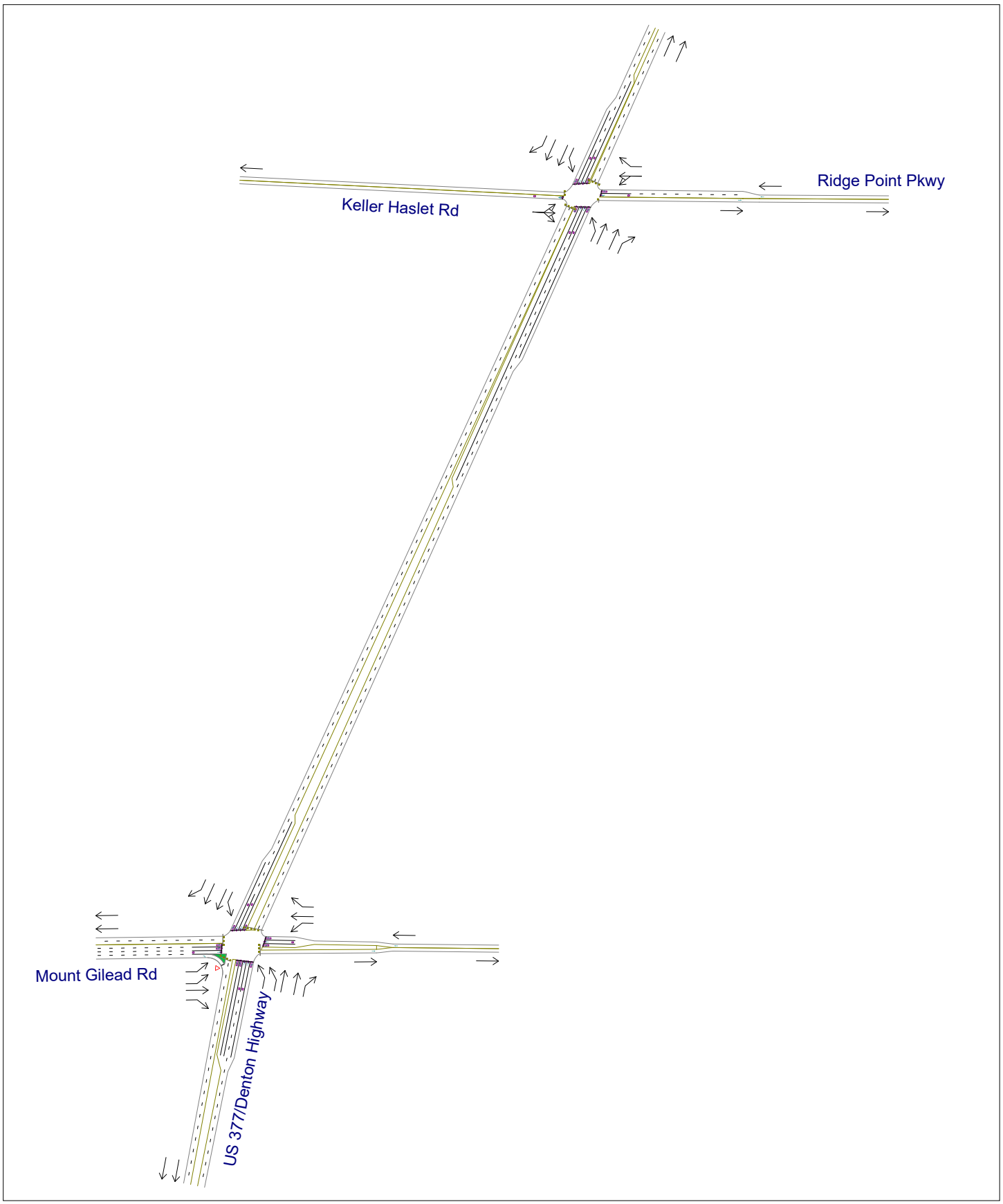


Exhibit 4A. 2025 Proposed Roadway Geometry and Traffic Control

North ^
Not to Scale

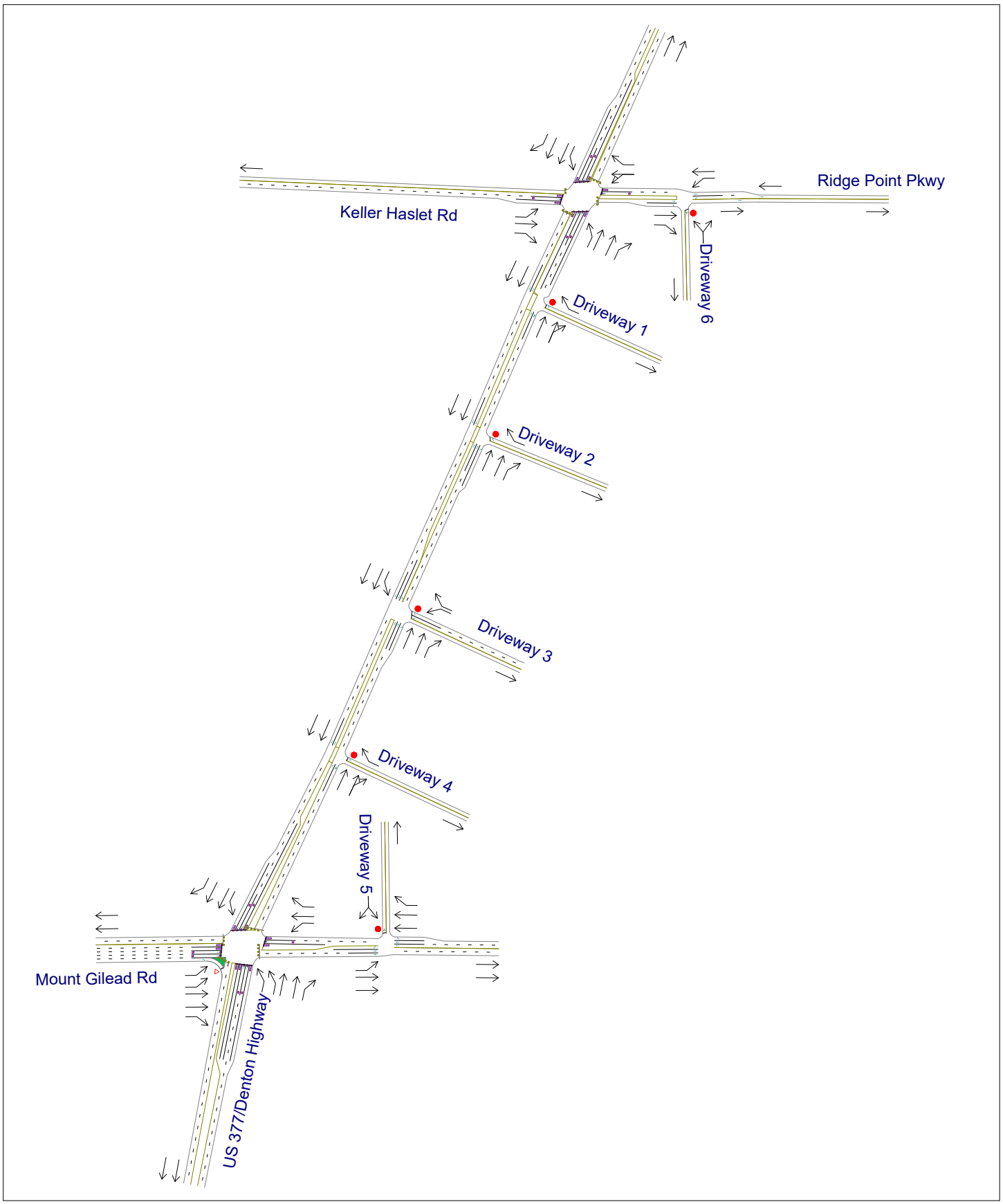


Exhibit 4B. 2030 Proposed Roadway Geometry and Traffic Control

North ^
Not to Scale

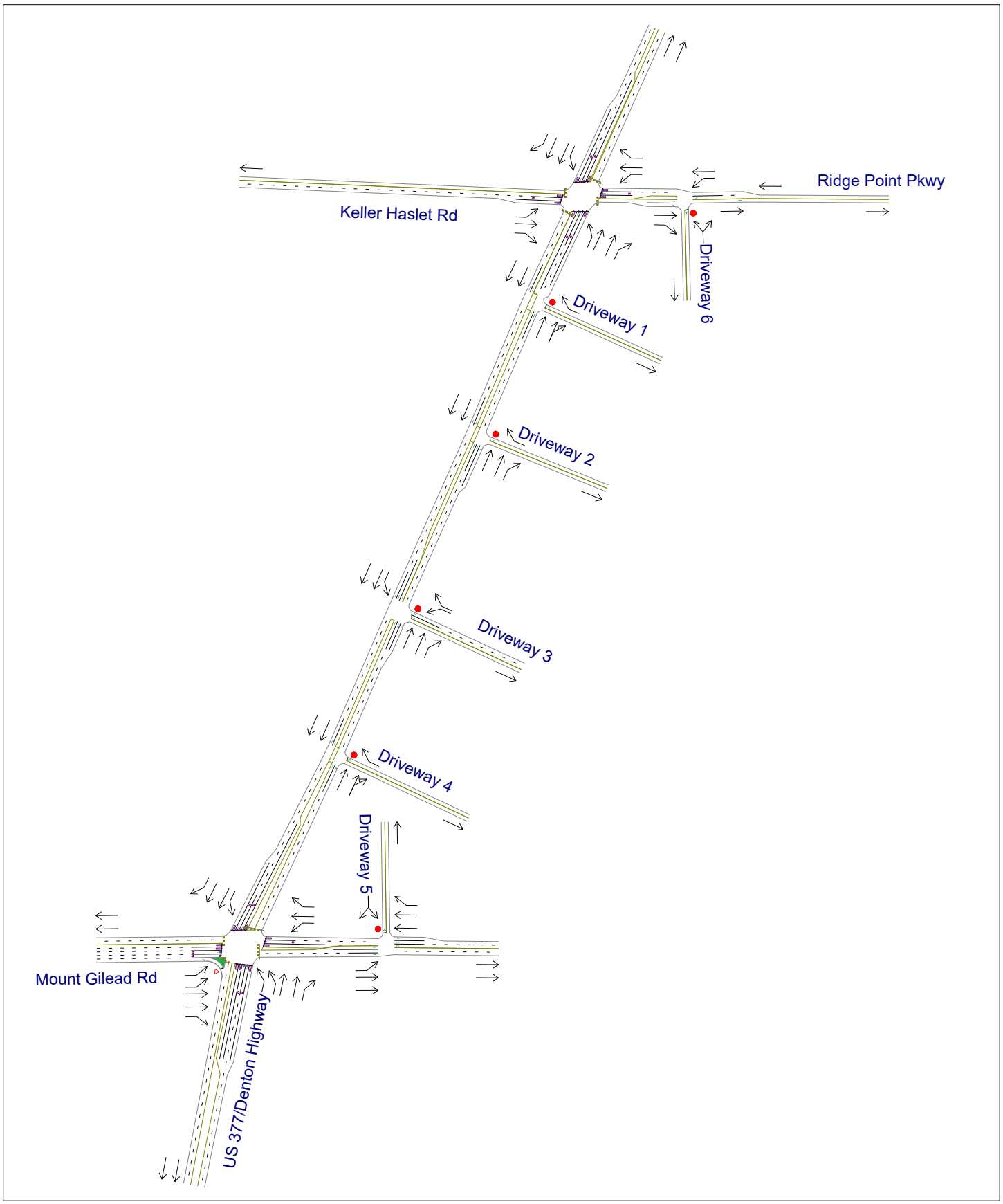


Exhibit 5. Proposed Roadway Geometry at Mount Gilead Road

North ^
Not to Scale

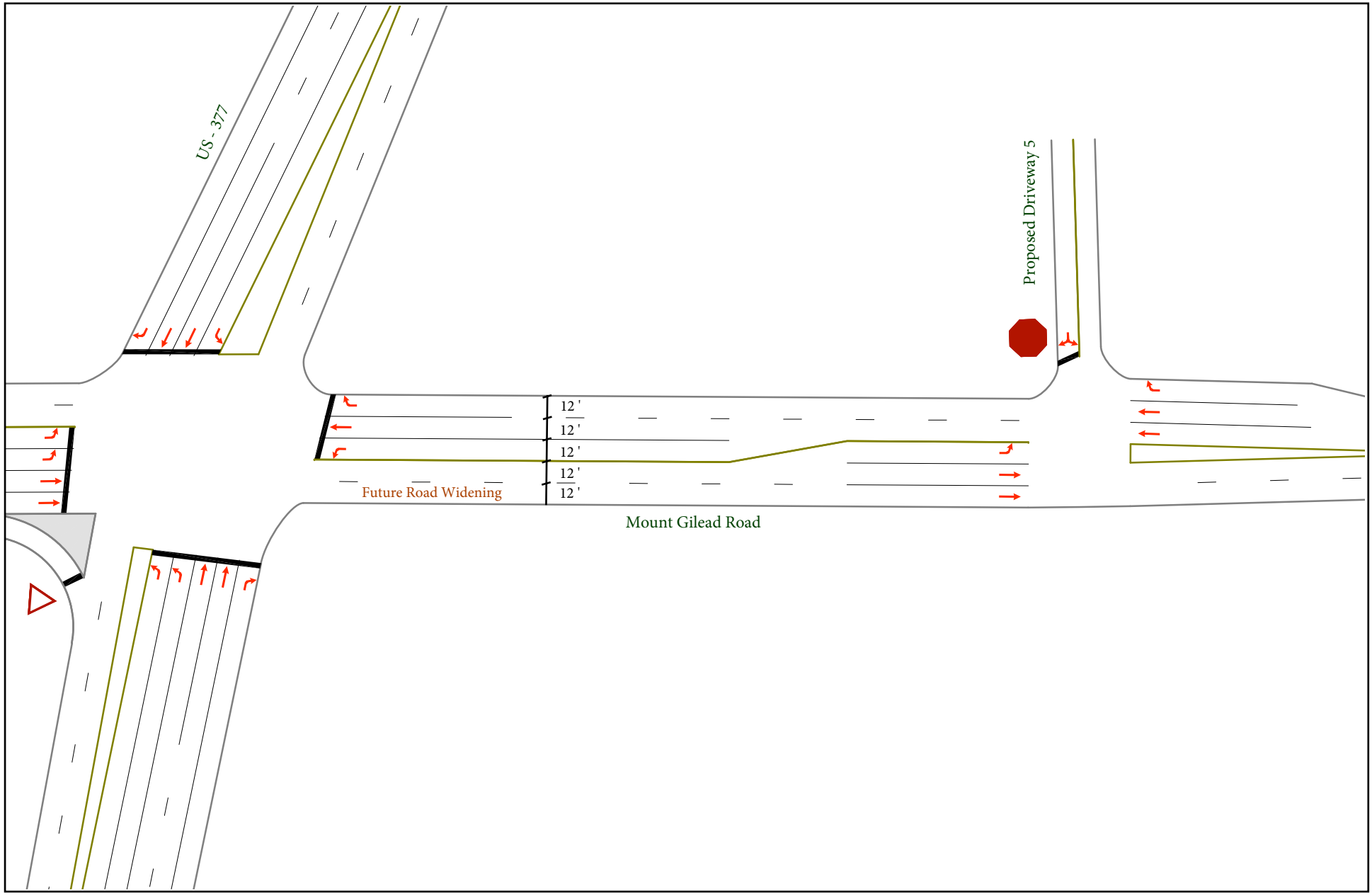
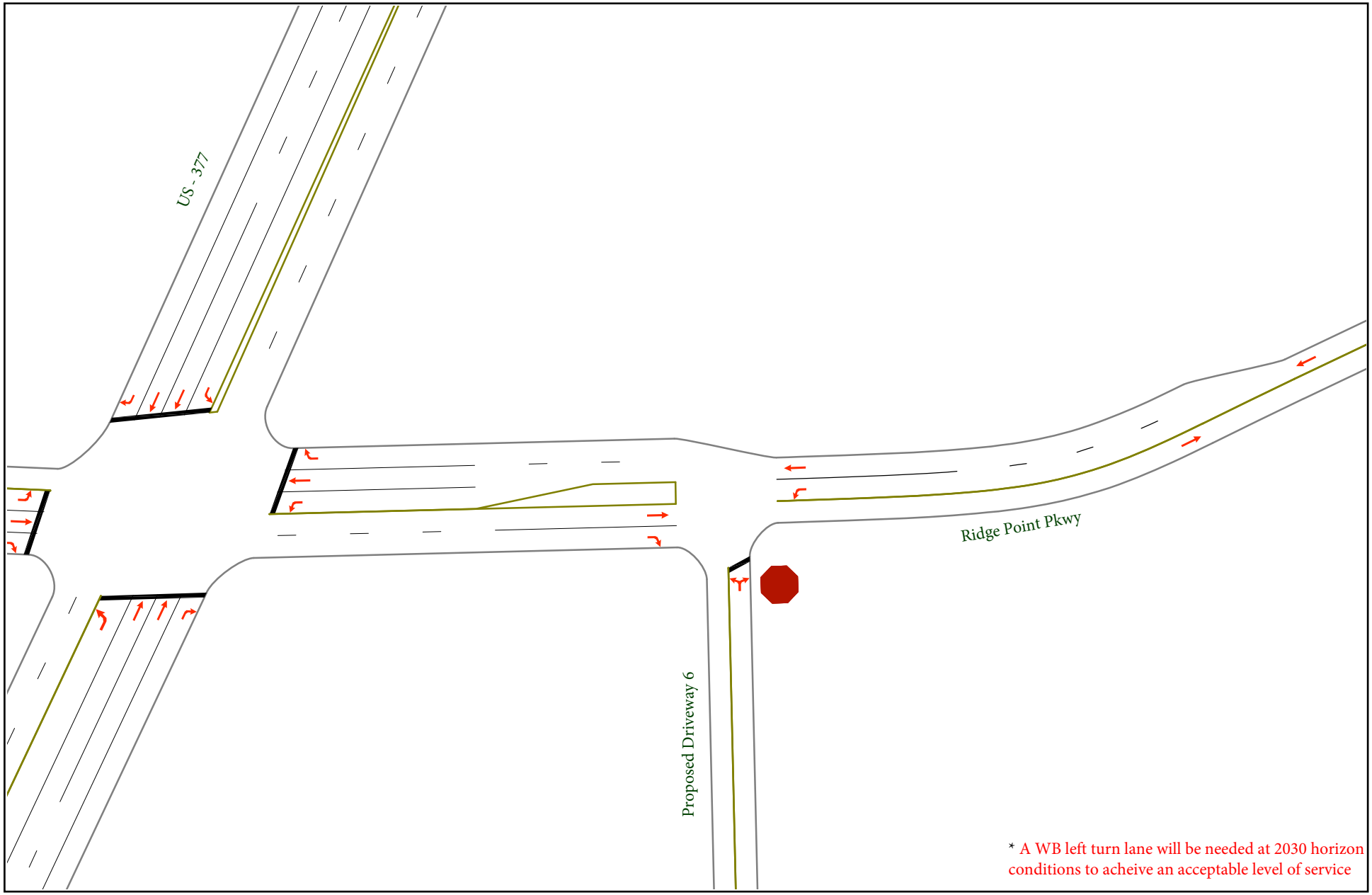


Exhibit 6. Proposed Roadway Geometry at Ridge Point Parkway

North ^

Not to Scale



TIA for Center Stage Mixed-Use Development in Keller, Texas

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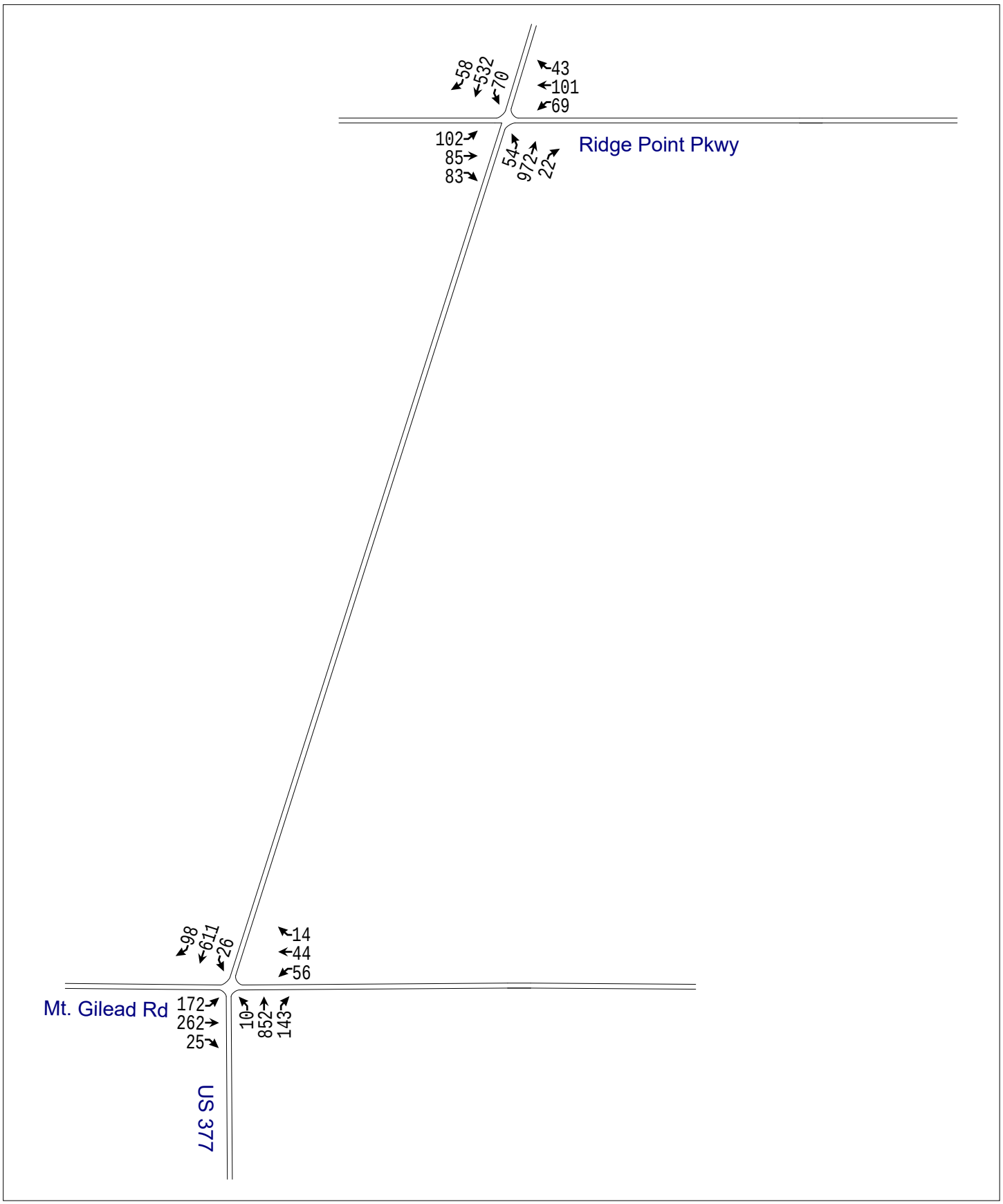
Appendix A. Traffic Volume Exhibits

A1. 2020 Projected AM Peak Hour Traffic Volumes

North ^

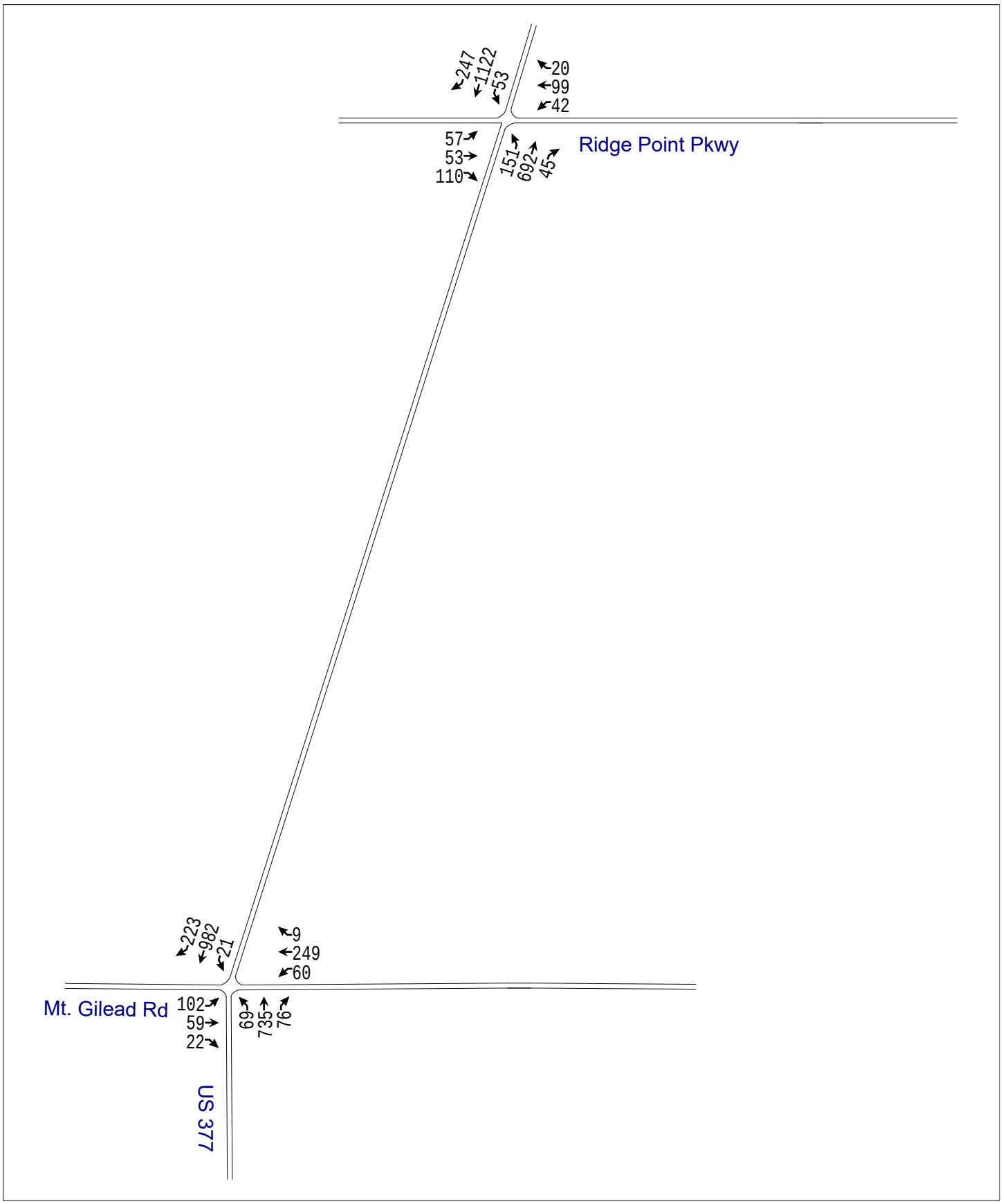
Not to Scale



A1. 2020 Projected PM Peak Hour Traffic Volumes

North ^

Not to Scale



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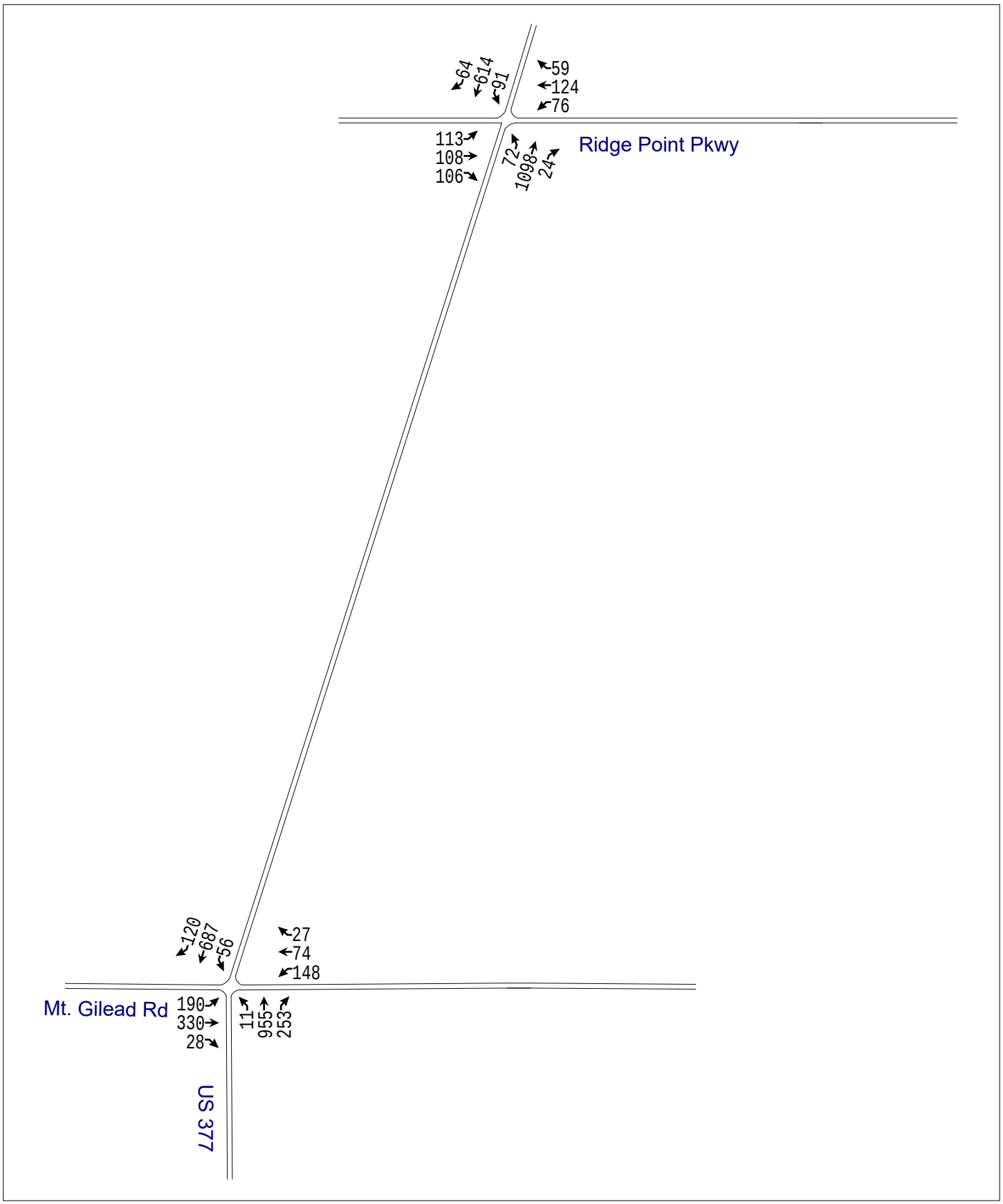
A3. 2025 Background AM Peak Hour Traffic Volumes

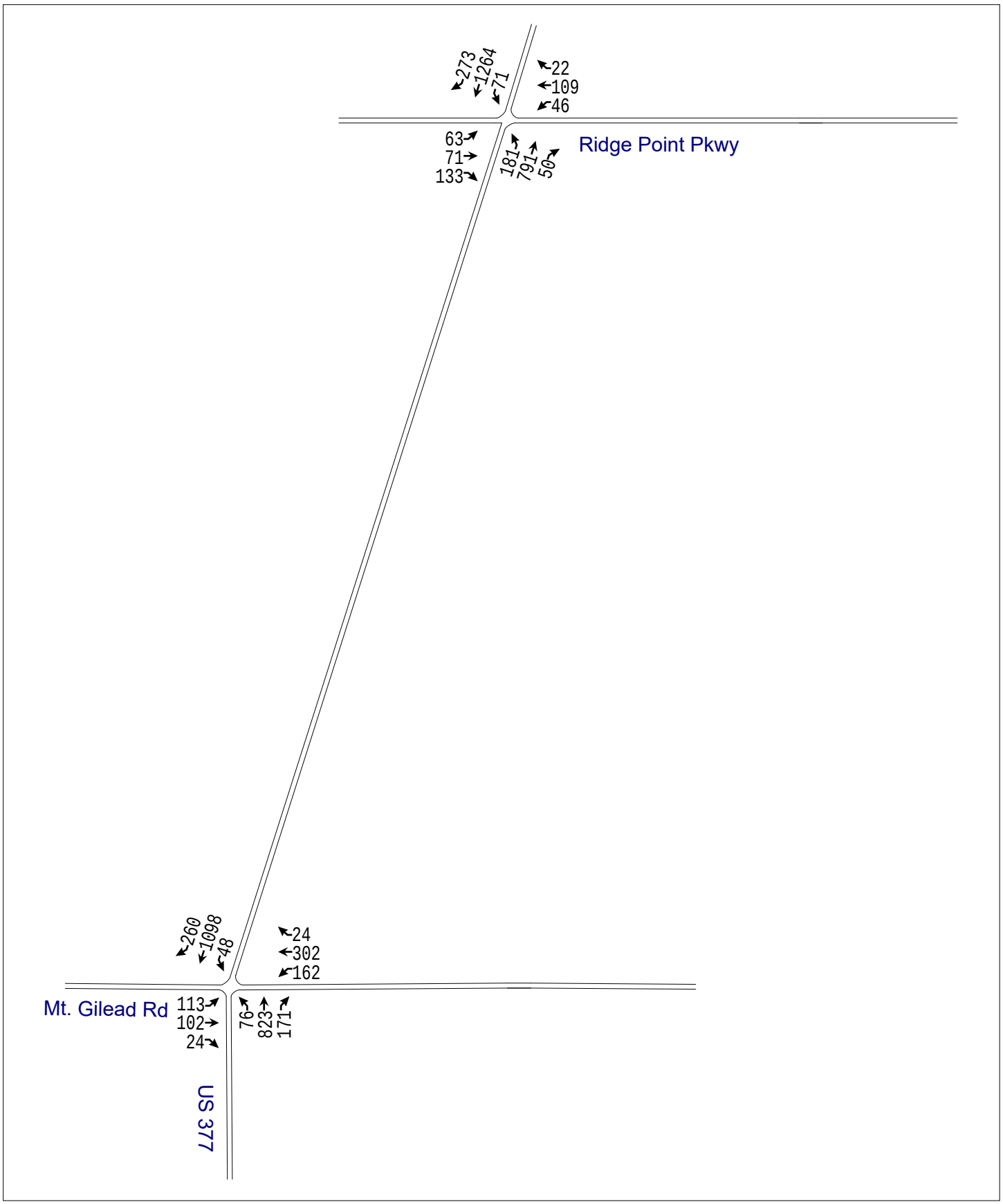
North ^

Not to Scale



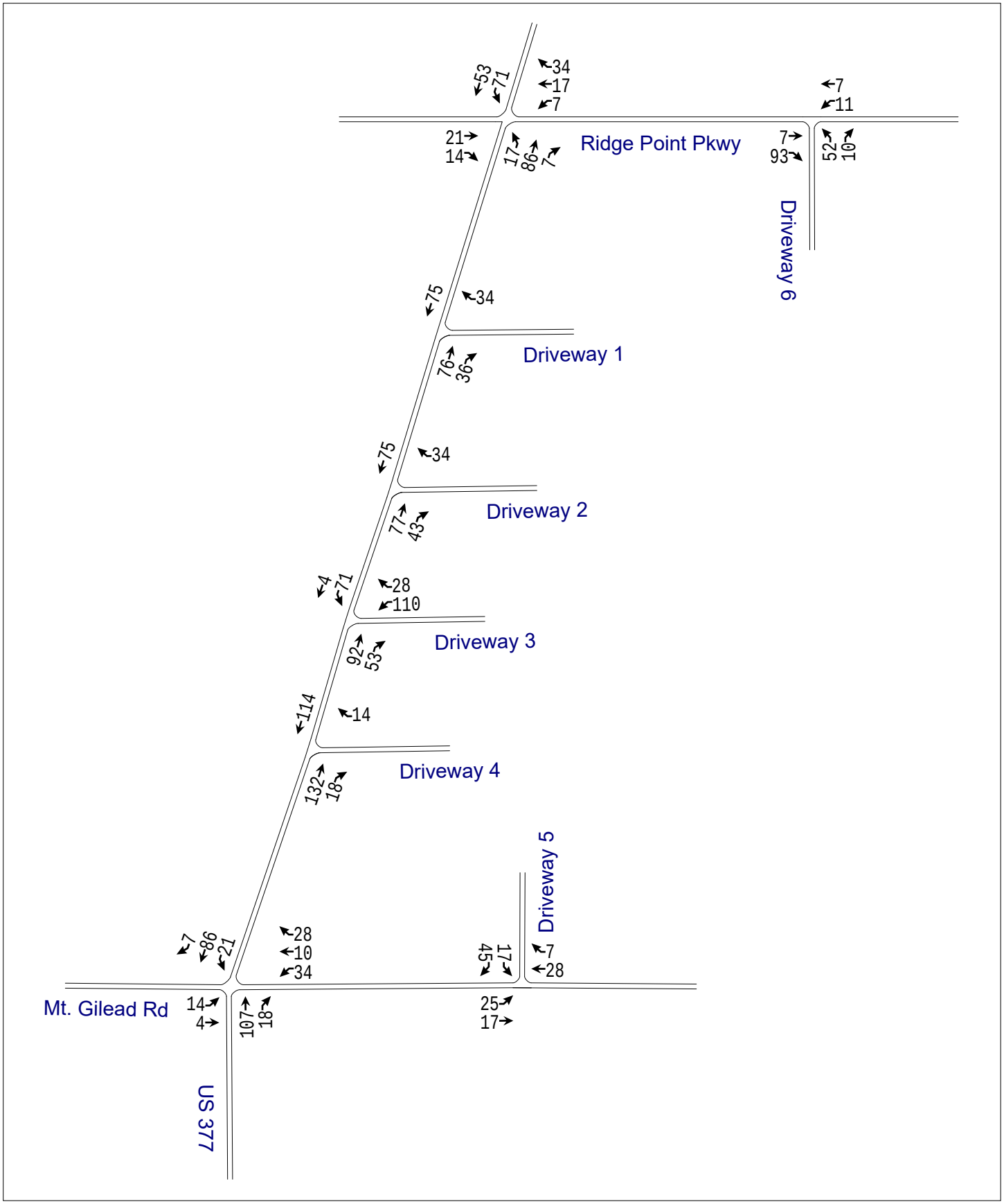
A4. 2025 Background PM Peak Hour Traffic Volumes

North ^
Not to Scale



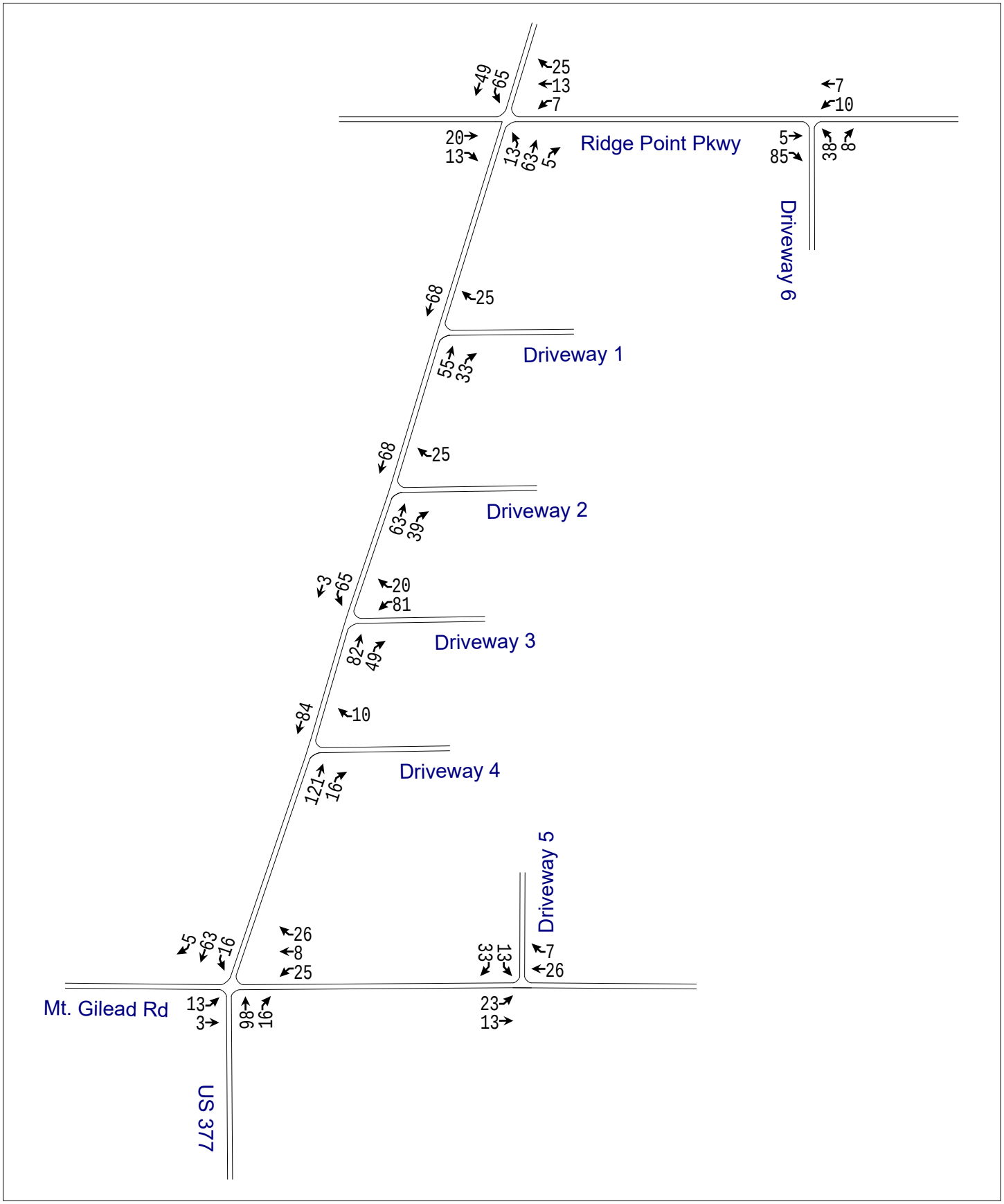
A5. 2025 Site Generated AM Peak Hour Traffic Volumes

North ^
Not to Scale



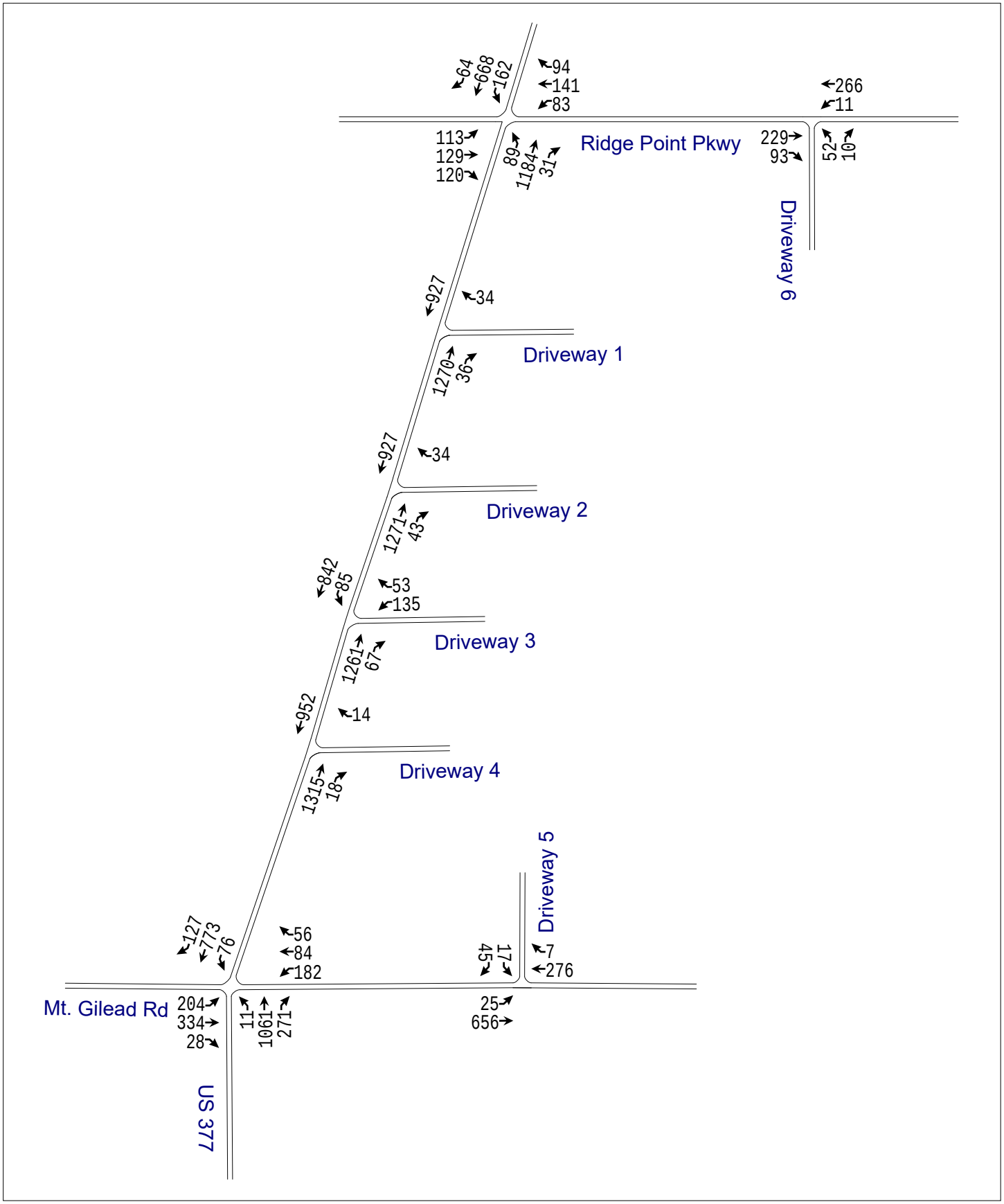
A6. 2025 Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



A7. 2025 Background Plus Site Generated AM Peak Hour Traffic Volumes **North ^**

Not to Scale



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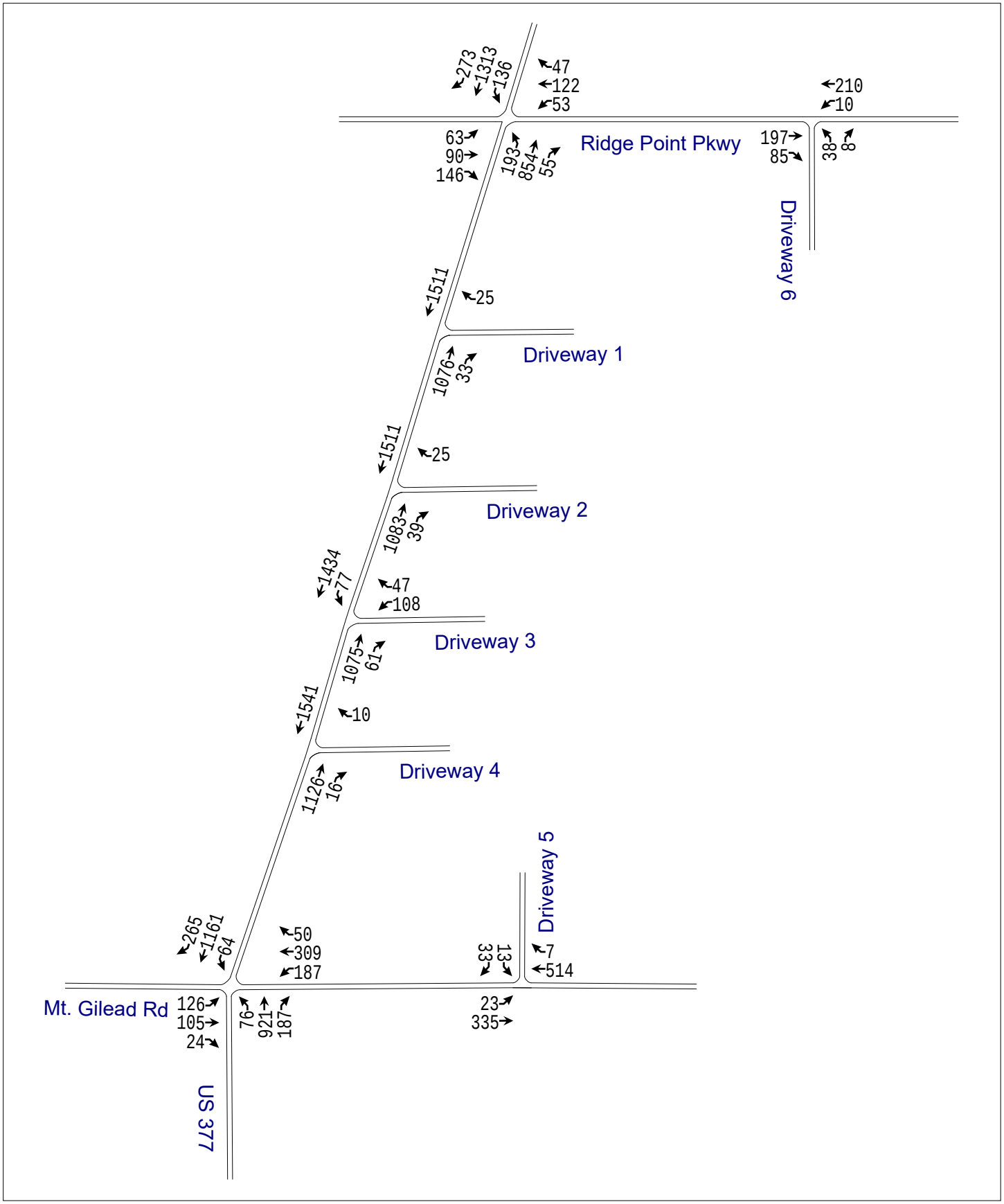
A8. 2025 Background Plus Site Generated PM Peak Hour Traffic Volumes

North ^
Not to Scale



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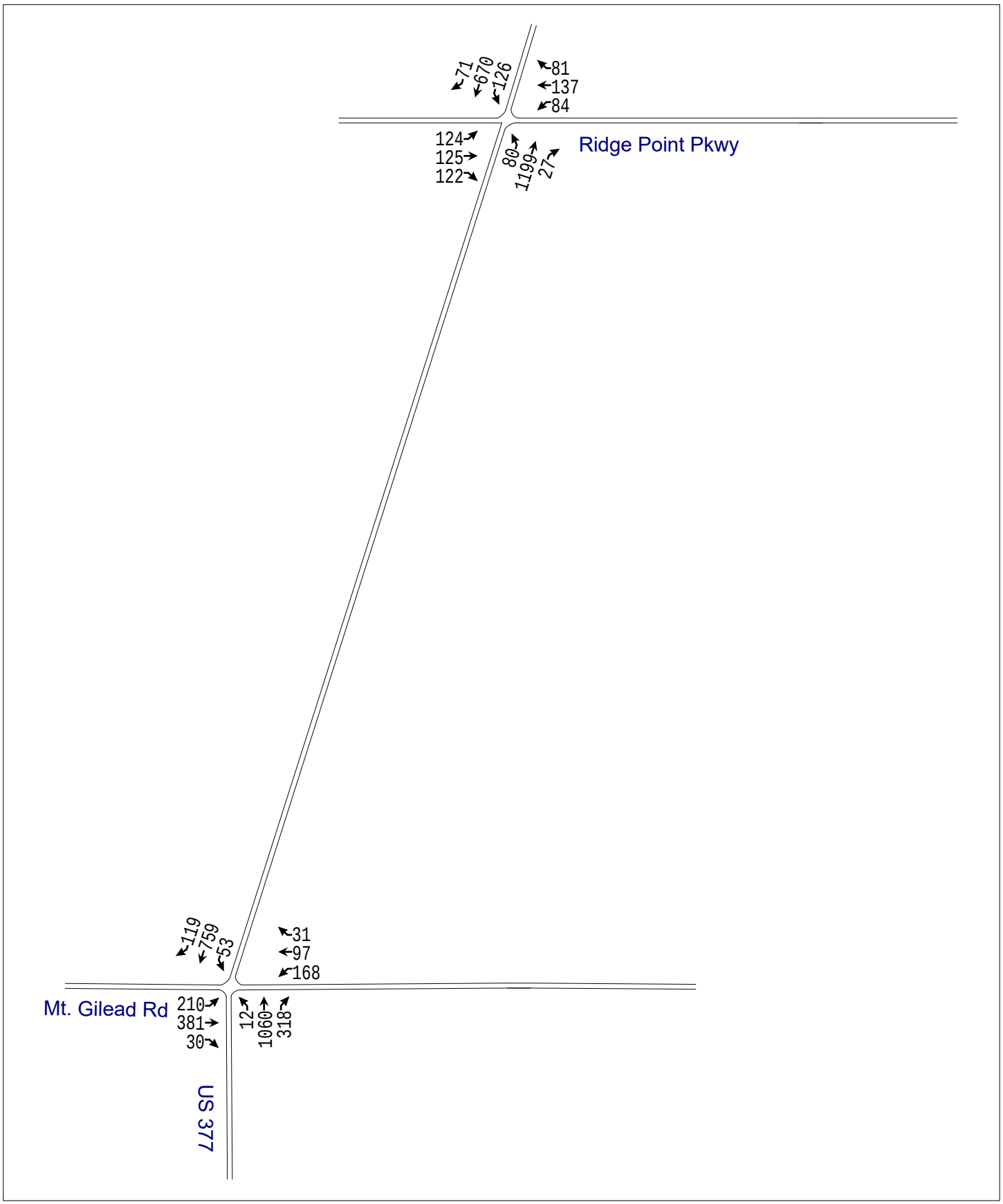
A9. 2030 Horizon AM Peak Hour Traffic Volumes

North ^

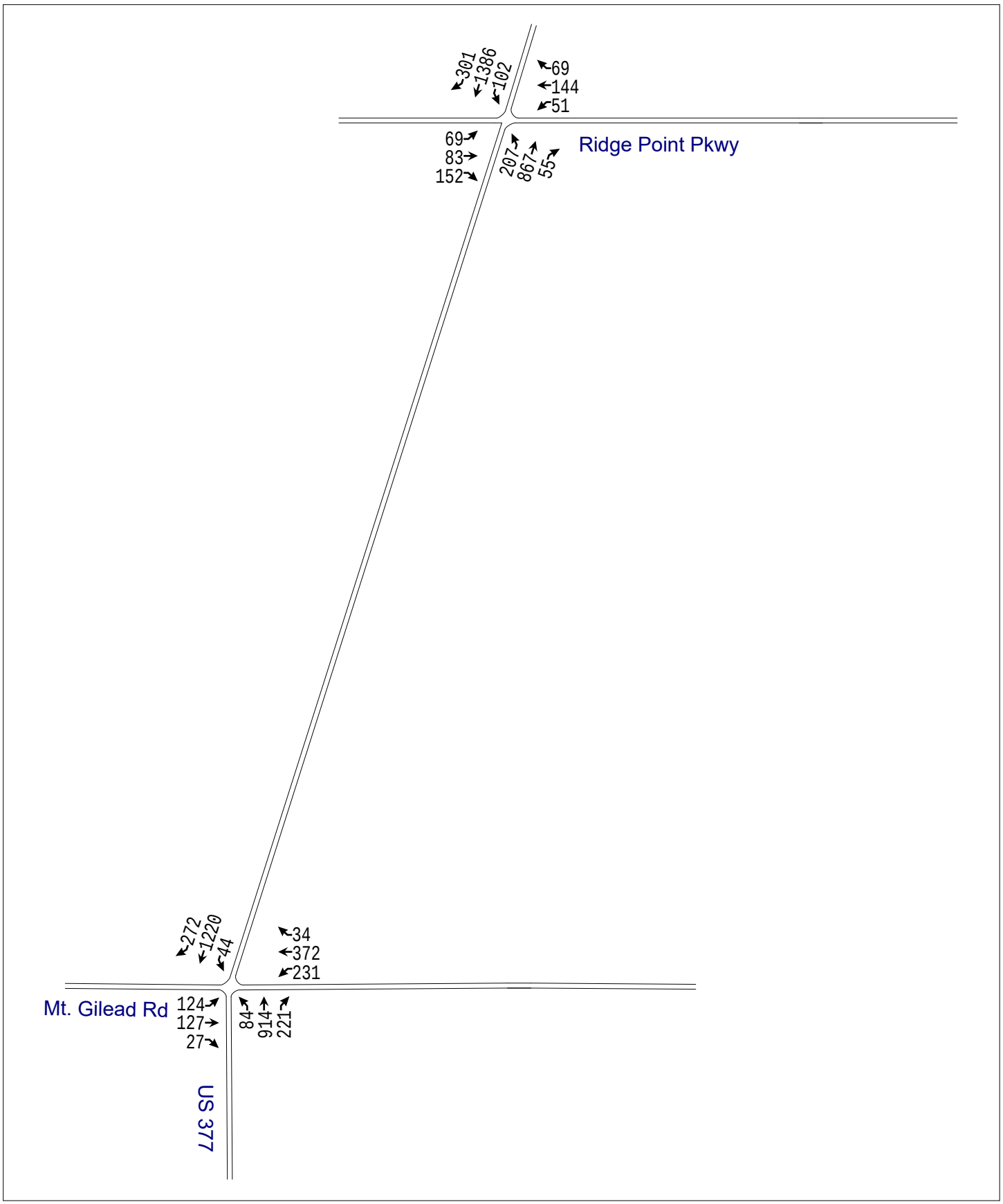
Not to Scale



A10. 2030 Horizon PM Peak Hour Traffic Volumes

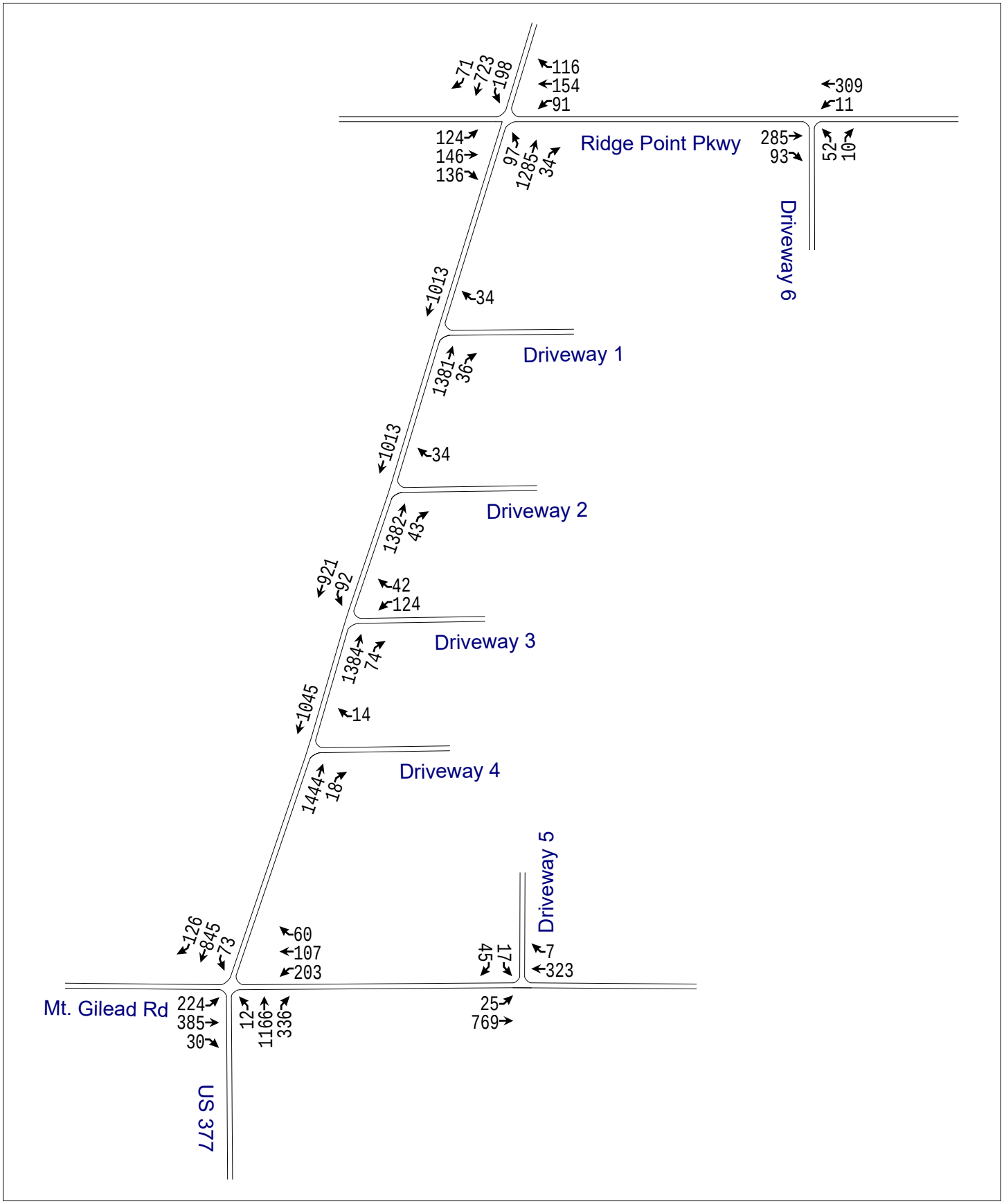
North ^

Not to Scale



A11. 2030 Horizon Plus Site Generated AM Peak Hour Traffic Volumes **North ^**

Not to Scale



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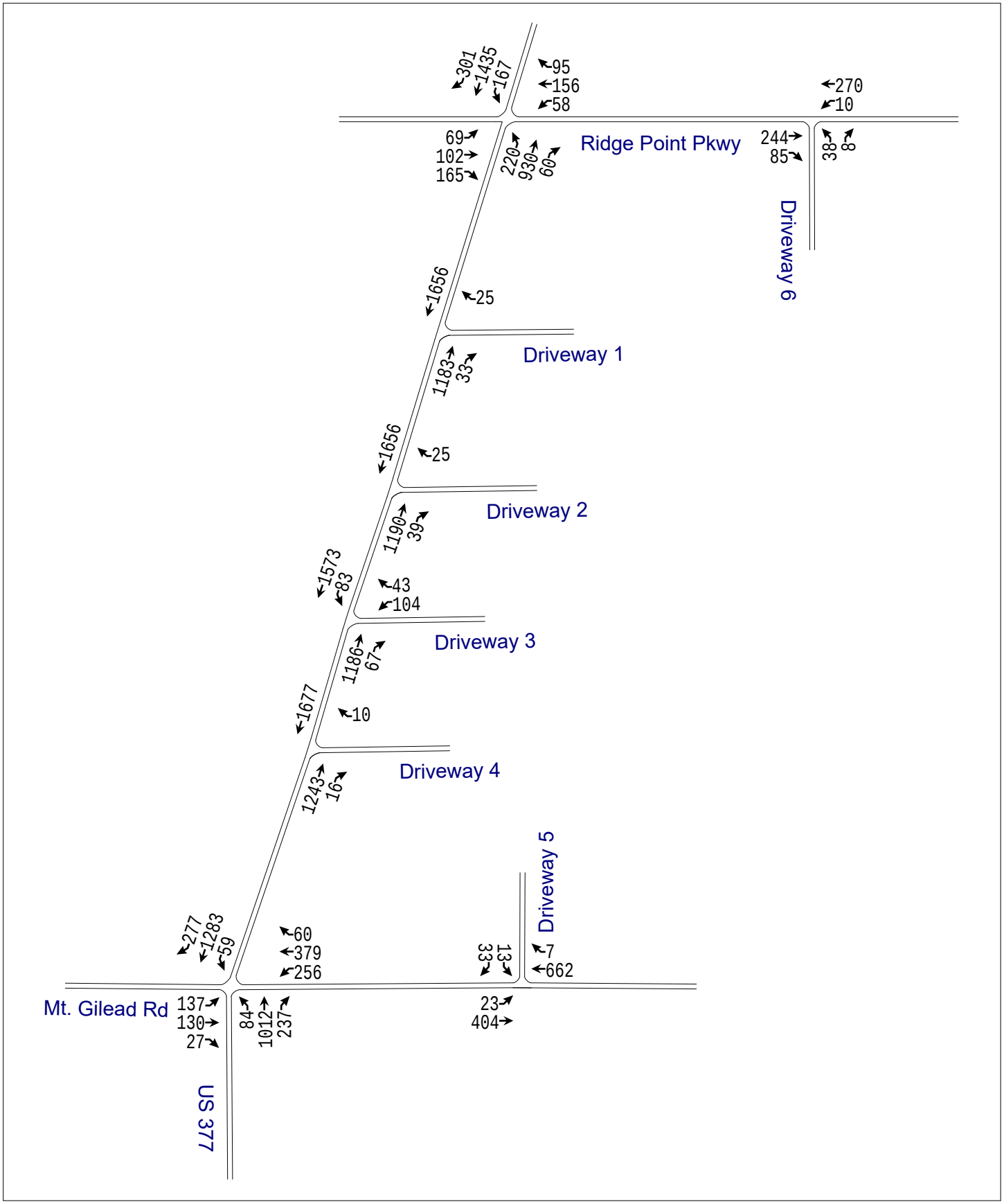
A12. 2030 Horizon Plus Site Generated PM Peak Hour Traffic Volumes **North ^**

Not to Scale



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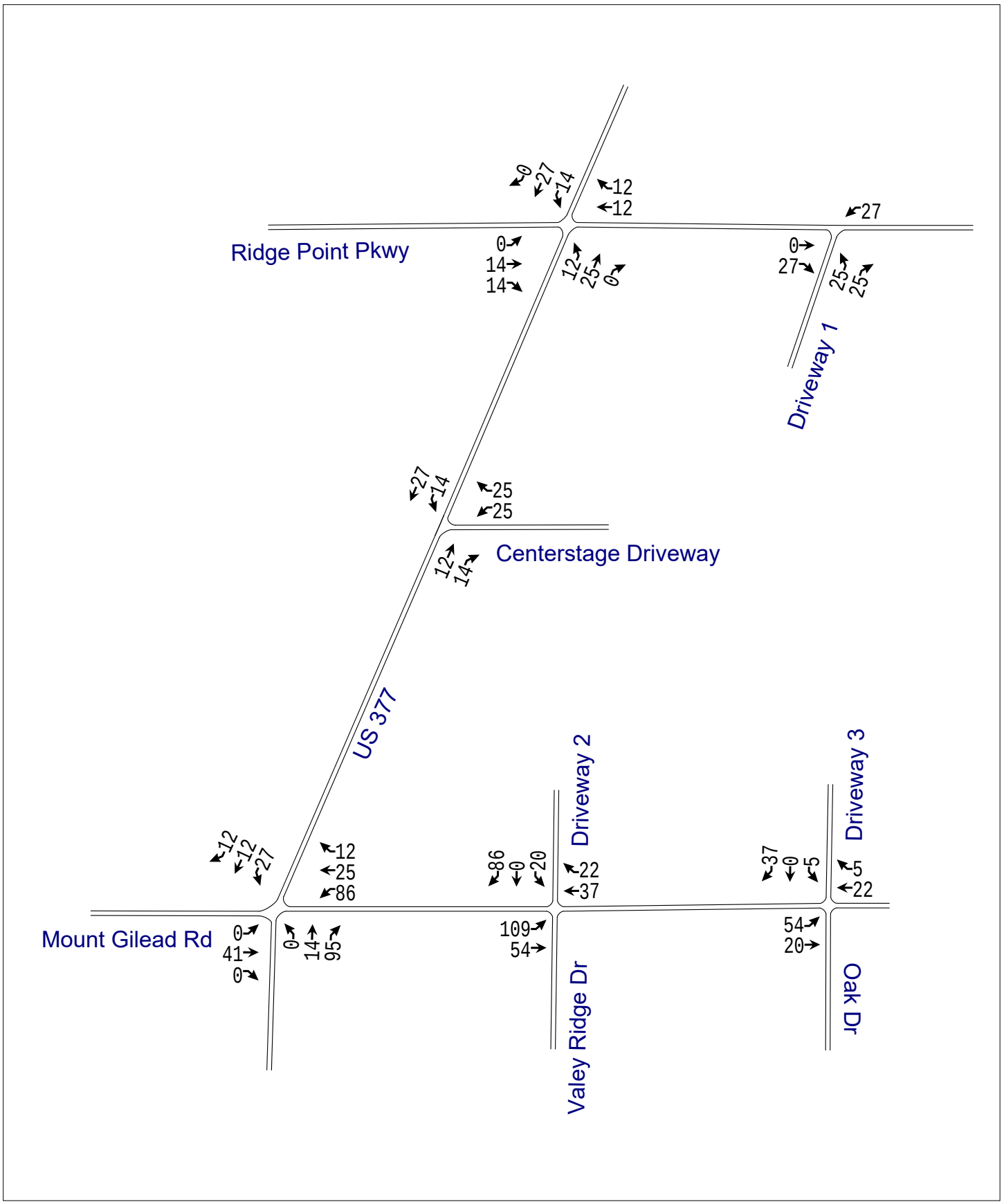
A13.Milestone Church-2024 Site Generated AM Peak Hour Traffic Volumes-Weekday **North ^**

Not to Scale

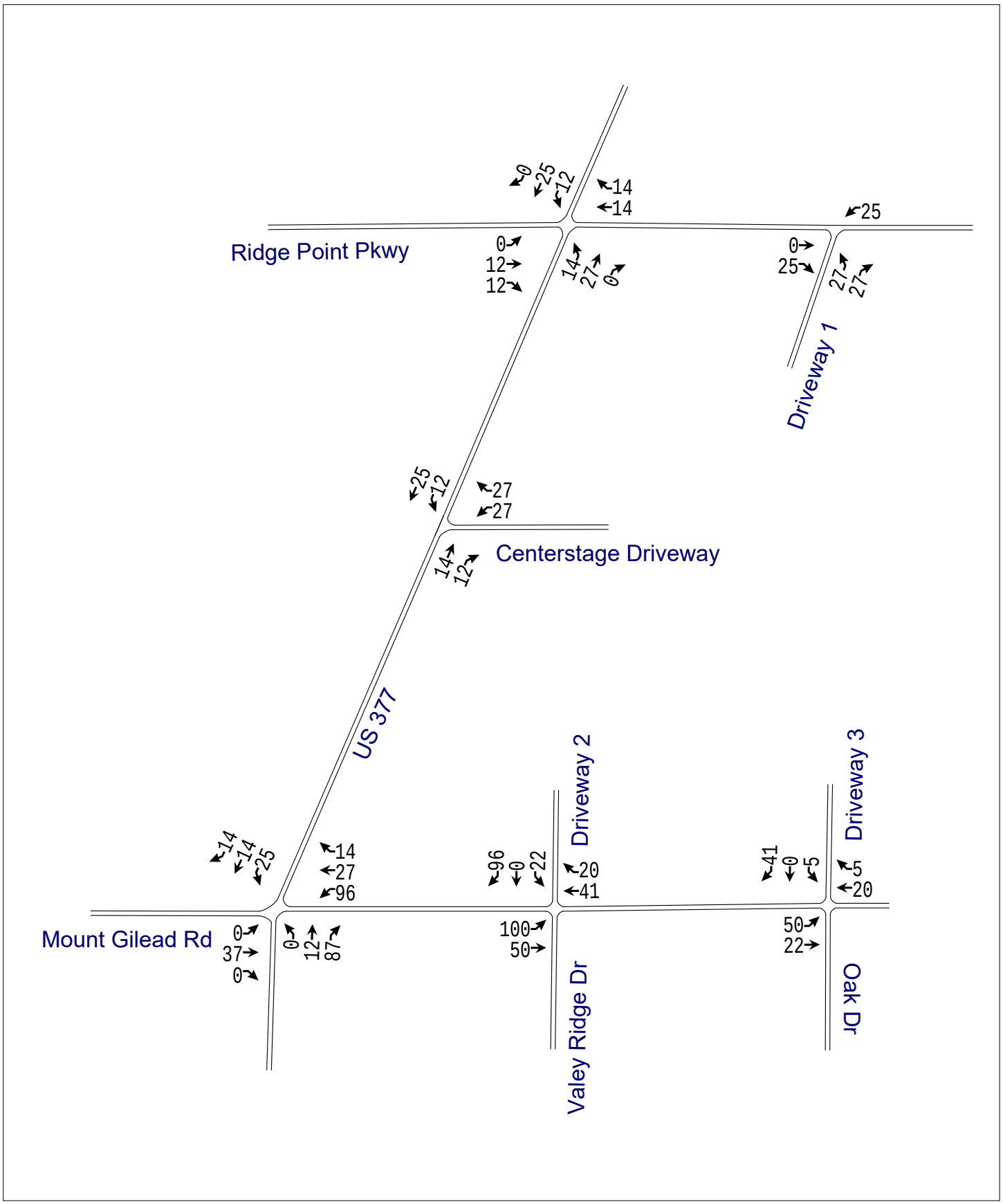


TIA for Milestone Church in Keller, Texas **DeShazo Group**

LBN

A14.Milestone Church-2024 Site Generated PM Peak Hour Traffic Volumes-Weekday **North ^**

Not to Scale

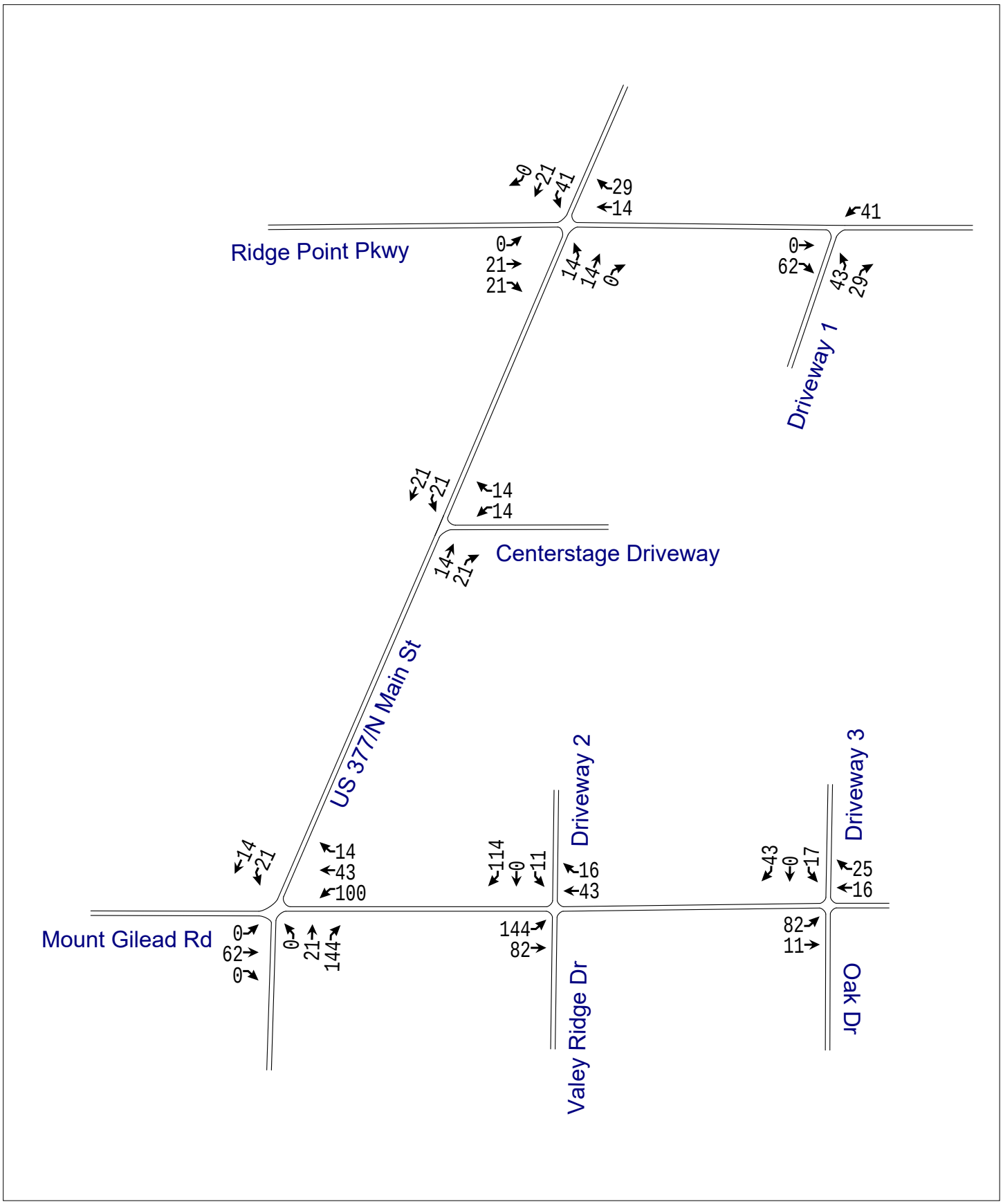


TIA for Milestone Church in Keller, Texas **DeShazo Group**

LBN

A15.Milestone Church-2029 Site Generated AM Peak Hour Traffic Volumes-Weekday **North ^**

Not to Scale

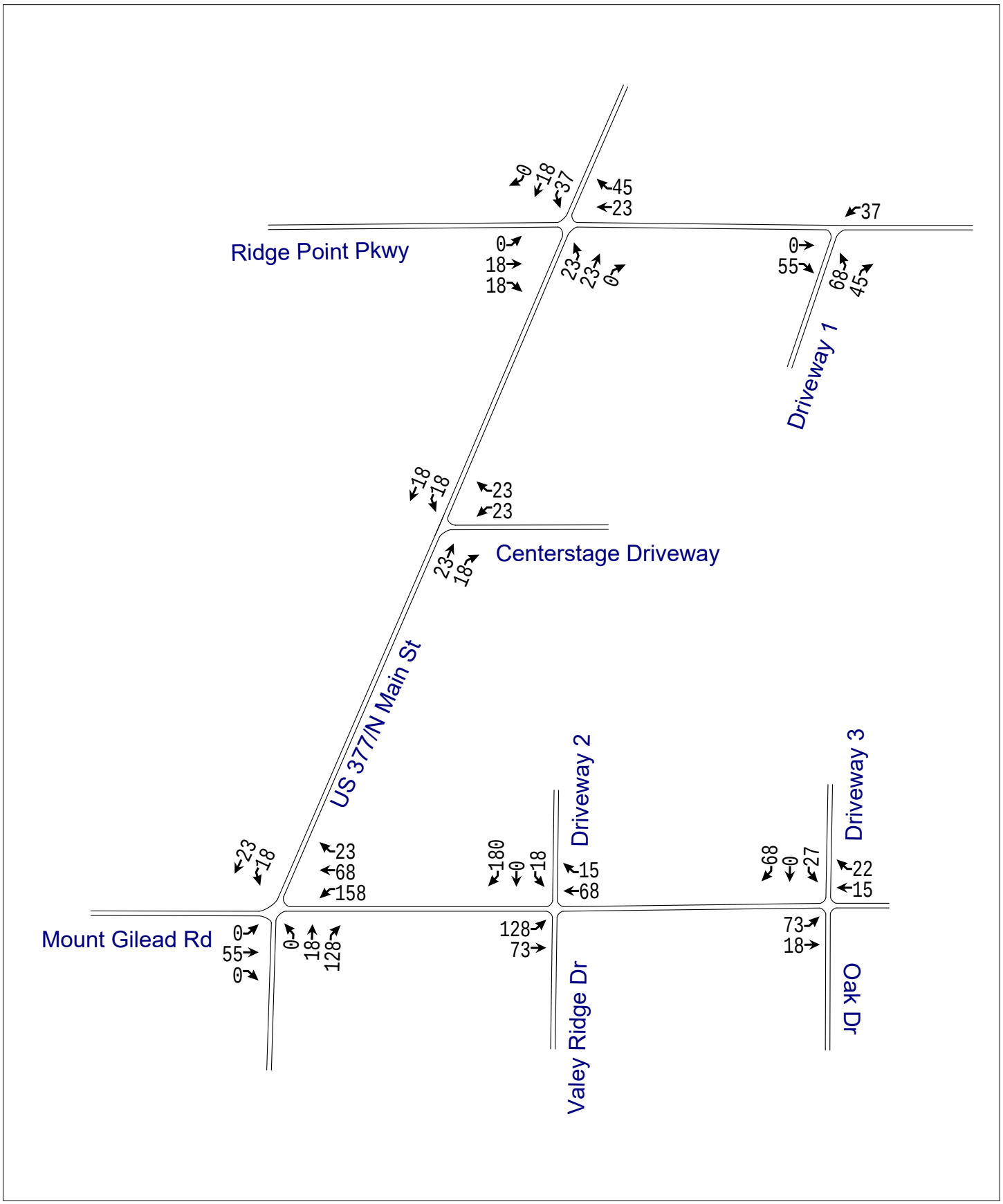


TIA for Milestone Church in Keller, Texas **DeShazo Group**

LBN

A16.Milestone Church-2029 Site Generated PM Peak Hour Traffic Volumes-Weekday **North ^**

Not to Scale



TIA for Milestone Church in Keller, Texas **DeShazo Group**

LBN

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

Intersection Traffic Movements

DeShazo Group, Inc.

Location: ***US 377 at Mount Gilea Road***
City/State: ***Keller, Texas***
Day/Date: ***Wednesday, October 31, 2018***
Project-ID #: ***19125-(1)***
Data Source: ***CJ Hensch***

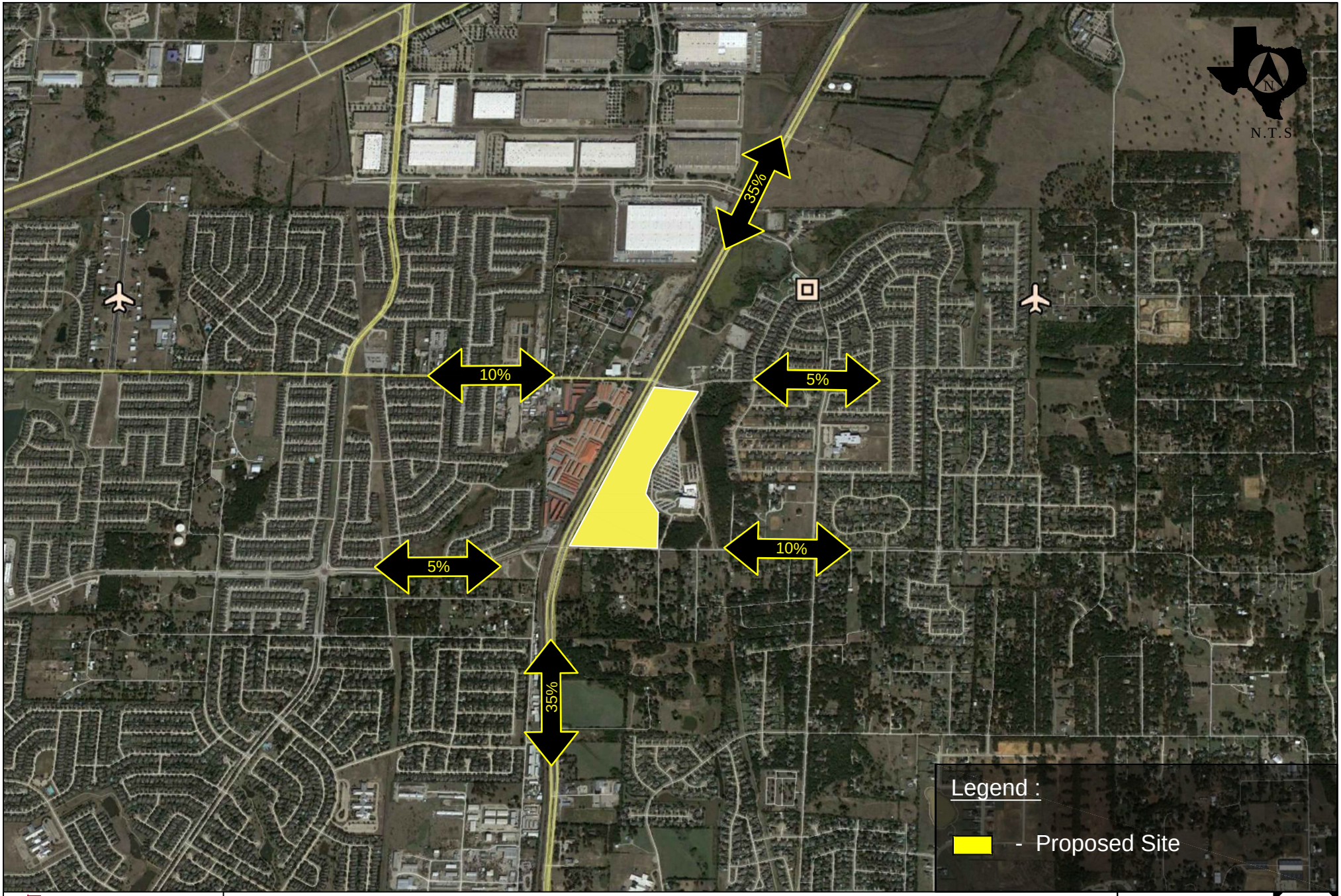
Data Collector(s): ***Camera***
Weather Conditions: ***Mild/Normal Conditions***
Traffic Control: ***Signalized***

Time of Count		Northbound on *US 377*				Southbound on *US 377*				Eastbound on *Mount Gilead Rd*				Westbound on *Mount Gilead Rd*			
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	0	218	24	0	6	96	18	0	41	69	4	0	12	4	0
7:15 AM	7:30 AM	0	0	221	49	0	4	144	16	0	27	72	9	0	14	4	2
7:30 AM	7:45 AM	0	3	232	32	0	8	150	24	0	39	71	7	0	13	7	5
7:45 AM	8:00 AM	0	0	175	30	0	6	160	33	0	51	73	4	0	13	20	2
8:00 AM	8:15 AM	0	7	191	26	0	7	133	21	0	48	36	4	0	14	11	4
8:15 AM	8:30 AM	0	3	155	18	0	3	117	15	0	45	34	8	0	11	2	1
8:30 AM	8:45 AM	0	7	218	21	0	1	106	11	0	40	25	6	0	5	7	4
8:45 AM	9:00 AM	0	1	161	21	0	5	148	13	0	24	21	5	0	4	3	6
Intersection PHV:		*0*	*10*	*819*	*137*	*0*	*25*	*587*	*94*	*0*	*165*	*252*	*24*	*0*	*54*	*42*	*13*
PHF:		*0.00*	*0.36*	*0.88*	*0.70*	*0.00*	*0.78*	*0.92*	*0.71*	*0.00*	*0.81*	*0.86*	*0.67*	*0.00*	*0.96*	*0.53*	*0.65*
Intersection Peak Hour: 7:15 AM - 8:15 AM																*Intersection PHF: 0.94*	
Study Area PHV:		**0**	**10**	**819**	**137**	**0**	**25**	**587**	**94**	**0**	**165**	**252**	**24**	**0**	**54**	**42**	**13**
PHF:		**0.00**	**0.36**	**0.88**	**0.70**	**0.00**	**0.78**	**0.92**	**0.71**	**0.00**	**0.81**	**0.86**	**0.67**	**0.00**	**0.96**	**0.53**	**0.65**
Study Peak Hour: 7:15 AM - 8:15 AM																**Study Area PHF: 0.94**	
4:30 PM	4:45 PM	0	11	169	14	0	7	257	49	0	24	9	3	0	14	49	2
4:45 PM	5:00 PM	0	21	157	11	0	3	246	56	0	19	14	6	0	17	41	3
5:00 PM	5:15 PM	0	12	219	18	0	6	276	49	0	20	17	8	0	13	48	1
5:15 PM	5:30 PM	0	19	156	19	0	3	223	32	0	26	11	2	0	18	74	2
5:30 PM	5:45 PM	0	24	150	20	0	8	206	69	0	33	15	7	0	12	67	2
5:45 PM	6:00 PM	0	11	181	16	0	3	239	74	0	19	14	4	0	15	50	4
6:00 PM	6:15 PM	0	16	134	12	0	2	206	50	0	19	17	4	0	9	25	1
6:15 PM	6:30 PM	0	17	147	30	0	14	178	77	0	19	26	9	0	16	25	8
Intersection PHV:		*0*	*66*	*706*	*73*	*0*	*20*	*944*	*224*	*0*	*98*	*57*	*21*	*0*	*58*	*239*	*9*
PHF:		*0.00*	*0.69*	*0.81*	*0.91*	*0.00*	*0.63*	*0.86*	*0.76*	*0.00*	*0.74*	*0.84*	*0.66*	*0.00*	*0.81*	*0.81*	*0.56*
Intersection Peak Hour: 5:00 PM - 6:00 PM																*Intersection PHF: 0.92*	
Study Area PHV:		**0**	**66**	**706**	**73**	**0**	**20**	**944**	**224**	**0**	**98**	**57**	**21**	**0**	**58**	**239**	**9**
PHF:		**0.00**	**0.69**	**0.81**	**0.91**	**0.00**	**0.63**	**0.86**	**0.76**	**0.00**	**0.74**	**0.84**	**0.66**	**0.00**	**0.81**	**0.81**	**0.56**
Study Peak Hour: 5:00 PM - 6:00 PM																**Study Area PHF: 0.92**	

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

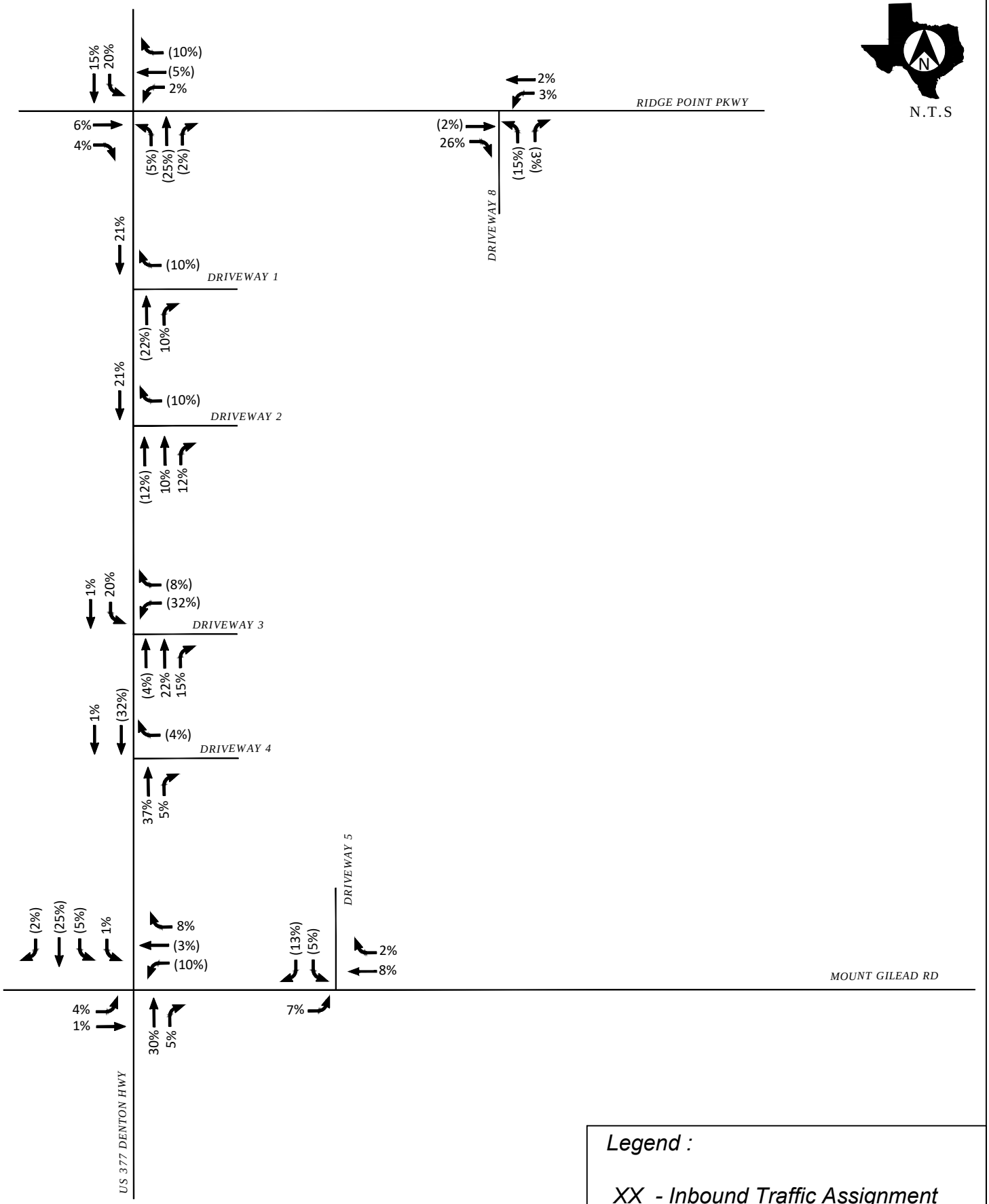
GLOBAL DISTRIBUTION

Traffic Impact Analysis for Center Stage Mixed Development in the City of Keller, Texas

PROJECT #: 20037

DATE: MAR 2020

EXHIBIT C1



Legend :

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

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

TRAFFIC ASSIGNMENT - INBOUND AND OUTBOUND

TIA for Center Stage Mixed Use Development in the City of Keller, Texas

PROJECT #: 20037

DATE: JULY 2020

EXHIBIT C2

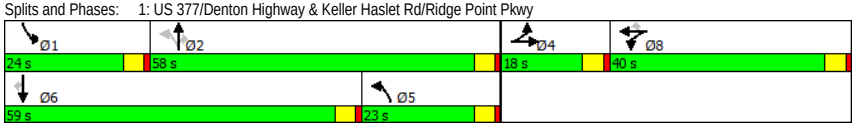
Appendix D. Detailed Intersection Capacity Analysis Results

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	85	83	69	101	43	54	972	22	70	532	58
Future Volume (vph)	102	85	83	69	101	43	54	972	22	70	532	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	92	90	75	110	47	59	1057	24	76	578	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	293	0	0	185	47	59	1057	24	76	578	63
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	18.0	18.0		40.0	40.0	40.0	23.0	58.0	58.0	24.0	59.0	59.0
Total Split (%)	12.9%	12.9%		28.6%	28.6%	28.6%	16.4%	41.4%	41.4%	17.1%	42.1%	42.1%
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)		13.6			16.5	16.5	55.6	54.3	54.3	10.1	55.1	55.1
Actuated g/C Ratio		0.12			0.15	0.15	0.50	0.49	0.49	0.09	0.50	0.50
v/c Ratio		1.29			0.68	0.14	0.11	0.61	0.03	0.47	0.33	0.08
Control Delay		195.8			58.2	0.9	19.4	23.8	0.0	59.0	18.7	2.7
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		195.8			58.2	0.9	19.4	23.8	0.0	59.0	18.7	2.7
LOS		F			E	A	B	C	A	E	B	A
Approach Delay		195.8			46.6			23.1			21.6	
Approach LOS		F			D			C			C	
Queue Length 50th (ft)		~265			128	0	22	288	0	53	129	0
Queue Length 95th (ft)		#491			210	0	53	428	0	108	204	17
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		228			594	594	727	1745	822	316	1769	832
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		1.29			0.31	0.08	0.08	0.61	0.03	0.24	0.33	0.08

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 110.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 46.2	Intersection LOS: D

Intersection Capacity Utilization 64.1% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

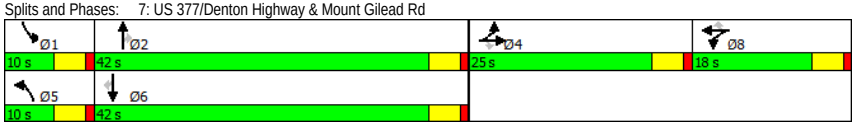


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	262	25	56	44	14	10	852	143	26	611	98
Future Volume (vph)	172	262	25	56	44	14	10	852	143	26	611	98
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	183	279	27	60	47	15	11	906	152	28	650	104
Shared Lane Traffic (%)												
Lane Group Flow (vph)	183	279	27	60	47	15	11	906	152	28	650	104
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	18.0	18.0	18.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	26.3%	26.3%	26.3%	18.9%	18.9%	18.9%	10.5%	44.2%	44.2%	10.5%	44.2%	44.2%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.5	16.5	16.5	8.3	8.3	8.3	5.7	38.8	38.8	5.7	40.5	40.5
Actuated g/C Ratio	0.21	0.21	0.21	0.11	0.11	0.11	0.07	0.50	0.50	0.07	0.52	0.52
v/c Ratio	0.25	0.71	0.06	0.32	0.24	0.05	0.04	0.52	0.18	0.22	0.35	0.12
Control Delay	28.3	41.0	0.3	40.7	38.7	0.4	40.4	17.7	3.8	44.1	14.3	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	41.0	0.3	40.7	38.7	0.4	40.4	17.7	3.8	44.1	14.3	2.9
LOS	C	D	A	D	D	A	D	B	A	D	B	A
Approach Delay		34.0			35.0			16.0			13.8	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	37	122	0	28	22	0	2	156	0	13	102	0
Queue Length 95th (ft)	75	240	0	71	58	0	12	286	36	44	193	24
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	930	504	517	316	332	381	249	1755	861	128	1832	877
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.55	0.05	0.19	0.14	0.04	0.04	0.52	0.18	0.22	0.35	0.12

Intersection Summary	
Cycle Length: 95	
Actuated Cycle Length: 78.2	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 19.8	Intersection LOS: B

Intersection Capacity Utilization 52.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 7: US 377/Denton Highway & Mount Gilead Rd

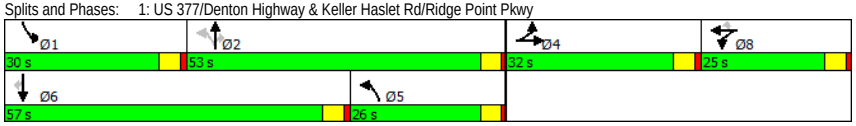


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	53	110	42	99	20	151	692	45	53	1122	247
Future Volume (vph)	57	53	110	42	99	20	151	692	45	53	1122	247
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	59	55	115	44	103	21	157	721	47	55	1169	257
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	229	0	0	147	21	157	721	47	55	1169	257
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	32.0	32.0		25.0	25.0	25.0	26.0	53.0	53.0	30.0	57.0	57.0
Total Split (%)	22.9%	22.9%		17.9%	17.9%	17.9%	18.6%	37.9%	37.9%	21.4%	40.7%	40.7%
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)		18.6			14.5	14.5	55.0	55.0	55.0	9.1	53.2	53.2
Actuated g/C Ratio		0.16			0.13	0.13	0.49	0.49	0.49	0.08	0.47	0.47
v/c Ratio		0.74			0.63	0.07	0.54	0.42	0.06	0.39	0.70	0.31
Control Delay		54.3			60.6	0.5	40.7	22.4	1.2	60.5	28.8	8.3
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		54.3			60.6	0.5	40.7	22.4	1.2	60.5	28.8	8.3
LOS		D			E	A	D	C	A	E	C	A
Approach Delay		54.3			53.1			24.5			26.4	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)		135			101	0	64	180	0	38	336	29
Queue Length 95th (ft)		246			191	0	137	302	7	89	572	106
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		446			337	386	529	1723	813	404	1665	841
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		0.51			0.44	0.05	0.30	0.42	0.06	0.14	0.70	0.31

Intersection Summary			
Cycle Length: 140			
Actuated Cycle Length: 113			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 29.7		Intersection LOS: C	

Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

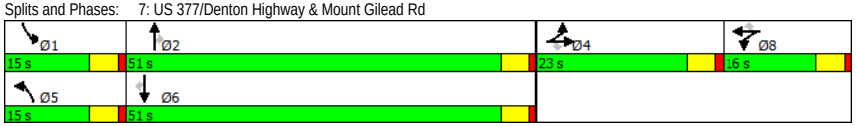


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	59	22	60	249	9	69	735	76	21	982	223
Future Volume (vph)	102	59	22	60	249	9	69	735	76	21	982	223
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	111	64	24	65	271	10	75	799	83	23	1067	242
Shared Lane Traffic (%)												
Lane Group Flow (vph)	111	64	24	65	271	10	75	799	83	23	1067	242
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	16.0	16.0	16.0	15.0	51.0	51.0	15.0	51.0	51.0
Total Split (%)	21.9%	21.9%	21.9%	15.2%	15.2%	15.2%	14.3%	48.6%	48.6%	14.3%	48.6%	48.6%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	8.6	8.6	8.6	11.6	11.6	11.6	7.4	51.6	51.6	6.7	46.8	46.8
Actuated g/C Ratio	0.10	0.10	0.10	0.13	0.13	0.13	0.08	0.57	0.57	0.07	0.52	0.52
v/c Ratio	0.34	0.36	0.10	0.29	1.13	0.03	0.27	0.39	0.09	0.17	0.58	0.26
Control Delay	41.9	45.2	0.8	41.6	138.7	0.2	42.8	12.6	1.8	43.9	17.6	2.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.9	45.2	0.8	41.6	138.7	0.2	42.8	12.6	1.8	43.9	17.6	2.7
LOS	D	D	A	D	F	A	D	B	A	D	B	A
Approach Delay		38.0			116.5			14.0			15.3	
Approach LOS		D			F			B			B	
Queue Length 50th (ft)	31	36	0	35	~189	0	21	103	0	13	220	0
Queue Length 95th (ft)	58	77	0	78	#364	0	44	215	15	38	316	39
Internal Link Dist (ft)		317			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	708	384	413	227	239	298	402	2027	953	207	1836	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.17	0.06	0.29	1.13	0.03	0.19	0.39	0.09	0.11	0.58	0.26

Intersection Summary		
Cycle Length: 105		
Actuated Cycle Length: 90.1		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.13		
Intersection Signal Delay: 28.8	Intersection LOS: C	

Intersection Capacity Utilization 58.0% ICU Level of Service B
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: 7: US 377/Denton Highway & Mount Gilead Rd

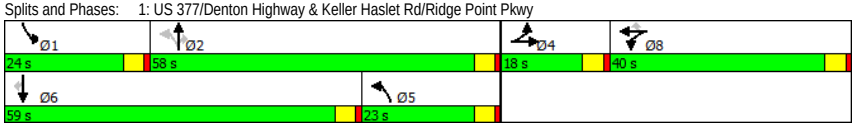


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	108	106	76	124	59	72	1098	24	91	614	64
Future Volume (vph)	113	108	106	76	124	59	72	1098	24	91	614	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	117	115	83	135	64	78	1193	26	99	667	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	355	0	0	218	64	78	1193	26	99	667	70
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	18.0	18.0		40.0	40.0	40.0	23.0	58.0	58.0	24.0	59.0	59.0
Total Split (%)	12.9%	12.9%		28.6%	28.6%	28.6%	16.4%	41.4%	41.4%	17.1%	42.1%	42.1%
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)		13.6			19.1	19.1	53.8	53.8	53.8	11.8	57.2	57.2
Actuated g/C Ratio		0.12			0.16	0.16	0.46	0.46	0.46	0.10	0.49	0.49
v/c Ratio		1.64			0.73	0.18	0.16	0.73	0.03	0.55	0.38	0.09
Control Delay		341.5			61.0	1.2	22.4	30.0	0.1	62.6	21.4	3.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		341.5			61.0	1.2	22.4	30.0	0.1	62.6	21.4	3.8
LOS		F			E	A	C	C	A	E	C	A
Approach Delay		341.5			47.4			29.0			24.8	
Approach LOS		F			D			C			C	
Queue Length 50th (ft)		~377			156	0	32	370	0	71	166	0
Queue Length 95th (ft)		#639			250	2	73	554	0	136	261	23
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		216			560	566	630	1635	775	298	1739	819
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		1.64			0.39	0.11	0.12	0.73	0.03	0.33	0.38	0.09

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 116.4	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.64	
Intersection Signal Delay: 69.6	Intersection LOS: E

Intersection Capacity Utilization 79.5% ICU Level of Service D
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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



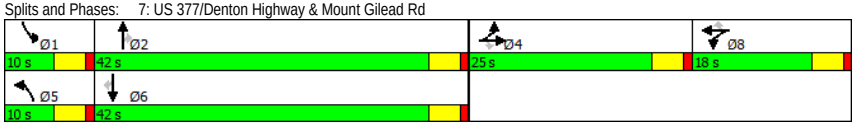
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	330	28	148	74	27	11	955	253	56	687	120
Future Volume (vph)	190	330	28	148	74	27	11	955	253	56	687	120
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	202	351	30	157	79	29	12	1016	269	60	731	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	351	30	157	79	29	12	1016	269	60	731	128
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	18.0	18.0	18.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	26.3%	26.3%	26.3%	18.9%	18.9%	18.9%	10.5%	44.2%	44.2%	10.5%	44.2%	44.2%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	19.4	19.4	19.4	11.9	11.9	11.9	5.6	37.9	37.9	5.6	43.6	43.6
Actuated g/C Ratio	0.21	0.21	0.21	0.13	0.13	0.13	0.06	0.42	0.42	0.06	0.48	0.48
v/c Ratio	0.27	0.88	0.07	0.68	0.32	0.09	0.06	0.69	0.33	0.56	0.43	0.15
Control Delay	31.7	59.6	0.3	53.8	40.7	0.6	43.0	25.6	3.7	63.9	17.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	59.6	0.3	53.8	40.7	0.6	43.0	25.6	3.7	63.9	17.3	3.7
LOS	C	E	A	D	D	A	D	C	A	E	B	A
Approach Delay		46.9			44.1			21.2			18.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	52	206	0	90	43	0	3	268	0	36	140	0
Queue Length 95th (ft)	84	#362	0	#160	87	0	12	344	48	#92	228	35
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	785	426	455	266	280	341	210	1482	819	108	1707	830
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.82	0.07	0.59	0.28	0.09	0.06	0.69	0.33	0.56	0.43	0.15

Intersection Summary

Cycle Length: 95
Actuated Cycle Length: 90.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 27.3 Intersection LOS: C

Intersection Capacity Utilization 71.1% 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: 7: US 377/Denton Highway & Mount Gilead Rd

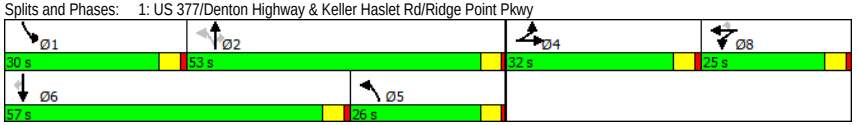


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	71	133	46	109	22	181	791	50	71	1264	273
Future Volume (vph)	63	71	133	46	109	22	181	791	50	71	1264	273
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	66	74	139	48	114	23	189	824	52	74	1317	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	279	0	0	162	23	189	824	52	74	1317	284
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	32.0	32.0		25.0	25.0	25.0	26.0	53.0	53.0	30.0	57.0	57.0
Total Split (%)	22.9%	22.9%		17.9%	17.9%	17.9%	18.6%	37.9%	37.9%	21.4%	40.7%	40.7%
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)		22.2			15.6	15.6	55.9	55.9	55.9	10.5	53.2	53.2
Actuated g/C Ratio		0.19			0.13	0.13	0.47	0.47	0.47	0.09	0.44	0.44
v/c Ratio		0.81			0.68	0.07	0.75	0.50	0.07	0.48	0.84	0.35
Control Delay		61.2			66.1	0.5	62.7	26.4	1.8	65.1	37.7	11.0
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		61.2			66.1	0.5	62.7	26.4	1.8	65.1	37.7	11.0
LOS		E			E	A	E	C	A	E	D	B
Approach Delay		61.2			57.9			31.6			34.4	
Approach LOS		E			E			C			C	
Queue Length 50th (ft)		185			122	0	91	246	0	56	478	49
Queue Length 95th (ft)		#331			213	0	190	362	11	114	#758	136
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		423			317	370	438	1650	782	381	1569	801
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		0.66			0.51	0.06	0.43	0.50	0.07	0.19	0.84	0.35

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 119.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 37.1	Intersection LOS: D

Intersection Capacity Utilization 78.3% 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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

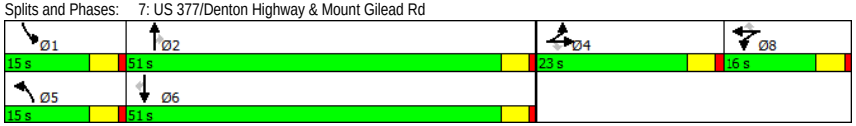


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	102	24	162	302	24	76	823	171	48	1098	260
Future Volume (vph)	113	102	24	162	302	24	76	823	171	48	1098	260
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	111	26	176	328	26	83	895	186	52	1193	283
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	111	26	176	328	26	83	895	186	52	1193	283
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	16.0	16.0	16.0	15.0	51.0	51.0	15.0	51.0	51.0
Total Split (%)	21.9%	21.9%	21.9%	15.2%	15.2%	15.2%	14.3%	48.6%	48.6%	14.3%	48.6%	48.6%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.9	10.9	10.9	11.6	11.6	11.6	7.7	46.9	46.9	8.0	47.3	47.3
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.50	0.50	0.09	0.51	0.51
v/c Ratio	0.31	0.51	0.09	0.80	1.42	0.09	0.29	0.50	0.21	0.34	0.66	0.30
Control Delay	40.5	48.2	0.7	68.8	244.8	0.6	44.8	17.9	3.1	48.2	20.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	48.2	0.7	68.8	244.8	0.6	44.8	17.9	3.1	48.2	20.6	3.5
LOS	D	D	A	E	F	A	D	B	A	D	C	A
Approach Delay		39.8			174.4			17.5			18.4	
Approach LOS		D			F			B			B	
Queue Length 50th (ft)	35	64	0	105	~273	0	24	186	0	30	277	6
Queue Length 95th (ft)	63	120	0	#239	#477	0	50	277	37	70	403	51
Internal Link Dist (ft)		317			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	687	372	404	220	231	292	390	1780	889	201	1797	933
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.30	0.06	0.80	1.42	0.09	0.21	0.50	0.21	0.26	0.66	0.30

Intersection Summary		
Cycle Length: 105		
Actuated Cycle Length: 93.2		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.42		
Intersection Signal Delay: 43.4	Intersection LOS: D	

Intersection Capacity Utilization 69.6% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: US 377/Denton Highway & Mount Gilead Rd

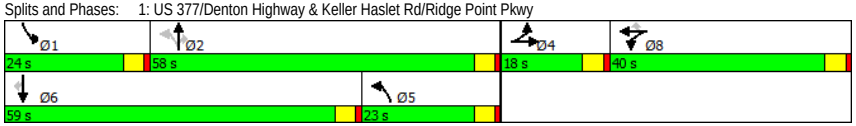


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	129	120	83	141	94	89	1184	31	162	668	64
Future Volume (vph)	113	129	120	83	141	94	89	1184	31	162	668	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	140	130	90	153	102	97	1287	34	176	726	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	393	0	0	243	102	97	1287	34	176	726	70
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	18.0	18.0		40.0	40.0	40.0	23.0	58.0	58.0	24.0	59.0	59.0
Total Split (%)	12.9%	12.9%		28.6%	28.6%	28.6%	16.4%	41.4%	41.4%	17.1%	42.1%	42.1%
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)		13.6			21.8	21.8	53.8	53.8	53.8	16.5	54.8	54.8
Actuated g/C Ratio		0.11			0.18	0.18	0.43	0.43	0.43	0.13	0.44	0.44
v/c Ratio		1.93			0.76	0.27	0.20	0.84	0.05	0.75	0.46	0.09
Control Delay		462.4			64.0	7.2	26.7	38.3	0.1	72.2	26.6	4.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		462.4			64.0	7.2	26.7	38.3	0.1	72.2	26.6	4.1
LOS		F			E	A	C	D	A	E	C	A
Approach Delay		462.4			47.2			36.6			33.2	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)		~484			189	0	46	482	0	137	214	0
Queue Length 95th (ft)		#750			284	37	93	#707	0	#241	312	24
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		204			527	539	547	1538	734	280	1567	746
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		1.93			0.46	0.19	0.18	0.84	0.05	0.63	0.46	0.09

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 123.7	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.93	
Intersection Signal Delay: 90.2	Intersection LOS: F

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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

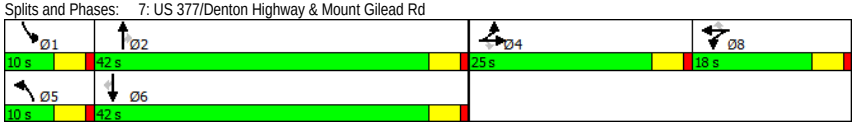


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	334	28	182	84	56	11	1061	271	76	773	127
Future Volume (vph)	204	334	28	182	84	56	11	1061	271	76	773	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	217	355	30	194	89	60	12	1129	288	81	822	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	355	30	194	89	60	12	1129	288	81	822	135
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	18.0	18.0	18.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	26.3%	26.3%	26.3%	18.9%	18.9%	18.9%	10.5%	44.2%	44.2%	10.5%	44.2%	44.2%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	19.7	19.7	19.7	12.8	12.8	12.8	5.5	37.5	37.5	5.5	45.6	45.6
Actuated g/C Ratio	0.21	0.21	0.21	0.14	0.14	0.14	0.06	0.40	0.40	0.06	0.49	0.49
v/c Ratio	0.30	0.90	0.07	0.80	0.35	0.19	0.06	0.80	0.36	0.78	0.48	0.16
Control Delay	32.5	64.1	0.3	64.5	41.1	1.3	43.1	30.1	3.7	89.8	18.2	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	64.1	0.3	64.5	41.1	1.3	43.1	30.1	3.7	89.8	18.2	3.6
LOS	C	E	A	E	D	A	D	C	A	F	B	A
Approach Delay		49.5			47.4			24.9			21.9	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	56	209	0	114	49	0	3	312	0	49	162	0
Queue Length 95th (ft)	89	#367	0	#223	96	2	12	396	49	#131	263	35
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	752	408	441	255	268	331	201	1418	807	104	1722	840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.87	0.07	0.76	0.33	0.18	0.06	0.80	0.36	0.78	0.48	0.16

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 93.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 30.6 Intersection LOS: C

Intersection Capacity Utilization 76.2% 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: 7: US 377/Denton Highway & Mount Gilead Rd



Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	229	93	11	266	52	10
Future Vol, veh/h	229	93	11	266	52	10
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	249	101	12	289	57	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	350	0	469	300
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	169	-
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	-	-	1207	-	538	739
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1207	-	532	739
Mov Cap-2 Maneuver	-	-	-	-	532	-
Stage 1	-	-	-	-	751	-
Stage 2	-	-	-	-	834	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	557	-	-	1207	-
HCM Lane V/C Ratio	0.121	-	-	0.01	-
HCM Control Delay (s)	12.4	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1270	36	0	927
Future Vol, veh/h	0	34	1270	36	0	927
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	1380	39	0	1008

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	710	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	376	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	376	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	376	-
HCM Lane V/C Ratio	-	-	0.098	-
HCM Control Delay (s)	-	-	15.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1271	43	0	927
Future Vol, veh/h	0	34	1271	43	0	927
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	1382	47	0	1008

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	715	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	373	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	373	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	373	-
HCM Lane V/C Ratio	-	-	0.099	-
HCM Control Delay (s)	-	-	15.7	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	117.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	53	1261	67	85	842
Future Vol, veh/h	135	53	1261	67	85	842
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	-	-	-	-
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	147	58	1371	73	92	915

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2050	722	0	0	1444	0
Stage 1	1408	-	-	-	-	-
Stage 2	642	-	-	-	-	-
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	~ 48	369	-	-	465	-
Stage 1	192	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 29	369	-	-	465	-
Mov Cap-2 Maneuver	~ 29	-	-	-	-	-
Stage 1	192	-	-	-	-	-
Stage 2	290	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, $	1512.4	0	3.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	29	369	465	-
HCM Lane V/C Ratio	-	-	5.06	0.156	0.199	-
HCM Control Delay (s)	-	-	$ 2099.6	16.6	14.7	2.5
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	17.8	0.5	0.7	-

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	14	1315	18	0	952
Future Vol, veh/h	0	14	1315	18	0	952
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	15	1429	20	0	1035

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	725	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	368	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	368	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	368	-
HCM Lane V/C Ratio	-	-	0.041	-
HCM Control Delay (s)	-	-	15.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	656	276	7	17	45
Future Vol, veh/h	25	656	276	7	17	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	713	300	8	18	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	1071	304
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	767	-
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	1253	-	-	-	244	736
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	458	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1253	-	-	-	235	736
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	458	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1253	-	-	-	464
HCM Lane V/C Ratio	0.022	-	-	-	0.145
HCM Control Delay (s)	7.9	0	-	-	14.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	229	93	11	266	52	10
Future Vol, veh/h	229	93	11	266	52	10
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	0	-	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	249	101	12	289	57	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	350	0	562	249
Stage 1	-	-	-	-	249	-
Stage 2	-	-	-	-	313	-
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	-	-	1209	-	488	790
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1209	-	483	790
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	734	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	515	-	-	1209	-
HCM Lane V/C Ratio	0.131	-	-	0.01	-
HCM Control Delay (s)	13	-	-	8	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1270	36	0	927
Future Vol, veh/h	0	34	1270	36	0	927
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	1380	39	0	1008

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	710	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	376	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	376	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	376	-
HCM Lane V/C Ratio	-	-	0.098	-
HCM Control Delay (s)	-	-	15.6	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1271	43	0	927
Future Vol, veh/h	0	34	1271	43	0	927
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	-	100	-	-
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	37	1382	47	0	1008

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	691	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	387	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	387	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	387	-
HCM Lane V/C Ratio	-	-	0.095	-
HCM Control Delay (s)	-	-	15.3	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

Intersection	
Int Delay, s/veh	76.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	135	53	1261	67	85	842
Future Vol, veh/h	135	53	1261	67	85	842
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	-	100	100	-
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	147	58	1371	73	92	915

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2013	686	0	0	1444	0
Stage 1	1371	-	-	-	-	-
Stage 2	642	-	-	-	-	-
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	~ 51	390	-	-	465	-
Stage 1	201	-	-	-	-	-
Stage 2	486	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 41	390	-	-	465	-
Mov Cap-2 Maneuver	~ 41	-	-	-	-	-
Stage 1	201	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 984.4	0	1.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	41	390	465	-
HCM Lane V/C Ratio	-	-	3.579	0.148	0.199	-
HCM Control Delay (s)	-	-	$ 1364.6	15.8	14.7	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	16.5	0.5	0.7	-

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	14	1315	18	0	952
Future Vol, veh/h	0	14	1315	18	0	952
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	15	1429	20	0	1035

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	725	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	368	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	368	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	368	-
HCM Lane V/C Ratio	-	-	0.041	-
HCM Control Delay (s)	-	-	15.2	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	656	276	7	17	45
Future Vol, veh/h	25	656	276	7	17	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	713	300	8	18	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	711	150
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	411	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1249	-	-	-	368	870
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	638	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1249	-	-	-	360	870
Mov Cap-2 Maneuver	-	-	-	-	360	-
Stage 1	-	-	-	-	709	-
Stage 2	-	-	-	-	638	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.4
HCM LOS			B

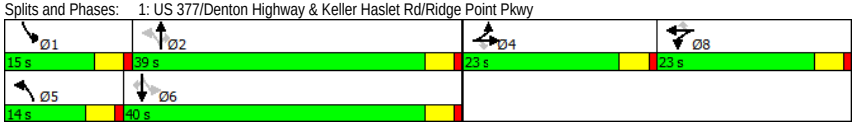
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1249	-	-	-	627
HCM Lane V/C Ratio	0.022	-	-	-	0.107
HCM Control Delay (s)	7.9	-	-	-	11.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	129	120	83	141	94	89	1184	31	162	668	64
Future Volume (vph)	113	129	120	83	141	94	89	1184	31	162	668	64
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)	123	140	130	90	153	102	97	1287	34	176	726	70
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	140	130	0	243	102	97	1287	34	176	726	70
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	23.0	23.0	23.0	14.0	39.0	39.0	15.0	40.0	40.0
Total Split (%)	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	14.0%	39.0%	39.0%	15.0%	40.0%	40.0%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.5	12.5	12.5		16.0	16.0	42.4	34.8	34.8	46.8	39.0	39.0
Actuated g/C Ratio	0.14	0.14	0.14		0.18	0.18	0.47	0.38	0.38	0.51	0.43	0.43
v/c Ratio	0.51	0.55	0.39		0.76	0.27	0.23	0.95	0.05	0.67	0.48	0.09
Control Delay	44.4	45.4	10.4		52.5	7.6	13.6	44.8	0.1	30.7	22.3	1.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	45.4	10.4		52.5	7.6	13.6	44.8	0.1	30.7	22.3	1.4
LOS	D	D	B		D	A	B	D	A	C	C	A
Approach Delay		33.5			39.2			41.6			22.3	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	69	79	0		135	0	27	388	0	51	166	0
Queue Length 95th (ft)	124	138	50		#251	37	59	#608	0	#152	255	10
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)	100		100				1000		535	360		240
Base Capacity (vph)	363	382	427		375	415	459	1353	676	283	1519	745
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.37	0.30		0.65	0.25	0.21	0.95	0.05	0.62	0.48	0.09

Intersection Summary		
Cycle Length: 100		
Actuated Cycle Length: 90.9		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.95		
Intersection Signal Delay: 34.3	Intersection LOS: C	

Intersection Capacity Utilization 75.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

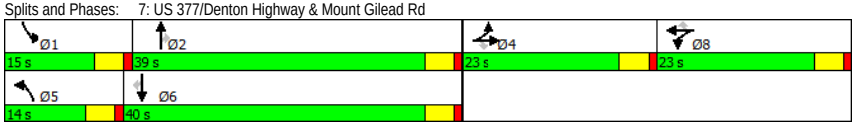


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	334	28	182	84	56	11	1061	271	76	773	127
Future Volume (vph)	204	334	28	182	84	56	11	1061	271	76	773	127
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	217	355	30	194	89	60	12	1129	288	81	822	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	355	30	194	89	60	12	1129	288	81	822	135
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	23.0	23.0	23.0	14.0	39.0	39.0	15.0	40.0	40.0
Total Split (%)	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	14.0%	39.0%	39.0%	15.0%	40.0%	40.0%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	14.8	14.8	14.8	14.5	14.5	14.5	6.0	35.5	35.5	8.8	44.2	44.2
Actuated g/C Ratio	0.17	0.17	0.17	0.16	0.16	0.16	0.07	0.40	0.40	0.10	0.49	0.49
v/c Ratio	0.38	0.60	0.08	0.68	0.29	0.17	0.05	0.80	0.36	0.47	0.47	0.16
Control Delay	36.5	40.3	0.5	49.2	37.6	1.6	44.1	32.0	4.3	50.2	17.7	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	40.3	0.5	49.2	37.6	1.6	44.1	32.0	4.3	50.2	17.7	3.9
LOS	D	D	A	D	D	A	D	C	A	D	B	A
Approach Delay		36.9			37.8			26.5			18.4	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	59	103	0	108	46	0	3	317	0	46	150	0
Queue Length 95th (ft)	97	155	0	188	94	4	12	#494	55	97	281	37
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	727	749	425	374	394	425	373	1408	803	212	1751	851
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.47	0.07	0.52	0.23	0.14	0.03	0.80	0.36	0.38	0.47	0.16

Intersection Summary		
Cycle Length: 100		
Actuated Cycle Length: 89.3		
Natural Cycle: 90		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.80		
Intersection Signal Delay: 27.0	Intersection LOS: C	

Intersection Capacity Utilization 67.9% 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: 7: US 377/Denton Highway & Mount Gilead Rd

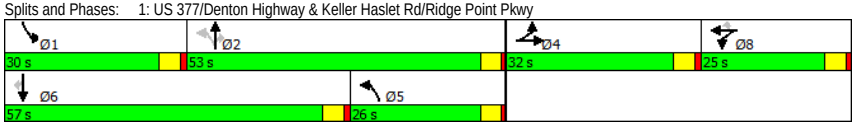


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	90	146	53	122	47	193	854	55	136	1313	273
Future Volume (vph)	63	90	146	53	122	47	193	854	55	136	1313	273
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	66	94	152	55	127	49	201	890	57	142	1368	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	312	0	0	182	49	201	890	57	142	1368	284
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	32.0	32.0		25.0	25.0	25.0	26.0	53.0	53.0	30.0	57.0	57.0
Total Split (%)	22.9%	22.9%		17.9%	17.9%	17.9%	18.6%	37.9%	37.9%	21.4%	40.7%	40.7%
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)		24.6			16.8	16.8	49.8	49.8	49.8	15.5	53.1	53.1
Actuated g/C Ratio		0.20			0.13	0.13	0.40	0.40	0.40	0.12	0.43	0.43
v/c Ratio		0.86			0.74	0.16	0.76	0.63	0.08	0.65	0.91	0.37
Control Delay		67.5			71.7	1.1	66.4	34.3	2.7	67.4	45.4	12.4
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		67.5			71.7	1.1	66.4	34.3	2.7	67.4	45.4	12.4
LOS		E			E	A	E	C	A	E	D	B
Approach Delay		67.5			56.7			38.4			41.9	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)		226			146	0	114	318	0	115	570	59
Queue Length 95th (ft)		#413			243	0	208	435	15	191	#832	146
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		406			304	360	416	1411	680	365	1503	771
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		0.77			0.60	0.14	0.48	0.63	0.08	0.39	0.91	0.37

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 124.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 44.0	Intersection LOS: D

Intersection Capacity Utilization 88.5% 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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



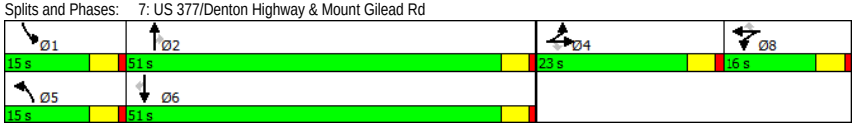
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	105	24	187	309	50	76	921	187	64	1161	265
Future Volume (vph)	126	105	24	187	309	50	76	921	187	64	1161	265
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	114	26	203	336	54	83	1001	203	70	1262	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	114	26	203	336	54	83	1001	203	70	1262	288
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	16.0	16.0	16.0	15.0	51.0	51.0	15.0	51.0	51.0
Total Split (%)	21.9%	21.9%	21.9%	15.2%	15.2%	15.2%	14.3%	48.6%	48.6%	14.3%	48.6%	48.6%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	11.3	11.3	11.3	11.6	11.6	11.6	7.7	46.9	46.9	8.6	47.8	47.8
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.08	0.50	0.50	0.09	0.51	0.51
v/c Ratio	0.33	0.51	0.09	0.93	1.47	0.19	0.30	0.57	0.23	0.43	0.70	0.31
Control Delay	40.9	48.2	0.6	90.2	264.3	1.6	45.4	19.5	3.1	51.1	21.8	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	48.2	0.6	90.2	264.3	1.6	45.4	19.5	3.1	51.1	21.8	4.0
LOS	D	D	A	F	F	A	D	B	A	D	C	A
Approach Delay		40.1			180.8			18.6			19.9	
Approach LOS		D			F			B			B	
Queue Length 50th (ft)	40	67	0	125	~288	0	25	223	0	41	304	10
Queue Length 95th (ft)	69	122	0	#288	#496	2	50	327	39	89	448	60
Internal Link Dist (ft)		317			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	681	369	401	218	229	291	386	1764	891	199	1798	929
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.31	0.06	0.93	1.47	0.19	0.22	0.57	0.23	0.35	0.70	0.31

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 94.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.47
Intersection Signal Delay: 46.2 Intersection LOS: D

Intersection Capacity Utilization 71.7% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: US 377/Denton Highway & Mount Gilead Rd



Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	197	85	10	210	38	8
Future Vol, veh/h	197	85	10	210	38	8
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	214	92	11	228	41	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	306	0	396	260
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	136	-
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	-	-	1253	-	595	778
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	877	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1253	-	589	778
Mov Cap-2 Maneuver	-	-	-	-	589	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	868	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	615	-	-	1253	-
HCM Lane V/C Ratio	0.081	-	-	0.009	-
HCM Control Delay (s)	11.4	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	1076	33	0	1511
Future Vol, veh/h	0	25	1076	33	0	1511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1170	36	0	1642

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	603	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	442	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	442	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	442	-
HCM Lane V/C Ratio	-	-	0.061	-
HCM Control Delay (s)	-	-	13.7	-
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	25	1083	39	0	1511
Future Vol, veh/h	0	25	1083	39	0	1511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1177	42	0	1642

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	610	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	437	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	437	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	437	-
HCM Lane V/C Ratio	-	-	0.062	-
HCM Control Delay (s)	-	-	13.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	47	1075	61	77	1434
Future Vol, veh/h	108	47	1075	61	77	1434
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	-	-	-	-
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	117	51	1168	66	84	1559

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2149	617	0	0	1234	0
Stage 1	1201	-	-	-	-	-
Stage 2	948	-	-	-	-	-
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	~ 41	433	-	-	560	-
Stage 1	248	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	433	-	-	560	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	248	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	433	560	-
HCM Lane V/C Ratio	-	-	-	0.118	0.149	-
HCM Control Delay (s)	-	-	-	14.4	12.6	5.7
HCM Lane LOS	-	-	-	B	B	A
HCM 95th %tile Q(veh)	-	-	-	0.4	0.5	-

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	10	1126	16	0	1541
Future Vol, veh/h	0	10	1126	16	0	1541
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	1224	17	0	1675

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	621	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	430	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	430	-	-	-	-
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)	-	-	430	-
HCM Lane V/C Ratio	-	-	0.025	-
HCM Control Delay (s)	-	-	13.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	335	514	7	13	33
Future Vol, veh/h	23	335	514	7	13	33
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	25	364	559	8	14	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	567	0	-	0	977	563
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	414	-
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	1005	-	-	-	278	526
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	667	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1005	-	-	-	269	526
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	667	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1005	-	-	-	414
HCM Lane V/C Ratio	0.025	-	-	-	0.121
HCM Control Delay (s)	8.7	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	197	85	10	210	38	8
Future Vol, veh/h	197	85	10	210	38	8
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	0	-	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	214	92	11	228	41	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	306	0	464	214
Stage 1	-	-	-	-	214	-
Stage 2	-	-	-	-	250	-
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	-	-	1255	-	556	826
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	792	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1255	-	551	826
Mov Cap-2 Maneuver	-	-	-	-	551	-
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	585	-	-	1255	-
HCM Lane V/C Ratio	0.085	-	-	0.009	-
HCM Control Delay (s)	11.7	-	-	7.9	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	1076	33	0	1511
Future Vol, veh/h	0	25	1076	33	0	1511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1170	36	0	1642

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	603	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	442	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	442	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	442	-
HCM Lane V/C Ratio	-	-	0.061	-
HCM Control Delay (s)	-	-	13.7	-
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	25	1083	39	0	1511
Future Vol, veh/h	0	25	1083	39	0	1511
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	-	100	-	-
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	1177	42	0	1642

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	589	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	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	452	-
HCM Lane V/C Ratio	-	-	0.06	-
HCM Control Delay (s)	-	-	13.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	47

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	47	1075	61	77	1434
Future Vol, veh/h	108	47	1075	61	77	1434
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	-	100	100	-
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	117	51	1168	66	84	1559

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2116	584	0	0	1234	0
Stage 1	1168	-	-	-	-	-
Stage 2	948	-	-	-	-	-
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	~ 43	455	-	-	560	-
Stage 1	258	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 37	455	-	-	560	-
Mov Cap-2 Maneuver	~ 37	-	-	-	-	-
Stage 1	258	-	-	-	-	-
Stage 2	286	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 844.5	0	0.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	37	455	560	-
HCM Lane V/C Ratio	-	-	3.173	0.112	0.149	-
HCM Control Delay (s)	-	-	$ 1205.9	13.9	12.6	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	13.3	0.4	0.5	-

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	10	1126	16	0	1541
Future Vol, veh/h	0	10	1126	16	0	1541
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	1224	17	0	1675

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	621	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	430	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	430	-	-	-	-
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)	-	-	430	-
HCM Lane V/C Ratio	-	-	0.025	-
HCM Control Delay (s)	-	-	13.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	335	514	7	13	33
Future Vol, veh/h	23	335	514	7	13	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	100	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	25	364	559	8	14	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	567	0	-	0	791	280
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1001	-	-	-	327	717
Stage 1	-	-	-	-	536	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1001	-	-	-	319	717
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	785	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	12.5
HCM LOS			B

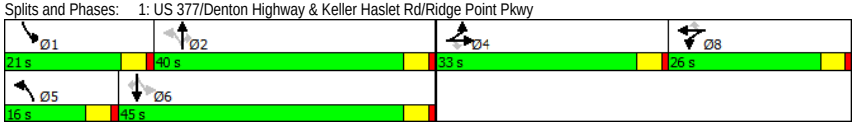
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1001	-	-	-	530
HCM Lane V/C Ratio	0.025	-	-	-	0.094
HCM Control Delay (s)	8.7	-	-	-	12.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	90	146	53	122	47	193	854	55	136	1313	273
Future Volume (vph)	63	90	146	53	122	47	193	854	55	136	1313	273
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)	66	94	152	55	127	49	201	890	57	142	1368	284
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	94	152	0	182	49	201	890	57	142	1368	284
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	33.0	33.0	33.0	26.0	26.0	26.0	16.0	40.0	40.0	21.0	45.0	45.0
Total Split (%)	27.5%	27.5%	27.5%	21.7%	21.7%	21.7%	13.3%	33.3%	33.3%	17.5%	37.5%	37.5%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.4	10.4	10.4		14.6	14.6	52.2	41.8	41.8	50.3	40.8	40.8
Actuated g/C Ratio	0.11	0.11	0.11		0.15	0.15	0.55	0.44	0.44	0.53	0.43	0.43
v/c Ratio	0.34	0.46	0.49		0.64	0.14	0.64	0.57	0.07	0.40	0.89	0.36
Control Delay	45.1	48.1	12.7		48.9	0.8	27.8	23.2	0.2	13.8	35.4	8.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	48.1	12.7		48.9	0.8	27.8	23.2	0.2	13.8	35.4	8.7
LOS	D	D	B		D	A	C	C	A	B	D	A
Approach Delay		30.2			38.7			22.9			29.4	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	37	54	0		104	0	52	199	0	35	393	34
Queue Length 95th (ft)	83	109	57		182	0	#173	345	0	81	#657	108
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)	100		100				1000		535	360		240
Base Capacity (vph)	538	566	587		421	468	335	1566	776	480	1529	791
Starvation Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0		0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.17	0.26		0.43	0.10	0.60	0.57	0.07	0.30	0.89	0.36

Intersection Summary		
Cycle Length: 120		
Actuated Cycle Length: 94.4		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.89		
Intersection Signal Delay: 28.0	Intersection LOS: C	

Intersection Capacity Utilization 76.1% 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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

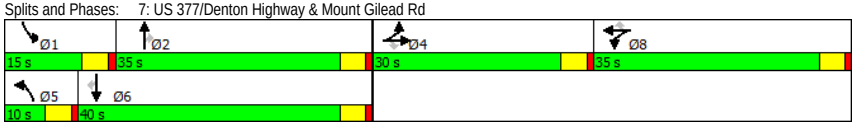


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	126	105	24	187	309	50	76	921	187	64	1161	265
Future Volume (vph)	126	105	24	187	309	50	76	921	187	64	1161	265
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	114	26	191	315	51	83	1001	203	70	1262	288
Shared Lane Traffic (%)												
Lane Group Flow (vph)	137	114	26	191	315	51	83	1001	203	70	1262	288
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	30.0	30.0	30.0	35.0	35.0	35.0	10.0	35.0	35.0	15.0	40.0	40.0
Total Split (%)	26.1%	26.1%	26.1%	30.4%	30.4%	30.4%	8.7%	30.4%	30.4%	13.0%	34.8%	34.8%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.2	9.2	9.2	20.4	20.4	20.4	5.6	33.3	33.3	8.6	36.2	36.2
Actuated g/C Ratio	0.11	0.11	0.11	0.23	0.23	0.23	0.06	0.38	0.38	0.10	0.42	0.42
v/c Ratio	0.38	0.31	0.09	0.46	0.72	0.11	0.38	0.74	0.28	0.40	0.86	0.38
Control Delay	41.7	40.6	0.6	32.9	41.3	0.4	48.2	30.6	5.0	47.1	33.1	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	40.6	0.6	32.9	41.3	0.4	48.2	30.6	5.0	47.1	33.1	9.6
LOS	D	D	A	C	D	A	D	C	A	D	C	A
Approach Delay		37.4			34.7			27.7			29.5	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	37	31	0	92	163	0	23	260	0	37	339	36
Queue Length 95th (ft)	72	63	0	160	263	0	52	#468	52	89	#599	116
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	1023	1055	571	631	664	656	220	1351	729	217	1469	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.05	0.30	0.47	0.08	0.38	0.74	0.28	0.32	0.86	0.38

Intersection Summary			
Cycle Length: 115			
Actuated Cycle Length: 87.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 30.2		Intersection LOS: C	

Intersection Capacity Utilization 71.7% 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: 7: US 377/Denton Highway & Mount Gilead Rd

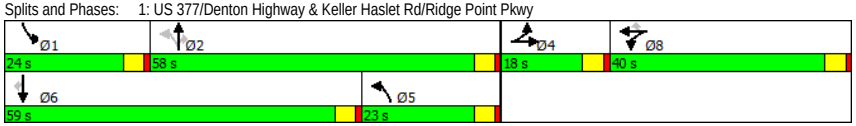


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	125	122	84	137	81	80	1199	27	126	670	71
Future Volume (vph)	124	125	122	84	137	81	80	1199	27	126	670	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	136	133	91	149	88	87	1303	29	137	728	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	404	0	0	240	88	87	1303	29	137	728	77
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	18.0	18.0		40.0	40.0	40.0	23.0	58.0	58.0	24.0	59.0	59.0
Total Split (%)	12.9%	12.9%		28.6%	28.6%	28.6%	16.4%	41.4%	41.4%	17.1%	42.1%	42.1%
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)		13.6			21.3	21.3	53.8	53.8	53.8	14.3	54.8	54.8
Actuated g/C Ratio		0.11			0.18	0.18	0.44	0.44	0.44	0.12	0.45	0.45
v/c Ratio		1.93			0.75	0.24	0.18	0.83	0.04	0.66	0.45	0.10
Control Delay		466.9			62.5	4.6	25.4	36.6	0.1	67.4	25.4	4.9
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		466.9			62.5	4.6	25.4	36.6	0.1	67.4	25.4	4.9
LOS		F			E	A	C	D	A	E	C	A
Approach Delay		466.9			47.0			35.2			29.8	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)		~481			180	0	39	461	0	103	201	0
Queue Length 95th (ft)		#771			280	24	85	#720	0	184	312	29
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		209			538	549	573	1572	749	286	1602	761
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		1.93			0.45	0.16	0.15	0.83	0.04	0.48	0.45	0.10

Intersection Summary		
Cycle Length: 140		
Actuated Cycle Length: 121.1		
Natural Cycle: 110		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.93		
Intersection Signal Delay: 91.2	Intersection LOS: F	

Intersection Capacity Utilization 87.9% 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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

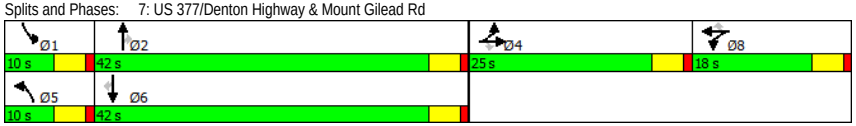


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	381	30	168	97	31	12	1060	318	53	759	119
Future Volume (vph)	210	381	30	168	97	31	12	1060	318	53	759	119
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	223	405	32	179	103	33	13	1128	338	56	807	127
Shared Lane Traffic (%)												
Lane Group Flow (vph)	223	405	32	179	103	33	13	1128	338	56	807	127
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	18.0	18.0	18.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	26.3%	26.3%	26.3%	18.9%	18.9%	18.9%	10.5%	44.2%	44.2%	10.5%	44.2%	44.2%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.6	20.6	20.6	12.4	12.4	12.4	5.5	37.7	37.7	5.5	43.5	43.5
Actuated g/C Ratio	0.22	0.22	0.22	0.13	0.13	0.13	0.06	0.41	0.41	0.06	0.47	0.47
v/c Ratio	0.29	0.97	0.07	0.75	0.41	0.10	0.06	0.78	0.40	0.53	0.48	0.16
Control Delay	31.8	75.8	0.3	59.2	42.5	0.6	43.1	29.0	3.7	62.4	18.5	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.8	75.8	0.3	59.2	42.5	0.6	43.1	29.0	3.7	62.4	18.5	3.7
LOS	C	E	A	E	D	A	D	C	A	E	B	A
Approach Delay		57.3			47.6			23.3			19.1	
Approach LOS		E			D			C			B	
Queue Length 50th (ft)	58	~249	0	104	57	0	4	312	0	34	158	0
Queue Length 95th (ft)	91	#439	0	#199	108	0	13	396	52	#86	257	34
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	768	417	448	260	274	336	206	1448	847	106	1672	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.97	0.07	0.69	0.38	0.10	0.06	0.78	0.40	0.53	0.48	0.16

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 92
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 30.8 Intersection LOS: C

Intersection Capacity Utilization 77.8% ICU Level of Service D
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: 7: US 377/Denton Highway & Mount Gilead Rd

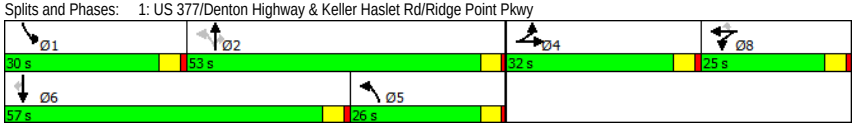


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	83	152	51	144	69	207	867	55	102	1386	301
Future Volume (vph)	69	83	152	51	144	69	207	867	55	102	1386	301
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	86	158	53	150	72	216	903	57	106	1444	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	316	0	0	203	72	216	903	57	106	1444	314
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	32.0	32.0		25.0	25.0	25.0	26.0	53.0	53.0	30.0	57.0	57.0
Total Split (%)	22.9%	22.9%		17.9%	17.9%	17.9%	18.6%	37.9%	37.9%	21.4%	40.7%	40.7%
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)		24.9			18.0	18.0	52.8	52.8	52.8	13.1	53.0	53.0
Actuated g/C Ratio		0.20			0.14	0.14	0.42	0.42	0.42	0.10	0.42	0.42
v/c Ratio		0.87			0.78	0.22	0.80	0.61	0.08	0.58	0.98	0.41
Control Delay		69.5			74.4	3.0	70.2	32.6	2.5	69.0	56.5	13.8
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		69.5			74.4	3.0	70.2	32.6	2.5	69.0	56.5	13.8
LOS		E			E	A	E	C	A	E	E	B
Approach Delay		69.5			55.7			38.1			50.0	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)		236			167	0	125	324	0	88	~688	76
Queue Length 95th (ft)		#423			#294	10	223	424	14	153	#916	171
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		400			299	355	408	1471	705	358	1476	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		0.79			0.68	0.20	0.53	0.61	0.08	0.30	0.98	0.41

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 127
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 48.3 Intersection LOS: D

Intersection Capacity Utilization 92.7% ICU Level of Service F
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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

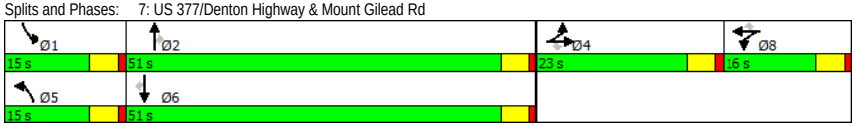


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	127	27	231	372	34	84	914	221	44	1220	272
Future Volume (vph)	124	127	27	231	372	34	84	914	221	44	1220	272
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	138	29	251	404	37	91	993	240	48	1326	296
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	138	29	251	404	37	91	993	240	48	1326	296
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	16.0	16.0	16.0	15.0	51.0	51.0	15.0	51.0	51.0
Total Split (%)	21.9%	21.9%	21.9%	15.2%	15.2%	15.2%	14.3%	48.6%	48.6%	14.3%	48.6%	48.6%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.4	12.4	12.4	11.6	11.6	11.6	7.9	49.3	49.3	7.9	47.1	47.1
Actuated g/C Ratio	0.13	0.13	0.13	0.12	0.12	0.12	0.08	0.52	0.52	0.08	0.50	0.50
v/c Ratio	0.30	0.57	0.10	1.16	1.77	0.13	0.32	0.54	0.26	0.33	0.75	0.32
Control Delay	39.5	48.8	0.6	151.1	392.7	0.9	45.8	18.4	3.0	49.0	24.3	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	48.8	0.6	151.1	392.7	0.9	45.8	18.4	3.0	49.0	24.3	4.7
LOS	D	D	A	F	F	A	D	B	A	D	C	A
Approach Delay		40.0			284.1			17.5			21.5	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)	39	81	0	~187	~376	0	27	221	0	28	339	15
Queue Length 95th (ft)	68	144	0	#375	#612	0	55	334	43	68	503	69
Internal Link Dist (ft)		317			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	676	367	399	216	228	289	384	1841	938	198	1758	911
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.38	0.07	1.16	1.77	0.13	0.24	0.54	0.26	0.24	0.75	0.32

Intersection Summary		
Cycle Length: 105		
Actuated Cycle Length: 94.7		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.77		
Intersection Signal Delay: 67.1	Intersection LOS: E	

Intersection Capacity Utilization 71.6% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: US 377/Denton Highway & Mount Gilead Rd

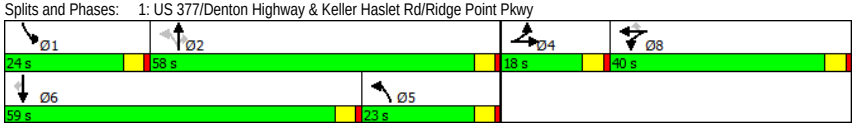


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	146	136	91	154	116	97	1285	34	198	723	71
Future Volume (vph)	124	146	136	91	154	116	97	1285	34	198	723	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	159	148	99	167	126	105	1397	37	215	786	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	442	0	0	266	126	105	1397	37	215	786	77
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	18.0	18.0		40.0	40.0	40.0	23.0	58.0	58.0	24.0	59.0	59.0
Total Split (%)	12.9%	12.9%		28.6%	28.6%	28.6%	16.4%	41.4%	41.4%	17.1%	42.1%	42.1%
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)		13.6			23.8	23.8	53.7	53.7	53.7	18.6	54.7	54.7
Actuated g/C Ratio		0.11			0.19	0.19	0.42	0.42	0.42	0.15	0.43	0.43
v/c Ratio		2.23			0.78	0.32	0.22	0.94	0.05	0.84	0.52	0.11
Control Delay		595.0			65.6	9.1	29.0	49.1	0.1	80.5	29.3	5.1
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		595.0			65.6	9.1	29.0	49.1	0.1	80.5	29.3	5.1
LOS		F			E	A	C	D	A	F	C	A
Approach Delay		595.0			47.5			46.6			37.8	
Approach LOS		F			D			D			D	
Queue Length 50th (ft)		~588			213	0	53	580	0	175	250	0
Queue Length 95th (ft)		#864			310	52	103	#840	0	#334	352	30
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		198			510	532	503	1488	713	271	1516	725
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		2.23			0.52	0.24	0.21	0.94	0.05	0.79	0.52	0.11

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 127.7	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.23	
Intersection Signal Delay: 114.2	Intersection LOS: F

Intersection Capacity Utilization 97.5% ICU Level of Service F
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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

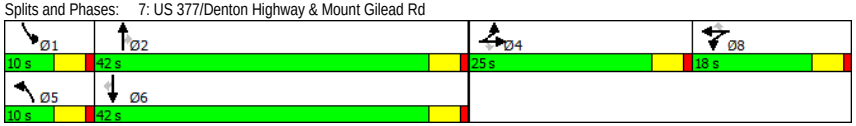


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	385	30	203	107	60	12	1166	336	73	845	126
Future Volume (vph)	224	385	30	203	107	60	12	1166	336	73	845	126
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	238	410	32	216	114	64	13	1240	357	78	899	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	410	32	216	114	64	13	1240	357	78	899	134
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	18.0	18.0	18.0	10.0	42.0	42.0	10.0	42.0	42.0
Total Split (%)	26.3%	26.3%	26.3%	18.9%	18.9%	18.9%	10.5%	44.2%	44.2%	10.5%	44.2%	44.2%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	20.6	20.6	20.6	13.1	13.1	13.1	5.5	37.6	37.6	5.5	43.4	43.4
Actuated g/C Ratio	0.22	0.22	0.22	0.14	0.14	0.14	0.06	0.41	0.41	0.06	0.47	0.47
v/c Ratio	0.31	0.99	0.07	0.86	0.43	0.20	0.06	0.86	0.42	0.74	0.54	0.16
Control Delay	32.2	80.8	0.3	71.6	42.8	2.0	43.1	33.6	3.8	83.8	19.6	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	80.8	0.3	71.6	42.8	2.0	43.1	33.6	3.8	83.8	19.6	3.7
LOS	C	F	A	E	D	A	D	C	A	F	B	A
Approach Delay		60.0			52.0			27.0			22.2	
Approach LOS		E			D			C			C	
Queue Length 50th (ft)	62	~257	0	129	64	0	4	359	0	47	182	0
Queue Length 95th (ft)	96	#446	0	#257	118	5	13	#491	53	#125	293	35
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	761	413	445	258	272	334	204	1436	854	105	1660	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.99	0.07	0.84	0.42	0.19	0.06	0.86	0.42	0.74	0.54	0.16

Intersection Summary
Cycle Length: 95
Actuated Cycle Length: 92.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 34.1 Intersection LOS: C

Intersection Capacity Utilization 82.9% 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: 7: US 377/Denton Highway & Mount Gilead Rd



Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	285	93	11	309	52	10
Future Vol, veh/h	285	93	11	309	52	10
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	310	101	12	336	57	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	411	0	553	361
Stage 1	-	-	-	-	361	-
Stage 2	-	-	-	-	192	-
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	-	-	1146	-	478	683
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	822	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	472	683
Mov Cap-2 Maneuver	-	-	-	-	472	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	497	-	-	1146	-
HCM Lane V/C Ratio	0.136	-	-	0.01	-
HCM Control Delay (s)	13.4	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1381	36	0	1013
Future Vol, veh/h	0	34	1381	36	0	1013
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	1501	39	0	1101

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	770	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	343	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	343	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	343	-
HCM Lane V/C Ratio	-	-	0.108	-
HCM Control Delay (s)	-	-	16.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	34	1382	43	0	1013
Future Vol, veh/h	0	34	1382	43	0	1013
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	37	1502	47	0	1101

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	775	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	341	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	341	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	341	-
HCM Lane V/C Ratio	-	-	0.108	-
HCM Control Delay (s)	-	-	16.8	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.4	-

Intersection	
Int Delay, s/veh	181.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	124	42	1384	74	92	921
Future Vol, veh/h	124	42	1384	74	92	921
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	-	-	-	-
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	135	46	1504	80	100	1001

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2245	792	0	0	1584	0
Stage 1	1544	-	-	-	-	-
Stage 2	701	-	-	-	-	-
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	~ 35	332	-	-	411	-
Stage 1	162	-	-	-	-	-
Stage 2	453	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 16	332	-	-	411	-
Mov Cap-2 Maneuver	~ 16	-	-	-	-	-
Stage 1	162	-	-	-	-	-
Stage 2	205	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 2849.8	0	5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	16	332	411	-
HCM Lane V/C Ratio	-	-	8.424	0.138	0.243	-
HCM Control Delay (s)	-	-	$ 3809.1	17.6	16.6	3.8
HCM Lane LOS	-	-	F	C	C	A
HCM 95th %tile Q(veh)	-	-	17.7	0.5	0.9	-

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	14	1444	18	0	1045
Future Vol, veh/h	0	14	1444	18	0	1045
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	15	1570	20	0	1136

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	795	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	330	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	330	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	330	-
HCM Lane V/C Ratio	-	-	0.046	-
HCM Control Delay (s)	-	-	16.4	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	769	323	7	17	45
Future Vol, veh/h	25	769	323	7	17	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	836	351	8	18	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	359	0	-	0	1245	355
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	890	-
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	1200	-	-	-	192	689
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	401	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1200	-	-	-	184	689
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	680	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1200	-	-	-	393
HCM Lane V/C Ratio	0.023	-	-	-	0.171
HCM Control Delay (s)	8.1	0	-	-	16
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

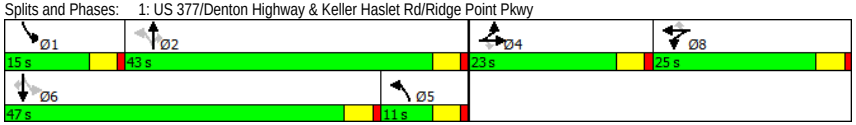
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	146	136	91	154	116	97	1285	34	198	723	71
Future Volume (vph)	124	146	136	91	154	116	97	1285	34	198	723	71
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	159	148	99	167	126	105	1397	37	215	786	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	135	159	148	99	167	126	105	1397	37	215	786	77
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	25.0	25.0	25.0	11.0	43.0	43.0	15.0	47.0	47.0
Total Split (%)	21.7%	21.7%	21.7%	23.6%	23.6%	23.6%	10.4%	40.6%	40.6%	14.2%	44.3%	44.3%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	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	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	13.4	13.4	13.4	14.0	14.0	14.0	38.8	38.8	38.8	45.2	45.2	45.2
Actuated g/C Ratio	0.14	0.14	0.14	0.15	0.15	0.15	0.41	0.41	0.41	0.48	0.48	0.48
v/c Ratio	0.54	0.60	0.42	0.38	0.61	0.35	0.27	0.97	0.05	0.78	0.47	0.09
Control Delay	47.0	49.1	9.6	41.2	48.0	6.2	24.6	46.2	0.1	42.4	20.0	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	49.1	9.6	41.2	48.0	6.2	24.6	46.2	0.1	42.4	20.0	2.0
LOS	D	D	A	D	D	A	C	D	A	D	C	A
Approach Delay		35.2			32.9			43.6			23.2	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	76	90	0	54	95	0	38	417	0	78	168	0
Queue Length 95th (ft)	143	165	51	107	168	33	86	#699	0	#238	273	15
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)	150		150	150			1000		535	360		240
Base Capacity (vph)	347	366	434	385	405	465	393	1447	711	275	1688	811
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.43	0.34	0.26	0.41	0.27	0.27	0.97	0.05	0.78	0.47	0.09

Intersection Summary

Cycle Length: 106
Actuated Cycle Length: 94.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 35.0 Intersection LOS: C

Intersection Capacity Utilization 76.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



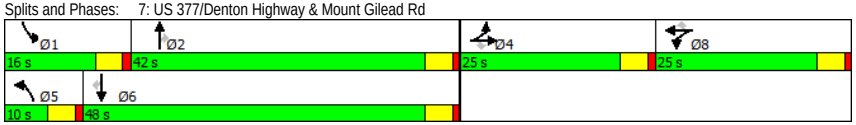
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	224	385	30	203	107	60	12	1166	336	73	845	126
Future Volume (vph)	224	385	30	203	107	60	12	1166	336	73	845	126
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	238	410	32	216	114	64	13	1240	357	78	899	134
Shared Lane Traffic (%)												
Lane Group Flow (vph)	238	410	32	216	114	64	13	1240	357	78	899	134
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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	25.0	25.0	25.0	25.0	10.0	42.0	42.0	16.0	48.0	48.0
Total Split (%)	23.1%	23.1%	23.1%	23.1%	23.1%	23.1%	9.3%	38.9%	38.9%	14.8%	44.4%	44.4%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	17.0	17.0	17.0	16.3	16.3	16.3	5.6	39.5	39.5	9.3	48.9	48.9
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.17	0.17	0.06	0.40	0.40	0.10	0.50	0.50
v/c Ratio	0.40	0.67	0.08	0.73	0.37	0.16	0.07	0.87	0.42	0.47	0.51	0.16
Control Delay	38.9	44.3	0.4	55.0	41.0	0.9	49.1	37.5	4.4	54.0	19.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	44.3	0.4	55.0	41.0	0.9	49.1	37.5	4.4	54.0	19.4	3.8
LOS	D	D	A	D	D	A	D	D	A	D	B	A
Approach Delay		40.3			42.1			30.3			19.9	
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	70	130	0	133	66	0	4	405	0	49	193	0
Queue Length 95th (ft)	112	190	0	221	123	0	14	#610	61	100	326	37
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	729	752	456	376	396	456	195	1430	852	211	1770	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.55	0.07	0.57	0.29	0.14	0.07	0.87	0.42	0.37	0.51	0.16

Intersection Summary

Cycle Length: 108
Actuated Cycle Length: 97.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.87
Intersection Signal Delay: 30.3 Intersection LOS: C

Intersection Capacity Utilization 73.3% 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: 7: US 377/Denton Highway & Mount Gilead Rd

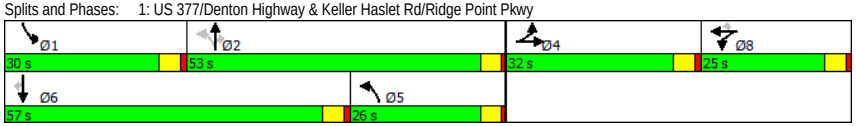


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	102	165	58	156	95	220	930	60	167	1435	301
Future Volume (vph)	69	102	165	58	156	95	220	930	60	167	1435	301
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	106	172	60	163	99	229	969	63	174	1495	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	350	0	0	223	99	229	969	63	174	1495	314
Turn Type	Split	NA		Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8	2		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)	32.0	32.0		25.0	25.0	25.0	26.0	53.0	53.0	30.0	57.0	57.0
Total Split (%)	22.9%	22.9%		17.9%	17.9%	17.9%	18.6%	37.9%	37.9%	21.4%	40.7%	40.7%
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)		27.0			19.0	19.0	49.0	49.0	49.0	18.2	52.7	52.7
Actuated g/C Ratio		0.21			0.14	0.14	0.37	0.37	0.37	0.14	0.40	0.40
v/c Ratio		0.93			0.84	0.30	0.80	0.73	0.10	0.71	1.05	0.42
Control Delay		78.1			81.4	8.3	71.3	40.6	3.7	70.5	77.8	14.9
Queue Delay		0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		78.1			81.4	8.3	71.3	40.6	3.7	70.5	77.8	14.9
LOS		E			F	A	E	D	A	E	E	B
Approach Delay		78.1			58.9			44.3			67.2	
Approach LOS		E			E			D			E	
Queue Length 50th (ft)		276			188	0	141	382	0	146	~755	82
Queue Length 95th (ft)		#495			#337	38	243	502	21	226	#967	176
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)							1000		535	360		240
Base Capacity (vph)		386			288	346	393	1320	641	345	1419	739
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		0.91			0.77	0.29	0.58	0.73	0.10	0.50	1.05	0.42

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 131.4	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 60.1	Intersection LOS: E

Intersection Capacity Utilization 97.6% ICU Level of Service F
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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy

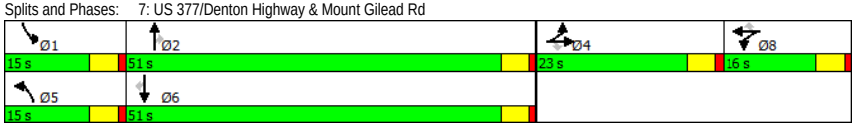


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	130	27	256	379	60	84	1012	237	59	1283	277
Future Volume (vph)	137	130	27	256	379	60	84	1012	237	59	1283	277
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	141	29	278	412	65	91	1100	258	64	1395	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	141	29	278	412	65	91	1100	258	64	1395	301
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	16.0	16.0	16.0	15.0	51.0	51.0	15.0	51.0	51.0
Total Split (%)	21.9%	21.9%	21.9%	15.2%	15.2%	15.2%	14.3%	48.6%	48.6%	14.3%	48.6%	48.6%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	12.6	12.6	12.6	11.6	11.6	11.6	8.0	47.0	47.0	8.5	47.5	47.5
Actuated g/C Ratio	0.13	0.13	0.13	0.12	0.12	0.12	0.08	0.49	0.49	0.09	0.50	0.50
v/c Ratio	0.33	0.57	0.10	1.29	1.82	0.23	0.32	0.63	0.28	0.41	0.79	0.33
Control Delay	40.1	49.3	0.6	199.2	414.0	4.0	46.1	21.4	3.1	51.2	25.7	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	49.3	0.6	199.2	414.0	4.0	46.1	21.4	3.1	51.2	25.7	5.2
LOS	D	D	A	F	F	A	D	C	A	D	C	A
Approach Delay		40.6			299.6			19.7			23.1	
Approach LOS		D			F			B			C	
Queue Length 50th (ft)	43	84	0	~226	~393	0	27	262	0	38	371	19
Queue Length 95th (ft)	74	147	0	#418	#625	12	55	383	45	84	#550	76
Internal Link Dist (ft)		317			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	672	364	397	215	226	288	381	1742	910	196	1763	909
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.39	0.07	1.29	1.82	0.23	0.24	0.63	0.28	0.33	0.79	0.33

Intersection Summary
Cycle Length: 105
Actuated Cycle Length: 95.4
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.82
Intersection Signal Delay: 72.0 Intersection LOS: E

Intersection Capacity Utilization 78.7% ICU Level of Service D
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: 7: US 377/Denton Highway & Mount Gilead Rd



Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	244	85	10	270	38	8
Future Vol, veh/h	244	85	10	270	38	8
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	265	92	11	293	41	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	357	0	480	311
Stage 1	-	-	-	-	311	-
Stage 2	-	-	-	-	169	-
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	-	-	1200	-	530	728
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	844	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1200	-	524	728
Mov Cap-2 Maneuver	-	-	-	-	524	-
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	835	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	551	-	-	1200	-
HCM Lane V/C Ratio	0.091	-	-	0.009	-
HCM Control Delay (s)	12.2	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	25	1183	33	0	1656
Future Vol, veh/h	0	25	1183	33	0	1656
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1286	36	0	1800

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	661	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	405	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	405	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	405	-
HCM Lane V/C Ratio	-	-	0.067	-
HCM Control Delay (s)	-	-	14.5	-
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	25	1190	39	0	1656
Future Vol, veh/h	0	25	1190	39	0	1656
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1293	42	0	1800

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	668	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	401	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	401	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	401	-
HCM Lane V/C Ratio	-	-	0.068	-
HCM Control Delay (s)	-	-	14.6	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	104	43	1186	67	83	1573
Future Vol, veh/h	104	43	1186	67	83	1573
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	-	-	-	-
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	113	47	1289	73	90	1710

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2361	681	0	0	1362	0
Stage 1	1326	-	-	-	-	-
Stage 2	1035	-	-	-	-	-
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	~ 30	393	-	-	501	-
Stage 1	212	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	0	393	-	-	501	-
Mov Cap-2 Maneuver	0	-	-	-	-	-
Stage 1	212	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s		0	6.6
HCM LOS	-		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	393	501	-
HCM Lane V/C Ratio	-	-	-	0.119	0.18	-
HCM Control Delay (s)	-	-	-	15.4	13.8	6.2
HCM Lane LOS	-	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	-	0.4	0.7	-

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

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	10	1243	16	0	1677
Future Vol, veh/h	0	10	1243	16	0	1677
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	1351	17	0	1823

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	684	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	391	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	391	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	391	-
HCM Lane V/C Ratio	-	-	0.028	-
HCM Control Delay (s)	-	-	14.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	404	662	7	13	33
Future Vol, veh/h	23	404	662	7	13	33
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	25	439	720	8	14	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	728	0	-	0	1213	724
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	489	-
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	876	-	-	-	201	426
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	876	-	-	-	193	426
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	616	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	18.4
HCM LOS			C

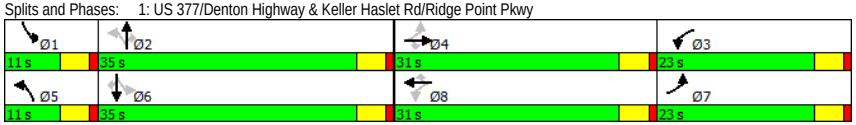
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	876	-	-	-	318
HCM Lane V/C Ratio	0.029	-	-	-	0.157
HCM Control Delay (s)	9.2	0	-	-	18.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	102	165	58	156	95	220	930	60	167	1435	301
Future Volume (vph)	69	102	165	58	156	95	220	930	60	167	1435	301
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)	72	106	172	60	163	99	229	969	63	174	1495	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	106	172	60	163	99	229	969	63	174	1495	314
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	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	5.0
Minimum Split (s)	22.5	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)	23.0	31.0	31.0	23.0	31.0	31.0	11.0	35.0	35.0	11.0	35.0	35.0
Total Split (%)	23.0%	31.0%	31.0%	23.0%	31.0%	31.0%	11.0%	35.0%	35.0%	11.0%	35.0%	35.0%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	16.7	12.0	12.0	18.6	11.4	11.4	37.4	30.8	30.8	37.4	30.8	30.8
Actuated g/C Ratio	0.24	0.17	0.17	0.26	0.16	0.16	0.53	0.44	0.44	0.53	0.44	0.44
v/c Ratio	0.23	0.33	0.42	0.15	0.54	0.28	0.75	0.63	0.08	0.56	0.96	0.38
Control Delay	21.1	30.9	8.7	19.5	34.8	6.8	29.5	18.7	1.0	15.9	38.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.1	30.9	8.7	19.5	34.8	6.8	29.5	18.7	1.0	15.9	38.3	6.7
LOS	C	C	A	B	C	A	C	B	A	B	D	A
Approach Delay		17.9			23.3			19.8			31.3	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	23	44	0	19	68	0	44	174	0	33	337	25
Queue Length 95th (ft)	51	90	51	44	124	30	#167	263	6	#73	#550	84
Internal Link Dist (ft)		1078			276			314			544	
Turn Bay Length (ft)	100		100	100			1000		535	360		240
Base Capacity (vph)	634	709	708	678	709	673	307	1550	758	313	1550	816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.24	0.09	0.23	0.15	0.75	0.63	0.08	0.56	0.96	0.38

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 70.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 25.8	Intersection LOS: C

Intersection Capacity Utilization 79.2% 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: 1: US 377/Denton Highway & Keller Haslet Rd/Ridge Point Pkwy



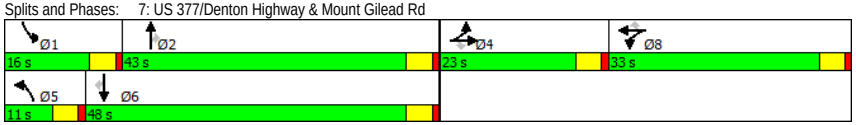
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	130	27	256	379	60	84	1012	237	59	1283	277
Future Volume (vph)	137	130	27	256	379	60	84	1012	237	59	1283	277
Peak Hour Factor	0.92	0.92	0.92	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	149	141	29	261	387	61	91	1100	258	64	1395	301
Shared Lane Traffic (%)												
Lane Group Flow (vph)	149	141	29	261	387	61	91	1100	258	64	1395	301
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phase	4	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	5.0
Minimum Split (s)	22.5	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)	23.0	23.0	23.0	33.0	33.0	33.0	11.0	43.0	43.0	16.0	48.0	48.0
Total Split (%)	20.0%	20.0%	20.0%	28.7%	28.7%	28.7%	9.6%	37.4%	37.4%	13.9%	41.7%	41.7%
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	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	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	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	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.0	10.0	10.0	25.6	25.6	25.6	6.5	41.5	41.5	8.9	44.0	44.0
Actuated g/C Ratio	0.10	0.10	0.10	0.25	0.25	0.25	0.06	0.41	0.41	0.09	0.43	0.43
v/c Ratio	0.44	0.40	0.10	0.59	0.83	0.12	0.42	0.76	0.32	0.42	0.91	0.38
Control Delay	48.7	47.9	0.7	40.2	52.7	0.5	54.7	32.4	4.3	54.4	39.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	47.9	0.7	40.2	52.7	0.5	54.7	32.4	4.3	54.4	39.1	9.4
LOS	D	D	A	D	D	A	D	C	A	D	D	A
Approach Delay		44.0			43.6			28.8			34.6	
Approach LOS		D			D			C			C	
Queue Length 50th (ft)	50	48	0	153	244	0	31	347	0	42	478	44
Queue Length 95th (ft)	82	80	0	248	#405	0	59	#507	54	87	#678	116
Internal Link Dist (ft)		291			409			743			516	
Turn Bay Length (ft)							325		325	375		213
Base Capacity (vph)	631	651	407	501	528	550	221	1445	799	202	1531	796
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.22	0.07	0.52	0.73	0.11	0.41	0.76	0.32	0.32	0.91	0.38

Intersection Summary

Cycle Length: 115
Actuated Cycle Length: 101.7
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 34.8 Intersection LOS: C

Intersection Capacity Utilization 78.7% 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: 7: US 377/Denton Highway & Mount Gilead Rd



Appendix E. TxDOT and City of Keller Driveway Spacing and Deceleration Lane Criteria

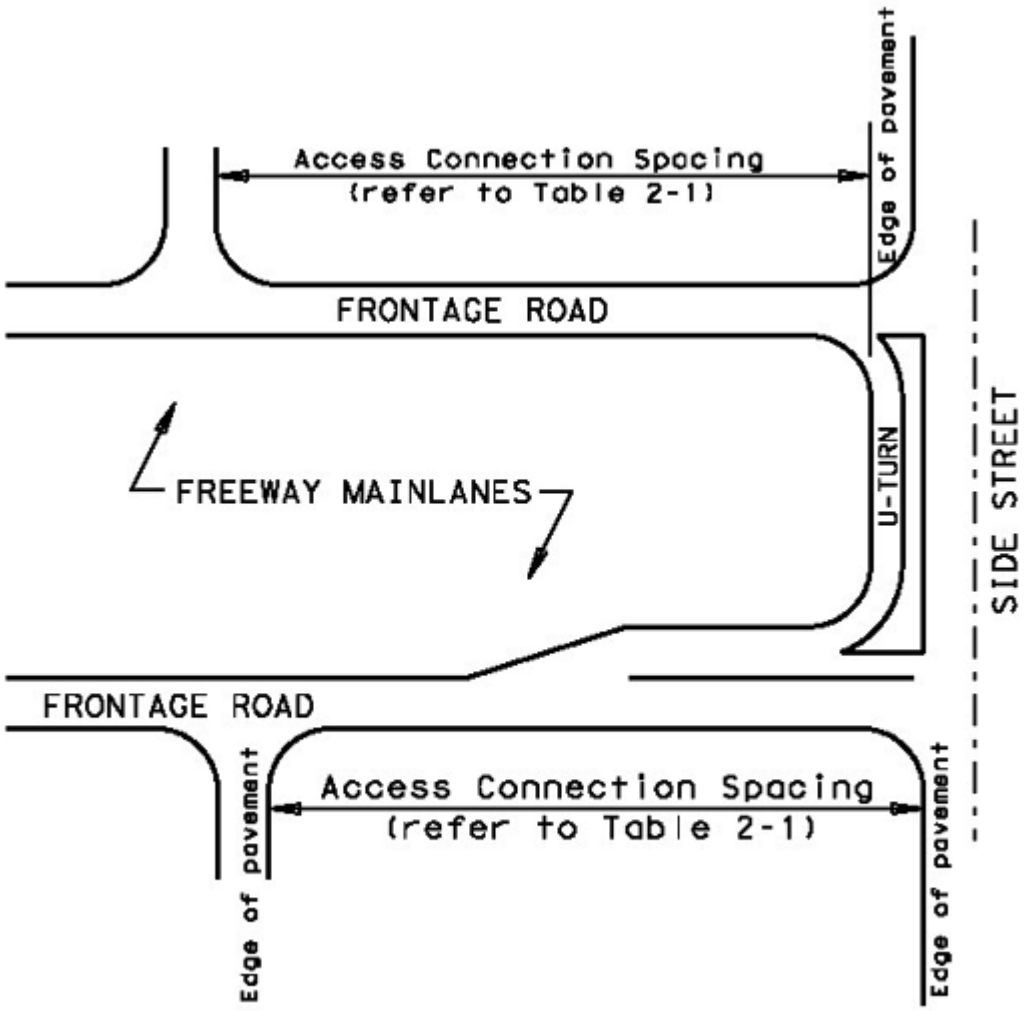


Figure 2-3. Frontage Road U-Turn Spacing Diagram

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 Manua*l, 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.

Appendix F. Mitigation Measures

APPENDIX F						With Improvements 2025 & 2030	
	Intersections	**Failing Movements**	**LOS - AM**	**LOS - PM**	**Mitigation Measures**	**AM**	**PM**
2020 Intersection Analysis	US 377/Denton Highway at Ridge Point Parkway	EBLTR	F				
		WBLT	E	E			
		SBL	E	E			
	US 377/ Denton Highway at Mount Gilead Road	WBT		F			
2025 Intersection Analysis	US 377/Denton Highway at Ridge Point Parkway	EBLTR	F	E	Add EB right and left turn lanes	C	C
		WBLT	E	E	Change the Splits	D	D
		NBL		E	Change the Splits		C
		SBL	E	E	Change the Splits	C	B
	US 377/ Denton Highway at Mount Gilead Road	EBT	E		Add additional EB through lane	D	
		WBL	E	F	Change the Splits	D	C
		WBT		F	Change the Splits	D	D
		SBL	F		Change the Splits	D	
2030 Intersection Analysis	US 377/Denton Highway at Ridge Point Parkway	EBLTR	F	E	Add EB right and left turn lanes	EBL & EBT -D	EBL & EBT -C
		WBLT	E	F	Add WB right and left turn lanes	WBL & WBT-D	WBL -B & WBT-C
		NBL		E	Change the Splits		C
		SBL		E	Change the Splits		B
		SBT	F	E	Change the Splits	C	D
	US 377/ Denton Highway at Mount Gilead Road	EBT	F		Add additional EB through lane	D	
		WBL	E	F	Change the Splits	D	D
		WBT		F	Change the Splits		D
		SBL	F		Change the Splits	D	

* The LOS of the overall intersection at buildout and horizon conditions is expetced to be "C" or better with the mitigation measures