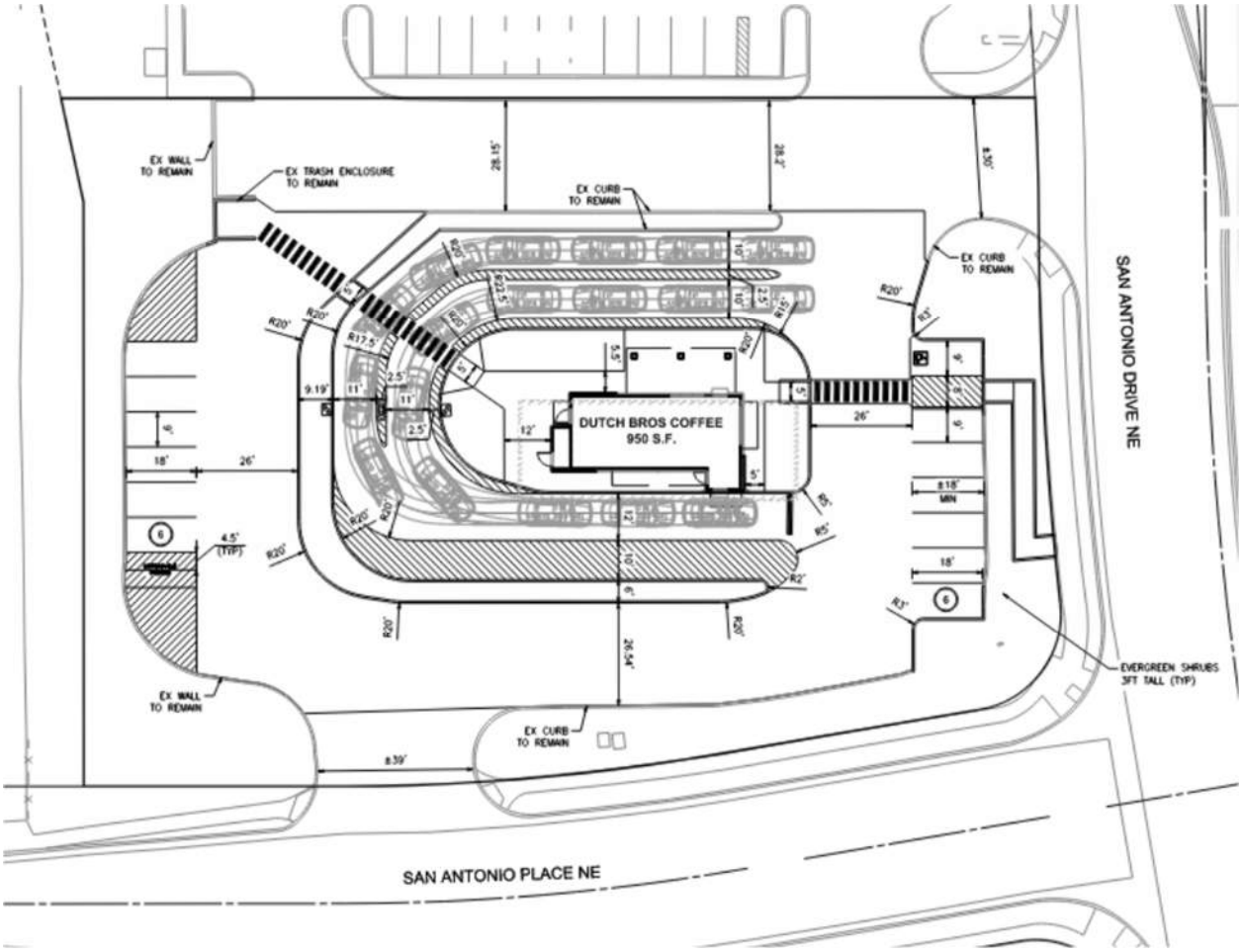
HALES ENGINEERING
innovative transportation solutions

# Dutch Bros

## Traffic Impact Study




## Albuquerque, New Mexico

**April 12, 2024**

**UT24-2716**

RYAN R. HALES
NEW MEXICO
27028
04/12/2024
PROFESSIONAL ENGINEER

1220 North 500 West, Ste. 202 Lehi, UT 84043 p 801.766.4343
www.halesengineering.com

# EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Dutch Bros development located in Albuquerque, New Mexico. The development is located on the southwest corner of the San Antonio Place NE / San Antonio Drive NE intersection.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2024) conditions without the proposed project and future (2025) conditions with and without the proposed project and to recommend mitigation measures as needed. The morning and evening peak hour level of service (LOS) results are shown in Table ES-1. A site plan of the project is provided in Appendix A.

**Table ES-1: Peak Hour Level of Service Results**

| | Intersection | Level of Service | | | | | |
|---|---|---|---|---|---|---|---|
| | | Existing (2024) | | Future (2025) | | | |
| | | Background | | Background | | Plus Project | |
| | | AM | PM | AM | PM | AM | PM |
| 1 | San Antonio Dr NE / Wyoming Blvd NE | D | D | D | D | D | D |
| 2 | San Antonio Pl NE / San Antonio Dr NE | f | f | f | f | f | f |
| 3 | North Access / San Antonio Dr NE | b | b | b | b | b | b |
| 4 | South Access / San Antonio Pl NE | a | a | a | a | a | a |

1. Intersection LOS values represent the overall intersection average for roundabout, signalized, and all-way stop-controlled (AWSC) intersections (uppercase letter) and the worst lane group for all other unsignalized intersections (lowercase letter)

Source: Hales Engineering, April 2024

## SUMMARY OF KEY FINDINGS & RECOMMENDATIONS

### Project Conditions

- The development will consist of a coffee shop with two drive-thru lanes and no indoor seating
- The project is anticipated to generate approximately 54 (+304 pass-by) weekday daily trips, including 14 (+76 pass-by) trips in the morning peak hour, and 3 (+29 pass-by) trips in the evening peak hour
- No auxiliary lanes are recommended
- It is anticipated that on-site storage will be sufficient for typical maximum queues. However, it is possible it may occasionally spill over. If that happens, it is recommended that vehicles with larger orders be directed to an available stall to wait for their order
- It is recommended that signage be installed to direct vehicles entering the south access to turn right after entering for the drive-thru

| 2024 | Background |
|---|---|
| Findings | • Poor LOS at the San Antonio Pl NE / San Antonio Dr NE intersection |
| Mitigations | • None; drivers will learn to adapt and reroute. |

| 2025 | Background | Plus Project |
|---|---|---|
| **Assumptions** | • 1% growth rate based on MRCOG data | • None |
| **Findings** | • Poor LOS at the San Antonio Pl NE / San Antonio Dr NE intersection<br>• Excessive queueing at the San Antonio Dr NE / Wyoming Blvd NE intersection | • Poor LOS at the San Antonio Pl NE / San Antonio Dr NE intersection |
| **Mitigations** | • **San Antonio Dr NE / Wyoming Blvd NE:** Give additional green time to the EB movements | • None |

# TABLE OF CONTENTS

**Appendix C: Synchro Printouts**
**Appendix D: Scoping Letter**

## LIST OF TABLES



## LIST OF FIGURES

# I. INTRODUCTION

## A. Purpose

This study addresses the traffic impacts associated with the proposed Dutch Bros development located in Albuquerque, New Mexico. The proposed project is located on the southwest corner of the San Antonio Place NE / San Antonio Drive NE intersection. Figure 1 shows a vicinity map of the proposed development.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2024) conditions without the proposed project and future (2025) conditions with and without the proposed project and to recommend mitigation measures as needed.


**Figure 1: Vicinity map showing the project location in Albuquerque, New Mexico**

## B. Scope

The study area was defined based on conversations with the development team. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- San Antonio Drive NE / Wyoming Boulevard NE
- San Antonio Place NE / San Antonio Drive NE
- North Access / San Antonio Drive NE
- South Access / San Antonio Place NE

The scoping letter approved by the City is contained in Appendix D.

## C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM), 7$^{th}$ Edition, 2022 methodology was used in this study to remain consistent with "state-of-the-practice" professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized, roundabout, and all-way stop-controlled (AWSC) intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections, LOS is reported based on the worst lane group.

Using Synchro software, which follows the HCM methodology, the peak hour LOS and queueing was computed for each study intersection. Detailed Synchro printouts are contained in Appendix C.

Many of the figures in this report are printouts of the Synchro model. These figures are not meant to be a design exhibit for exact lane striping and design, due to the limitations of the Synchro software. Instead, the purpose of these figures is to show assumed peak hour turning movement volumes and the conceptual travel lane configuration of the study roadway network.

## D. Level of Service Standards

For the purposes of this study, a minimum acceptable intersection performance for each of the study intersections was set depending on the road type and location, per the Development Process Manual (June 2020). The study area is within the Cherry Hills Village Center. Wyoming Boulevard NE is a Regional Principal Arterial, meaning the acceptable LOS is in the D-E range, and San Antonio Drive NE is a Minor Arterial, meaning the acceptable LOS is also in the D-E

range. San Antonio Place is classified as a local street. No LOS standards are given for local streets, but the minimum acceptable LOS was set at C for the purposes of this study.

**Table 1: Level of Service Description**

| LOS | | Description of Traffic Conditions | Average Delay (seconds/vehicle) | |
|---|---|---|---|---|
| | | | Signalized Intersections | Unsignalized Intersections |
| A |  | Free Flow / Insignificant Delay | ≤ 10 | ≤ 10 |
| B |  | Stable Operations / Minimum Delays | > 10 to 20 | > 10 to 15 |
| C |  | Stable Operations / Acceptable Delays | > 20 to 35 | > 15 to 25 |
| D |  | Approaching Unstable Flows / Tolerable Delays | > 35 to 55 | > 25 to 35 |
| E |  | Unstable Operations / Significant Delays | > 55 to 80 | > 35 to 50 |
| F |  | Forced Flows / Unpredictable Flows / Excessive Delays | > 80 | > 50 |

Source: Hales Engineering Descriptions, based on the *Highway Capacity Manual* (HCM), 7th Edition, 2022 Methodology (Transportation Research Board)

# II. EXISTING (2024) BACKGROUND CONDITIONS

## A. Purpose

The purpose of the background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified, and potential mitigation measures recommended. This analysis provides a baseline condition that may be compared to the build conditions to identify the impacts of the development.

## B. Roadway System

The primary roadways that will provide access to the project site are described below:

Wyoming Boulevard NE – is a city-maintained roadway which is classified by the Mid-Region Metropolitan Planning Organization (MRMPO) Metropolitan Transportation Plan as a Regional Principal Arterial. The roadway has three travel lanes in each direction separated by a center median. The posted speed limit is 40 mph in the study area.

San Antonio Drive NE – is a city-maintained roadway which is classified by the Mid-Region Metropolitan Planning Organization (MRMPO) Metropolitan Transportation Plan as a Minor Arterial. The roadway has two travel lanes in each direction separated by a center median. The posted speed limit is 40 mph in the study area.

San Antonio Place NE – is a city-maintained roadway which is classified as a local street. The roadway has one travel lane in each direction. The speed limit is not posted but was assumed to be 25 mph.

## C. Multi-modal System

Wyoming Boulevard NE is located along Route 31. Route 31 provides headways of approximately 40 minutes on weekdays from 6:30 a.m. to 7:30 p.m. The nearest stops are located approximately 700 to 1,000 feet from the project site on Wyoming Boulevard NE on either side of San Antonio Drive NE. The north stop contains a shelter, but the south stop does not. Route 31 spans the length of Wyoming Boulevard where transfers may be made to other routes, but it does not feed directly into a transit center.

Sidewalks exist on both sides of all streets within the study area. The nearest pedestrian crossings of San Antonio Drive NE and Wyoming Boulevard NE are located approximately 500-600 feet east of the proposed development. Wyoming Boulevard NE also contains bike lanes. A multi-use path exists along the south edge of the property that crosses underneath Wyoming Boulevard NE to the east along San Antonio Drive NE.

## D. Area Description

The land use surrounding the site is primarily commercial, with some auto-oriented services to the west, retail to the north, and office to the east. Multifamily residential uses exist to the south across the bridge.

The existing commercial building on-site is closed and will be demolished as a part of the project. The site is located in the MX-L zone.

## E. Safety Analysis

Crash data for the San Antonio Drive NE / Wyoming Boulevard NE and San Antonio Place NE / San Antonio Drive NE intersections from 2018 through 2022 were obtained from NMDOT. During that time period, two crashes occurred at the San Antonio Place NE / San Antonio Drive NE intersection and 102 crashes occurred at the San Antonio Drive NE / Wyoming Boulevard NE intersection.

At the San Antonio Drive NE / Wyoming Boulevard NE, two crashes resulted in a suspected serious injury and none were fatal. 17 crashes were marked as left-turn related (17%) and five were marked as rear end collisions (5%). Two crashes were pedestrian-related (2%).

Because no definitive trend could be identified, no mitigations are recommended.

## F. Traffic Volumes

Weekday morning (7:00 to 9:00 a.m.) and evening (4:00 to 6:00 p.m.) peak period traffic counts were performed at the following intersections:

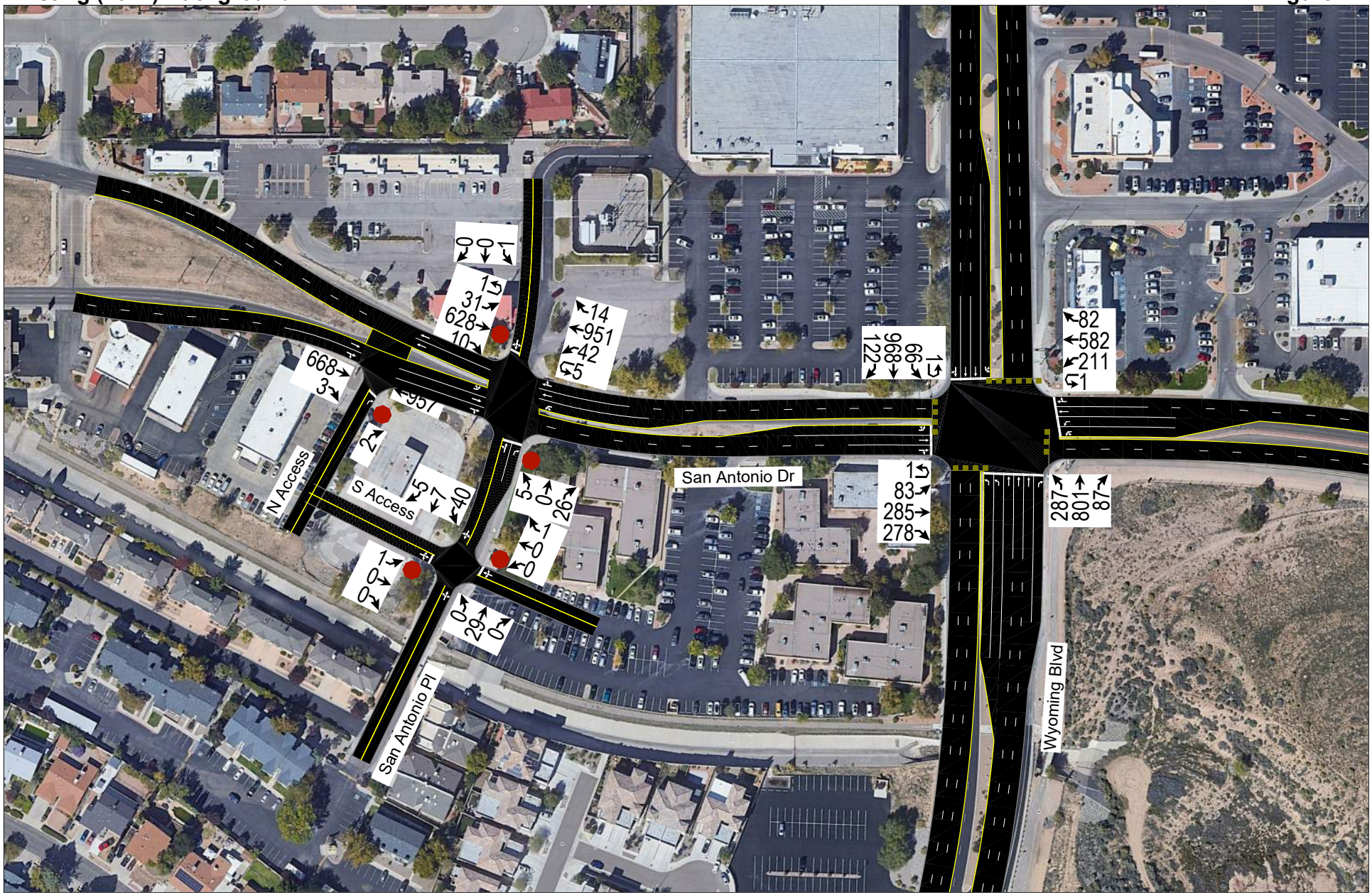
- San Antonio Drive NE / Wyoming Boulevard NE
- San Antonio Place NE / San Antonio Drive NE
- North Access / San Antonio Drive NE
- South Access / San Antonio Place NE

The counts were performed on Tuesday, March 12, 2024. The morning peak hour was determined to be between 7:30 and 8:30 a.m., and the evening peak hour was determined to be between 4:45 and 5:45 p.m. The evening peak hour volumes were approximately 24% higher than the morning peak hour volumes. Both the morning and evening peak hour volumes were used in the analysis. Detailed count data are included in Appendix B.

Figure 2 shows the existing morning and evening peak hour volumes as well as intersection geometry at the study intersections.

**Albuquerque - Dutch Bros TIS**
**Existing (2024) Background**

**Morning Peak Hour**
**Figure 2A**

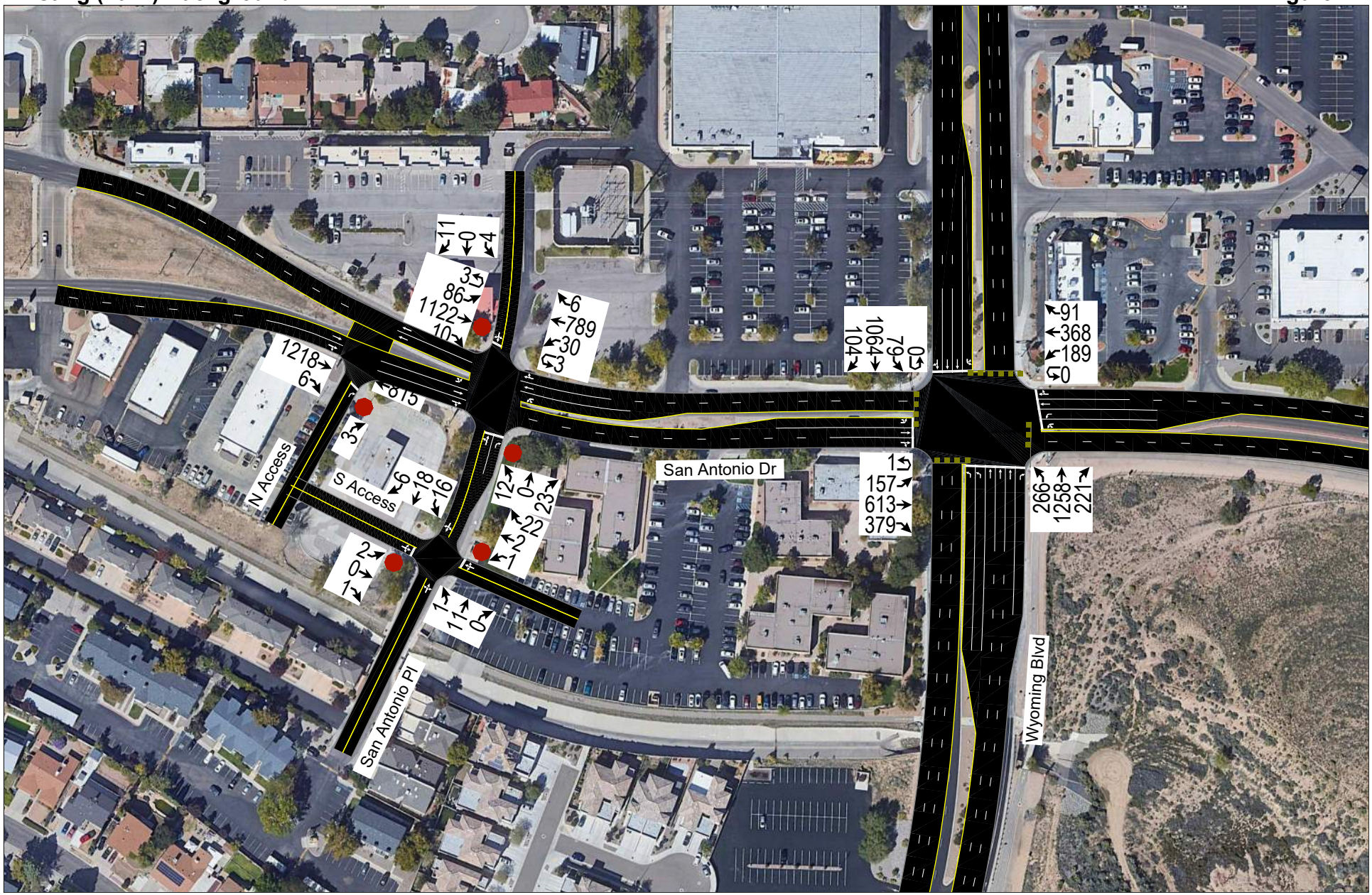



**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

**Albuquerque - Dutch Bros TIS**
**Existing (2024) Background**

**Evening Peak Hour**
**Figure 2B**




**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

## G. Level of Service Analysis

Hales Engineering determined that the San Antonio Place NE / San Antonio Drive NE intersection is currently operating at a poor LOS during the morning and evening peak hours, as shown in Table 2. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2024) conditions.

**Table 2: Existing (2024) Background Peak Hour LOS**

| Intersection | | LOS (Sec. Delay / Veh.) / Lane Group[1] | |
|---|---|---|---|
| Description | Control | Morning Peak | Evening Peak |
| San Antonio Dr NE / Wyoming Blvd NE | Signal | D (37.8) | D (46.7) |
| San Antonio Pl NE / San Antonio Dr NE | NB/SB Stop | f (>50) / SB | f (>50) NBTL |
| North Access / San Antonio Dr NE | NB Stop | b (10.8) / NB | b (13.4) / NB |
| South Access / San Antonio Pl NE | EB/WB Stop | a (9.4) / EB | a (8.8) / EB |

1. Lane group indicated for unsignalized intersections where delay and LOS represents worst lane group. SBL = Southbound left group, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, April 2024

## H. Queuing Analysis

Hales Engineering calculated the 95$^{th}$ percentile queue lengths for each of the study intersections. No significant queueing was observed during the morning and evening peak hours.

## I. Mitigation Measures

No mitigation measures are recommended. Signalization is not warranted at the San Antonio Place NE / San Antonio Drive NE intersection and little can be done to mitigate it at this time. If delays become too excessive, drivers will divert to alternative routes, which are available.

# III. FUTURE (2025) BACKGROUND CONDITIONS

## A. Purpose

The purpose of the future (2025) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified, and potential mitigation measures recommended.

## B. Roadway Network

According to the City, there are no projects planned before 2025 in the study area. Therefore, no changes were made to the roadway network for the future (2025) analysis.

## C. Traffic Volumes

Hales Engineering estimated future (2025) background volumes using 10-year historic growth rates from MRCOG data. Based on the data, Wyoming Boulevard NE carried a lower ADT value in 2022 than it did in 2012, likely due to effects from COVID-19. Ignoring the decline in traffic volumes experienced in 2020, the average annual growth rate was approximately 1%. This 1% growth rate was applied to the existing volumes to calculate future (2025) traffic volumes. According to the City, there are no nearby proposed developments. Future (2025) morning and evening peak hour turning movement volumes are shown in Figure 3.

## D. Level of Service Analysis

Hales Engineering determined that the San Antonio Place NE / San Antonio Drive NE intersection is anticipated to operate at a poor LOS during the morning and evening peak hours in future (2025) background conditions, as shown in Table 3. These results serve as a baseline condition for the impact analysis of the proposed development for future (2025) conditions.

**Table 3: Future (2025) Background Peak Hour LOS**

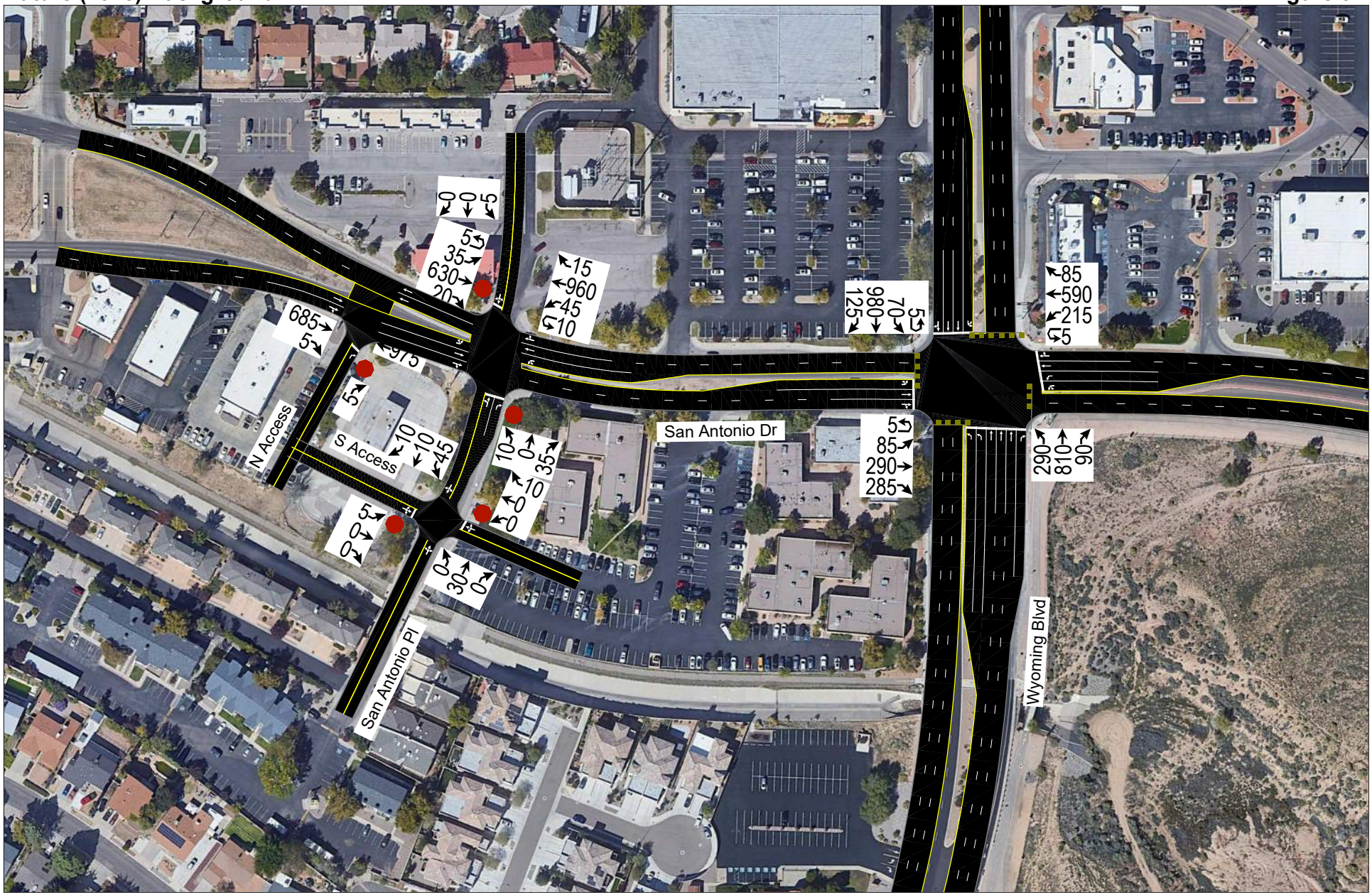
| Intersection | | LOS (Sec. Delay / Veh.) / Lane Group[1] | |
|---|---|---|---|
| Description | Control | Morning Peak | Evening Peak |
| San Antonio Dr NE / Wyoming Blvd NE | Signal | D (38.3) | D (47.7) |
| San Antonio Pl NE / San Antonio Dr NE | NB/SB Stop | f (>50) / SB | f (>50) NBTL |
| North Access / San Antonio Dr NE | NB Stop | b (10.9) / NB | b (13.4) / NB |
| South Access / San Antonio Pl NE | EB/WB Stop | a (9.6) / EB | a (8.8) / EB |

1. Lane group indicated for unsignalized intersections where delay and LOS represents worst lane group. SBL = Southbound left group, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, April 2024

**Albuquerque - Dutch Bros TIS**
**Future (2025) Background**

**Morning Peak Hour**
**Figure 3A**

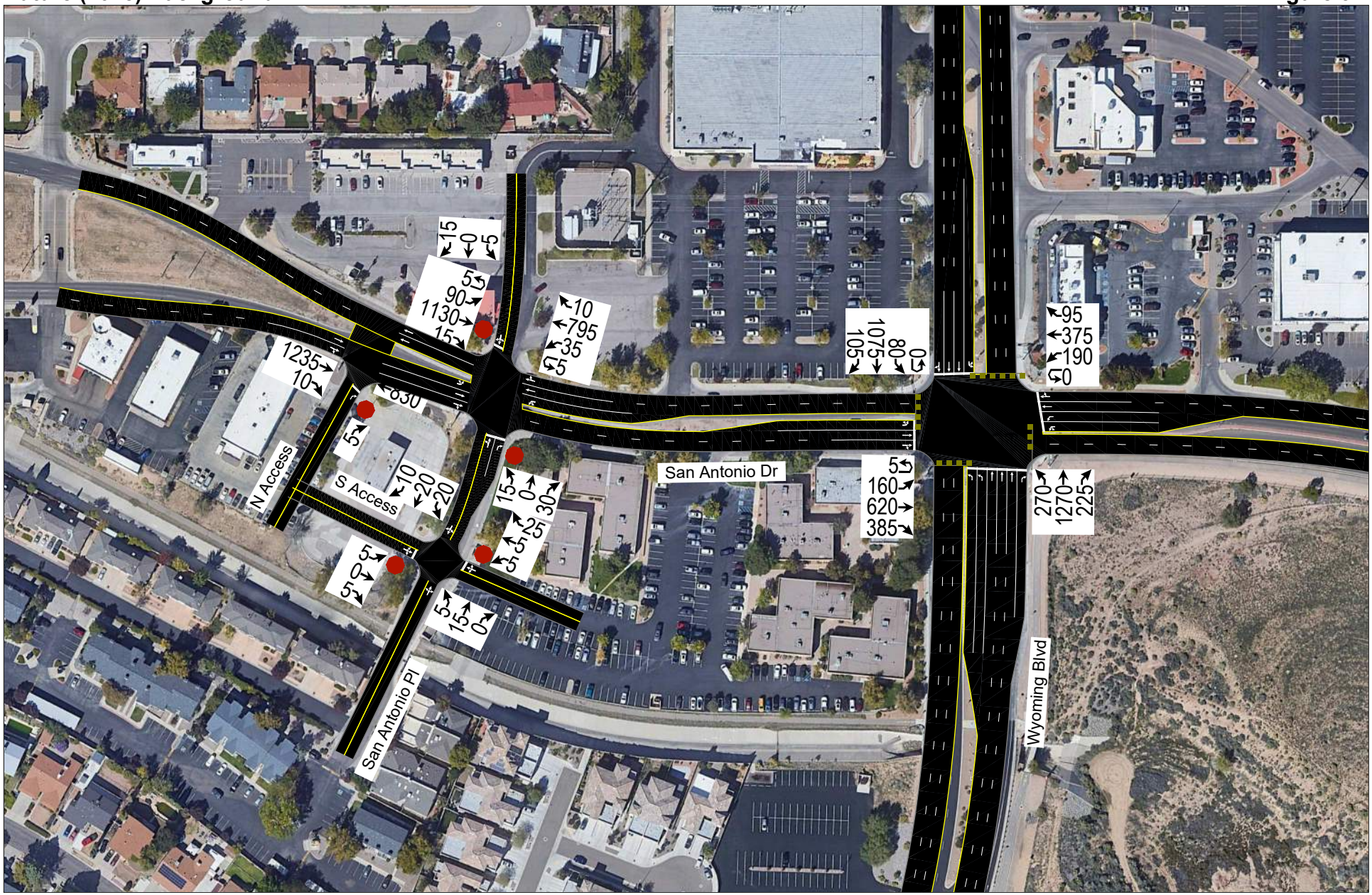



**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

**Albuquerque - Dutch Bros TIS**
**Future (2025) Background**

**Evening Peak Hour**
**Figure 3B**




**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

## E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Some significant queueing is anticipated during the evening peak hour at the San Antonio Drive NE / Wyoming Boulevard NE intersection (515 feet, eastbound). This queueing may occasionally extend past San Antonio Place NE.

## F. Mitigation Measures

To mitigate the excessive queueing, additional green time could be given to the eastbound movements during the evening peak hour.

## G. Mitigated Scenario

With the proposed improvement, the 95th percentile queue is anticipated to reduce to approximately 450 feet during the evening peak hour, which no longer extends past San Antonio Place NE.

# IV. PROJECT CONDITIONS

## A. Purpose

The project conditions discussion explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in Chapter I.

## B. Project Description

The proposed Dutch Bros development is located on the southwest corner of the San Antonio Place NE / San Antonio Drive NE intersection. The development will consist of a drive-through coffee shop with two lanes and no indoor seating. A concept plan for the proposed development is provided in Appendix A.

## C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 11th Edition, 2021. Trip generation for the proposed project is included in Table 4.

The total trip generation for the development is as follows:

- Daily Trips: 54 (+304 pass-by)
- Morning Peak Hour Trips: 14 (+76 pass-by)
- Evening Peak Hour Trips: 3 (+29 pass-by)

**Table 4: Trip Generation**

| Trip Generation<br>Albuquerque - Dutch Bros TIS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use[1] | # of Units | Unit Type | Trip Generation | | | | | Reductions | New Trips | | |
| | | | Total | % In | % Out | In | Out | Pass-by | In | Out | Total |
| **Weekday Daily** | | | | | | | | | | | | |
| Coffee Shop w/Drive-thru & No Indoor Seating (938) | 2 | Drive-thru Lanes | 358 | 50% | 50% | 179 | 179 | 85% | 27 | 27 | 54 |
| **TOTAL** | | | **358** | | | **179** | **179** | | **27** | **27** | **54** |
| **AM Peak Hour** | | | | | | | | | | | | |
| Coffee Shop w/Drive-thru & No Indoor Seating (938) | 2 | Drive-thru Lanes | 90 | 50% | 50% | 45 | 45 | 85% | 7 | 7 | 14 |
| **TOTAL** | | | **90** | | | **45** | **45** | | **7** | **7** | **14** |
| **PM Peak Hour** | | | | | | | | | | | | |
| Coffee Shop w/Drive-thru & No Indoor Seating (938) | 2 | Drive-thru Lanes | 32 | 50% | 50% | 16 | 16 | 90% | 1 | 2 | 3 |
| **TOTAL** | | | **32** | | | **16** | **16** | | **1** | **2** | **3** |

1. Land Use Code from the Institute of Transportation Engineers (ITE) *Trip Generation*, 11th Edition, 2021.

SOURCE: Hales Engineering, March 2024

## D. Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Per the City's guidance, trip distribution was examined using subareas from MRCOG 2040 population forecasts, within a 2-mile radius of the project. A 2-mile radius circle with the center at the project location falls almost entirely within the Albuquerque Northeast subarea. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially near the site. The resulting distribution of new project generated trips during the morning and evening peak hour is shown in Table 5.

**Table 5: New Trip Distribution**

| Direction | % To/From Project |
|---|---|
| North | 25% |
| South | 25% |
| East | 20% |
| West | 30% |

The following pass-by distribution was also estimated in Table 6:

**Table 6: Pass-by Trip Distribution**

| Direction | % To/From Project (Morning) | % To/From Project (Evening) |
|---|---|---|
| North-to-South | 30% | 25% |
| South-to-North | 25% | 30% |
| East-to-West | 25% | 20% |
| West-to-East | 20% | 25% |

These trip distribution assumptions were used to assign the morning and evening peak hour trip generation at the study intersections to create trip assignment for the proposed development. Trip assignment for the development is shown in Figure 4.

**Albuquerque - Dutch Bros TIS**
**Trip Assignment**

**Morning Peak Hour**
**Figure 4A**


**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

**Albuquerque - Dutch Bros TIS**
**Trip Assignment**

**Evening Peak Hour**
**Figure 4B**


**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

## E. Access

The proposed access for the site will be gained at the following locations:

San Antonio Drive NE:

- The North Access is an existing access located approximately 130 feet west of the San Antonio Place NE / San Antonio Drive NE intersection. It will access the project on the south side of San Antonio Drive NE. It is anticipated that the access will be stop-controlled and restricted to right-in/right-out because of the center median. The access will be shared with the tire store to the west.

San Antonio Place NE:

- The North Access is an existing access located approximately 160 feet south of the San Antonio Place NE / San Antonio Drive NE intersection. It will access the project on the west side of San Antonio Place NE. It is anticipated that the access will be stop-controlled.

## F. Auxiliary Lanes

Auxiliary lanes are deceleration (ingress) or acceleration (egress) turn lanes that provide for safe turning movements that have less impact on through traffic. These lanes are sometimes needed at accesses or roadway intersections if right- or left-turn volumes are high enough.

The Albuquerque Development Process Manual (2020) outlines minimum peak hour turn volumes to warrant auxiliary lanes on Albuquerque roadways. The following are the minimum requirements for these lanes on San Antonio Drive NE, assuming a design speed of 40 mph:

- Left-turn Deceleration (Ingress): 40 left-turn vehicles per hour
- Right-turn Deceleration (Ingress): 50 right-turn vehicles per hour

Based on these guidelines and the anticipated project traffic, no additional auxiliary lanes are recommended. It is anticipated that the existing westbound left-turn lane at the San Antonio Place NE / San Antonio Drive NE intersection will be sufficient to accommodate left turns into the site.

## G. Site Circulation and Queueing

The project site contains two drive-thru lanes which merge into a single lane before the window. The entrance to the drive-thru is located on the northwest corner and the exit is located on the northeast corner. Entry and exit will be possible from both accesses. To avoid having vehicles make an awkward U-turn, it is recommended that signage at the South Access direct entering vehicles to the right to join the drive thru.

Queue storage is provided for up to 18 vehicles within the drive-thru area. Based on normalized queueing data provided by Dutch Bros, a typical maximum queue of 13 vehicles is anticipated. Therefore, it is anticipated that the proposed queue storage will be sufficient. However, it is

possible that queueing may occasionally spill over. In the event that this happens, it is recommended that vehicles with larger orders be directed to an available stall to wait for their order.

# V. FUTURE (2025) PLUS PROJECT CONDITIONS

## A. Purpose

The purpose of the future (2025) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for opening day background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

## B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the future (2025) background traffic volumes to predict turning movement volumes for future (2025) plus project conditions. Future (2025) plus project morning and evening peak hour turning movement volumes are shown in Figure 5.

## C. Level of Service Analysis

Hales Engineering determined that the San Antonio Place NE / San Antonio Drive NE intersection is anticipated to operate at a poor LOS during the morning and evening peak hours with project traffic added, as shown in Table 7.

**Table 7: Future (2025) Plus Project Peak Hour LOS**

| Intersection | | LOS (Sec. Delay / Veh.) / Lane Group[1] | |
|---|---|---|---|
| Description | Control | Morning Peak | Evening Peak |
| San Antonio Dr NE / Wyoming Blvd NE | Signal | D (39.3) | D (43.1) |
| San Antonio Pl NE / San Antonio Dr NE | NB/SB Stop | f (>50) / SB | f (>50) NBTL |
| North Access / San Antonio Dr NE | NB Stop | b (11.3) / NB | b (13.9) / NB |
| South Access / San Antonio Pl NE | EB/WB Stop | a (9.9) / EB | a (9.1) / EB |

1. Lane group indicated for unsignalized intersections where delay and LOS represents worst lane group. SBL = Southbound left group, etc.
2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

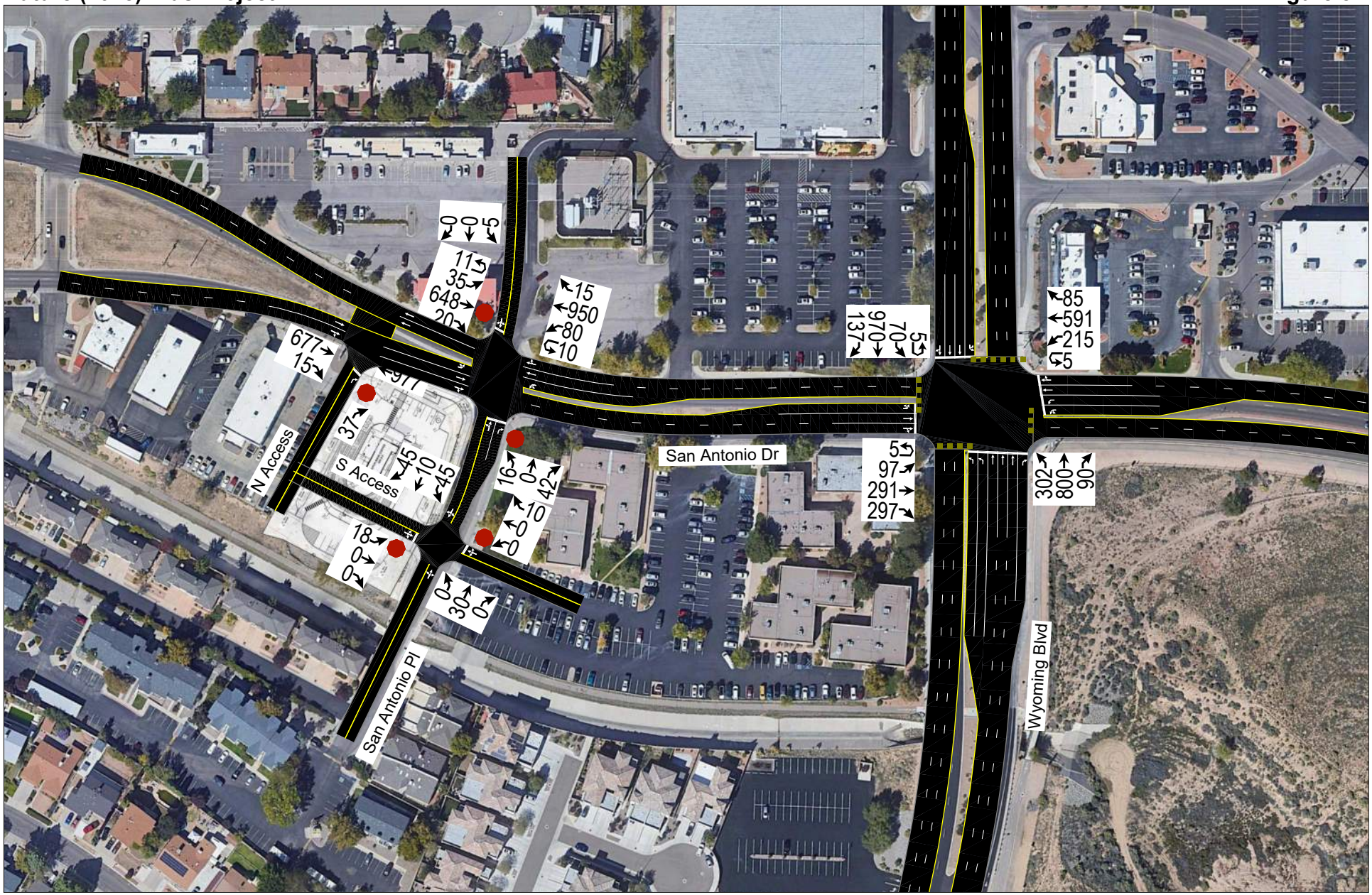
Source: Hales Engineering, April 2024

## D. Queuing Analysis

Hales Engineering calculated the 95$^{th}$ percentile queue lengths for each of the study intersections. No significant queueing is anticipated during the morning and evening peak hours.

**Albuquerque - Dutch Bros TIS**
**Future (2025) Plus Project**

**Morning Peak Hour**
**Figure 5A**

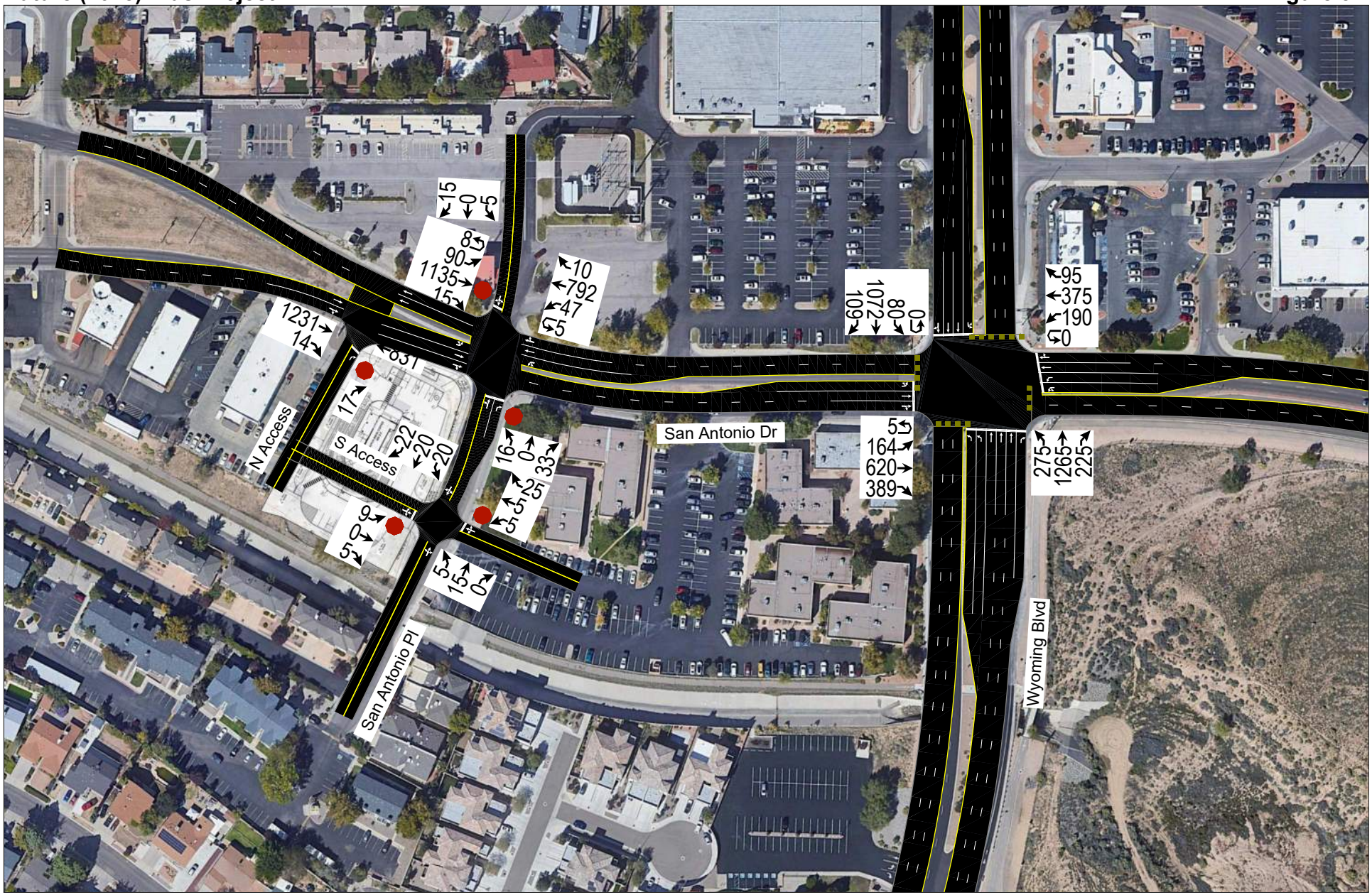



**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

**Albuquerque - Dutch Bros TIS**
**Future (2025) Plus Project**

**Evening Peak Hour**
**Figure 5B**




**Hales Engineering**
**1220 North 500 West Ste 202, Lehi, UT, 84043**

**801.766.4343**
**03/28/2024**

## E. Mitigation Measures

No mitigation measures are recommended. Peak hour signal warrants continue to not be met, as demonstrated in Figure 6, which assumes the 70% factor due to the roadway speed, morning peak hour conditions, and the major street left versus opposing thru option.

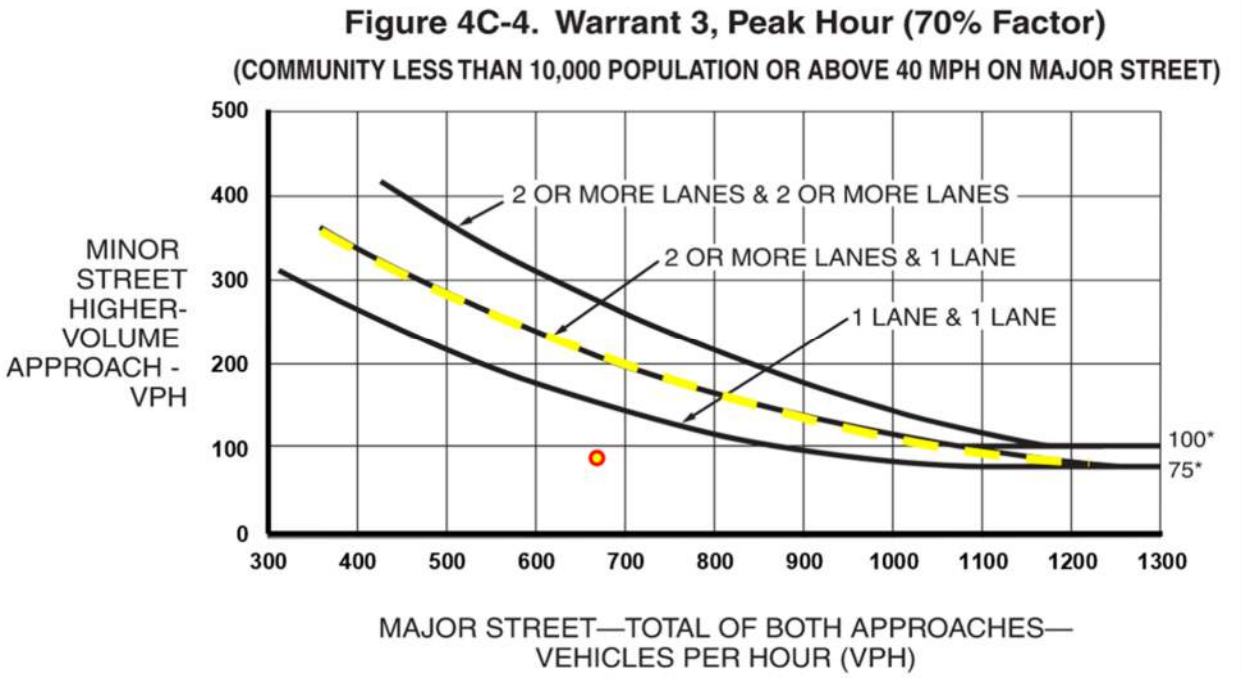
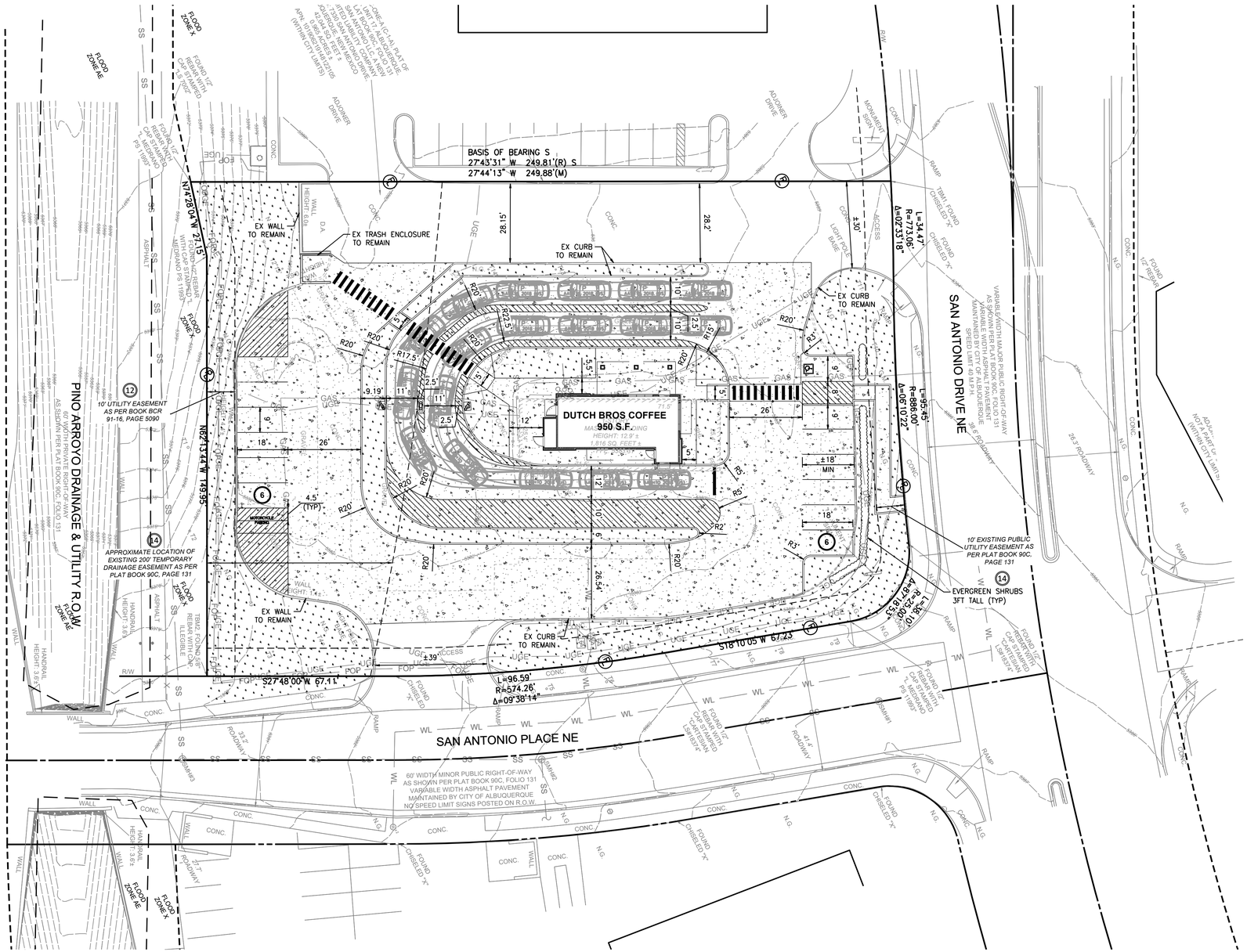


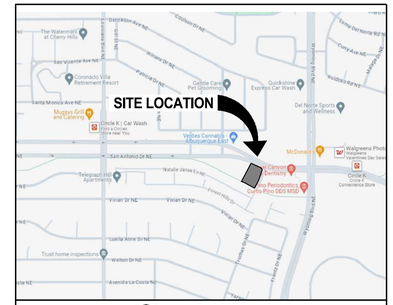

**Figure 6: San Antonio Place peak hour signal warrant**

# APPENDIX A

## Site Plan

# DUTCH BROS. COFFEE - NM0504, ALBUQUERQUE, NM




## PROJECT DATA

DB2550-A1

| | |
|---|---|
| TRASH ENCLOSURE | = EXISTING TO REMAIN |
| PROPOSED REGULAR PARKING | = 12 |
| PROPOSED MOTORCYCLE PARKING | = 2 |
| PROPOSED EV PARKING | = 0 |
| PROPOSED ADA PARKING | = 1 |
| TOTAL PARKING | = 13 + 2 MOTORCYCLE |
| QUEUING | = 18 |

## LEGEND

- BUILDING LINE
- EXISTING CURB TO REMAIN
- PROPOSED CURB
- PROPOSED LANDSCAPING
- EXISTING LANDSCAPING
- PROPOSED ASPHALT
- PROPOSED CONCRETE

PRELIMINARY NOT FOR CONSTRUCTION

Title: PRELIMINARY SITE PLAN
7330 SAN ANTONIO
ALBUQUERQUE, NM

For: DUTCH BROS

PRELIMINARY

Scale: Horizontal 1" = 20' Vertical N/A

Designed CT Drawn AJ Checked JAH Approved HPG Date –

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 23204

Sheet 1 OF 1

2010 DB Franchising USA, LLC

P:\23000s\23204\preliminary\23204-ps.dwg 2/6/2024 11:08 AM AJONES

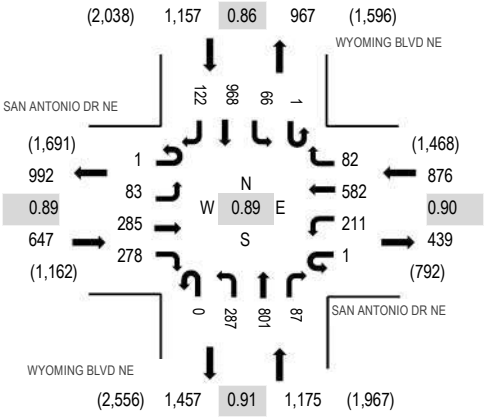
# APPENDIX B

## Turning Movement Counts

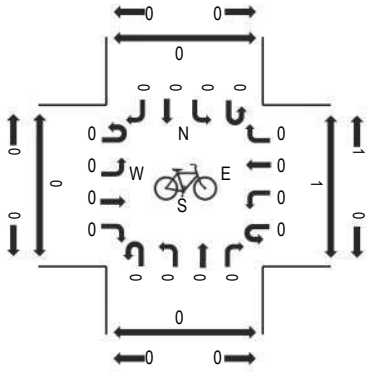
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 1 WYOMING BLVD NE & SAN ANTONIO DR NE AM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 07:30 AM - 08:30 AM
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

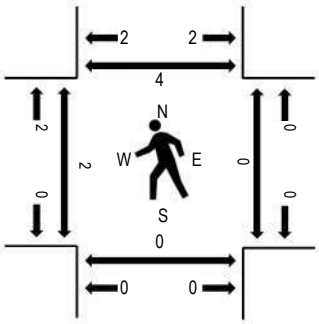
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

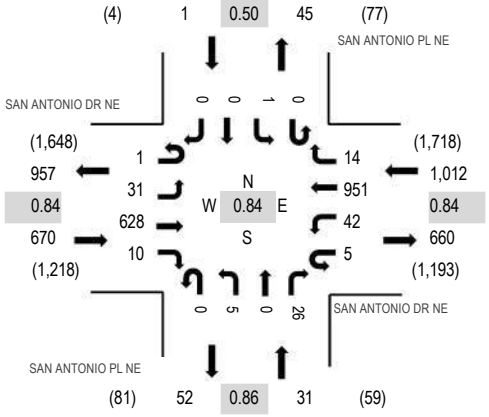
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | WYOMING BLVD NE Northbound | | | | WYOMING BLVD NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 7:00 AM | 0 | 10 | 52 | 37 | 0 | 34 | 81 | 6 | 0 | 42 | 87 | 12 | 0 | 4 | 130 | 20 | 515 | 3,246 | 0 | 1 | 1 | 0 |
| 7:15 AM | 0 | 19 | 75 | 47 | 0 | 44 | 130 | 14 | 0 | 67 | 114 | 19 | 0 | 13 | 176 | 23 | 741 | 3,718 | 0 | 1 | 0 | 0 |
| 7:30 AM | 0 | 19 | 76 | 60 | 1 | 40 | 156 | 15 | 0 | 71 | 158 | 13 | 0 | 18 | 248 | 33 | 908 | 3,855 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 14 | 91 | 78 | 0 | 42 | 177 | 23 | 0 | 92 | 203 | 27 | 0 | 19 | 287 | 29 | 1,082 | 3,660 | 1 | 0 | 0 | 0 |
| 8:00 AM | 0 | 30 | 63 | 80 | 0 | 74 | 122 | 23 | 0 | 63 | 224 | 18 | 0 | 20 | 244 | 26 | 987 | 3,389 | 1 | 0 | 0 | 2 |
| 8:15 AM | 1 | 20 | 55 | 60 | 0 | 55 | 127 | 21 | 0 | 61 | 216 | 29 | 1 | 9 | 189 | 34 | 878 | | 0 | 0 | 0 | 2 |
| 8:30 AM | 0 | 19 | 42 | 65 | 1 | 31 | 93 | 8 | 0 | 40 | 132 | 17 | 0 | 15 | 223 | 27 | 713 | | 1 | 0 | 0 | 2 |
| 8:45 AM | 0 | 25 | 58 | 66 | 0 | 39 | 98 | 13 | 0 | 54 | 182 | 26 | 0 | 19 | 207 | 24 | 811 | | 3 | 2 | 0 | 0 |
| Count Total | 1 | 156 | 512 | 493 | 2 | 359 | 984 | 123 | 0 | 490 | 1,316 | 161 | 1 | 117 | 1,704 | 216 | 6,635 | | 6 | 4 | 1 | 6 |
| Peak Hour | 1 | 83 | 285 | 278 | 1 | 211 | 582 | 82 | 0 | 287 | 801 | 87 | 1 | 66 | 968 | 122 | 3,855 | | 2 | 0 | 0 | 4 |

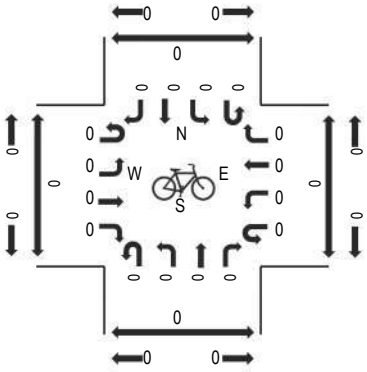
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 2 SAN ANTONIO PL NE & SAN ANTONIO DR NE AM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 07:30 AM - 08:30 AM
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

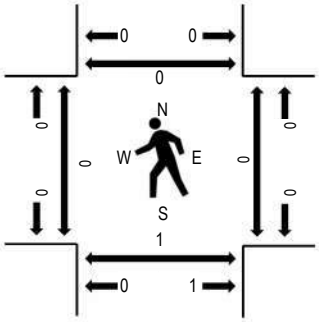
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

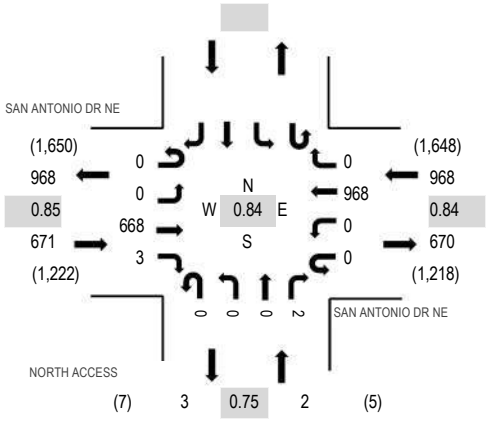
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | SAN ANTONIO PL NE Northbound | | | | SAN ANTONIO PL NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 7:00 AM | 0 | 5 | 106 | 1 | 1 | 3 | 141 | 1 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 263 | 1,563 | 0 | 0 | 1 | 0 |
| 7:15 AM | 0 | 2 | 138 | 1 | 2 | 6 | 212 | 1 | 0 | 3 | 1 | 4 | 0 | 0 | 0 | 0 | 370 | 1,710 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 10 | 140 | 2 | 1 | 9 | 245 | 4 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 420 | 1,714 | 0 | 0 | 1 | 0 |
| 7:45 AM | 0 | 7 | 188 | 4 | 1 | 12 | 287 | 2 | 0 | 2 | 0 | 7 | 0 | 0 | 0 | 0 | 510 | 1,602 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 5 | 170 | 3 | 1 | 5 | 219 | 2 | 0 | 1 | 0 | 3 | 0 | 1 | 0 | 0 | 410 | 1,436 | 0 | 0 | 0 | 0 |
| 8:15 AM | 1 | 9 | 130 | 1 | 2 | 16 | 200 | 6 | 0 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 374 | | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 11 | 128 | 0 | 0 | 8 | 151 | 1 | 0 | 2 | 0 | 5 | 0 | 1 | 0 | 1 | 308 | | 0 | 0 | 0 | 0 |
| 8:45 AM | 1 | 9 | 141 | 5 | 1 | 5 | 172 | 1 | 0 | 4 | 0 | 4 | 0 | 1 | 0 | 0 | 344 | | 0 | 0 | 0 | 0 |
| Count Total | 2 | 58 | 1,141 | 17 | 9 | 64 | 1,627 | 18 | 0 | 18 | 1 | 40 | 0 | 3 | 0 | 1 | 2,999 | | 0 | 0 | 2 | 0 |
| Peak Hour | 1 | 31 | 628 | 10 | 5 | 42 | 951 | 14 | 0 | 5 | 0 | 26 | 0 | 1 | 0 | 0 | 1,714 | | 0 | 0 | 1 | 0 |

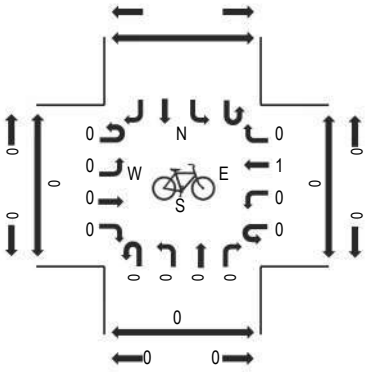
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 3 NORTH ACCESS & SAN ANTONIO DR NE AM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 07:15 AM - 08:15 AM
**Peak 15-Minutes:** 07:45 AM - 08:00 AM

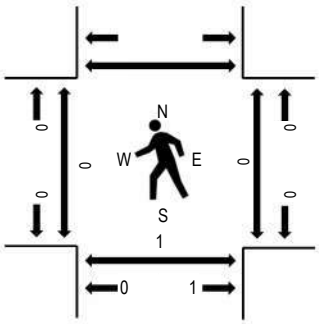
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

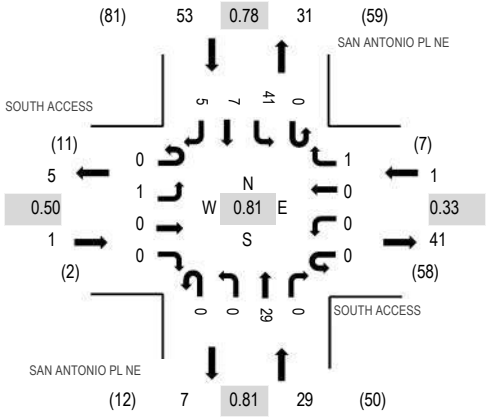
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | NORTH ACCESS Northbound | | | | Southbound | | | | Total | Rolling Hour | Pedestrian Crossings | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | | | West | East | South North |
| 7:00 AM | 0 | 0 | 113 | 0 | 0 | 0 | 143 | 0 | 0 | 0 | 0 | 1 | | | | | 257 | 1,499 | 0 | 0 | 1 |
| 7:15 AM | 0 | 0 | 139 | 1 | 0 | 0 | 217 | 0 | 0 | 0 | 0 | 0 | | | | | 357 | 1,641 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 151 | 0 | 0 | 0 | 246 | 0 | 0 | 0 | 0 | 1 | | | | | 398 | 1,629 | 0 | 0 | 1 |
| 7:45 AM | 0 | 0 | 199 | 0 | 0 | 0 | 287 | 0 | 0 | 0 | 0 | 1 | | | | | 487 | 1,526 | 0 | 0 | 0 |
| 8:00 AM | 0 | 0 | 179 | 2 | 0 | 0 | 218 | 0 | 0 | 0 | 0 | 0 | | | | | 399 | 1,376 | 0 | 0 | 0 |
| 8:15 AM | 1 | 0 | 141 | 1 | 0 | 0 | 202 | 0 | 0 | 0 | 0 | 0 | | | | | 345 | | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 137 | 1 | 0 | 0 | 157 | 0 | 0 | 0 | 0 | 0 | | | | | 295 | | 0 | 0 | 0 |
| 8:45 AM | 0 | 0 | 155 | 2 | 0 | 0 | 178 | 0 | 0 | 1 | 0 | 1 | | | | | 337 | | 0 | 0 | 0 |
| Count Total | 1 | 0 | 1,214 | 7 | 0 | 0 | 1,648 | 0 | 0 | 1 | 0 | 4 | | | | | 2,875 | | 0 | 0 | 2 |
| Peak Hour | 0 | 0 | 668 | 3 | 0 | 0 | 968 | 0 | 0 | 0 | 0 | 2 | | | | | 1,641 | | 0 | 0 | 1 |

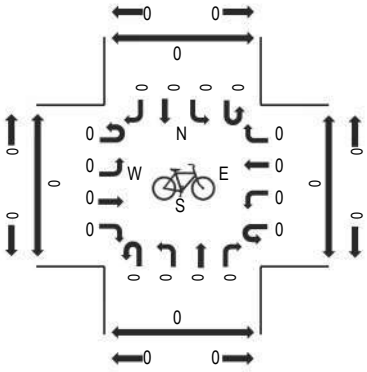
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 4 SAN ANTONIO PL NE & SOUTH ACCESS AM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 07:30 AM - 08:30 AM
**Peak 15-Minutes:** 08:15 AM - 08:30 AM

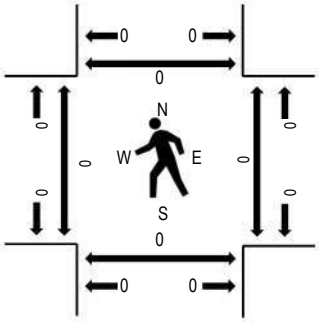
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

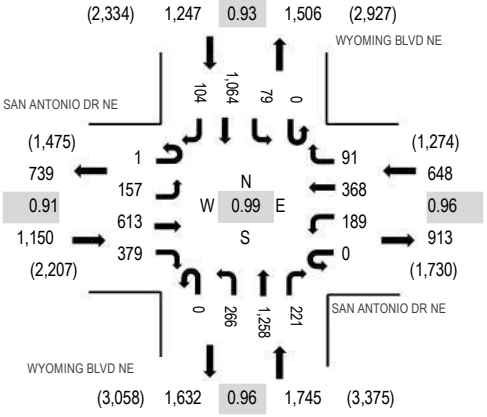
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SOUTH ACCESS Eastbound | | | | SOUTH ACCESS Westbound | | | | SAN ANTONIO PL NE Northbound | | | | SAN ANTONIO PL NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 2 | 1 | 1 | 9 | 69 | 0 | 0 | 0 | 0 |
| 7:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 7 | 0 | 0 | 3 | 1 | 2 | 15 | 73 | 0 | 0 | 0 | 0 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 10 | 1 | 1 | 21 | 84 | 0 | 0 | 0 | 0 |
| 7:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 12 | 0 | 3 | 24 | 77 | 0 | 0 | 0 | 0 |
| 8:00 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 7 | 2 | 0 | 13 | 71 | 0 | 0 | 0 | 0 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 12 | 4 | 1 | 26 | | 0 | 0 | 0 | 0 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 1 | 6 | 1 | 0 | 14 | | 0 | 0 | 0 | 0 |
| 8:45 AM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 6 | 2 | 2 | 18 | | 0 | 1 | 0 | 0 |
| Count Total | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 50 | 0 | 1 | 58 | 12 | 10 | 140 | | 0 | 1 | 0 | 0 |
| Peak Hour | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 29 | 0 | 0 | 41 | 7 | 5 | 84 | | 0 | 0 | 0 | 0 |

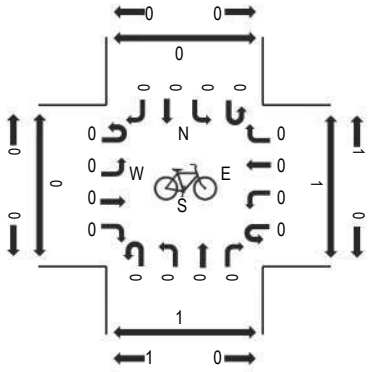
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 1 WYOMING BLVD NE & SAN ANTONIO DR NE PM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 04:45 PM - 05:45 PM
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

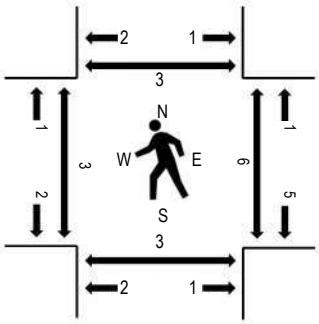
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

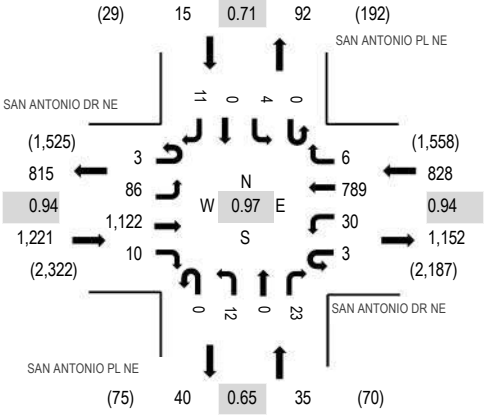
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | WYOMING BLVD NE Northbound | | | | WYOMING BLVD NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 4:00 PM | 0 | 39 | 124 | 86 | 0 | 42 | 101 | 16 | 0 | 64 | 285 | 50 | 0 | 21 | 239 | 21 | 1,088 | 4,588 | 1 | 0 | 0 | 2 |
| 4:15 PM | 1 | 39 | 160 | 80 | 0 | 44 | 88 | 26 | 0 | 60 | 317 | 53 | 0 | 23 | 236 | 25 | 1,152 | 4,711 | 0 | 0 | 1 | 1 |
| 4:30 PM | 0 | 41 | 139 | 111 | 0 | 39 | 85 | 26 | 0 | 85 | 306 | 47 | 0 | 20 | 225 | 31 | 1,155 | 4,748 | 0 | 1 | 0 | 1 |
| 4:45 PM | 1 | 33 | 142 | 86 | 0 | 45 | 100 | 20 | 0 | 66 | 317 | 48 | 0 | 18 | 289 | 28 | 1,193 | 4,790 | 2 | 2 | 3 | 1 |
| 5:00 PM | 0 | 39 | 156 | 105 | 0 | 49 | 101 | 12 | 0 | 71 | 328 | 60 | 0 | 18 | 253 | 19 | 1,211 | 4,602 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 46 | 175 | 104 | 0 | 49 | 93 | 26 | 0 | 63 | 286 | 52 | 0 | 20 | 246 | 29 | 1,189 | | 1 | 4 | 0 | 2 |
| 5:30 PM | 0 | 39 | 140 | 84 | 0 | 46 | 74 | 33 | 0 | 66 | 327 | 61 | 0 | 23 | 276 | 28 | 1,197 | | 0 | 0 | 0 | 0 |
| 5:45 PM | 2 | 41 | 118 | 76 | 0 | 47 | 96 | 16 | 0 | 55 | 269 | 39 | 0 | 23 | 201 | 22 | 1,005 | | 0 | 0 | 0 | 0 |
| Count Total | 4 | 317 | 1,154 | 732 | 0 | 361 | 738 | 175 | 0 | 530 | 2,435 | 410 | 0 | 166 | 1,965 | 203 | 9,190 | | 4 | 7 | 4 | 7 |
| Peak Hour | 1 | 157 | 613 | 379 | 0 | 189 | 368 | 91 | 0 | 266 | 1,258 | 221 | 0 | 79 | 1,064 | 104 | 4,790 | | 3 | 6 | 3 | 3 |

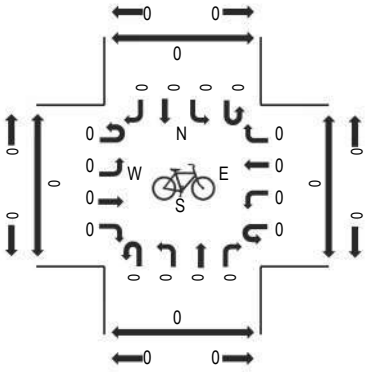
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 2 SAN ANTONIO PL NE & SAN ANTONIO DR NE PM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 04:30 PM - 05:30 PM
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

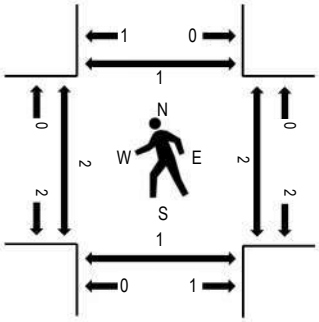
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

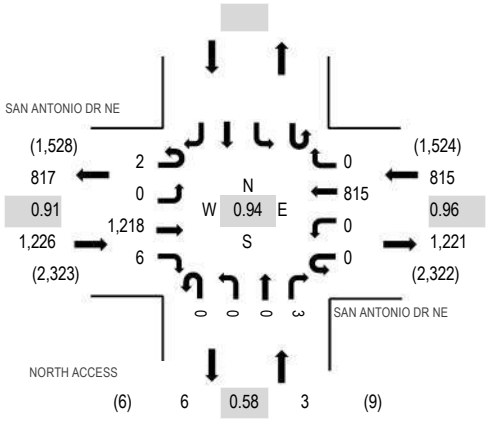
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | SAN ANTONIO PL NE Northbound | | | | SAN ANTONIO PL NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 4:00 PM | 1 | 19 | 245 | 3 | 1 | 10 | 175 | 3 | 0 | 4 | 0 | 11 | 0 | 2 | 0 | 1 | 475 | 1,997 | 0 | 0 | 0 | 0 |
| 4:15 PM | 1 | 18 | 286 | 1 | 0 | 9 | 167 | 2 | 0 | 3 | 0 | 3 | 0 | 1 | 0 | 4 | 495 | 2,063 | 0 | 0 | 0 | 0 |
| 4:30 PM | 1 | 21 | 275 | 5 | 1 | 8 | 208 | 3 | 0 | 3 | 0 | 4 | 0 | 3 | 0 | 1 | 533 | 2,099 | 2 | 0 | 1 | 1 |
| 4:45 PM | 0 | 25 | 243 | 1 | 2 | 13 | 194 | 1 | 0 | 3 | 0 | 8 | 0 | 1 | 0 | 3 | 494 | 2,028 | 0 | 2 | 0 | 0 |
| 5:00 PM | 1 | 17 | 304 | 3 | 0 | 5 | 193 | 1 | 0 | 4 | 0 | 6 | 0 | 0 | 0 | 7 | 541 | 1,982 | 0 | 0 | 0 | 0 |
| 5:15 PM | 1 | 23 | 300 | 1 | 0 | 4 | 194 | 1 | 0 | 2 | 0 | 5 | 0 | 0 | 0 | 0 | 531 | | 0 | 0 | 0 | 0 |
| 5:30 PM | 2 | 27 | 248 | 0 | 0 | 6 | 168 | 3 | 0 | 2 | 0 | 4 | 0 | 0 | 0 | 2 | 462 | | 0 | 0 | 0 | 0 |
| 5:45 PM | 1 | 21 | 227 | 1 | 2 | 5 | 174 | 5 | 0 | 2 | 2 | 4 | 0 | 1 | 0 | 3 | 448 | | 0 | 0 | 0 | 0 |
| Count Total | 8 | 171 | 2,128 | 15 | 6 | 60 | 1,473 | 19 | 0 | 23 | 2 | 45 | 0 | 8 | 0 | 21 | 3,979 | | 2 | 2 | 1 | 1 |
| Peak Hour | 3 | 86 | 1,122 | 10 | 3 | 30 | 789 | 6 | 0 | 12 | 0 | 23 | 0 | 4 | 0 | 11 | 2,099 | | 2 | 2 | 1 | 1 |

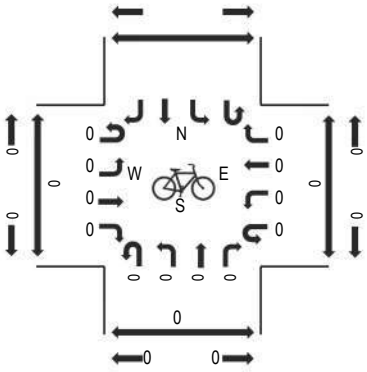
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 3 NORTH ACCESS & SAN ANTONIO DR NE PM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 04:30 PM - 05:30 PM
**Peak 15-Minutes:** 05:00 PM - 05:15 PM

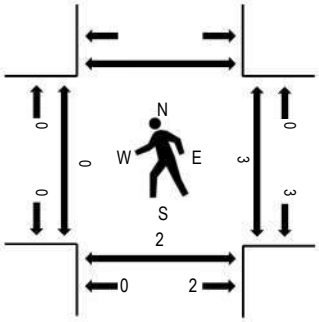
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

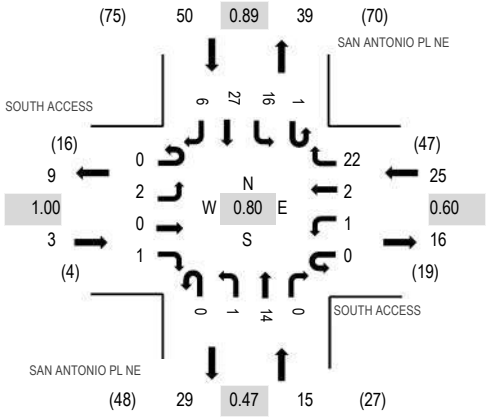
## Traffic Counts - Motorized Vehicles

| Interval Start Time | SAN ANTONIO DR NE Eastbound | | | | SAN ANTONIO DR NE Westbound | | | | NORTH ACCESS Northbound | | | | Southbound | | | | Total | Rolling Hour | Pedestrian Crossings | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | | | West | East | South North |
| 4:00 PM | 1 | 0 | 270 | 0 | 0 | 0 | 179 | 0 | 0 | 0 | 0 | 1 | | | | | 451 | 1,921 | 0 | 0 | 0 |
| 4:15 PM | 1 | 0 | 303 | 0 | 0 | 0 | 177 | 0 | 0 | 0 | 0 | 0 | | | | | 481 | 2,012 | 0 | 0 | 0 |
| 4:30 PM | 1 | 0 | 302 | 2 | 0 | 0 | 212 | 0 | 0 | 0 | 0 | 0 | | | | | 517 | 2,044 | 0 | 2 | 1 |
| 4:45 PM | 0 | 0 | 269 | 1 | 0 | 0 | 201 | 0 | 0 | 0 | 0 | 1 | | | | | 472 | 1,982 | 0 | 1 | 1 |
| 5:00 PM | 1 | 0 | 336 | 1 | 0 | 0 | 204 | 0 | 0 | 0 | 0 | 0 | | | | | 542 | 1,935 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 311 | 2 | 0 | 0 | 198 | 0 | 0 | 0 | 0 | 2 | | | | | 513 | | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 278 | 0 | 0 | 0 | 174 | 0 | 0 | 0 | 0 | 3 | | | | | 455 | | 2 | 0 | 0 |
| 5:45 PM | 0 | 0 | 244 | 0 | 0 | 0 | 179 | 0 | 0 | 0 | 0 | 2 | | | | | 425 | | 0 | 0 | 0 |
| Count Total | 4 | 0 | 2,313 | 6 | 0 | 0 | 1,524 | 0 | 0 | 0 | 0 | 9 | | | | | 3,856 | | 2 | 3 | 2 |
| Peak Hour | 2 | 0 | 1,218 | 6 | 0 | 0 | 815 | 0 | 0 | 0 | 0 | 3 | | | | | 2,044 | | 0 | 3 | 2 |

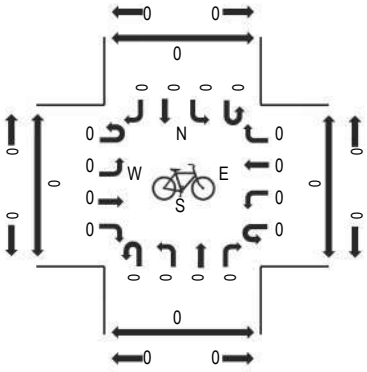
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

**Location:** 4 SAN ANTONIO PL NE & SOUTH ACCESS PM
**Date:** Tuesday, March 12, 2024
**Peak Hour:** 04:00 PM - 05:00 PM
**Peak 15-Minutes:** 04:00 PM - 04:15 PM

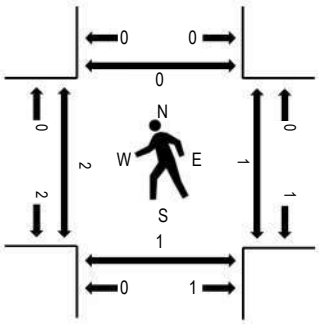
## Peak Hour - Motorized Vehicles




## Peak Hour - Bicycles




## Peak Hour - Pedestrians




Note: Total study counts contained in parentheses.

## Traffic Counts - Motorized Vehicles

| Interval Start Time | SOUTH ACCESS Eastbound | | | | SOUTH ACCESS Westbound | | | | SAN ANTONIO PL NE Northbound | | | | SAN ANTONIO PL NE Southbound | | | | | Rolling Hour | Pedestrian Crossings | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | Total | | West | East | South | North |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 0 | 1 | 7 | 0 | 1 | 4 | 7 | 1 | 29 | 93 | 0 | 1 | 0 | 0 |
| 4:15 PM | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 1 | 6 | 3 | 16 | 86 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 | 0 | 0 | 2 | 0 | 0 | 5 | 8 | 0 | 22 | 82 | 2 | 0 | 1 | 0 |
| 4:45 PM | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 4 | 0 | 0 | 6 | 6 | 2 | 26 | 72 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 8 | 0 | 0 | 1 | 0 | 0 | 2 | 6 | 0 | 22 | 60 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 1 | 12 | | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 5 | 1 | 12 | | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 5 | 0 | 0 | 1 | 4 | 1 | 14 | | 0 | 0 | 0 | 0 |
| Count Total | 0 | 3 | 0 | 1 | 0 | 1 | 6 | 40 | 0 | 1 | 26 | 0 | 1 | 19 | 46 | 9 | 153 | | 2 | 1 | 1 | 0 |
| Peak Hour | 0 | 2 | 0 | 1 | 0 | 1 | 2 | 22 | 0 | 1 | 14 | 0 | 1 | 16 | 27 | 6 | 93 | | 2 | 1 | 1 | 0 |

# APPENDIX C

## Synchro Printouts

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 94 | 632 | 238 | 746 | 322 | 900 | 98 | 75 | 1225 |
| v/c Ratio | 0.67 | 0.64 | 0.68 | 0.78 | 0.79 | 0.41 | 0.13 | 0.56 | 0.66 |
| Control Delay (s/veh) | 72.4 | 26.7 | 58.1 | 42.9 | 61.8 | 24.6 | 4.8 | 64.6 | 31.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 72.4 | 26.7 | 58.1 | 42.9 | 61.8 | 24.6 | 4.8 | 64.6 | 31.9 |
| Queue Length 50th (ft) | 65 | 133 | 84 | 247 | 114 | 172 | 0 | 52 | 274 |
| Queue Length 95th (ft) | #121 | 191 | 123 | 308 | 161 | 223 | 32 | 97 | 331 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 162 | 1048 | 409 | 1044 | 442 | 2148 | 733 | 178 | 1837 |
| 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 | 0.58 | 0.60 | 0.58 | 0.71 | 0.73 | 0.42 | 0.13 | 0.42 | 0.67 |

Intersection Summary

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 84 | 285 | 278 | 212 | 582 | 82 | 287 | 801 | 87 | 67 | 968 | 122 |
| Future Volume (veh/h) | 84 | 285 | 278 | 212 | 582 | 82 | 287 | 801 | 87 | 67 | 968 | 122 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 7 | 4 | 14 | 3 | 8 | 18 |
| Initial Q, veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj (A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | 1885 | 1856 | 1885 |
| Adj Flow Rate, veh/h | 94 | 320 | 312 | 238 | 654 | 92 | 322 | 900 | 98 | 75 | 1088 | 137 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 | 1 |
| Opposing Right Turn Influence | Yes | | | Yes | | | Yes | | | Yes | | |
| Cap, veh/h | 118 | 420 | 373 | 300 | 803 | 113 | 382 | 2318 | 730 | 96 | 1828 | 230 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prop Arrive On Green | 0.07 | 0.23 | 0.23 | 0.09 | 0.25 | 0.25 | 0.11 | 0.46 | 0.46 | 0.05 | 0.40 | 0.40 |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | 62.1 | 46.2 | 53.3 | 54.2 | 47.7 | 47.8 | 58.8 | 20.2 | 17.6 | 56.5 | 27.8 | 29.6 |
| Ln Grp LOS | E | D | D | D | D | D | E | C | B | E | C | C |
| Approach Vol, veh/h | | 726 | | | 984 | | | 1320 | | | 1300 | |
| Approach Delay, s/veh | | 51.3 | | | 49.3 | | | 29.4 | | | 30.0 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 13.5 | 31.3 | 9.9 | 55.3 | 11.3 | 33.5 | 16.1 | 49.1 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 13.0 | 29.5 | 11.0 | 38.0 | 10.0 | 32.5 | 14.0 | 35.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.2 | 2.2 | 3.9 | 2.2 | 6.0 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 9.4 | 22.6 | 6.5 | 14.9 | 7.7 | 23.5 | 12.0 | 22.7 |
| Green Ext Time (g_e), s | 0.1 | 2.7 | 0.0 | 4.2 | 0.0 | 3.8 | 0.1 | 4.3 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.90 | 1.00 | 0.94 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.09 | 0.90 | 0.01 | 0.00 | 0.84 | 0.70 | 1.00 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 1791 | | 5066 | | 3151 | | 4555 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1589 | | 1596 | | 443 | | 573 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 0.8 | 0.0 | 0.1 | 0.0 | 1.2 | 0.0 | 0.4 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 8.6 | 0.0 | 4.9 | 0.0 | 10.3 | 0.0 | 8.3 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.46 | 0.00 | 0.11 | 0.00 | 0.18 | 0.00 | 0.25 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 312 | 0 | 98 | 0 | 375 | 0 | 419 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1589 | 0 | 1596 | 0 | 1803 | 0 | 1751 |
| Q Serve Time (g_s), s | 0.0 | 20.6 | 0.0 | 3.9 | 0.0 | 21.5 | 0.0 | 20.7 |
| Cycle Q Clear Time (g_c), s | 0.0 | 20.6 | 0.0 | 3.9 | 0.0 | 21.5 | 0.0 | 20.7 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.25 | 0.00 | 0.33 |
| Lane Grp Cap (c), veh/h | 0 | 373 | 0 | 730 | 0 | 459 | 0 | 703 |
| V/C Ratio (X) | 0.00 | 0.84 | 0.00 | 0.13 | 0.00 | 0.82 | 0.00 | 0.60 |
| Avail Cap (c_a), veh/h | 0 | 426 | 0 | 730 | 0 | 533 | 0 | 703 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 40.1 | 0.0 | 17.2 | 0.0 | 38.6 | 0.0 | 25.9 |
| Incr Delay (d2), s/veh | 0.0 | 13.2 | 0.0 | 0.4 | 0.0 | 9.2 | 0.0 | 3.7 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 53.3 | 0.0 | 17.6 | 0.0 | 47.8 | 0.0 | 29.6 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 7.8 | 0.0 | 1.4 | 0.0 | 9.2 | 0.0 | 8.2 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 1.4 | 0.0 | 0.1 | 0.0 | 1.2 | 0.0 | 0.7 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 9.1 | 0.0 | 1.5 | 0.0 | 10.4 | 0.0 | 9.0 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.49 | 0.00 | 0.21 | 0.00 | 0.19 | 0.00 | 0.27 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 37.8 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 31 | 628 | 10 | 5 | 42 | 951 | 14 | 5 | 0 | 26 | 1 | 0 | 0 |
| Future Vol, veh/h | 1 | 31 | 628 | 10 | 5 | 42 | 951 | 14 | 5 | 0 | 26 | 1 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 1 | 35 | 706 | 11 | 6 | 47 | 1069 | 16 | 6 | 0 | 29 | 1 | 0 | 0 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1084 | 1084 | 0 | 0 | 717 | 718 | 0 | 0 | 1424 | 1974 | 359 | 1607 | 1972 | 542 |
| Stage 1 | - | - | - | - | - | - | - | - | 784 | 784 | - | 1182 | 1182 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 640 | 1190 | - | 425 | 790 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 296 | 645 | - | - | 508 | 886 | - | - | 97 | 62 | 640 | 71 | 62 | 487 |
| Stage 1 | - | - | - | - | - | - | - | - | 355 | 405 | - | 203 | 264 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 433 | 261 | - | 580 | 402 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 622 | 622 | - | - | 813 | 813 | - | - | 90 | 57 | 640 | 62 | 58 | 487 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 90 | 57 | - | 62 | 58 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 341 | 389 | - | 195 | 253 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 416 | 251 | - | 533 | 386 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.53 | 0.45 | 16.87 | 63.68 |
| HCM LOS | | | C | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 90 | 640 | 622 | - | - | 813 | - | - | 62 |
| HCM Lane V/C Ratio | 0.063 | 0.046 | 0.058 | - | - | 0.065 | - | - | 0.018 |
| HCM Control Delay (s/veh) | 47.9 | 10.9 | 11.1 | - | - | 9.7 | - | - | 63.7 |
| HCM Lane LOS | E | B | B | - | - | A | - | - | F |
| HCM 95th %tile Q(veh) | 0.2 | 0.1 | 0.2 | - | - | 0.2 | - | - | 0.1 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 668 | 3 | 0 | 957 | 0 | 2 |
| Future Vol, veh/h | 668 | 3 | 0 | 957 | 0 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 751 | 3 | 0 | 1075 | 0 | 2 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 377 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 624 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 624 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 10.79 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 624 | - | - | - |
| HCM Lane V/C Ratio | 0.004 | - | - | - |
| HCM Control Delay (s/veh) | 10.8 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 29 | 0 | 40 | 7 | 5 |
| Future Vol, veh/h | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 29 | 0 | 40 | 7 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 33 | 0 | 45 | 8 | 6 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 133 | 133 | 11 | 130 | 136 | 33 | 13 | 0 | 0 | 33 | 0 | 0 |
| Stage 1 | 101 | 101 | - | 33 | 33 | - | - | - | - | - | - | - |
| Stage 2 | 33 | 33 | - | 98 | 103 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 841 | 759 | 1073 | 845 | 757 | 1044 | 1611 | - | - | 1586 | - | - |
| Stage 1 | 908 | 814 | - | 986 | 870 | - | - | - | - | - | - | - |
| Stage 2 | 986 | 870 | - | 911 | 812 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 816 | 738 | 1073 | 820 | 735 | 1044 | 1611 | - | - | 1586 | - | - |
| Mov Cap-2 Maneuver | 816 | 738 | - | 820 | 735 | - | - | - | - | - | - | - |
| Stage 1 | 882 | 791 | - | 986 | 870 | - | - | - | - | - | - | - |
| Stage 2 | 985 | 870 | - | 885 | 788 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 9.42 | 8.45 | 0 | 5.64 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1611 | - | - | 816 | 1044 | 1278 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.001 | 0.001 | 0.028 | - | - |
| HCM Control Delay (s/veh) | 0 | - | - | 9.4 | 8.5 | 7.3 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0 | 0.1 | - | - |

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 160 | 1002 | 191 | 464 | 269 | 1271 | 223 | 80 | 1180 |
| v/c Ratio | 0.83 | 0.90 | 0.63 | 0.45 | 0.71 | 0.64 | 0.31 | 0.60 | 0.69 |
| Control Delay (s/veh) | 86.0 | 47.5 | 62.0 | 34.7 | 62.7 | 32.9 | 8.6 | 71.7 | 36.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 86.0 | 47.5 | 62.0 | 34.7 | 62.7 | 32.9 | 8.6 | 71.7 | 36.7 |
| Queue Length 50th (ft) | 122 | 349 | 74 | 146 | 105 | 304 | 25 | 61 | 288 |
| Queue Length 95th (ft) | #230 | #504 | 110 | 198 | 147 | 372 | 86 | 112 | 355 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 208 | 1109 | 404 | 1017 | 462 | 1966 | 717 | 178 | 1710 |
| 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 | 0.90 | 0.47 | 0.46 | 0.58 | 0.65 | 0.31 | 0.45 | 0.69 |

Intersection Summary

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

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 158 | 613 | 379 | 189 | 368 | 91 | 266 | 1258 | 221 | 79 | 1064 | 104 |
| Future Volume (veh/h) | 158 | 613 | 379 | 189 | 368 | 91 | 266 | 1258 | 221 | 79 | 1064 | 104 |
| Number | 5 | 2 | 12 | 1 | 6 | 16 | 7 | 4 | 14 | 3 | 8 | 18 |
| Initial Q, veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj (A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | No | | | No | | | No | | | No | |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | 1885 | 1856 | 1885 |
| Adj Flow Rate, veh/h | 160 | 619 | 383 | 191 | 372 | 92 | 269 | 1271 | 223 | 80 | 1075 | 105 |
| Peak Hour Factor | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Percent Heavy Veh, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 | 1 |
| Opposing Right Turn Influence | Yes | | | Yes | | | Yes | | | Yes | | |
| Cap, veh/h | 187 | 610 | 377 | 248 | 726 | 177 | 327 | 2181 | 684 | 102 | 1844 | 180 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prop Arrive On Green | 0.10 | 0.29 | 0.29 | 0.07 | 0.25 | 0.25 | 0.09 | 0.43 | 0.43 | 0.06 | 0.39 | 0.39 |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | 76.7 | 86.2 | 88.0 | 56.6 | 39.5 | 39.7 | 58.8 | 27.1 | 23.9 | 60.9 | 30.5 | 32.2 |
| Ln Grp LOS | E | F | F | E | D | D | E | C | C | E | C | C |
| Approach Vol, veh/h | | 1162 | | | 655 | | | 1763 | | | 1260 | |
| Approach Delay, s/veh | | 85.7 | | | 44.6 | | | 31.6 | | | 33.0 | |
| Approach LOS | | F | | | D | | | C | | | C | |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 12.6 | 40.0 | 10.8 | 56.7 | 16.5 | 36.1 | 15.3 | 52.2 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 14.0 | 34.5 | 12.0 | 41.0 | 14.0 | 34.5 | 16.0 | 37.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.1 | 2.2 | 3.9 | 2.2 | 6.1 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 8.5 | 36.5 | 7.3 | 24.9 | 12.5 | 15.6 | 11.1 | 23.7 |
| Green Ext Time (g_e), s | 0.1 | 0.0 | 0.0 | 5.9 | 0.0 | 3.5 | 0.2 | 4.3 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.00 | 1.00 | 0.01 | 0.00 | 1.00 | 0.07 | 0.01 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 2121 | | 5066 | | 2850 | | 4690 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1312 | | 1590 | | 697 | | 458 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 6.2 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.3 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 21.0 | 0.0 | 9.1 | 0.0 | 5.9 | 0.0 | 8.8 |
| %ile Storage Ratio (RQ%) | 0.00 | 1.13 | 0.00 | 0.20 | 0.00 | 0.11 | 0.00 | 0.26 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 479 | 0 | 223 | 0 | 232 | 0 | 406 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1642 | 0 | 1590 | 0 | 1756 | 0 | 1770 |
| Q Serve Time (g_s), s | 0.0 | 34.5 | 0.0 | 11.2 | 0.0 | 13.6 | 0.0 | 21.7 |
| Cycle Q Clear Time (g_c), s | 0.0 | 34.5 | 0.0 | 11.2 | 0.0 | 13.6 | 0.0 | 21.7 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 0.80 | 0.00 | 1.00 | 0.00 | 0.40 | 0.00 | 0.26 |
| Lane Grp Cap (c), veh/h | 0 | 472 | 0 | 684 | 0 | 447 | 0 | 696 |
| V/C Ratio (X) | 0.00 | 1.02 | 0.00 | 0.33 | 0.00 | 0.52 | 0.00 | 0.58 |
| Avail Cap (c_a), veh/h | 0 | 472 | 0 | 684 | 0 | 505 | 0 | 696 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 42.8 | 0.0 | 22.6 | 0.0 | 38.4 | 0.0 | 28.7 |
| Incr Delay (d2), s/veh | 0.0 | 45.3 | 0.0 | 1.3 | 0.0 | 1.3 | 0.0 | 3.6 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 88.0 | 0.0 | 23.9 | 0.0 | 39.7 | 0.0 | 32.2 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 13.5 | 0.0 | 4.1 | 0.0 | 5.7 | 0.0 | 8.9 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 5.9 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.7 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 19.4 | 0.0 | 4.3 | 0.0 | 5.9 | 0.0 | 9.6 |
| %ile Storage Ratio (RQ%) | 0.00 | 1.05 | 0.00 | 0.62 | 0.00 | 0.11 | 0.00 | 0.29 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 1.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 46.7 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 86 | 1122 | 10 | 3 | 30 | 789 | 6 | 12 | 0 | 23 | 4 | 0 | 11 |
| Future Vol, veh/h | 3 | 86 | 1122 | 10 | 3 | 30 | 789 | 6 | 12 | 0 | 23 | 4 | 0 | 11 |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 3 | 87 | 1133 | 10 | 3 | 30 | 797 | 6 | 12 | 0 | 23 | 4 | 0 | 11 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 803 | 804 | 0 | 0 | 1143 | 1144 | 0 | 0 | 1786 | 2190 | 575 | 1616 | 2192 | 405 |
| Stage 1 | - | - | - | - | - | - | - | - | 1319 | 1319 | - | 868 | 868 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 467 | 871 | - | 748 | 1324 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 447 | 822 | - | - | 271 | 612 | - | - | 52 | 45 | 464 | 70 | 45 | 598 |
| Stage 1 | - | - | - | - | - | - | - | - | 167 | 227 | - | 316 | 370 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 548 | 369 | - | 373 | 225 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 798 | 798 | - | - | 543 | 543 | - | - | 45 | 41 | 463 | 59 | 40 | 597 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 45 | 41 | - | 59 | 40 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 155 | 210 | - | 303 | 356 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 516 | 355 | - | 328 | 209 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.73 | 0.48 | 46.77 | 27.68 |
| HCM LOS | | | E | D |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 45 | 463 | 798 | - | - | 543 | - | - | 174 |
| HCM Lane V/C Ratio | 0.267 | 0.05 | 0.113 | - | - | 0.061 | - | - | 0.087 |
| HCM Control Delay (s/veh) | 111.1 | 13.2 | 10.1 | - | - | 12.1 | - | - | 27.7 |
| HCM Lane LOS | F | B | B | - | - | B | - | - | D |
| HCM 95th %tile Q(veh) | 0.9 | 0.2 | 0.4 | - | - | 0.2 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1218 | 6 | 0 | 815 | 0 | 3 |
| Future Vol, veh/h | 1218 | 6 | 0 | 815 | 0 | 3 |
| Conflicting Peds, #/hr | 0 | 2 | 2 | 0 | 0 | 3 |
| 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 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 1230 | 6 | 0 | 823 | 0 | 3 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 623 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 431 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 429 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 13.44 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 429 | - | - | - |
| HCM Lane V/C Ratio | 0.007 | - | - | - |
| HCM Control Delay (s/veh) | 13.4 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 2 | 0 | 1 | 1 | 2 | 22 | 1 | 11 | 0 | 16 | 18 | 6 |
| Future Vol, veh/h | 2 | 0 | 1 | 1 | 2 | 22 | 1 | 11 | 0 | 16 | 18 | 6 |
| Conflicting Peds, #/hr | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 2 | 0 | 1 | 1 | 2 | 22 | 1 | 11 | 0 | 16 | 18 | 6 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 70 | 70 | 24 | 66 | 73 | 12 | 26 | 0 | 0 | 12 | 0 | 0 |
| Stage 1 | 56 | 56 | - | 14 | 14 | - | - | - | - | - | - | - |
| Stage 2 | 14 | 14 | - | 52 | 59 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 925 | 823 | 1055 | 930 | 820 | 1071 | 1594 | - | - | 1613 | - | - |
| Stage 1 | 959 | 851 | - | 1009 | 886 | - | - | - | - | - | - | - |
| Stage 2 | 1009 | 886 | - | 964 | 848 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 892 | 812 | 1052 | 918 | 809 | 1070 | 1592 | - | - | 1612 | - | - |
| Mov Cap-2 Maneuver | 892 | 812 | - | 918 | 809 | - | - | - | - | - | - | - |
| Stage 1 | 948 | 841 | - | 1007 | 884 | - | - | - | - | - | - | - |
| Stage 2 | 985 | 884 | - | 952 | 838 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 8.84 | 8.56 | 0.61 | 2.9 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 150 | - | - | 940 | 1037 | 686 | - | - |
| HCM Lane V/C Ratio | 0.001 | - | - | 0.003 | 0.024 | 0.01 | - | - |
| HCM Control Delay (s/veh) | 7.3 | 0 | - | 8.8 | 8.6 | 7.3 | 0 | - |
| HCM Lane LOS | A | A | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 102 | 646 | 248 | 759 | 326 | 910 | 101 | 85 | 1241 |
| v/c Ratio | 1.50 | 0.66 | 1.87 | 0.79 | 0.79 | 0.52 | 0.16 | 1.25 | 0.70 |
| Control Delay (s/veh) | 323.1 | 27.4 | 451.3 | 42.9 | 61.9 | 30.0 | 5.3 | 235.7 | 33.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 323.1 | 27.4 | 451.3 | 42.9 | 61.9 | 30.0 | 5.3 | 235.7 | 33.6 |
| Queue Length 50th (ft) | ~100 | 140 | ~137 | 251 | 115 | 186 | 0 | ~81 | 282 |
| Queue Length 95th (ft) | #207 | 196 | #217 | 313 | 162 | 226 | 34 | #185 | 337 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 68 | 1048 | 132 | 1044 | 443 | 1739 | 613 | 68 | 1755 |
| 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 | 1.50 | 0.62 | 1.88 | 0.73 | 0.74 | 0.52 | 0.16 | 1.25 | 0.71 |

Intersection Summary

~ 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.

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 85 | 290 | 285 | 5 | 215 | 590 | 85 | 290 | 810 | 90 | 5 |
| Future Volume (veh/h) | 5 | 85 | 290 | 285 | 5 | 215 | 590 | 85 | 290 | 810 | 90 | 5 |
| Number | | 5 | 2 | 12 | | 1 | 6 | 16 | 7 | 4 | 14 | |
| Initial Q, veh | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped-Bike Adj (A_pbT) | | 1.00 | | 0.99 | | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Parking Bus Adj | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Work Zone On Approach | | | No | | | | No | | | No | | |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | | 1885 | 1885 | 1885 | | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | |
| Adj Flow Rate, veh/h | | 96 | 326 | 320 | | 242 | 663 | 96 | 326 | 910 | 101 | |
| Peak Hour Factor | | 0.89 | 0.89 | 0.89 | | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | |
| Percent Heavy Veh, % | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 3 | 1 | |
| Opposing Right Turn Influence | | Yes | | | | Yes | | | Yes | | | |
| Cap, veh/h | | 121 | 427 | 379 | | 304 | 810 | 117 | 386 | 2281 | 718 | |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Prop Arrive On Green | | 0.07 | 0.24 | 0.24 | | 0.09 | 0.26 | 0.26 | 0.11 | 0.45 | 0.45 | |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | | 63.0 | 46.2 | 54.1 | | 54.5 | 47.8 | 47.9 | 59.1 | 20.8 | 18.2 | |
| Ln Grp LOS | | E | D | D | | D | D | D | E | C | B | |
| Approach Vol, veh/h | | | 742 | | | | 1001 | | | 1337 | | |
| Approach Delay, s/veh | | | 51.8 | | | | 49.5 | | | 29.9 | | |
| Approach LOS | | | D | | | | D | | | C | | |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 13.6 | 31.7 | 10.2 | 54.5 | 11.4 | 33.9 | 16.2 | 48.5 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 13.0 | 29.5 | 11.0 | 38.0 | 10.0 | 32.5 | 14.0 | 35.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.2 | 2.2 | 3.9 | 2.2 | 6.0 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 9.5 | 23.1 | 6.8 | 15.2 | 7.8 | 23.9 | 12.1 | 23.3 |
| Green Ext Time (g_e), s | 0.1 | 2.6 | 0.0 | 4.3 | 0.0 | 3.8 | 0.1 | 4.3 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.91 | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.12 | 0.97 | 0.02 | 0.00 | 1.00 | 0.74 | 1.00 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 1791 | | 5066 | | 3138 | | 4550 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1590 | | 1594 | | 454 | | 578 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 0.8 | 0.0 | 0.1 | 0.0 | 1.2 | 0.0 | 0.4 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 8.8 | 0.0 | 5.1 | 0.0 | 10.5 | 0.0 | 8.5 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.47 | 0.00 | 0.11 | 0.00 | 0.19 | 0.00 | 0.25 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 320 | 0 | 101 | 0 | 381 | 0 | 424 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1590 | 0 | 1594 | 0 | 1801 | 0 | 1750 |
| Q Serve Time (g_s), s | 0.0 | 21.1 | 0.0 | 4.1 | 0.0 | 21.9 | 0.0 | 21.3 |
| Cycle Q Clear Time (g_c), s | 0.0 | 21.1 | 0.0 | 4.1 | 0.0 | 21.9 | 0.0 | 21.3 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.25 | 0.00 | 0.33 |
| Lane Grp Cap (c), veh/h | 0 | 379 | 0 | 718 | 0 | 465 | 0 | 692 |
| V/C Ratio (X) | 0.00 | 0.85 | 0.00 | 0.14 | 0.00 | 0.82 | 0.00 | 0.61 |
| Avail Cap (c_a), veh/h | 0 | 426 | 0 | 718 | 0 | 532 | 0 | 692 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 40.0 | 0.0 | 17.8 | 0.0 | 38.4 | 0.0 | 26.5 |
| Incr Delay (d2), s/veh | 0.0 | 14.1 | 0.0 | 0.4 | 0.0 | 9.5 | 0.0 | 4.0 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 54.1 | 0.0 | 18.2 | 0.0 | 47.9 | 0.0 | 30.5 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 8.0 | 0.0 | 1.4 | 0.0 | 9.3 | 0.0 | 8.5 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 1.5 | 0.0 | 0.1 | 0.0 | 1.2 | 0.0 | 0.8 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 9.5 | 0.0 | 1.5 | 0.0 | 10.6 | 0.0 | 9.2 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.51 | 0.00 | 0.22 | 0.00 | 0.19 | 0.00 | 0.27 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 38.3 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.3 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 35 | 630 | 20 | 10 | 45 | 960 | 15 | 10 | 0 | 35 | 5 | 0 | 0 |
| Future Vol, veh/h | 5 | 35 | 630 | 20 | 10 | 45 | 960 | 15 | 10 | 0 | 35 | 5 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 6 | 39 | 708 | 22 | 11 | 51 | 1079 | 17 | 11 | 0 | 39 | 6 | 0 | 0 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1096 | 1096 | 0 | 0 | 730 | 731 | 0 | 0 | 1473 | 2029 | 366 | 1654 | 2032 | 548 |
| Stage 1 | - | - | - | - | - | - | - | - | 810 | 810 | - | 1211 | 1211 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 663 | 1219 | - | 444 | 821 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 291 | 639 | - | - | 498 | 876 | - | - | 89 | 57 | 634 | 65 | 57 | 483 |
| Stage 1 | - | - | - | - | - | - | - | - | 342 | 394 | - | 195 | 255 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 419 | 253 | - | 566 | 389 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 556 | 556 | - | - | 755 | 755 | - | - | 81 | 52 | 633 | 56 | 52 | 483 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 81 | 52 | - | 56 | 52 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 325 | 374 | - | 186 | 244 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 400 | 241 | - | 505 | 370 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.7 | 0.54 | 21.18 | 77.03 |
| HCM LOS | | | C | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 81 | 633 | 556 | - | - | 755 | - | - | 56 |
| HCM Lane V/C Ratio | 0.139 | 0.062 | 0.081 | - | - | 0.082 | - | - | 0.101 |
| HCM Control Delay (s/veh) | 56.6 | 11.1 | 12 | - | - | 10.2 | - | - | 77 |
| HCM Lane LOS | F | B | B | - | - | B | - | - | F |
| HCM 95th %tile Q(veh) | 0.5 | 0.2 | 0.3 | - | - | 0.3 | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 685 | 5 | 0 | 975 | 0 | 5 |
| Future Vol, veh/h | 685 | 5 | 0 | 975 | 0 | 5 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 770 | 6 | 0 | 1096 | 0 | 6 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 388 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 614 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 614 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 10.92 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 614 | - | - | - |
| HCM Lane V/C Ratio | 0.009 | - | - | - |
| HCM Control Delay (s/veh) | 10.9 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 5 | 0 | 0 | 0 | 0 | 10 | 0 | 30 | 0 | 45 | 10 | 10 |
| Future Vol, veh/h | 5 | 0 | 0 | 0 | 0 | 10 | 0 | 30 | 0 | 45 | 10 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 6 | 0 | 0 | 0 | 0 | 11 | 0 | 34 | 0 | 51 | 11 | 11 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 152 | 152 | 17 | 146 | 157 | 34 | 22 | 0 | 0 | 34 | 0 | 0 |
| Stage 1 | 118 | 118 | - | 34 | 34 | - | - | - | - | - | - | - |
| Stage 2 | 34 | 34 | - | 112 | 124 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 818 | 742 | 1065 | 825 | 737 | 1042 | 1599 | - | - | 1584 | - | - |
| Stage 1 | 889 | 800 | - | 985 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 985 | 869 | - | 895 | 796 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 783 | 718 | 1065 | 798 | 713 | 1042 | 1599 | - | - | 1584 | - | - |
| Mov Cap-2 Maneuver | 783 | 718 | - | 798 | 713 | - | - | - | - | - | - | - |
| Stage 1 | 860 | 774 | - | 985 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 974 | 869 | - | 866 | 770 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 9.63 | 8.49 | 0 | 5.09 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1599 | - | - | 783 | 1042 | 1133 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.007 | 0.011 | 0.032 | - | - |
| HCM Control Delay (s/veh) | 0 | - | - | 9.6 | 8.5 | 7.3 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0 | 0.1 | - | - |

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 167 | 1015 | 192 | 475 | 273 | 1283 | 227 | 81 | 1192 |
| v/c Ratio | 2.69 | 0.91 | 0.63 | 0.48 | 0.72 | 0.65 | 0.31 | 0.60 | 0.70 |
| Control Delay (s/veh) | 827.0 | 48.2 | 62.1 | 35.4 | 62.9 | 33.2 | 8.7 | 71.8 | 37.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 827.0 | 48.2 | 62.1 | 35.4 | 62.9 | 33.2 | 8.7 | 71.8 | 37.2 |
| Queue Length 50th (ft) | ~219 | 355 | 75 | 150 | 106 | 308 | 26 | 62 | 292 |
| Queue Length 95th (ft) | #361 | #515 | 111 | 202 | 150 | 376 | 88 | 113 | 360 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 62 | 1115 | 404 | 1012 | 462 | 1956 | 715 | 178 | 1698 |
| 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 | 2.69 | 0.91 | 0.48 | 0.47 | 0.59 | 0.66 | 0.32 | 0.46 | 0.70 |

Intersection Summary

~ 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.

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 160 | 620 | 385 | 190 | 375 | 95 | 270 | 1270 | 225 | 80 | 1075 |
| Future Volume (veh/h) | 5 | 160 | 620 | 385 | 190 | 375 | 95 | 270 | 1270 | 225 | 80 | 1075 |
| Number | | 5 | 2 | 12 | 1 | 6 | 16 | 7 | 4 | 14 | 3 | 8 |
| Initial Q, veh | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj (A_pbT) | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Parking Bus Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | No | | | No | | | No | | | No |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | 1885 | 1856 |
| Adj Flow Rate, veh/h | | 162 | 626 | 389 | 192 | 379 | 96 | 273 | 1283 | 227 | 81 | 1086 |
| Peak Hour Factor | | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Percent Heavy Veh, % | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 |
| Opposing Right Turn Influence | | Yes | | | Yes | | | Yes | | | Yes | |
| Cap, veh/h | | 189 | 609 | 378 | 249 | 720 | 180 | 331 | 2176 | 681 | 103 | 1838 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prop Arrive On Green | | 0.11 | 0.29 | 0.29 | 0.07 | 0.25 | 0.25 | 0.09 | 0.43 | 0.43 | 0.06 | 0.39 |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | | 77.2 | 89.8 | 91.7 | 56.6 | 39.8 | 40.0 | 59.1 | 27.3 | 24.1 | 60.8 | 30.8 |
| Ln Grp LOS | | E | F | F | E | D | D | E | C | C | E | C |
| Approach Vol, veh/h | | | 1177 | | | 667 | | | 1783 | | | 1273 |
| Approach Delay, s/veh | | | 88.9 | | | 44.7 | | | 31.8 | | | 33.3 |
| Approach LOS | | | F | | | D | | | C | | | C |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 12.6 | 40.0 | 10.9 | 56.5 | 16.6 | 36.0 | 15.4 | 52.0 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 14.0 | 34.5 | 12.0 | 41.0 | 14.0 | 34.5 | 16.0 | 37.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.1 | 2.2 | 3.9 | 2.2 | 6.1 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 8.5 | 36.5 | 7.3 | 25.2 | 12.7 | 16.0 | 11.2 | 24.0 |
| Green Ext Time (g_e), s | 0.1 | 0.0 | 0.0 | 5.9 | 0.0 | 3.5 | 0.2 | 4.3 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.00 | 1.00 | 0.01 | 0.00 | 1.00 | 0.08 | 0.02 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 2117 | | 5066 | | 2835 | | 4690 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1315 | | 1585 | | 710 | | 457 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 6.7 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.4 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 21.5 | 0.0 | 9.2 | 0.0 | 6.1 | 0.0 | 9.0 |
| %ile Storage Ratio (RQ%) | 0.00 | 1.16 | 0.00 | 0.21 | 0.00 | 0.11 | 0.00 | 0.27 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 3.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 486 | 0 | 227 | 0 | 237 | 0 | 410 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1642 | 0 | 1585 | 0 | 1753 | 0 | 1770 |
| Q Serve Time (g_s), s | 0.0 | 34.5 | 0.0 | 11.4 | 0.0 | 14.0 | 0.0 | 22.0 |
| Cycle Q Clear Time (g_c), s | 0.0 | 34.5 | 0.0 | 11.4 | 0.0 | 14.0 | 0.0 | 22.0 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 0.80 | 0.00 | 1.00 | 0.00 | 0.40 | 0.00 | 0.26 |
| Lane Grp Cap (c), veh/h | 0 | 472 | 0 | 681 | 0 | 445 | 0 | 694 |
| V/C Ratio (X) | 0.00 | 1.03 | 0.00 | 0.33 | 0.00 | 0.53 | 0.00 | 0.59 |
| Avail Cap (c_a), veh/h | 0 | 472 | 0 | 681 | 0 | 504 | 0 | 694 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 42.8 | 0.0 | 22.8 | 0.0 | 38.6 | 0.0 | 28.9 |
| Incr Delay (d2), s/veh | 0.0 | 48.9 | 0.0 | 1.3 | 0.0 | 1.4 | 0.0 | 3.7 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 91.7 | 0.0 | 24.1 | 0.0 | 40.0 | 0.0 | 32.6 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 13.5 | 0.0 | 4.2 | 0.0 | 5.9 | 0.0 | 9.1 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 6.4 | 0.0 | 0.2 | 0.0 | 0.2 | 0.0 | 0.7 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 19.9 | 0.0 | 4.4 | 0.0 | 6.1 | 0.0 | 9.8 |
| %ile Storage Ratio (RQ%) | 0.00 | 1.07 | 0.00 | 0.63 | 0.00 | 0.11 | 0.00 | 0.29 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 3.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 47.7 |
| HCM 7th LOS | D |

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 90 | 1130 | 15 | 5 | 35 | 795 | 10 | 15 | 0 | 30 | 5 | 0 | 15 |
| Future Vol, veh/h | 5 | 90 | 1130 | 15 | 5 | 35 | 795 | 10 | 15 | 0 | 30 | 5 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 5 | 91 | 1141 | 15 | 5 | 35 | 803 | 10 | 15 | 0 | 30 | 5 | 0 | 15 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 813 | 814 | 0 | 0 | 1157 | 1158 | 0 | 0 | 1826 | 2237 | 581 | 1655 | 2239 | 410 |
| Stage 1 | - | - | - | - | - | - | - | - | 1342 | 1342 | - | 890 | 890 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 484 | 895 | - | 765 | 1349 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 441 | 815 | - | - | 266 | 605 | - | - | 48 | 42 | 459 | 65 | 42 | 594 |
| Stage 1 | - | - | - | - | - | - | - | - | 162 | 221 | - | 306 | 362 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 535 | 360 | - | 364 | 219 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 778 | 778 | - | - | 512 | 512 | - | - | 41 | 37 | 458 | 53 | 37 | 592 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 41 | 37 | - | 53 | 37 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 149 | 204 | - | 291 | 344 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 496 | 342 | - | 313 | 202 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.79 | 0.6 | 54.15 | 29.32 |
| HCM LOS | | | F | D |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 41 | 458 | 778 | - | - | 512 | - | - | 168 |
| HCM Lane V/C Ratio | 0.366 | 0.066 | 0.123 | - | - | 0.079 | - | - | 0.12 |
| HCM Control Delay (s/veh) | 135.6 | 13.4 | 10.3 | - | - | 12.6 | - | - | 29.3 |
| HCM Lane LOS | F | B | B | - | - | B | - | - | D |
| HCM 95th %tile Q(veh) | 1.3 | 0.2 | 0.4 | - | - | 0.3 | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1235 | 10 | 0 | 830 | 0 | 5 |
| Future Vol, veh/h | 1235 | 10 | 0 | 830 | 0 | 5 |
| Conflicting Peds, #/hr | 0 | 2 | 2 | 0 | 0 | 3 |
| 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 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 1247 | 10 | 0 | 838 | 0 | 5 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 634 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 424 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 423 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 13.62 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 423 | - | - | - |
| HCM Lane V/C Ratio | 0.012 | - | - | - |
| HCM Control Delay (s/veh) | 13.6 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 5 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 10 |
| Future Vol, veh/h | 5 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 5 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 10 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 95 | 94 | 28 | 88 | 99 | 16 | 32 | 0 | 0 | 16 | 0 | 0 |
| Stage 1 | 68 | 68 | - | 26 | 26 | - | - | - | - | - | - | - |
| Stage 2 | 28 | 26 | - | 62 | 73 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 890 | 798 | 1050 | 900 | 793 | 1066 | 1586 | - | - | 1608 | - | - |
| Stage 1 | 945 | 841 | - | 994 | 875 | - | - | - | - | - | - | - |
| Stage 2 | 992 | 875 | - | 952 | 836 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 848 | 783 | 1047 | 880 | 778 | 1065 | 1584 | - | - | 1607 | - | - |
| Mov Cap-2 Maneuver | 848 | 783 | - | 880 | 778 | - | - | - | - | - | - | - |
| Stage 1 | 931 | 828 | - | 990 | 872 | - | - | - | - | - | - | - |
| Stage 2 | 960 | 872 | - | 935 | 824 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 8.88 | 8.8 | 1.82 | 2.91 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 450 | - | - | 937 | 984 | 675 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | - | 0.011 | 0.036 | 0.013 | - | - |
| HCM Control Delay (s/veh) | 7.3 | 0 | - | 8.9 | 8.8 | 7.3 | 0 | - |
| HCM Lane LOS | A | A | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 167 | 1015 | 192 | 475 | 273 | 1283 | 227 | 81 | 1192 |
| v/c Ratio | 0.77 | 0.87 | 0.65 | 0.47 | 0.73 | 0.66 | 0.32 | 0.62 | 0.71 |
| Control Delay (s/veh) | 74.5 | 43.3 | 63.9 | 35.1 | 64.0 | 34.5 | 9.7 | 73.8 | 38.6 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 74.5 | 43.3 | 63.9 | 35.1 | 64.0 | 34.5 | 9.7 | 73.8 | 38.6 |
| Queue Length 50th (ft) | 127 | 338 | 75 | 146 | 106 | 321 | 29 | 62 | 304 |
| Queue Length 95th (ft) | 198 | 436 | 113 | 205 | 151 | 386 | 93 | 114 | 369 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 268 | 1191 | 346 | 1014 | 433 | 1921 | 703 | 163 | 1663 |
| 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 | 0.62 | 0.85 | 0.55 | 0.47 | 0.63 | 0.67 | 0.32 | 0.50 | 0.72 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 160 | 620 | 385 | 190 | 375 | 95 | 270 | 1270 | 225 | 80 | 1075 |
| Future Volume (veh/h) | 5 | 160 | 620 | 385 | 190 | 375 | 95 | 270 | 1270 | 225 | 80 | 1075 |
| Number | | 5 | 2 | 12 | 1 | 6 | 16 | 7 | 4 | 14 | 3 | 8 |
| Initial Q, veh | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj (A_pbT) | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Parking Bus Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | No | | | No | | | No | | | No |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | 1885 | 1856 |
| Adj Flow Rate, veh/h | | 162 | 626 | 389 | 192 | 379 | 96 | 273 | 1283 | 227 | 81 | 1086 |
| Peak Hour Factor | | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Percent Heavy Veh, % | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 |
| Opposing Right Turn Influence | | Yes | | | Yes | | | Yes | | | Yes | |
| Cap, veh/h | | 189 | 680 | 422 | 249 | 813 | 204 | 330 | 2008 | 630 | 103 | 1683 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prop Arrive On Green | | 0.11 | 0.32 | 0.32 | 0.07 | 0.29 | 0.29 | 0.09 | 0.40 | 0.40 | 0.06 | 0.36 |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | | 65.4 | 59.4 | 60.7 | 58.9 | 36.1 | 36.3 | 60.8 | 30.8 | 27.1 | 60.8 | 34.7 |
| Ln Grp LOS | | E | E | E | E | D | D | E | C | C | E | C |
| Approach Vol, veh/h | | | 1177 | | | 667 | | | 1783 | | | 1273 |
| Approach Delay, s/veh | | | 60.7 | | | 42.7 | | | 35.0 | | | 37.2 |
| Approach LOS | | | E | | | D | | | C | | | D |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 12.6 | 44.0 | 10.9 | 52.6 | 16.6 | 39.9 | 15.4 | 48.1 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 12.0 | 39.5 | 11.0 | 39.0 | 18.0 | 33.5 | 15.0 | 35.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.1 | 2.2 | 3.9 | 2.2 | 6.1 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 8.5 | 36.2 | 7.3 | 26.6 | 12.6 | 15.4 | 11.2 | 25.2 |
| Green Ext Time (g_e), s | 0.1 | 2.2 | 0.0 | 5.3 | 0.1 | 3.5 | 0.1 | 3.7 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.10 | 1.00 | 0.06 | 0.00 | 0.01 | 0.08 | 0.09 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 2118 | | 5066 | | 2835 | | 4690 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1316 | | 1589 | | 710 | | 457 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 3.2 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.4 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 17.7 | 0.0 | 9.9 | 0.0 | 5.7 | 0.0 | 9.6 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.96 | 0.00 | 0.22 | 0.00 | 0.10 | 0.00 | 0.29 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 486 | 0 | 227 | 0 | 237 | 0 | 410 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1643 | 0 | 1589 | 0 | 1754 | 0 | 1770 |
| Q Serve Time (g_s), s | 0.0 | 34.2 | 0.0 | 12.1 | 0.0 | 13.4 | 0.0 | 23.2 |
| Cycle Q Clear Time (g_c), s | 0.0 | 34.2 | 0.0 | 12.1 | 0.0 | 13.4 | 0.0 | 23.2 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 0.80 | 0.00 | 1.00 | 0.00 | 0.40 | 0.00 | 0.26 |
| Lane Grp Cap (c), veh/h | 0 | 527 | 0 | 630 | 0 | 503 | 0 | 635 |
| V/C Ratio (X) | 0.00 | 0.92 | 0.00 | 0.36 | 0.00 | 0.47 | 0.00 | 0.65 |
| Avail Cap (c_a), veh/h | 0 | 541 | 0 | 630 | 0 | 503 | 0 | 635 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 39.3 | 0.0 | 25.5 | 0.0 | 35.3 | 0.0 | 32.1 |
| Incr Delay (d2), s/veh | 0.0 | 21.4 | 0.0 | 1.6 | 0.0 | 1.0 | 0.0 | 5.0 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 60.7 | 0.0 | 27.1 | 0.0 | 36.3 | 0.0 | 37.1 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 13.3 | 0.0 | 4.4 | 0.0 | 5.6 | 0.0 | 9.6 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 3.1 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.9 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 16.4 | 0.0 | 4.7 | 0.0 | 5.7 | 0.0 | 10.5 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.89 | 0.00 | 0.68 | 0.00 | 0.10 | 0.00 | 0.31 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 42.8 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 115 | 661 | 248 | 760 | 339 | 899 | 101 | 85 | 1244 |
| v/c Ratio | 0.77 | 0.65 | 0.70 | 0.79 | 0.80 | 0.43 | 0.14 | 0.60 | 0.70 |
| Control Delay (s/veh) | 80.8 | 26.5 | 58.7 | 42.9 | 62.7 | 25.4 | 5.1 | 66.5 | 33.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 80.8 | 26.5 | 58.7 | 42.9 | 62.7 | 25.4 | 5.1 | 66.5 | 33.3 |
| Queue Length 50th (ft) | 80 | 139 | 88 | 251 | 120 | 175 | 0 | 59 | 285 |
| Queue Length 95th (ft) | #163 | 200 | 127 | 314 | #178 | 222 | 34 | 108 | 337 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 162 | 1056 | 409 | 1044 | 446 | 2086 | 714 | 178 | 1774 |
| 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 | 0.71 | 0.63 | 0.61 | 0.73 | 0.76 | 0.43 | 0.14 | 0.48 | 0.70 |

Intersection Summary

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

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBU |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 97 | 291 | 297 | 5 | 215 | 591 | 85 | 302 | 800 | 90 | 5 |
| Future Volume (veh/h) | 5 | 97 | 291 | 297 | 5 | 215 | 591 | 85 | 302 | 800 | 90 | 5 |
| Number | | 5 | 2 | 12 | | 1 | 6 | 16 | 7 | 4 | 14 | |
| Initial Q, veh | | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Ped-Bike Adj (A_pbT) | | 1.00 | | 1.00 | | 1.00 | | 1.00 | 1.00 | | 1.00 | |
| Parking Bus Adj | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Work Zone On Approach | | | No | | | | No | | | No | | |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | | 1885 | 1885 | 1885 | | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | |
| Adj Flow Rate, veh/h | | 109 | 327 | 334 | | 242 | 664 | 96 | 339 | 899 | 101 | |
| Peak Hour Factor | | 0.89 | 0.89 | 0.89 | | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | |
| Percent Heavy Veh, % | | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 3 | 1 | |
| Opposing Right Turn Influence | | Yes | | | | Yes | | | Yes | | | |
| Cap, veh/h | | 135 | 439 | 390 | | 304 | 807 | 117 | 399 | 2246 | 707 | |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Prop Arrive On Green | | 0.08 | 0.25 | 0.25 | | 0.09 | 0.26 | 0.26 | 0.11 | 0.44 | 0.44 | |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | | 68.0 | 44.7 | 55.3 | | 54.5 | 48.3 | 48.4 | 60.1 | 21.3 | 18.6 | |
| Ln Grp LOS | | E | D | E | | D | D | D | E | C | B | |
| Approach Vol, veh/h | | | 770 | | | | 1002 | | | 1339 | | |
| Approach Delay, s/veh | | | 52.6 | | | | 49.8 | | | 30.9 | | |
| Approach LOS | | | D | | | | D | | | C | | |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 13.6 | 32.5 | 10.2 | 53.8 | 12.3 | 33.8 | 16.6 | 47.4 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 13.0 | 29.5 | 11.0 | 38.0 | 10.0 | 32.5 | 14.0 | 35.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.2 | 2.2 | 3.9 | 2.2 | 6.0 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 9.5 | 24.1 | 6.8 | 15.2 | 8.6 | 24.0 | 12.5 | 23.7 |
| Green Ext Time (g_e), s | 0.1 | 2.4 | 0.0 | 4.2 | 0.0 | 3.8 | 0.1 | 4.2 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.91 | 1.00 | 0.96 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.12 | 1.00 | 0.02 | 0.00 | 1.00 | 0.74 | 1.00 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 1791 | | 5066 | | 3139 | | 4485 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1590 | | 1594 | | 453 | | 633 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 0.8 | 0.0 | 0.1 | 0.0 | 1.2 | 0.0 | 0.4 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 8.7 | 0.0 | 5.1 | 0.0 | 10.5 | 0.0 | 8.8 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.47 | 0.00 | 0.11 | 0.00 | 0.19 | 0.00 | 0.26 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 334 | 0 | 101 | 0 | 381 | 0 | 423 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1590 | 0 | 1594 | 0 | 1801 | 0 | 1740 |
| Q Serve Time (g_s), s | 0.0 | 22.1 | 0.0 | 4.1 | 0.0 | 22.0 | 0.0 | 21.7 |
| Cycle Q Clear Time (g_c), s | 0.0 | 22.1 | 0.0 | 4.1 | 0.0 | 22.0 | 0.0 | 21.7 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.25 | 0.00 | 0.36 |
| Lane Grp Cap (c), veh/h | 0 | 390 | 0 | 707 | 0 | 463 | 0 | 670 |
| V/C Ratio (X) | 0.00 | 0.86 | 0.00 | 0.14 | 0.00 | 0.82 | 0.00 | 0.63 |
| Avail Cap (c_a), veh/h | 0 | 426 | 0 | 707 | 0 | 532 | 0 | 670 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 39.7 | 0.0 | 18.2 | 0.0 | 38.5 | 0.0 | 27.5 |
| Incr Delay (d2), s/veh | 0.0 | 15.6 | 0.0 | 0.4 | 0.0 | 9.8 | 0.0 | 4.5 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 55.3 | 0.0 | 18.6 | 0.0 | 48.4 | 0.0 | 32.0 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 8.3 | 0.0 | 1.5 | 0.0 | 9.4 | 0.0 | 8.6 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 1.7 | 0.0 | 0.1 | 0.0 | 1.3 | 0.0 | 0.8 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 10.0 | 0.0 | 1.6 | 0.0 | 10.6 | 0.0 | 9.5 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.54 | 0.00 | 0.22 | 0.00 | 0.19 | 0.00 | 0.28 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 39.3 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 11 | 35 | 648 | 20 | 10 | 80 | 950 | 15 | 16 | 0 | 42 | 5 | 0 | 0 |
| Future Vol, veh/h | 11 | 35 | 648 | 20 | 10 | 80 | 950 | 15 | 16 | 0 | 42 | 5 | 0 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 12 | 39 | 728 | 22 | 11 | 90 | 1067 | 17 | 18 | 0 | 47 | 6 | 0 | 0 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 1084 | 1084 | 0 | 0 | 751 | 752 | 0 | 0 | 1580 | 2130 | 376 | 1746 | 2133 | 542 |
| Stage 1 | - | - | - | - | - | - | - | - | 844 | 844 | - | 1278 | 1278 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 736 | 1287 | - | 467 | 855 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 296 | 645 | - | - | 483 | 860 | - | - | 74 | 50 | 624 | 56 | 49 | 487 |
| Stage 1 | - | - | - | - | - | - | - | - | 326 | 380 | - | 177 | 237 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 379 | 235 | - | 548 | 375 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 503 | 503 | - | - | 780 | 780 | - | - | 65 | 43 | 624 | 45 | 43 | 487 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 65 | 43 | - | 45 | 43 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 308 | 359 | - | 164 | 219 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 350 | 217 | - | 478 | 354 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.84 | 0.88 | 30.47 | 96.36 |
| HCM LOS | | | D | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 65 | 624 | 503 | - | - | 780 | - | - | 45 |
| HCM Lane V/C Ratio | 0.278 | 0.076 | 0.103 | - | - | 0.13 | - | - | 0.125 |
| HCM Control Delay (s/veh) | 80.9 | 11.2 | 13 | - | - | 10.3 | - | - | 96.4 |
| HCM Lane LOS | F | B | B | - | - | B | - | - | F |
| HCM 95th %tile Q(veh) | 1 | 0.2 | 0.3 | - | - | 0.4 | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 677 | 15 | 0 | 977 | 0 | 37 |
| Future Vol, veh/h | 677 | 15 | 0 | 977 | 0 | 37 |
| 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 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 761 | 17 | 0 | 1098 | 0 | 42 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 389 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 613 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 613 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 11.3 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 613 | - | - | - |
| HCM Lane V/C Ratio | 0.068 | - | - | - |
| HCM Control Delay (s/veh) | 11.3 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.2 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.8 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 18 | 0 | 0 | 0 | 0 | 10 | 0 | 30 | 0 | 45 | 10 | 45 |
| Future Vol, veh/h | 18 | 0 | 0 | 0 | 0 | 10 | 0 | 30 | 0 | 45 | 10 | 45 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 20 | 0 | 0 | 0 | 0 | 11 | 0 | 34 | 0 | 51 | 11 | 51 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 171 | 171 | 37 | 146 | 197 | 34 | 62 | 0 | 0 | 34 | 0 | 0 |
| Stage 1 | 138 | 138 | - | 34 | 34 | - | - | - | - | - | - | - |
| Stage 2 | 34 | 34 | - | 112 | 163 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 794 | 724 | 1039 | 825 | 701 | 1042 | 1548 | - | - | 1584 | - | - |
| Stage 1 | 868 | 785 | - | 985 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 985 | 869 | - | 895 | 765 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 759 | 700 | 1039 | 797 | 677 | 1042 | 1548 | - | - | 1584 | - | - |
| Mov Cap-2 Maneuver | 759 | 700 | - | 797 | 677 | - | - | - | - | - | - | - |
| Stage 1 | 839 | 758 | - | 985 | 869 | - | - | - | - | - | - | - |
| Stage 2 | 974 | 869 | - | 865 | 740 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 9.87 | 8.49 | 0 | 3.31 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1548 | - | - | 759 | 1042 | 696 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.027 | 0.011 | 0.032 | - | - |
| HCM Control Delay (s/veh) | 0 | - | - | 9.9 | 8.5 | 7.3 | 0 | - |
| HCM Lane LOS | A | - | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0 | 0.1 | - | - |

| Lane Group | EBL | EBT | WBL | WBT | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Lane Group Flow (vph) | 171 | 1019 | 192 | 475 | 278 | 1278 | 227 | 81 | 1193 |
| v/c Ratio | 0.78 | 0.87 | 0.65 | 0.47 | 0.74 | 0.66 | 0.32 | 0.62 | 0.72 |
| Control Delay (s/veh) | 75.1 | 43.0 | 63.9 | 35.1 | 64.2 | 34.6 | 9.7 | 73.8 | 38.9 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay (s/veh) | 75.1 | 43.0 | 63.9 | 35.1 | 64.2 | 34.6 | 9.7 | 73.8 | 38.9 |
| Queue Length 50th (ft) | 130 | 340 | 75 | 147 | 108 | 319 | 29 | 62 | 305 |
| Queue Length 95th (ft) | 203 | 437 | 113 | 205 | 153 | 384 | 93 | 114 | 370 |
| Internal Link Dist (ft) | | 499 | | 1415 | | 1110 | | | 839 |
| Turn Bay Length (ft) | 165 | | 135 | | 220 | | 175 | 235 | |
| Base Capacity (vph) | 268 | 1193 | 346 | 1015 | 433 | 1913 | 701 | 163 | 1649 |
| 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 | 0.64 | 0.85 | 0.55 | 0.47 | 0.64 | 0.67 | 0.32 | 0.50 | 0.72 |

Intersection Summary

| Movement | EBU | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 164 | 620 | 389 | 190 | 375 | 95 | 275 | 1265 | 225 | 80 | 1072 |
| Future Volume (veh/h) | 5 | 164 | 620 | 389 | 190 | 375 | 95 | 275 | 1265 | 225 | 80 | 1072 |
| Number | | 5 | 2 | 12 | 1 | 6 | 16 | 7 | 4 | 14 | 3 | 8 |
| Initial Q, veh | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Lane Width Adj. | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Ped-Bike Adj (A_pbT) | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | |
| Parking Bus Adj | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Work Zone On Approach | | | No | | | No | | | No | | | No |
| Lanes Open During Work Zone | | | | | | | | | | | | |
| Adj Sat Flow, veh/h/ln | | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1885 | 1856 | 1885 | 1885 | 1856 |
| Adj Flow Rate, veh/h | | 166 | 626 | 393 | 192 | 379 | 96 | 278 | 1278 | 227 | 81 | 1083 |
| Peak Hour Factor | | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 | 0.99 |
| Percent Heavy Veh, % | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 3 |
| Opposing Right Turn Influence | | Yes | | | Yes | | | Yes | | | Yes | |
| Cap, veh/h | | 193 | 678 | 425 | 249 | 808 | 202 | 335 | 2005 | 627 | 103 | 1667 |
| HCM Platoon Ratio | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prop Arrive On Green | | 0.11 | 0.32 | 0.32 | 0.07 | 0.29 | 0.29 | 0.10 | 0.40 | 0.40 | 0.06 | 0.36 |
| Unsig. Movement Delay | | | | | | | | | | | | |
| Ln Grp Delay, s/veh | | 66.4 | 59.8 | 61.1 | 58.9 | 36.3 | 36.5 | 61.2 | 30.9 | 27.2 | 60.8 | 35.0 |
| Ln Grp LOS | | E | E | E | E | D | D | E | C | C | E | D |
| Approach Vol, veh/h | | | 1185 | | | 667 | | | 1783 | | | 1274 |
| Approach Delay, s/veh | | | 61.2 | | | 42.9 | | | 35.1 | | | 37.4 |
| Approach LOS | | | E | | | D | | | D | | | D |

| Timer: | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Case No | 2.0 | 4.0 | 2.0 | 3.0 | 2.0 | 4.0 | 2.0 | 4.0 |
| Phs Duration (G+Y+Rc), s | 12.6 | 44.1 | 10.9 | 52.5 | 16.9 | 39.7 | 15.5 | 47.8 |
| Change Period (Y+Rc), s | 4.0 | 5.5 | 4.0 | 5.0 | 4.0 | 5.5 | 4.0 | 5.0 |
| Max Green (Gmax), s | 12.0 | 39.5 | 11.0 | 39.0 | 18.0 | 33.5 | 15.0 | 35.0 |
| Max Allow Headway (MAH), s | 2.2 | 6.1 | 2.2 | 3.9 | 2.2 | 6.1 | 2.2 | 4.0 |
| Max Q Clear (g_c+I1), s | 8.5 | 36.4 | 7.3 | 26.5 | 12.9 | 15.4 | 11.4 | 25.3 |
| Green Ext Time (g_e), s | 0.1 | 2.1 | 0.0 | 5.3 | 0.1 | 3.5 | 0.1 | 3.7 |
| Prob of Phs Call (p_c) | 1.00 | 1.00 | 0.93 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Prob of Max Out (p_x) | 0.10 | 1.00 | 0.06 | 0.00 | 0.01 | 0.08 | 0.12 | 0.00 |

| Left-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | | 3 | | 5 | | 7 | |
| Mvmt Sat Flow, veh/h | 3483 | | 1795 | | 1795 | | 3483 | |

| Through Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 2 | | 4 | | 6 | | 8 |
| Mvmt Sat Flow, veh/h | | 2109 | | 5066 | | 2835 | | 4670 |

| Right-Turn Movement Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | | 12 | | 14 | | 16 | | 18 |
| Mvmt Sat Flow, veh/h | | 1323 | | 1583 | | 710 | | 474 |

| Left Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 1 | 0 | 3 | 0 | 5 | 0 | 7 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2nd-Term Q (Q2), veh/ln | 0.0 | 3.3 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.5 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 17.9 | 0.0 | 9.9 | 0.0 | 5.7 | 0.0 | 9.7 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.96 | 0.00 | 0.22 | 0.00 | 0.10 | 0.00 | 0.29 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Right Lane Group Data | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Assigned Mvmt | 0 | 12 | 0 | 14 | 0 | 16 | 0 | 18 |
| Lane Assignment | | T+R | | R | | T+R | | T+R |
| Lanes in Grp | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| Grp Vol (v), veh/h | 0 | 487 | 0 | 227 | 0 | 237 | 0 | 410 |
| Grp Sat Flow (s), veh/h/ln | 0 | 1641 | 0 | 1583 | 0 | 1754 | 0 | 1767 |
| Q Serve Time (g_s), s | 0.0 | 34.4 | 0.0 | 12.1 | 0.0 | 13.4 | 0.0 | 23.3 |
| Cycle Q Clear Time (g_c), s | 0.0 | 34.4 | 0.0 | 12.1 | 0.0 | 13.4 | 0.0 | 23.3 |
| Prot RT Sat Flow (s_R), veh/h/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prot RT Eff Green (g_R), s | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Prop RT Outside Lane (P_R) | 0.00 | 0.81 | 0.00 | 1.00 | 0.00 | 0.40 | 0.00 | 0.27 |
| Lane Grp Cap (c), veh/h | 0 | 528 | 0 | 627 | 0 | 500 | 0 | 631 |
| V/C Ratio (X) | 0.00 | 0.92 | 0.00 | 0.36 | 0.00 | 0.47 | 0.00 | 0.65 |
| Avail Cap (c_a), veh/h | 0 | 540 | 0 | 627 | 0 | 500 | 0 | 631 |
| Upstream Filter (I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d1), s/veh | 0.0 | 39.3 | 0.0 | 25.6 | 0.0 | 35.5 | 0.0 | 32.3 |
| Incr Delay (d2), s/veh | 0.0 | 21.8 | 0.0 | 1.6 | 0.0 | 1.0 | 0.0 | 5.1 |
| Initial Q Delay (d3), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (d), s/veh | 0.0 | 61.1 | 0.0 | 27.2 | 0.0 | 36.5 | 0.0 | 37.5 |
| 1st-Term Q (Q1), veh/ln | 0.0 | 13.4 | 0.0 | 4.5 | 0.0 | 5.6 | 0.0 | 9.7 |
| 2nd-Term Q (Q2), veh/ln | 0.0 | 3.2 | 0.0 | 0.3 | 0.0 | 0.1 | 0.0 | 0.9 |
| 3rd-Term Q (Q3), veh/ln | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile Back of Q Factor (f_B%) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| %ile Back of Q (50%), veh/ln | 0.0 | 16.6 | 0.0 | 4.7 | 0.0 | 5.8 | 0.0 | 10.6 |
| %ile Storage Ratio (RQ%) | 0.00 | 0.89 | 0.00 | 0.68 | 0.00 | 0.10 | 0.00 | 0.31 |
| Initial Q (Qb), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Final (Residual) Q (Qe), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Delay (ds), s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Q (Qs), veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Sat Cap (cs), veh/h | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Initial Q Clear Time (tc), h | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 7th Control Delay, s/veh | 43.1 |
| HCM 7th LOS | D |

**Notes**

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.4 |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | | | |
| Traffic Vol, veh/h | 8 | 90 | 1135 | 15 | 5 | 47 | 792 | 10 | 16 | 0 | 33 | 5 | 0 | 15 |
| Future Vol, veh/h | 8 | 90 | 1135 | 15 | 5 | 47 | 792 | 10 | 16 | 0 | 33 | 5 | 0 | 15 |
| Conflicting Peds, #/hr | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 2 |
| Sign Control | Free | Free | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | - | None | - | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | 125 | - | - | - | - | 50 | - | - | - |
| Veh in Median Storage, # | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | - | 0 | - | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 8 | 91 | 1146 | 15 | 5 | 47 | 800 | 10 | 16 | 0 | 33 | 5 | 0 | 15 |

| Major/Minor | Major1 | | | | Major2 | | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 810 | 811 | 0 | 0 | 1162 | 1163 | 0 | 0 | 1860 | 2269 | 584 | 1684 | 2272 | 408 |
| Stage 1 | - | - | - | - | - | - | - | - | 1353 | 1353 | - | 911 | 911 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 507 | 916 | - | 773 | 1361 | - |
| Critical Hdwy | 6.42 | 4.12 | - | - | 6.42 | 4.12 | - | - | 7.52 | 6.52 | 6.92 | 7.52 | 6.52 | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | - | - | 6.52 | 5.52 | - | 6.52 | 5.52 | - |
| Follow-up Hdwy | 2.51 | 2.21 | - | - | 2.51 | 2.21 | - | - | 3.51 | 4.01 | 3.31 | 3.51 | 4.01 | 3.31 |
| Pot Cap-1 Maneuver | 443 | 817 | - | - | 264 | 602 | - | - | 46 | 40 | 458 | 62 | 40 | 595 |
| Stage 1 | - | - | - | - | - | - | - | - | 159 | 218 | - | 297 | 353 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 519 | 352 | - | 360 | 216 | - |
| Platoon blocked, % | | | - | - | | | - | - | | | | | | |
| Mov Cap-1 Maneuver | 761 | 761 | - | - | 528 | 528 | - | - | 38 | 35 | 456 | 49 | 35 | 594 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | 38 | 35 | - | 49 | 35 | - |
| Stage 1 | - | - | - | - | - | - | - | - | 147 | 201 | - | 279 | 331 | - |
| Stage 2 | - | - | - | - | - | - | - | - | 474 | 329 | - | 307 | 199 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 0.82 | 0.77 | 59.81 | 31.05 |
| HCM LOS | | | F | D |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 38 | 456 | 761 | - | - | 528 | - | - | 158 |
| HCM Lane V/C Ratio | 0.422 | 0.073 | 0.13 | - | - | 0.1 | - | - | 0.128 |
| HCM Control Delay (s/veh) | 155.3 | 13.5 | 10.4 | - | - | 12.6 | - | - | 31.1 |
| HCM Lane LOS | F | B | B | - | - | B | - | - | D |
| HCM 95th %tile Q(veh) | 1.4 | 0.2 | 0.4 | - | - | 0.3 | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.1 |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1231 | 14 | 0 | 831 | 0 | 17 |
| Future Vol, veh/h | 1231 | 14 | 0 | 831 | 0 | 17 |
| Conflicting Peds, #/hr | 0 | 2 | 2 | 0 | 0 | 3 |
| 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 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 1243 | 14 | 0 | 839 | 0 | 17 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | 0 | - | - | - | 634 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.92 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.31 |
| Pot Cap-1 Maneuver | - | - | 0 | - | 0 | 424 |
| Stage 1 | - | - | 0 | - | 0 | - |
| Stage 2 | - | - | 0 | - | 0 | - |
| Platoon blocked, % | - | - | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 423 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | NB |
|---|---|---|---|
| HCM Control Delay, s/v | 0 | 0 | 13.88 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBT |
|---|---|---|---|---|
| Capacity (veh/h) | 423 | - | - | - |
| HCM Lane V/C Ratio | 0.041 | - | - | - |
| HCM Control Delay (s/veh) | 13.9 | - | - | - |
| HCM Lane LOS | B | - | - | - |
| HCM 95th %tile Q(veh) | 0.1 | - | - | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 9 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 22 |
| Future Vol, veh/h | 9 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 22 |
| Conflicting Peds, #/hr | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 2 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 | 99 |
| Heavy Vehicles, % | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Mvmt Flow | 9 | 0 | 5 | 5 | 5 | 25 | 5 | 15 | 0 | 20 | 20 | 22 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 101 | 100 | 34 | 88 | 111 | 16 | 44 | 0 | 0 | 16 | 0 | 0 |
| Stage 1 | 74 | 74 | - | 26 | 26 | - | - | - | - | - | - | - |
| Stage 2 | 28 | 26 | - | 62 | 85 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.11 | 6.51 | 6.21 | 7.11 | 6.51 | 6.21 | 4.11 | - | - | 4.11 | - | - |
| Critical Hdwy Stg 1 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.11 | 5.51 | - | 6.11 | 5.51 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.509 | 4.009 | 3.309 | 3.509 | 4.009 | 3.309 | 2.209 | - | - | 2.209 | - | - |
| Pot Cap-1 Maneuver | 882 | 792 | 1042 | 900 | 781 | 1066 | 1570 | - | - | 1608 | - | - |
| Stage 1 | 938 | 836 | - | 994 | 875 | - | - | - | - | - | - | - |
| Stage 2 | 992 | 875 | - | 952 | 826 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 840 | 777 | 1039 | 880 | 766 | 1065 | 1568 | - | - | 1607 | - | - |
| Mov Cap-2 Maneuver | 840 | 777 | - | 880 | 766 | - | - | - | - | - | - | - |
| Stage 1 | 925 | 823 | - | 990 | 872 | - | - | - | - | - | - | - |
| Stage 2 | 960 | 872 | - | 934 | 814 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s/v | 9.06 | 8.81 | 1.83 | 2.34 |
| HCM LOS | A | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 450 | - | - | 902 | 981 | 526 | - | - |
| HCM Lane V/C Ratio | 0.003 | - | - | 0.016 | 0.036 | 0.013 | - | - |
| HCM Control Delay (s/veh) | 7.3 | 0 | - | 9.1 | 8.8 | 7.3 | 0 | - |
| HCM Lane LOS | A | A | - | A | A | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0 | 0.1 | 0 | - | - |

# APPENDIX D

## Scoping Letter

# SCOPE OF TRAFFIC IMPACT STUDY (TIS)

**TO:** Ryan Hales, PE, PTOE, AICP
Hales Engineering
1220 North 500 West, Ste. 202
Lehi, UT 84043

**MEETING DATE:** March 7, 2024 (Virtual)

**ATTENDEES:** Sabrina Rushing; Brianna Uy; Jordi Berrett; Josh Gibbons; Ryan Hales; Matthew Grush

**PROJECT:** Dutch Bros 7330 San Antonio, Zone Atlas #E19

**REQUESTED CITY ACTION:** ___ Zone Change _x_ Site Development Plan

___ Subdivision ___ Building Permit ___ Sector Plan ___ Sector Plan Amendment

___ Curb Cut Permit ___ Conditional Use ___ Annexation ___ Site Plan Amendment

**ASSOCIATED APPLICATION:** The proposed Dutch Bros development is located at 7330 San Antonio Drive NE, in Albuquerque. The development will consist of a 950 square feet coffee shop with two drive-through lanes that merge at the pick-up window. It is anticipated that the project would be built and operational by year 2025.

**SCOPE OF REPORT:**
The Traffic Impact Study should follow the standard report format, which is outlined in the DPM. The following supplemental information is provided for the preparation of this specific study.

1. Trip Generation - Use Trip Generation Manual, 11th Edition.
   Consultant to provide.

2. Appropriate study area:
   Signalized Intersections;
   a. San Antonio Drive NE / Wyoming Boulevard NE

   Unsignalized Intersections:
   a. San Antonio Place NE / San Antonio Drive NE

   Driveway Intersections: all site drives.

3. Intersection turning movement counts
   Study Time – 7-9 a.m. peak hour, 4-6 p.m. peak hour
   Consultant to provide for all intersections listed above.

4. Type of intersection progression and factors to be used.
Type III arrival type (see “Highway Capacity Manual, current edition” or equivalent as approved by staff). Unless otherwise justified, peak hour factors and % heavy commercial

should be taken directly from the MRCOG turning movement data provided or as calculated from current count data by consultant.

5. Boundaries of area to be used for trip distribution.
   2 mile radius – commercial;

6. Basis for trip distribution.

Commercial - Use relationship based upon population. Use population data from 2040 Socioeconomic Forecasts, MRCOG – See MRCOG website for most current data.

Commercial -
Ts = (Tt ) (Sp) / (Sp)
Ts = Development to Individual Subarea Trips
Tt = Total Trips
Sp = Subarea Population

7. Traffic Assignment. Logical routing on the major street system.

8. Proposed developments which have been approved but not constructed that are to be included in the analyses. Information to be provided by Matt Grush, if available.

9. Method of intersection capacity analysis - planning or operational (see "Highway Capacity Manual 7th edition" or equivalent [i.e. HCS, Synchro, Teapac, etc.] as approved by staff). Must use latest version of design software and/or current edition of design manual.
   Implementation Year: 2024

10. Traffic conditions for analysis:
    a. Existing analysis _x_ yes __ no - year (2024);
    b. Project completion year without proposed development – 2025
    c. Project completion year with proposed development – 2025

11. Background traffic growth.
    Method: use 10-year historical growth based on standard data from the MRCOG Traffic Flow Maps. Minimum growth rate to be used is 1/2%.

12. Planned (programmed) traffic improvements.
    List planned CIP improvements in study area and projected project implementation year:
    a. None

13. Items to be included in the study:
    a. Intersection analysis.
    b. Signal progression - An analysis is required if the driveway analysis indicates a traffic signal is possibly warranted. MUTCD signal warrants
    c. Recommended street, intersection and signal improvements.
    d. Site design features such as turning lanes, median cuts, queuing requirements and site circulation, including driveway signalization and visibility.
    e. Transportation system impacts.

f. Other mitigating measures.
g. Accident analyses _x_ yes __ no; Location(s): 5 years of data at study intersections (see above)
h. Weaving analyses __ yes _x_ no; Location(s):

14. Other:

**SUBMITTAL REQUIREMENTS:**

1. Number of copies of report required
   a. 1 digital copy
2. Submittal Fee – $1300 for up to 3 reviews plus technology fee
   a. Submit the TIS along with a DTIS to Planning Development Review Services email PLNDRS@cabq.gov and copy mgrush@cabq.gov.

The Traffic Impact Study for this development proposal, project name, shall be performed in accordance with the above criteria. If there are any questions regarding the above items, please contact me at 505-924-3362.

3/25/2024

Matt Grush, P.E. Date
Senior Engineer
City of Albuquerque, Planning
Transportation Development Section

via: email
C: TIS Task Force Attendees, file