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Community Dev & Planning

## Transportation Impact Analysis

# Courthouse Plaza

City of Fairfax, Virginia

**June 20, 2025**

**Prepared for:**

Combined Courthouse LLC  
7315 Wisconsin Ave  
Suite 1000W  
Bethesda, MD 20814

**GOROVE SLADE**  
Transportation Planners and Engineers

Prepared by:



Richmond, VA

Fairfax, VA

Alexandria, VA

Washington, DC

Bethesda, MD

[www.goroveslade.com](http://www.goroveslade.com)

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## TABLE OF CONTENTS

|                                                                                    |    |
|------------------------------------------------------------------------------------|----|
| Executive Summary .....                                                            | 7  |
| Site Location and Study Area .....                                                 | 7  |
| Description of Proposed Development .....                                          | 7  |
| Principal Findings and Conclusions .....                                           | 7  |
| Introduction .....                                                                 | 10 |
| Background Information: Proposed Development (Site & Nearby) .....                 | 11 |
| Description of the Existing Site .....                                             | 11 |
| General Location .....                                                             | 11 |
| Description of the Parcels .....                                                   | 12 |
| Location within Jurisdiction and Region .....                                      | 13 |
| Comprehensive Plan Transportation Recommendations .....                            | 14 |
| Zoning and Future Land Use for the Site and Nearby Uses .....                      | 17 |
| Descriptions of Geographic Scope and Limits of the Study Area .....                | 18 |
| Existing Roadways .....                                                            | 18 |
| Existing Conditions (2023) .....                                                   | 19 |
| Existing Transit Services .....                                                    | 19 |
| Bus Stop Assessment .....                                                          | 21 |
| Existing Bicycle Facilities .....                                                  | 22 |
| Existing Bicycle Volumes .....                                                     | 23 |
| Pedestrian Facilities .....                                                        | 24 |
| Existing Infrastructure .....                                                      | 24 |
| Existing Pedestrian Volumes .....                                                  | 25 |
| Anticipated Pedestrian Activity .....                                              | 26 |
| Existing Scooter Volumes .....                                                     | 28 |
| Existing Bus Volumes .....                                                         | 29 |
| Planned Future Transportation Improvements .....                                   | 30 |
| Roadway & Multimodal Improvements .....                                            | 30 |
| Existing Roadway Network .....                                                     | 30 |
| Historical Crash Data .....                                                        | 30 |
| Intersection Analysis of Existing Conditions (2023) .....                          | 36 |
| Existing Traffic Volumes .....                                                     | 37 |
| Existing (2023) Intersection Capacity and Queuing Analysis .....                   | 38 |
| Future Conditions without Development (2028) .....                                 | 41 |
| Future without Development (2028) Traffic Volumes .....                            | 41 |
| Assumed Background Improvements .....                                              | 41 |
| Future without Development (2028) Intersection Capacity and Queuing Analysis ..... | 44 |

|                                                                                             |    |
|---------------------------------------------------------------------------------------------|----|
| Future with Development (Full-Build 2028) .....                                             | 47 |
| Project Description & Site Access .....                                                     | 47 |
| Existing Trips to be Removed .....                                                          | 50 |
| Site Generated Traffic .....                                                                | 53 |
| Transportation Demand Management.....                                                       | 53 |
| Site Trip Distribution .....                                                                | 54 |
| Future with Development Traffic Volumes.....                                                | 54 |
| Future with Development (2028) (Full-Build) Intersection Analysis .....                     | 58 |
| Internal Road Network.....                                                                  | 61 |
| Future with Development (2028) (Full-Build) - Internal Intersection Analysis .....          | 63 |
| Overall Comparison of Intersection Capacity and Queuing Analysis Results.....               | 65 |
| Supplemental SimTraffic Analysis for Democracy Lane and University Drive Intersection ..... | 73 |
| Conclusion .....                                                                            | 76 |
| Principal Findings and Conclusions .....                                                    | 76 |
| Technical Attachments .....                                                                 | 78 |

## APPENDICES

Appendix A – Signed Scoping Document

Appendix B – CUE Bus Schedules

Appendix C – Crash Data

Appendix D – Existing Turning Movement Counts

Appendix E – Comparison of Existing Inline Retail Trips and Inline Retail Trips to be Removed

Appendix F – Intersection Analysis Worksheets – Existing 2023

Appendix G – Intersection Analysis Worksheets – 2028 Future without Development

Appendix H – Intersection Analysis Worksheets – 2028 Future with Development (Full-Build)

Appendix I – Intersection Analysis Worksheets – Internal Intersections

Appendix J – Site Visit Photographs

Appendix K – SimTraffic Analysis Results Worksheets

## LIST OF FIGURES

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Figure 1: Site Location .....                                                   | 11 |
| Figure 2: Parcel Map .....                                                      | 12 |
| Figure 3: Regional Location .....                                               | 13 |
| Figure 4: Comprehensive Plan – Transportation Recommendations .....             | 14 |
| Figure 5: Street Hierarchy Map (City of Fairfax Old Town Small Area Plan) ..... | 14 |
| Figure 6: University Drive Spine (City of Fairfax Project) .....                | 15 |

|                                                                                                                 |    |
|-----------------------------------------------------------------------------------------------------------------|----|
| Figure 7: Blenheim Boulevard (Old Lee Highway )Multimodal Improvements (Source: Old Town Small Area Plan) ..... | 16 |
| Figure 8: City of Fairfax Zoning Map .....                                                                      | 17 |
| Figure 9: City of Fairfax Future Land Use .....                                                                 | 17 |
| Figure 10: Study Intersections.....                                                                             | 19 |
| Figure 11: Existing CUE Bus Routes.....                                                                         | 20 |
| Figure 12: Bus Stops in Vicinity of the Site.....                                                               | 21 |
| Figure 13: Existing Conditions – Bicycle Facilities .....                                                       | 22 |
| Figure 14: Existing Bike Volumes.....                                                                           | 23 |
| Figure 15: Existing Pedestrian Facilities.....                                                                  | 24 |
| Figure 16: Peak Hour Pedestrian Volumes .....                                                                   | 25 |
| Figure 17: Pedestrian Paths to Selected Surrounding Land Uses .....                                             | 26 |
| Figure 18: Existing Peak Hour Scooter Volumes .....                                                             | 28 |
| Figure 19: Existing Peak Hour Bus Volumes.....                                                                  | 29 |
| Figure 20: Existing 2023 – Lane Configuration .....                                                             | 36 |
| Figure 21: Existing 2023 - Traffic Volumes.....                                                                 | 37 |
| Figure 22: Existing (2023) Level of Service .....                                                               | 40 |
| Figure 23: Inherent Growth Volumes (2023-2028) .....                                                            | 42 |
| Figure 24: Future (2028) without Development Traffic Volumes .....                                              | 43 |
| Figure 25: Future Without Development (2028) Level of Service .....                                             | 46 |
| Figure 26: Concept Plan (Subject to Change).....                                                                | 47 |
| Figure 27: Future with Development (Full-Build) Pedestrian Volumes at Intersection 7.....                       | 48 |
| Figure 28: 2028 Future with Development (Full-Build) Lane Configuration .....                                   | 49 |
| Figure 29: Existing Trips to be Removed .....                                                                   | 51 |
| Figure 30: Trips Rerouted due to Removal of Westbound Leg at Intersection 6 .....                               | 52 |
| Figure 31: Site Trip Distribution/Direction of Approach (DOA) .....                                             | 54 |
| Figure 32: Site Trips (2028, Full-Build).....                                                                   | 55 |
| Figure 33: Pass-By Trips Attributed to Retail .....                                                             | 56 |
| Figure 34: 2028 Future with Development (Full-Build) Volumes .....                                              | 57 |
| Figure 35: 2028 Future with Development Level of Service Results (Full-Build) .....                             | 60 |
| Figure 36: Internal Intersections Locations.....                                                                | 62 |
| Figure 37: 2028 Future with Development (Full Build) Volumes at Internal Intersections .....                    | 63 |
| Figure 38: Phasing Parameters.....                                                                              | 73 |

## LIST OF TABLES

|                                                                                                                   |    |
|-------------------------------------------------------------------------------------------------------------------|----|
| Table 1: Bus Stop Facilities .....                                                                                | 21 |
| Table 2: Existing Road Network (Per published VDOT 2019 AADT Data) .....                                          | 30 |
| Table 3: Crash Data Analysis Summary Table.....                                                                   | 30 |
| Table 4: VDOT Crash Data for the Intersection of Blenheim Blvd and Fairfax Commons Entrance (Intersection 2)..... | 31 |

Table 5: VDOT Crash Data for the Intersection of University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance (Intersection 6) .....32

Table 6: VDOT Crash Data for the Intersection of University Drive and Democracy Lane/Whitehead Street (Intersection 7) ...33

Table 7: VDOT Crash Data for the Intersection of Layton Hall Drive and Democracy Lane (Intersection 9).....34

Table 8: VDOT Crash Data for the Intersection of Blenheim Blvd and Layton Hall Drive (Intersection 10).....35

Table 9: Existing 2023 – Intersection Capacity and Queuing Analysis.....38

Table 10: Future (2028) without Development Intersection Capacity and Queuing Analysis .....44

Table 11: Trip Generation for (2028 Full Build) (ITE 11<sup>th</sup> Edition; Peak Hour of Adjacent Street) .....53

Table 12: Trip Generation Comparison (Existing vs. Proposed with Retail to Remain).....53

Table 13: Future with Development Intersection Analysis (2028 Full-Build).....58

Table 14: Future with Development Internal Intersection Analysis (2028 Full-Build).....64

Table 15: Delay Comparison Table .....66

Table 16: Queue Comparison Table (50<sup>th</sup> Percentile – for Signalized Intersections Only).....69

Table 17: Queue Comparison Table (95<sup>th</sup> Percentile) .....70

Table 18: SimTraffic Input Parameters .....73

Table 19: Analyzed Pedestrian Calls at University Drive and Whitehead Street/Democracy .....74

Table 20: 2023 Existing Conditions - Simulation Analysis Results .....74

Table 21: 2028 Full Build Conditions – Simulation Analysis Results .....75

## Executive Summary

This report presents the findings of a Transportation Impact Analysis (NOT a Chapter 870 Study) conducted for the Courthouse Plaza site in the City of Fairfax, Virginia. This study was developed in accordance with VDOT and City of Fairfax guidelines.

The document is prepared in accordance with best professional practice and standards that assess the impact of a proposed development on the transportation system and recommends improvements to lessen or negate those impacts. Transportation Impact Analysis involves the evaluation of anticipated roadway conditions with and without the proposed development and recommendation of transportation improvements to offset both the impacts of the increase in future traffic volumes and the changes in traffic operations due to the proposed development. The analysis assists public officials and developers to balance interrelations between efficient traffic movements with necessary lane access.

### **Site Location and Study Area**

Courthouse Plaza Development is located west of Blenheim Boulevard (Old Lee Highway), east of University Drive and north of North Street in City of Fairfax, Virginia. The existing site is currently occupied by approximately 91,860 SF of retail (including a supermarket, defunct drive-thru, and pad site) and surface parking. The vehicular study area includes ten (10) intersections, of which eight (8) are existing. Site access is planned to be provided via two curb cuts along University Drive and three curb cuts along Blenheim Blvd.

### **Description of Proposed Development**

It is anticipated by 2028, the development project is planned to replace approximately 25k SF of retail with approximately 315 multifamily units (Full-Build) in a single mixed-use building on the west side of the property with approximately 67k SF of existing retail (including a supermarket and pad sites) to remain and up to 13,000 SF of ground floor retail introduced in the mixed-use building.

### **Principal Findings and Conclusions**

Discussions regarding the study assumptions and relevant background information were held with City of Fairfax staff during the scoping meeting on Monday, May 22, 2023. A copy of the signed scoping document is included in Appendix A. Please note that the pre-application submission illustrated potential future phases are possible at the site that align with the overall Comprehensive Plan vision for this area. No future phases are included with the application submission.

The following analysis scenarios are included in this Transportation Impact Analysis:

- **Existing (2023) Scenario** – assumes existing traffic volume based on the counts.
- **Future without Development 2028** – assumes existing traffic volume plus additional traffic due to a 1% annual growth rate.
- **Future with Development 2028 (Full-Build)** – assumes Future without Development 2028 traffic plus traffic generated by the proposed Courthouse Plaza Development (Full Build). Trips associated with the inline retail to be removed (approximately 25.2 kSF) were removed from the existing driveways based on proportion. Appendix E shows the trips removed from the existing driveways for the AM and PM peak hours.

The analysis of the traffic operations for the proposed Courthouse Plaza Development supports the following major conclusions:

### **Analysis Components**

- As determined based on discussions with City of Fairfax staff at the scoping meeting, the following growth was applied to the major movements to account for a regional increase in background traffic.
  - A 1.0 % per year growth rate from the year 2023 to 2028
- A TDM/mode split reduction of 15 percent was applied to the residential use, as agreed upon by City of Fairfax staff.

- At full build-out (2028), the proposed development, will generate approximately 127 AM peak hour trips, 146 PM peak hour trips and 1,696 trips on a typical weekday per ITE Trip Generation Manual (11<sup>th</sup> Edition).
- The proposed development continues to generate fewer trips than the existing shopping center development at the site which is approximately 91.9 kSF in size.
- Please note that the application has evolved throughout the process, and as such the TIA has evolved to reflect the current plans. As compared to the previous TIA submission dated May 17, 2024, the development program has changed to include up to 13,000 SF of retail within the proposed building. The proposed access points to the development are unchanged, however, internally Street 2 has been extended to the north to intersect Democracy Lane. This configuration achieves the City's Comprehensive Plan vision of a grid system of streets within the Courthouse Plaza site. Lastly, in the latest submission, the analysis scenario with an adjacent separate Special Use Permit (SUP) application which included a coffee shop has been removed from the TIA, as that SUP is no longer being pursued and is no longer applicable.

### ***Multimodal Transportation Elements***

- Sidewalks currently exist at all study intersections, with a minimum width of 5 feet and up to 10 feet. Further pedestrian safety and convenience will be enhanced by the proposed development, with additional pedestrian accommodations within the block.
- The analysis assumes the City Project 'University Drive Spine' as a background improvement for all Future (2028) scenarios.
- Four (4) bus routes operated by CUE system currently serve the site area. The system provides scheduled, low-cost transportation services to George Mason University, to shopping centers and other locations within the City of Fairfax as well as the Vienna/Fairfax GMU WMATA station.

### ***Infrastructure***

- The Courthouse Plaza Development in existing conditions is accessed via multiple entrances on Blenheim Boulevard and University Drive.
- During the proposed redevelopment (Full-Build 2028), two new roadways (Street 1 and Street 2) will be constructed adjacent to the new multifamily building.
- Primary access to the site will continue to be provided via University Drive, Blenheim Boulevard, and Democracy Lane.
- The City of Fairfax project 'University Drive Spine', which provides multimodal improvements along University Drive with conversion of existing four- lane configuration to a three-lane configuration with Two-Way Left Turn Lanes (TWLTLs) and bike lanes is included in the analysis for all future scenarios.

### ***Analysis Results***

- All the study intersections operate at acceptable levels of service during all the study periods and analysis conditions.
- 95th percentile queues are contained within the available storage at the turning movements during all the study periods/conditions.
- The location of the garage entrance and the westbound queue along Democracy Lane is not anticipated to cause operational issues. Analysis results show the 50<sup>th</sup> and 95<sup>th</sup> percentile queues are accommodated along all peak times, with the location of the garage gate allowing up to a two-car storage inside the garage. Simtraffic results are included in the revised submission that show that the maximum queues are not anticipated to block the garage entrance.

- The internal intersections within the development with the introduced Street 1 and Street 2 operate with minimal delays and queuing.
- Based on the capacity and queuing analysis of internal intersections, all intersections are anticipated to operate with acceptable Level of Service and queuing.

## Introduction

This report presents the findings of a Comprehensive Transportation Analysis conducted for the Courthouse Plaza Development in City of Fairfax, Virginia (“the City”).

The site consists of one(1) parcel (Tax Map # 57-2-20-004 D). The existing site is currently occupied by 91,860 SF of retail and surface parking.

The following tasks were completed as part of this study effort:

- A scoping meeting was conducted with City of Fairfax staff on May 22, 2023. This scope details the study assumptions and relevant background information. A copy of the signed scoping document is included in Appendix A.
- Existing conditions were observed in the field to verify roadway geometry, pedestrian and bicycle infrastructure, and traffic flow characteristics.
- Traffic counts were conducted on Thursday, March 30, 2023 during the morning and afternoon peak periods.
- The future traffic volumes were developed by accounting for regional growth in the area. As determined based on discussions with the City, a growth rate of 1% per year compounded annually was applied to all major roadway intersections for the period between 2023 and 2028.
- Proposed site traffic volumes were generated based on the methodology outlined in ITE Trip Generation, 11<sup>th</sup> Edition.
- Vehicular traffic analysis for the study area intersections was performed using Synchro 11 based on Highway Capacity Manual (HCM) 6th methodology. Intersection analysis was performed for existing conditions (2023) and future without development (2028), and future with development (full-build, 2028). Sources of data for this study include information provided by VDOT, City of Fairfax, and the office files and field reconnaissance efforts of Gorove Slade.

## Background Information: Proposed Development (Site & Nearby)

### ***Description of the Existing Site***

#### ***General Location***

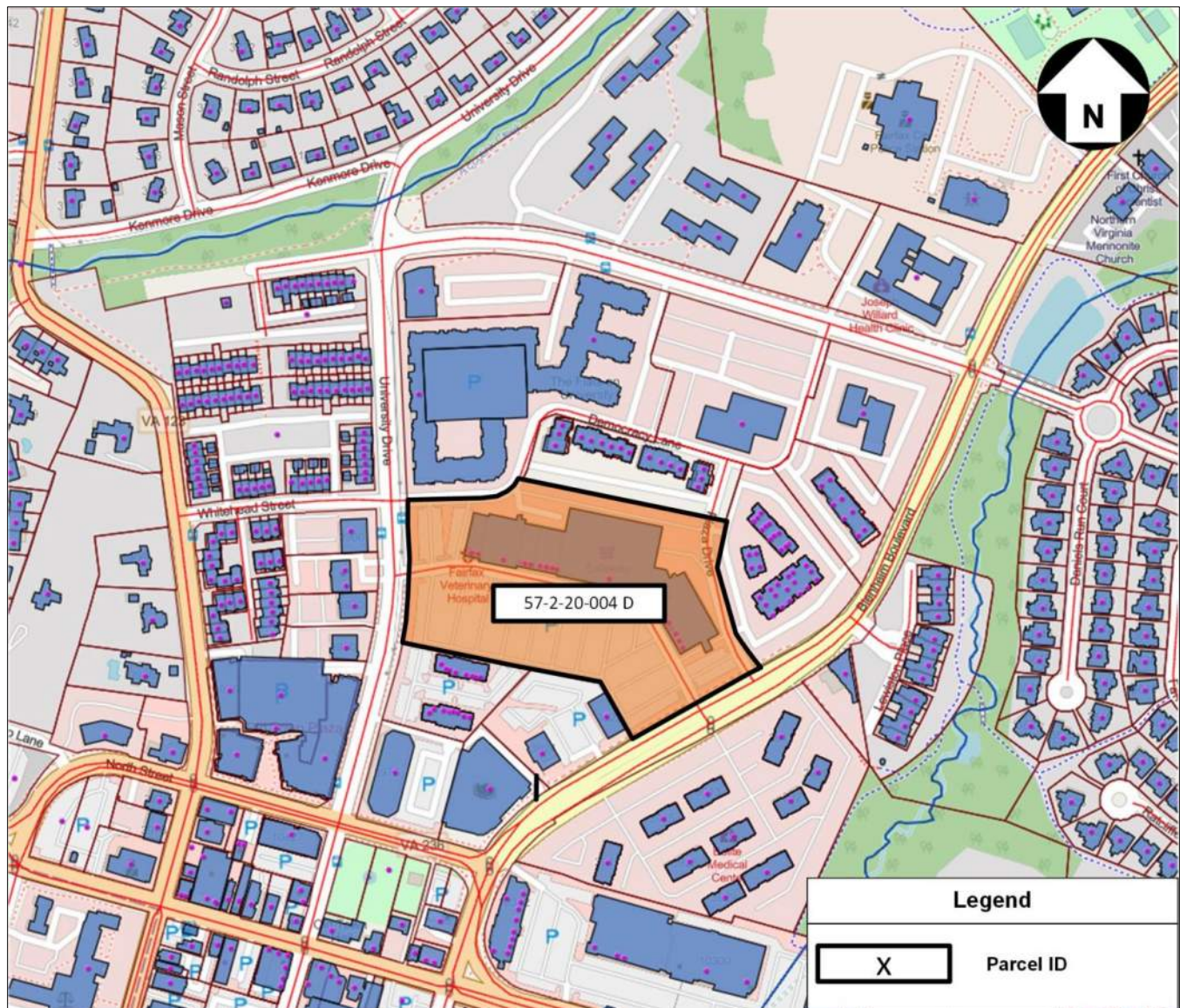
The site is located in the City of Fairfax and is part of the City's Old Town Fairfax Transition Overlay District. It is located north of North Street, west of Blenheim Boulevard as shown in Figure 1. It is noted that the application area shown is for illustrative purposes only as the plan has evolved throughout the application process for the site. Please see the site plan for the most recent application area.



Figure 1: Site Location

## Description of the Parcels

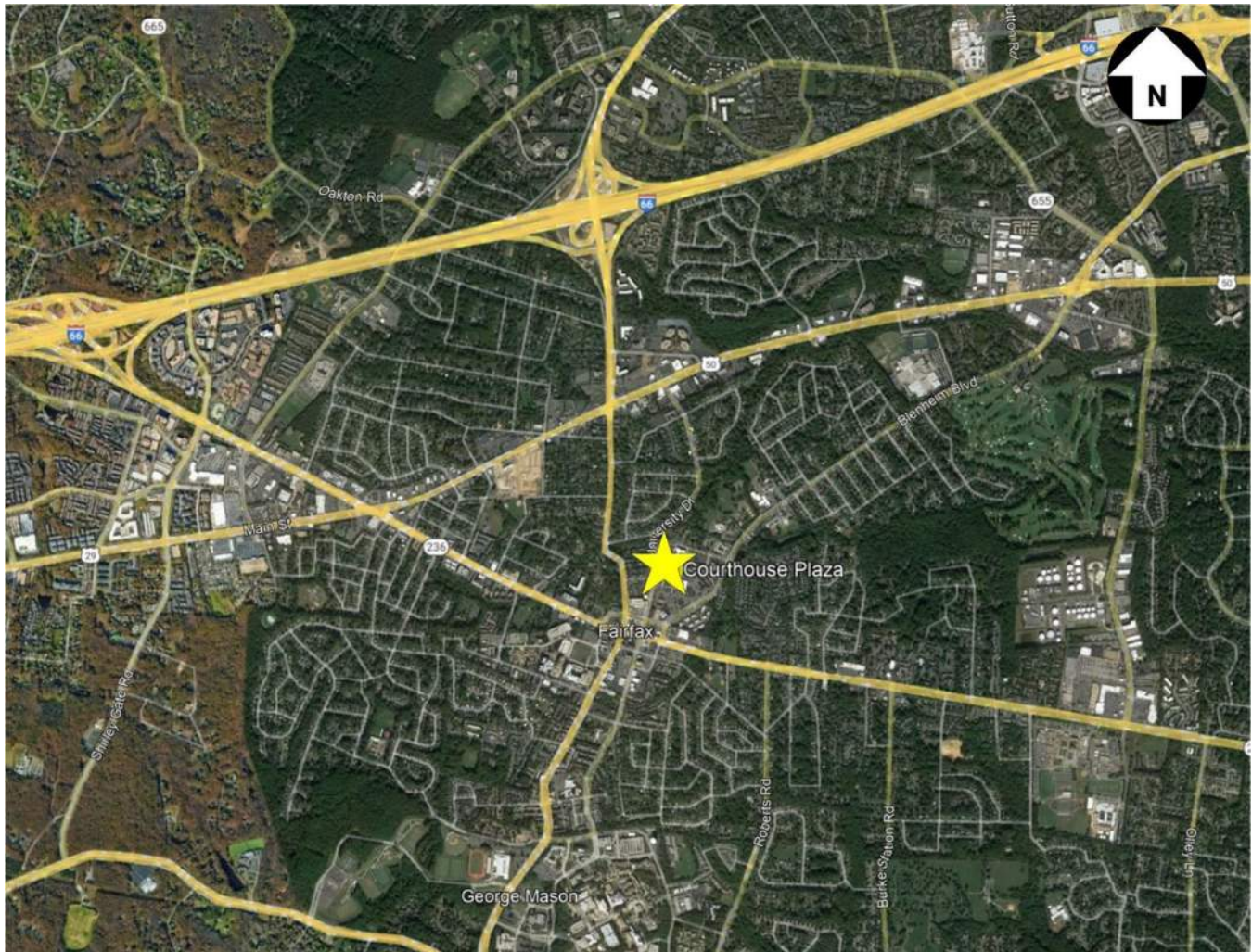
The proposed redevelopment of Courthouse Plaza Development is composed of one (1) parcel. The parcel can be identified on City of Fairfax Maps with the parcel IDs: 57-2-20-004 D.



**Figure 2: Parcel Map**  
Source: City of Fairfax Real Estate Database

### *Location within Jurisdiction and Region*

As shown in Figure 3, the site is situated approximately 2 miles south of the closest I-66 interchange and approximately 1.5 miles north of George Mason University's main campus.



**Figure 3: Regional Location**

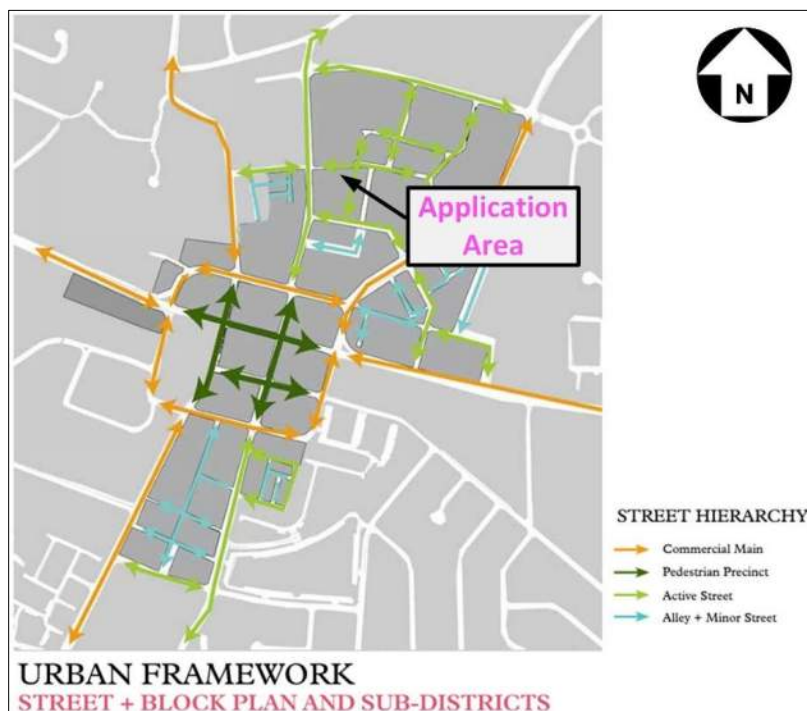
## Comprehensive Plan Transportation Recommendations

The City of Fairfax Comprehensive Plan establishes goals and guiding principles for multimodal transportation for the City. The Comprehensive Plan envisions 'Active Streets' within the Old Town Fairfax Transition Overlay District. Figure 4 shows the proposed street typology for the City and Figure 5 shows the street hierarchy map from the Old Town Fairfax Small Area Plan. It is observed that University Drive and Layton Hall Drive are envisioned to be Active Streets.



**Figure 4: Comprehensive Plan – Transportation Recommendations**

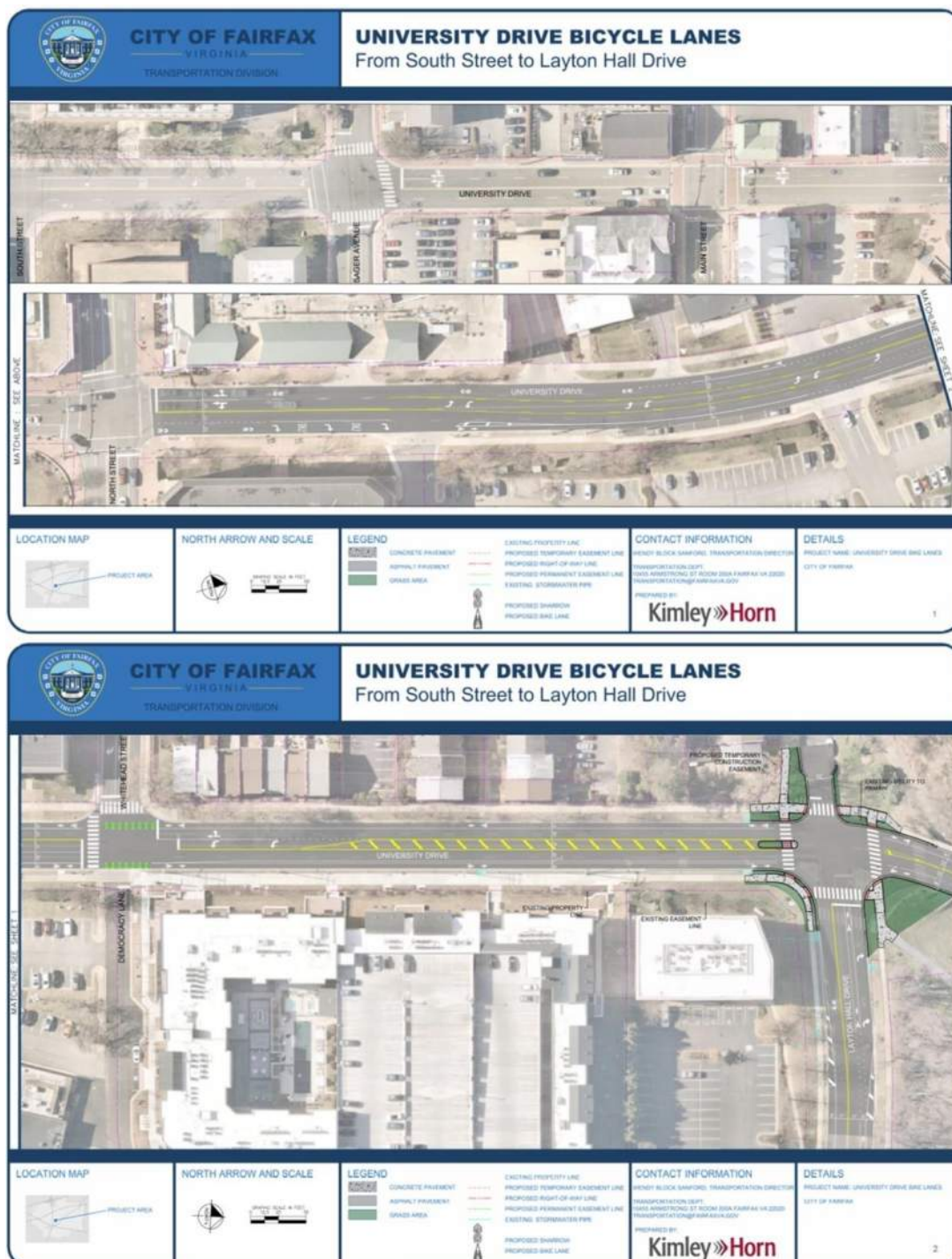
Source: City of Fairfax 2035 Comprehensive Plan (Appendix B: Transportation)



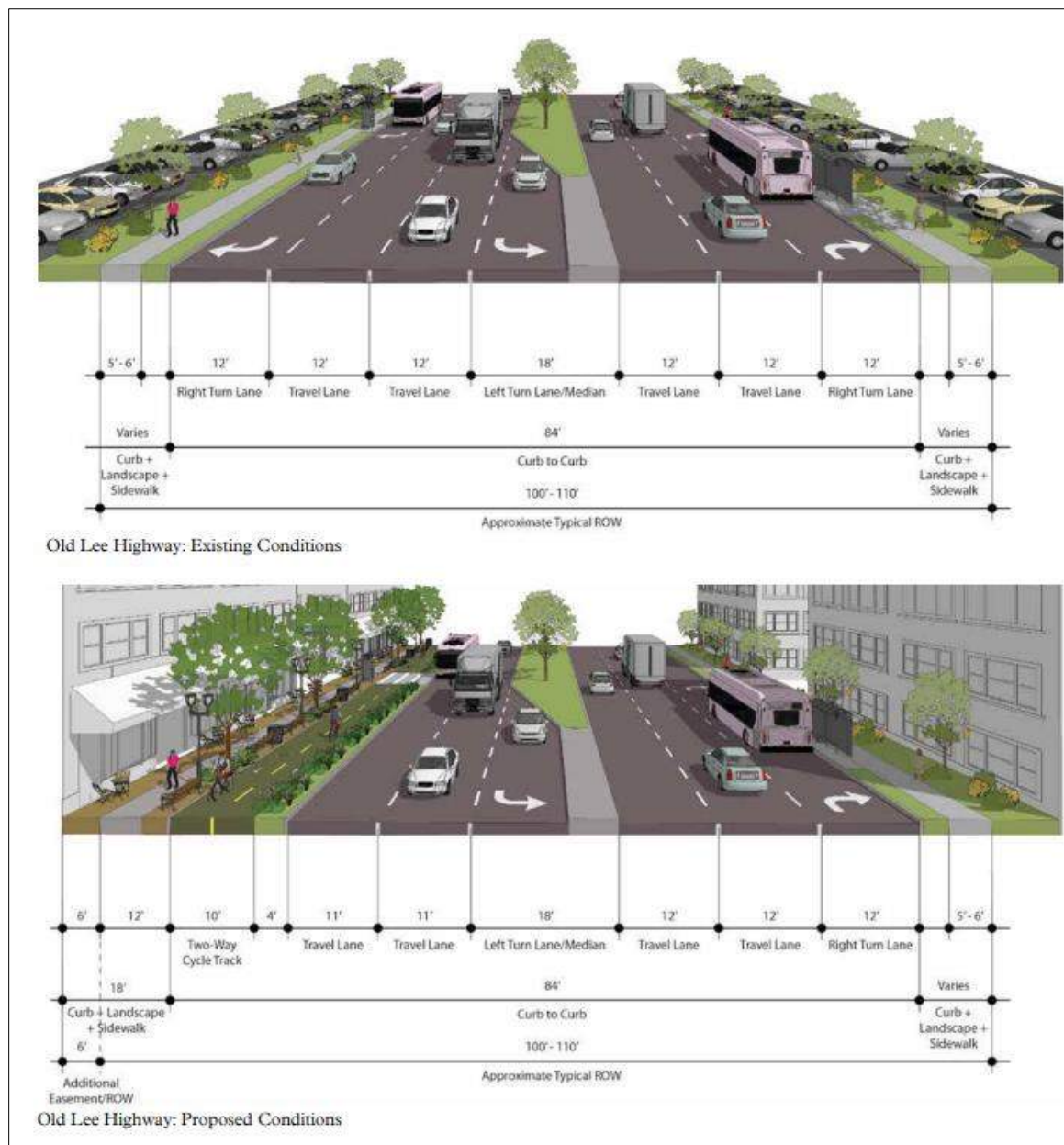
**Figure 5: Street Hierarchy Map (City of Fairfax Old Town Small Area Plan)**

Additionally, nearby multimodal improvements are planned in the area as outlined below.

- 1) University Drive Spine: To provide a 'complete street' environment for all road users by accommodating a variety of transportation modes, the existing four lane street is planned to be converted to a three-lane street with two travel lanes, one two-way left turn lane (TWLTL), and buffered bike lanes in both travel directions. It is anticipated that the improvements could be made within the existing ROW and the proposed development would not prevent this improvement from being implemented in the future. The estimated schedule for construction to be complete is end of 2025. Figure 6 shows the project plans with the three-lane configuration on University Drive with bicycle facilities.



- 2) Blenheim Boulevard: Plans for new bicycle facilities on Blenheim Boulevard from Layton Hall Drive to Ridge Avenue are currently in design per the Old Town Small Area Plan, as shown below. These facilities are not currently planned to the south of Layton Hall Drive.



**Figure 7: Blenheim Boulevard (Old Lee Highway) Multimodal Improvements (Source: Old Town Small Area Plan)**

### Zoning and Future Land Use for the Site and Nearby Uses

In existing conditions, the site parcels are zoned as CR Commercial Retail and CG Commercial General as shown in Figure 8.

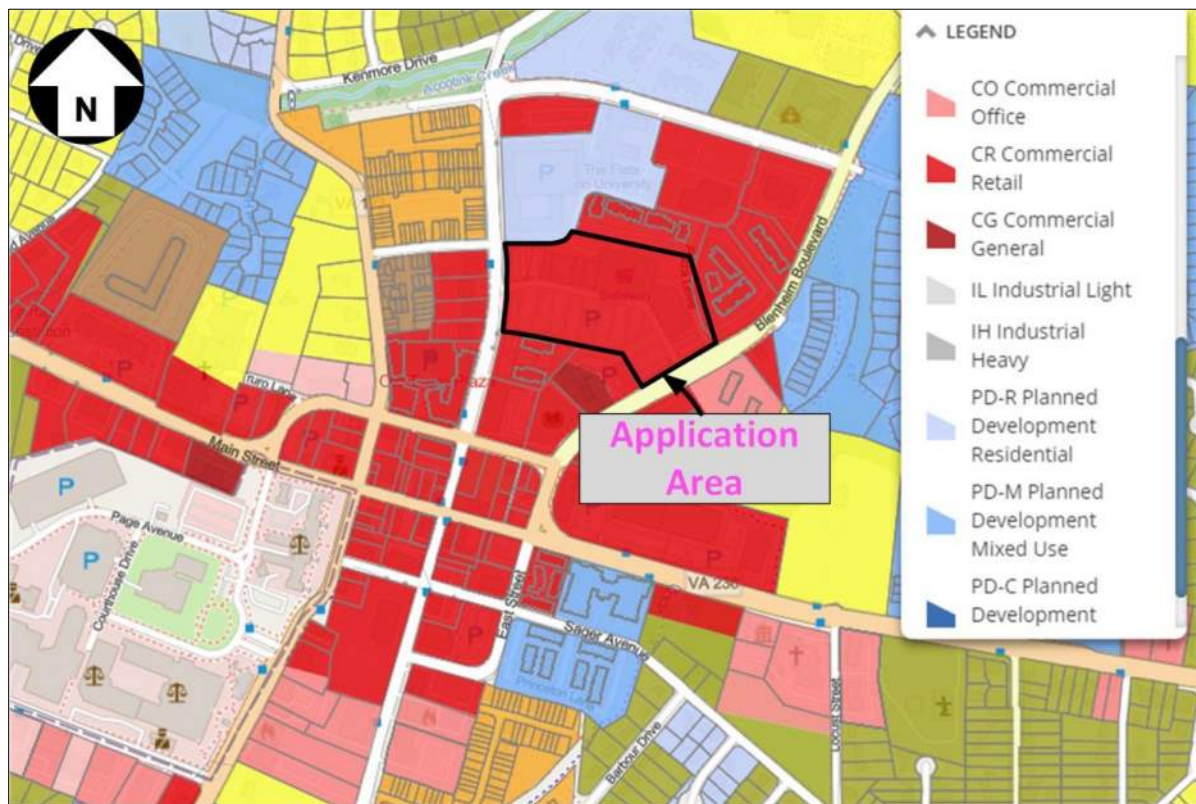


Figure 8: City of Fairfax Zoning Map

Future land use for the site parcels shows the area as 'Activity Center'. Activity Center per the City's Zoning Ordinance refers to area(s) designated for mixed-use environments. Future land use map is shown in Figure 9.

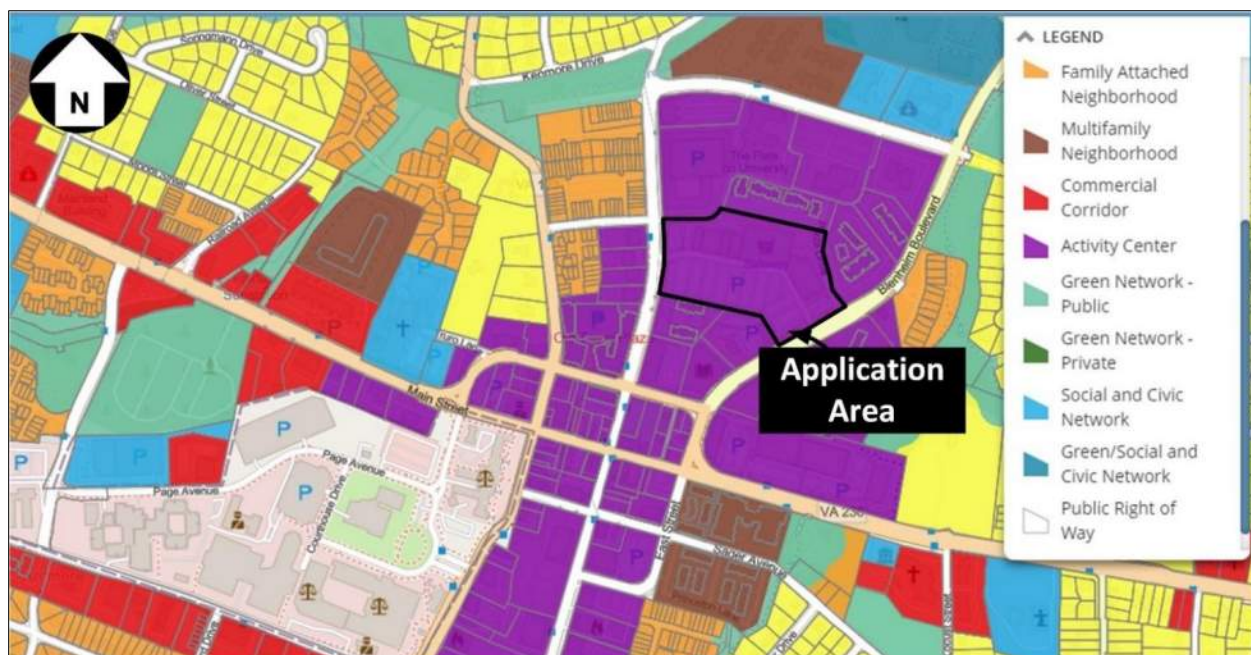


Figure 9: City of Fairfax Future Land Use

### ***Descriptions of Geographic Scope and Limits of the Study Area***

The geographic scope for the transportation study area was developed in accordance with the City's guidance.

The vehicular study area in the approved scope included the following intersections. Please note that Intersection 3 is no longer included as it is not required for the proposed development.

1. Blenheim Boulevard and Street 3 / Plaza Drive
2. Blenheim Boulevard and Fairfax Commons Entrance
3. Blenheim Boulevard and Street 1 (**Access No Longer Pursued**)
4. Blenheim Boulevard and Southern Entrance
5. University Drive and Street 1/ Existing Driveway
6. University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance
7. University Drive and Democracy Lane/Whitehead Street
8. Democracy Lane and Garage Entrance
9. Democracy Lane and Layton Hall Drive
10. Blenheim Boulevard and Layton Hall Drive

### ***Existing Roadways***

The study area includes four (4) intersections along Blenheim Boulevard, three (3) intersections along University Drive, one (1) intersection on Democracy Lane and one (1) intersection along Layton Hall Drive. Figure 10 shows the study intersections. It is noted that access at Study Intersection 3 (Blenheim Boulevard and Street 1) is no longer pursued, and the intersection is shown in order to be consistent with the scoping document.

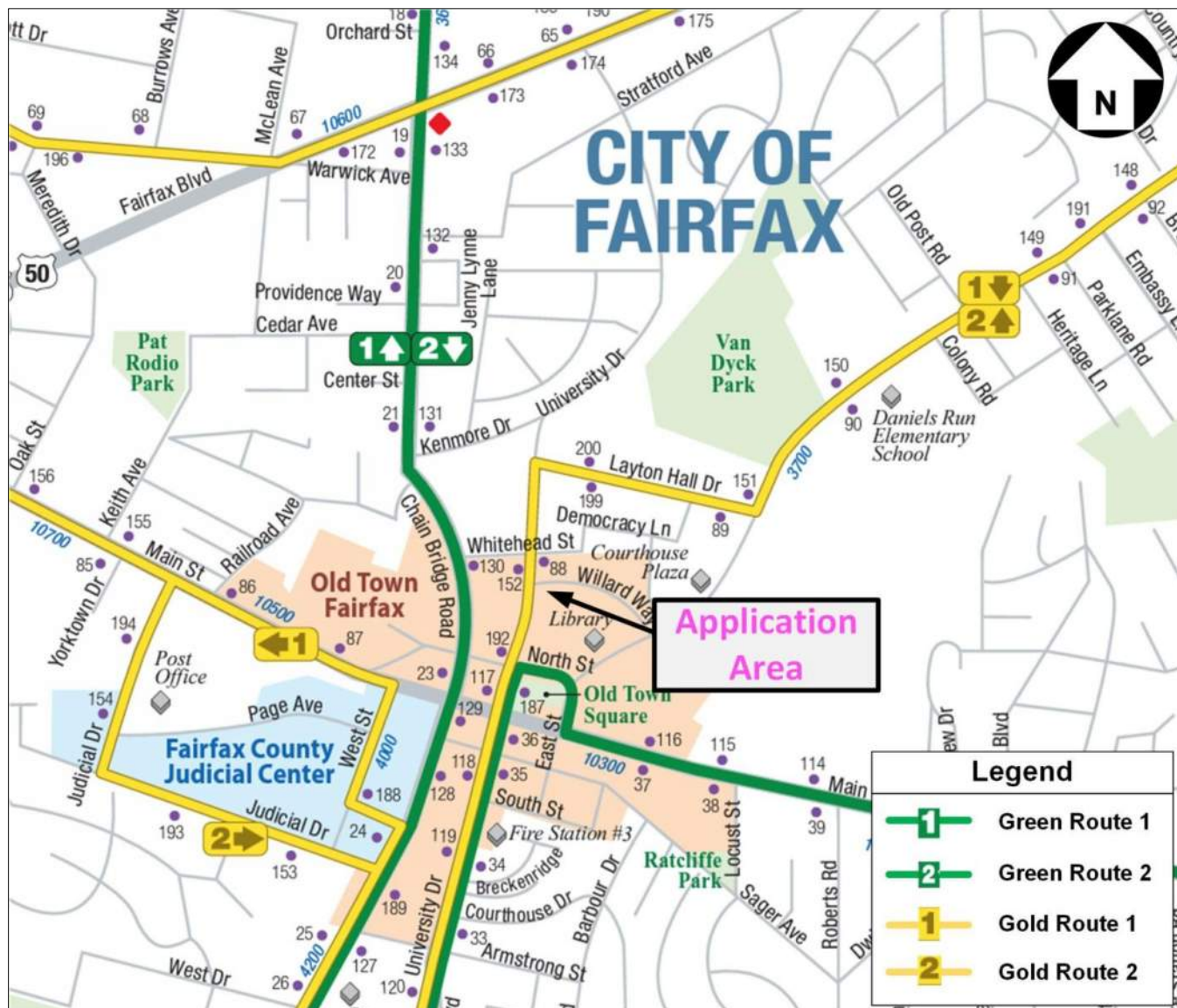


Figure 10: Study Intersections

## Existing Conditions (2023)

### Existing Transit Services

Four (4) bus routes operated by City of Fairfax: CUE system currently serve the site area. The system provides scheduled, low-cost transportation services to George Mason University, to shopping centers and other locations within the City of Fairfax as well as the Vienna/Fairfax GMU WMATA station. The existing bus routes are shown on Figure 11. It is noted that only the CUE system serves the immediate site area. WMATA bus route 29K originating from King Street-Old Town metro station serves the area via the University Drive & Main Street bus stop on Main Street.



**Figure 11: Existing CUE Bus Routes**

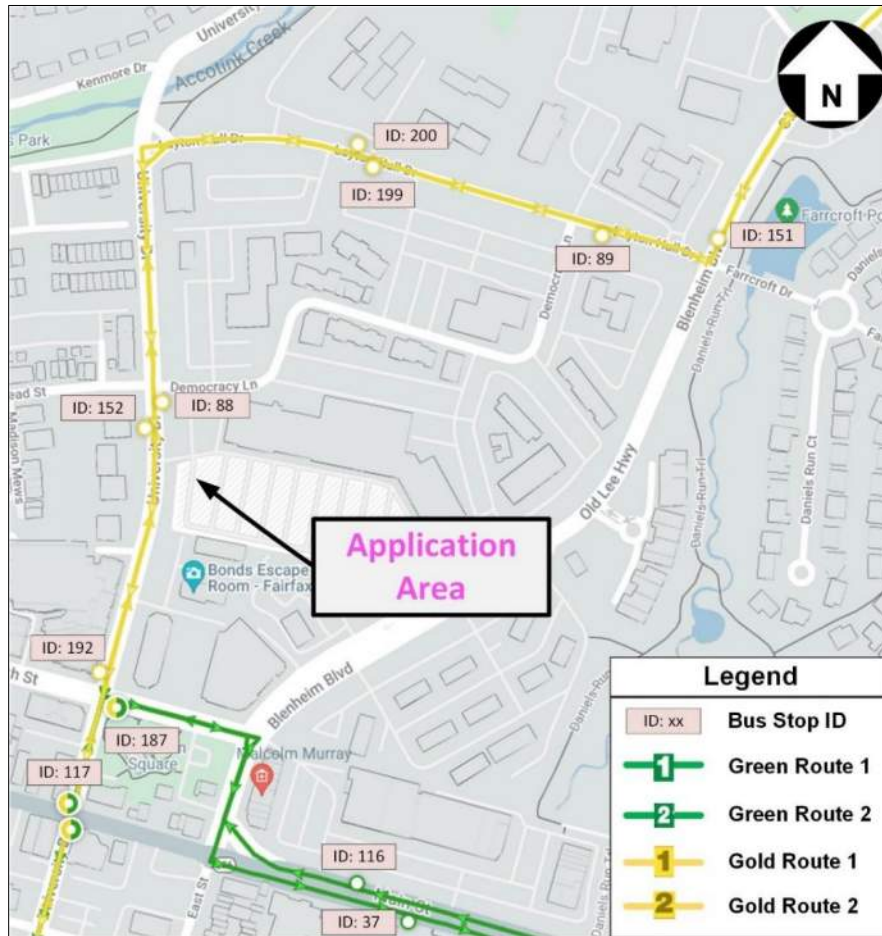
Source: [cuebus.org](http://cuebus.org)

The CUE system operates Monday-Friday for all four routes, with a typical headway of approximately 30 minutes during AM and PM peak periods. Special reduced service is also provided on Saturdays and Sundays with headways of approximately 60 minutes during the peak mid-day periods.

Information about the CUE bus schedules is included in Appendix B.

## Bus Stop Assessment

A total of 11 bus stops currently exist along the frontage of the site and along Main Street towards the south of the site. Table 1 lists the available infrastructure at the bus stops. The provided infrastructure can include a sign and pole, with or without an information case, ADA landing pads and sidewalk, seating, shelter, and trash bins.



**Figure 12: Bus Stops in Vicinity of the Site**  
Source: [cubus.org](https://cubus.org)

**Table 1: Bus Stop Facilities**

| Location                                                     | Stop ID | Routes Served        | Infrastructure |                 |          |                 |       |         |       |
|--------------------------------------------------------------|---------|----------------------|----------------|-----------------|----------|-----------------|-------|---------|-------|
|                                                              |         |                      | Sign           | ADA Landing Pad | Sidewalk | Route Info Case | Bench | Shelter | Trash |
| Old Lee Highway/Blenheim Boulevard at Layton Hall Dr (SB)    | 151     | Gold 1               | •              | •               | •        | •               | •     | •       | •     |
| Layton Hall Drive at Old Lee Highway/Blenheim Boulevard (EB) | 89      | Gold 2               | •              | •               | •        | •               | •     | •       | •     |
| Layton Hall Drive at The Flats (EB)                          | 199     | Gold 2               | •              | •               | •        | •               | •     | •       | •     |
| Layton Hall Drive at Layton Hall Apartments (WB)             | 200     | Gold 1               | •              | •               | •        | •               | •     | •       | •     |
| University Drive at Democracy Lane (NB)                      | 88      | Gold 2               | •              |                 | •        |                 |       |         | •     |
| University Drive at Whitehead Street (SB)                    | 152     | Gold 1               | •              | •               | •        | •               | •     | •       | •     |
| University Drive at North Street (SB)                        | 192     | Gold 1               | •              |                 | •        |                 |       |         |       |
| University Dr & Main St                                      | 117     | Green 1              | •              | •               | •        |                 |       |         | •     |
| University Dr at North St                                    | 187     | Gold 2, Green 2, 29K | •              |                 | •        |                 |       |         |       |
| Main Street Market Place                                     | 116     | 29K, Green 1         | •              |                 | •        | •               | •     | •       | •     |
| Main St at East St                                           | 37      | 29K, Green 2         | •              | •               | •        | •               | •     | •       | •     |

As shown in Table 1, all of the bus stops identified have a sign and a connected sidewalk. Depending on the location, some of the bus stops lack some additional facilities such as a shelter and route information cases with the map of the bus network. As part of the proposed application, the applicant has identified a location for a potential bus shelter along the site frontage on University Drive.

## Existing Bicycle Facilities

As shown in Figure 13, it is evident that dedicated bike lanes are limited on westbound Layton Hall Drive when traveling from Blenheim Boulevard to University Drive via Layton Hall Drive. Conversely, when traveling from University Drive to Blenheim Boulevard, a Bike Sharrow is available. It is worth noting that these bike facilities cater to cyclists along this specific route, offering designated spaces for safe and convenient biking. However, additional bike paths or lanes at other locations within the area may be necessary to further encourage cycling as a viable mode of transportation and promote connectivity for cyclists across the region. Lastly, three (3) Capital Bikeshare locations in the vicinity of the application area provide further opportunities for bicycle travel to/from the site.

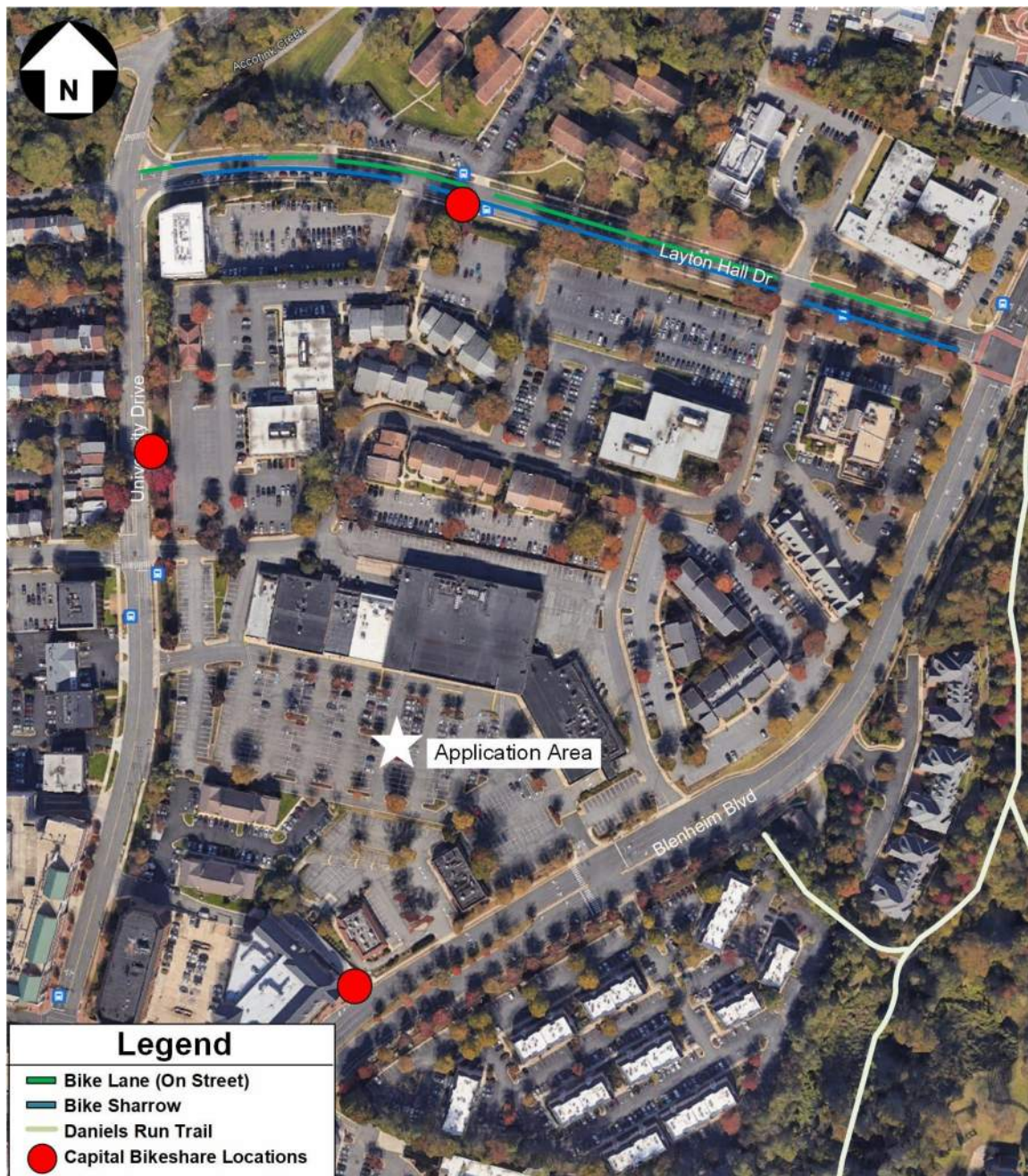


Figure 13: Existing Conditions – Bicycle Facilities

As observed, bicycle facilities currently exist on Layton Hall Drive which connects to Daniels Run Trail.

## Existing Bicycle Volumes

Figure 14 depicts the existing bicyclist peak hour volumes, based on counts included with the conducted vehicular counts collected at the study intersections during the peak periods (conducted on Thursday, March 30, 2023). The peak hours for the system were determined to be 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM.

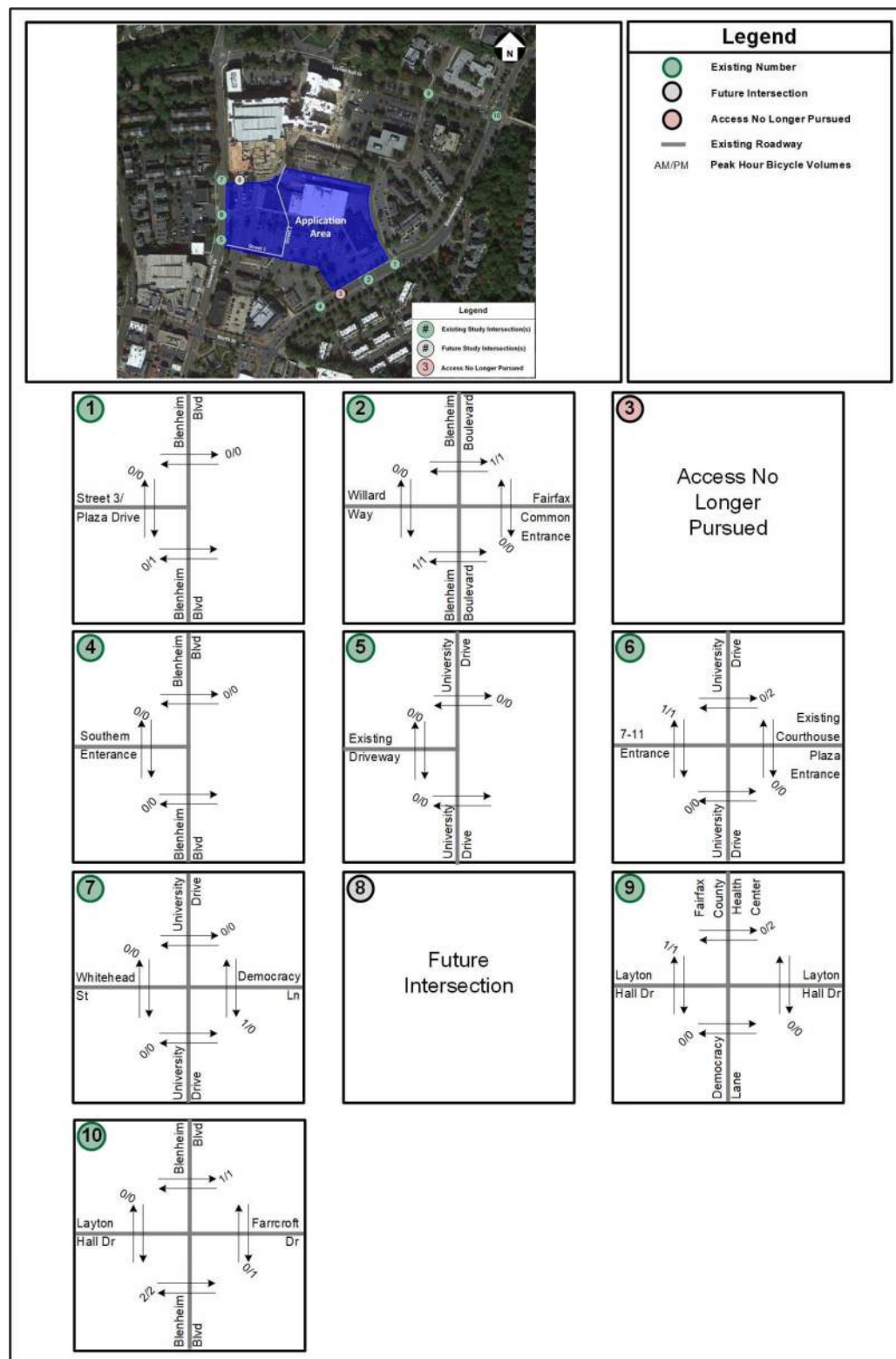
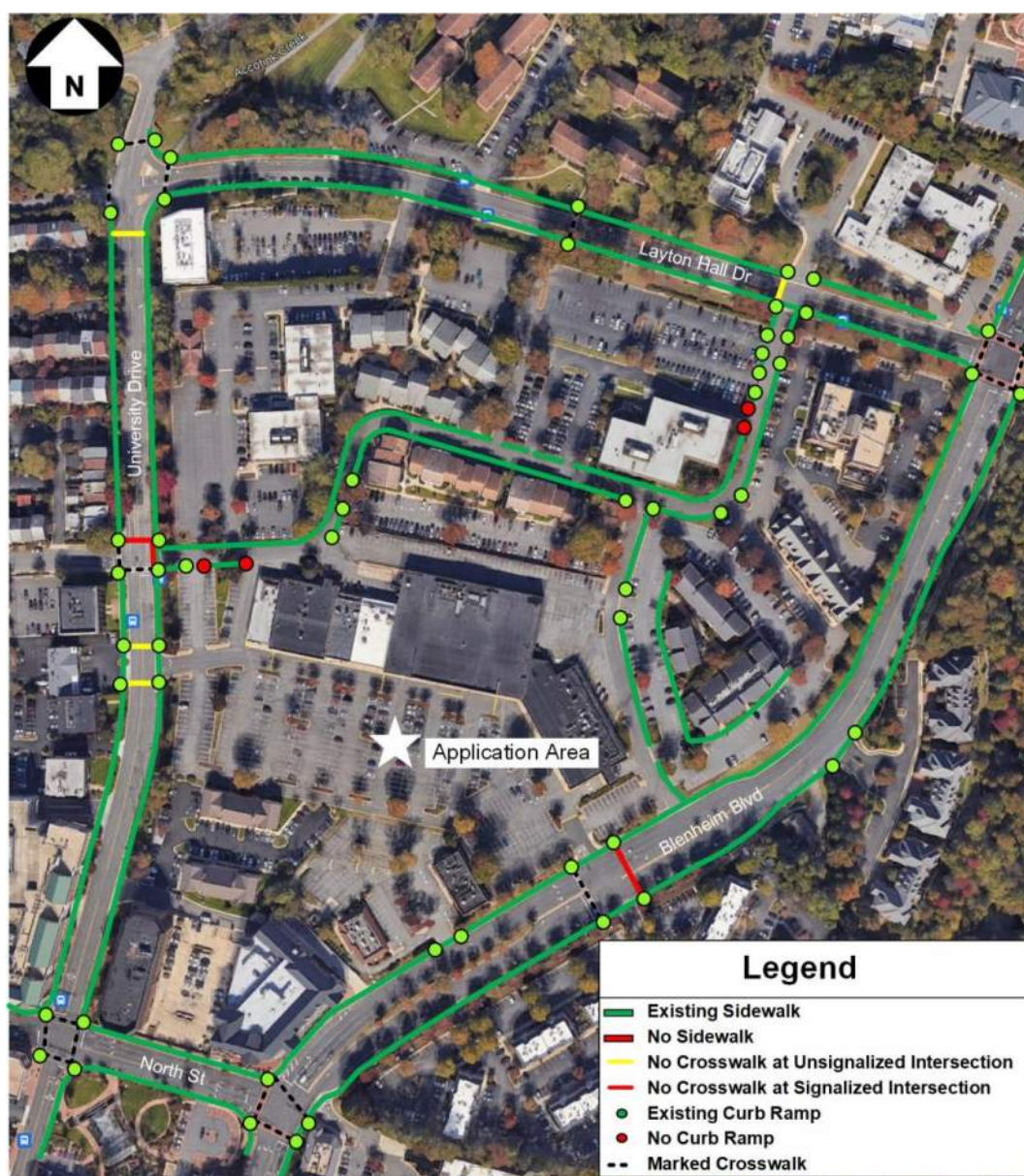


Figure 14: Existing Bike Volumes

## ***Pedestrian Facilities***

### ***Existing Infrastructure***

The site location benefits from well-established pedestrian facilities surrounding the site. Sidewalks currently exist at all study intersections, with a minimum width of 5 feet and up to 10 feet. Sidewalks exist on both sides of the streets on Blenheim Boulevard, University Drive, North Street and Layton Hall Drive. Further pedestrian safety and convenience can be enhanced by putting marked crosswalks at certain midblock locations and future signalized intersections if the necessary pedestrian demand is observed. Midblock crosswalks and future signals can better serve pedestrian demand if the anticipated pedestrian activity due to the various land uses is not adequately served by the existing pedestrian crosswalks. A midblock crosswalk is currently proposed on Democracy Lane on the north side of the Courthouse Plaza Development, which would reduce pedestrian travel and crossing times for pedestrians anticipated from The Flats, the proposed Development, and the existing retail uses. Based on further engineering studies, appropriate crosswalk treatments would be recommended based on pedestrian demand and design constraints. Figure 15 shows the existing pedestrian facilities in the site study area.



**Figure 15: Existing Pedestrian Facilities**

## Existing Pedestrian Volumes

Figure 16 depicts the existing pedestrian peak hour volumes at the study intersections, based on counts included with the conducted vehicular counts collected at the study intersections during the peak periods (conducted on Thursday, March 30, 2023). For the purposes of this analysis, no inherent growth is assumed for pedestrian trips.

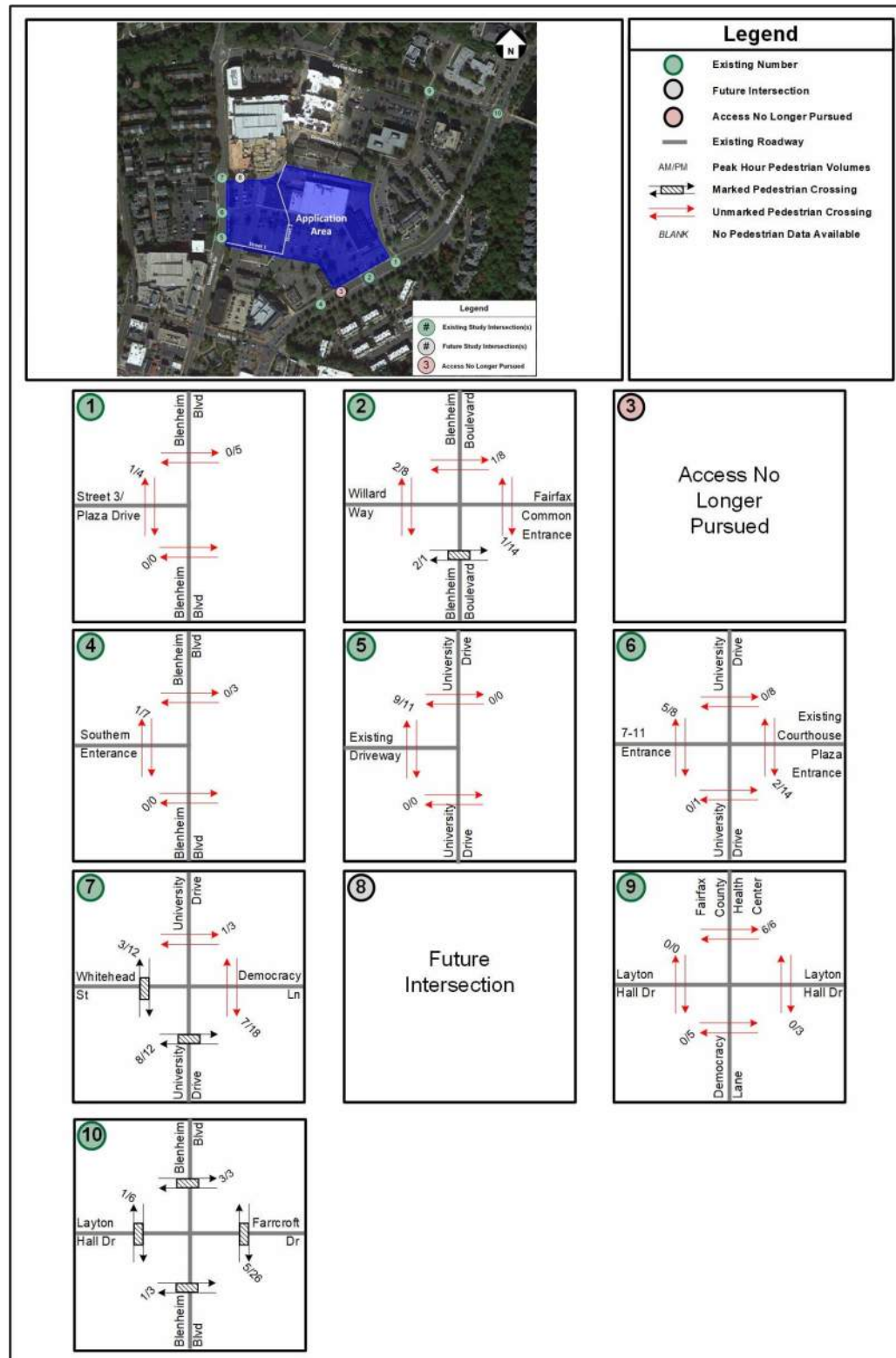


Figure 16: Peak Hour Pedestrian Volumes

### *Anticipated Pedestrian Activity*

The proposed project intends to provide an internal pedestrian network that serves the demand between the residential and retail uses and in addition, provide connectivity to the existing pedestrian infrastructure surrounding the site. Figure 17 shows the pedestrian paths from the site to selected surrounding land uses in the vicinity of the site.

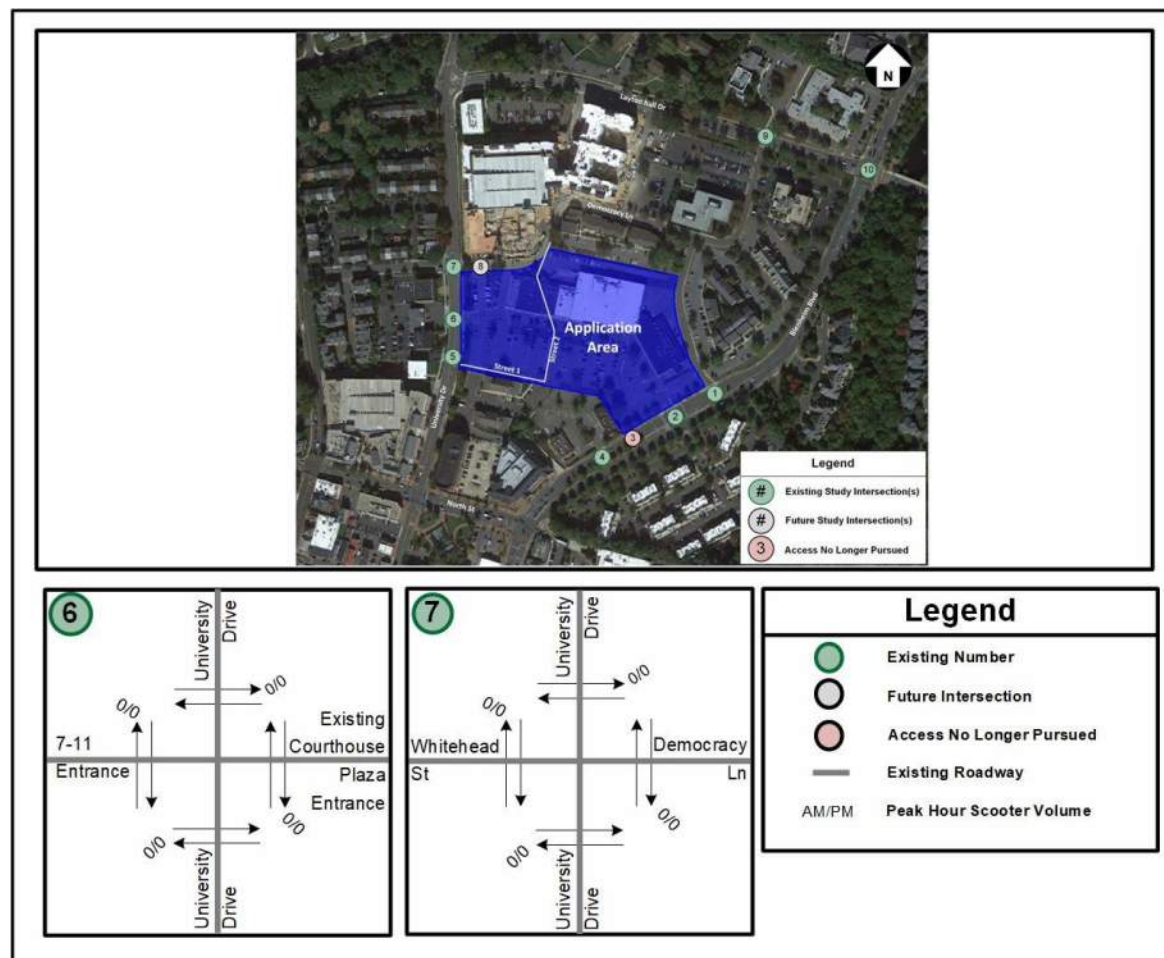


Figure 17: Pedestrian Paths to Selected Surrounding Land Uses

As mentioned previously, Street 1 and Street 2 intend to follow the City's urban framework of achieving a grid street hierarchy. Additional pedestrian accommodations are proposed such as a crosswalk on Democracy Lane and a potential crosswalk at the intersection between Street 1 and Street 2 to enhance safer pedestrian walkability in the vicinity of the Site. Additionally, the pedestrian path to Blenheim Boulevard is being completed by extending the sidewalk and adding a crosswalk east of the shopping center. The sidewalk on Blenheim Boulevard is also being widened to enhance the pedestrian connectivity to the north and south.

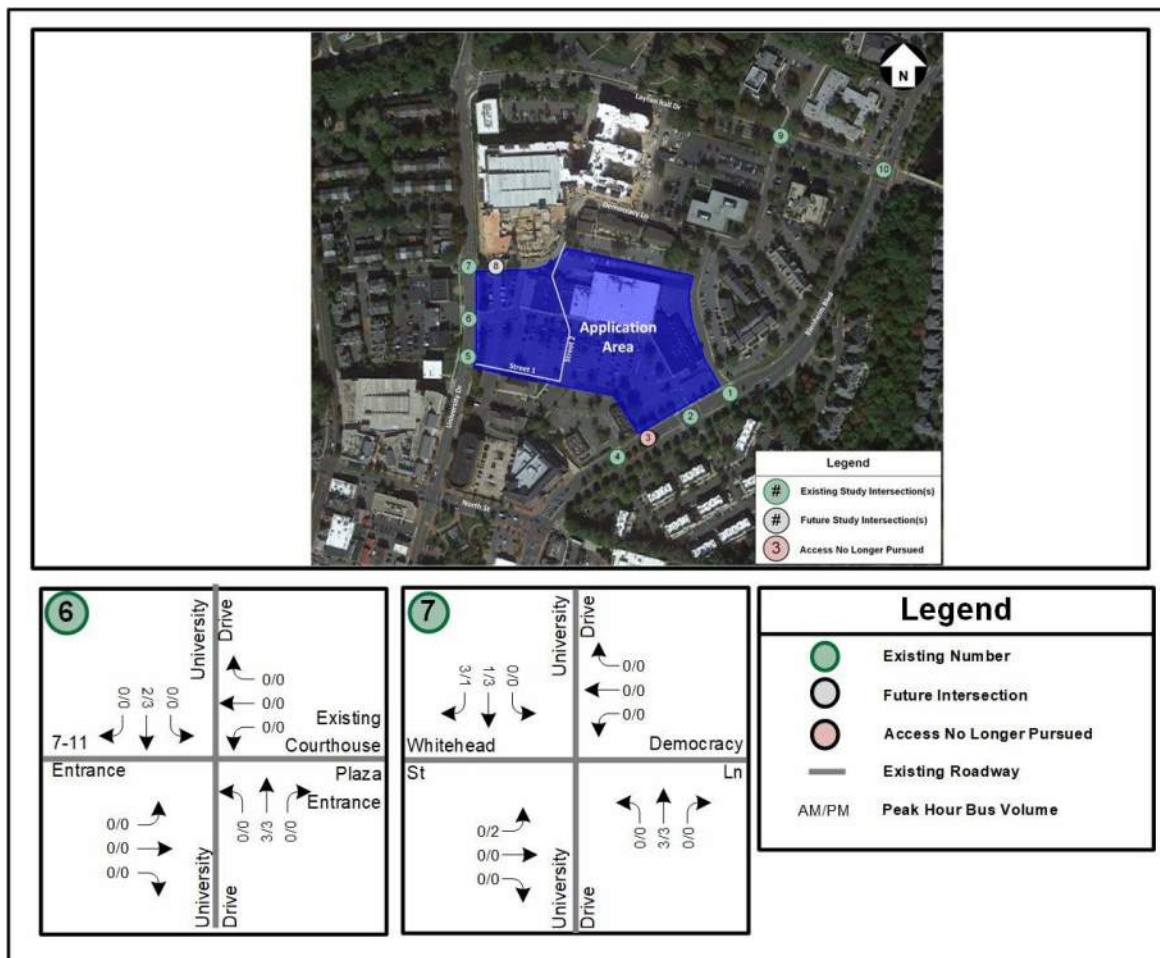
## Existing Scooter Volumes

In order to accommodate for any potential scooter volumes in the vicinity of the site and any crossing volumes across University Drive, the existing scooter volumes at University Drive were collected. Figure 18 shows the Existing Peak Hour Scooter Volumes. As shown, there were no scooters observed in the peak hours.



## Existing Bus Volumes

Existing Bus Volumes for the study area intersections along University Drive are shown in Figure 19.



**Figure 19: Existing Peak Hour Bus Volumes**

As observed, bus volumes along University Drive are minimal with three(3) to four(4) peak hour trips. These bus volumes are included in the heavy vehicle percentages in the analysis.

## Planned Future Transportation Improvements

### Roadway & Multimodal Improvements

As mentioned previously, the City of Fairfax Project ‘University Drive Spine’, which provides multimodal transportation improvements along University Drive, is included in all future (2028) analysis scenarios.

### Existing Roadway Network

A description of the major roadways within the study area is presented in Table 2. The existing local roadway network, including lane configurations and traffic controls, is illustrated on Figure 20.

**Table 2: Existing Road Network (Per published VDOT 2019 AADT Data)**

| Roadway          | RTE # | VDOT Classification      | Posted Speed Limit (mph) | AADT (vpd) | k-factor |
|------------------|-------|--------------------------|--------------------------|------------|----------|
| University Drive | 6627  | Major Collector          | 25                       | 11,000     | 8.8%     |
| North St         | 236   | Other Principal Arterial | 25                       | 20,000     | 9.0%     |
| Blenheim Blvd    | 6628  | Minor Arterial           | 30                       | 17,000     | 9.7%     |

### Historical Crash Data

Historical crash data was obtained from VDOT’s Crash Analysis Tool for the existing study intersections for a five-year period, from January 2018 to December 2022. The crash data from VDOT is provided in Appendix C.

The crash rate for the existing intersections were computed using the following formula:

$$\text{Crash Rate} = \frac{1,000,000 * \# \text{ of Crashes at an Intersection}}{365 * \# \text{ of Years} * \text{Intersection Approach ADT}}$$

The following section presents the crash analysis for all study intersections that had reported crashes during the five-year study period. Table 3 shows the summary of the crash analysis results. It is noted that there were no reported crashes at Study Intersection 5 (University Drive and Existing Driveway).

**Table 3: Crash Data Analysis Summary Table**

| Intersection                                                           | Estimated ADT | PDO | Injury | Fatality | Total | Crash Rate (Per MEV) |
|------------------------------------------------------------------------|---------------|-----|--------|----------|-------|----------------------|
| 2 Blenheim Blvd at Fairfax Commons Entrance                            | 13,395        | 1   | 1      | 0        | 2     | 0.08                 |
| 6 University Drive at Existing Courthouse Plaza Entrance/7-11 Entrance | 9,510         | 2   | 1      | 0        | 3     | 0.17                 |
| 7 University Drive at Democracy Ln/Whitehead St                        | 9,390         | 6   | 1      | 0        | 7     | 0.41                 |
| 9 Layton Hall Drive at Democracy Ln                                    | 4,450         | 3   | 0      | 0        | 3     | 0.37                 |
| 10 Blenheim Blvd at Layton Hall Dr                                     | 14,210        | 6   | 2      | 0        | 8     | 0.31                 |

It is noted that the ADT used for calculating the crash rates are based on existing collected PM peak hour volumes and the VDOT published k-factor or an assumed k-factor of 10%.

**Table 4: VDOT Crash Data for the Intersection of Blenheim Blvd and Fairfax Commons Entrance (Intersection 2)**

| Crash Data for the Intersection of Blenheim Blvd and Fairfax Commons Entrance (January 2018 - December 2022)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |          |      |          |      |             |                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|------|----------|------|-------------|------------------------|
| Intersection Crash Analysis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2018 | 2019     | 2020 | 2021     | 2022 | Total       | Relative Frequency     |
| <b>Crash Severity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |      |          |      |             |                        |
| Fatal Collision (Type K)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |          |      |          |      |             | 0.00%                  |
| Injury Collision (Type A, B, and C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      | 1        |      |          |      | 1           | 50.00%                 |
| Type A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |      |          |      |             |                        |
| Type B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      | 1        |      |          |      | 1           |                        |
| Type C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |          |      |          |      |             |                        |
| Property Damage Only (Type PDO)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      |          |      | 1        |      | 1           | 50.00%                 |
| <b>TOTAL*</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      | <b>1</b> |      | <b>1</b> |      | <b>2</b>    | <b>100.00%</b>         |
| <b>Crash Type</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |          |      |          |      |             |                        |
| Fixed Object/ Single-Vehicle Crash                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |      |          |      |             | 0.00%                  |
| Head-On                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |          |      |          |      |             | 0.00%                  |
| Sideswipe / Same Direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |      |          |      |             | 0.00%                  |
| Sideswipe / Opposite Direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |          |      |          |      |             | 0.00%                  |
| Rear-End Collision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |      |          |      |             | 0.00%                  |
| Angle Collision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |      | 1        |      | 1        |      | 2           | 100.00%                |
| Backed Into                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |      |          |      |             | 0.00%                  |
| Pedestrian Collision                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |      |          |      |             | 0.00%                  |
| Deer/Animal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |      |          |      |             | 0.00%                  |
| Other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |          |      |          |      |             | 0.00%                  |
| <b>TOTAL*</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      | <b>1</b> |      | <b>1</b> |      | <b>2</b>    | <b>100.00%</b>         |
| <b>Other Factors</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |      |          |      |             |                        |
| Distracted Driver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |          |      |          |      |             | 0.00%                  |
| Alcohol**                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |      |          |      |             | 0.00%                  |
| Work-Zone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |          |      |          |      |             | 0.00%                  |
| Inclement Weather (Non-Dry)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |      | 1        |      | 1           | 50.00%                 |
| Speeding                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      | 1        |      |          |      | 1           | 50.00%                 |
| Pedestrian Injury***                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |          |      |          |      |             | N/A                    |
| Time of Day                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |          |      |          |      |             |                        |
| AM Peak Period (6 - 10 AM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |      |          |      |          |      |             | 0.00%                  |
| Off Peak - Daytime (10 AM - 3 PM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |          |      |          |      |             | 0.00%                  |
| PM Peak Period (3 - 7 PM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      | 1        |      | 1        |      | 2           | 100.00%                |
| Off Peak - Nighttime (7 PM - 6 AM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |          |      |          |      |             | 0.00%                  |
| <b>CALCULATED CRASH RATE****</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |          |      |          |      | <b>0.08</b> | <b>Crashes per MEV</b> |
| <p>* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.</p> <p>** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.</p> <p>*** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").</p> <p>****Crash rate based on an approximated 13395 ADT.</p> |      |          |      |          |      |             |                        |

**\*Estimated ADT = (12,200+11,250+2,290+1,050) /2 = 13,395**

The intersection of Blenheim Blvd and Fairfax Commons Entrance experienced a total of 2 crashes during the five-year study period, as depicted in the table above. There was one "Injury Collision (IC) and one PDO crash "Property Damage Only (PDO)". Of those 2 crashes both were angle collisions. Of the 2 crashes, one crash occurred during inclement weather (non-dry conditions), and one caused by speeding. Both the accidents occurred during the PM Peak Period. The intersection had a crash rate of 0.08 MEV (million entering vehicles), and hence does not exhibit an elevated crash rate.

**Table 5: VDOT Crash Data for the Intersection of University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance (Intersection 6)**

| Crash Data for the Intersection of University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance (January 2018 - December 2022)                                                                                                          |      |      |      |      |      |       |                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|-------|--------------------|
| Intersection Crash Analysis                                                                                                                                                                                                                      | 2018 | 2019 | 2020 | 2021 | 2022 | Total | Relative Frequency |
| <u>Crash Severity</u>                                                                                                                                                                                                                            |      |      |      |      |      |       |                    |
| Fatal Collision (Type K)                                                                                                                                                                                                                         |      |      |      |      |      |       | 0.00%              |
| Injury Collision (Type A, B, and C)                                                                                                                                                                                                              |      |      | 1    |      |      | 1     | 33.33%             |
| Type A                                                                                                                                                                                                                                           |      |      |      |      |      |       |                    |
| Type B                                                                                                                                                                                                                                           |      |      | 1    |      |      | 1     |                    |
| Type C                                                                                                                                                                                                                                           |      |      |      |      |      |       |                    |
| Property Damage Only (Type PDO)                                                                                                                                                                                                                  | 1    |      | 1    |      |      | 2     | 66.67%             |
| TOTAL*                                                                                                                                                                                                                                           | 1    |      | 2    |      |      | 3     | 100.00%            |
| <u>Crash Type</u>                                                                                                                                                                                                                                |      |      |      |      |      |       |                    |
| Fixed Object/ Single-Vehicle Crash                                                                                                                                                                                                               |      |      |      |      |      |       | 0.00%              |
| Head-On                                                                                                                                                                                                                                          |      |      |      |      |      |       | 0.00%              |
| Sideswipe / Same Direction                                                                                                                                                                                                                       |      |      |      |      |      |       | 0.00%              |
| Sideswipe / Opposite Direction                                                                                                                                                                                                                   |      |      |      |      |      |       | 0.00%              |
| Rear-End Collision                                                                                                                                                                                                                               |      |      |      |      |      |       | 0.00%              |
| Angle Collision                                                                                                                                                                                                                                  | 1    |      | 2    |      |      | 3     | 100.00%            |
| Backed Into                                                                                                                                                                                                                                      |      |      |      |      |      |       | 0.00%              |
| Pedestrian Collision                                                                                                                                                                                                                             |      |      |      |      |      |       | 0.00%              |
| Deer/Animal                                                                                                                                                                                                                                      |      |      |      |      |      |       | 0.00%              |
| Other                                                                                                                                                                                                                                            |      |      |      |      |      |       | 0.00%              |
| TOTAL*                                                                                                                                                                                                                                           | 1    |      | 2    |      |      | 3     | 100.00%            |
| <u>Other Factors</u>                                                                                                                                                                                                                             |      |      |      |      |      |       |                    |
| Distracted Driver                                                                                                                                                                                                                                |      |      |      |      |      |       | 0.00%              |
| Alcohol**                                                                                                                                                                                                                                        |      |      |      |      |      |       | 0.00%              |
| Work-Zone                                                                                                                                                                                                                                        |      |      |      |      |      |       | 0.00%              |
| Inclement Weather (Non-Dry)                                                                                                                                                                                                                      |      |      | 1    |      |      | 1     | 33.33%             |
| Speeding                                                                                                                                                                                                                                         |      |      |      |      |      |       | 0.00%              |
| Pedestrian Injury***                                                                                                                                                                                                                             |      |      |      |      |      |       | N/A                |
| Time of Day                                                                                                                                                                                                                                      |      |      |      |      |      |       |                    |
| AM Peak Period (6 - 10 AM)                                                                                                                                                                                                                       |      |      |      |      |      |       | 0.00%              |
| Off Peak - Daytime (10 AM - 3 PM)                                                                                                                                                                                                                |      |      | 1    |      |      | 1     | 33.33%             |
| PM Peak Period (3 - 7 PM)                                                                                                                                                                                                                        | 1    |      | 1    |      |      | 2     | 66.67%             |
| Off Peak - Nighttime (7 PM - 6 AM)                                                                                                                                                                                                               |      |      |      |      |      |       | 0.00%              |
| CALCULATED CRASH RATE****                                                                                                                                                                                                                        |      |      |      |      |      | 0.17  | Crashes per MEV    |
| * It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.               |      |      |      |      |      |       |                    |
| ** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.                                                       |      |      |      |      |      |       |                    |
| *** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1"). |      |      |      |      |      |       |                    |
| ****Crash rate based on an approximated 9510 ADT.                                                                                                                                                                                                |      |      |      |      |      |       |                    |

\*Estimated ADT = (7,910 + 8,420 + 790+ 1,900) / 2 = 9,510

The intersection of University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance experienced a total of 3 crashes during the five-year study period, as depicted in the table above. There was one "Injury Collision (IC) and two PDO crashes "Property Damage Only (PDO)". All three crashes involved angled collisions. Of the 3 crashes, one crash occurred during inclement weather (non-dry conditions). Two out of the three crashes occurred during the PM peak period and one during Off Peak Daytime. The intersection had a crash rate of 0.17 MEV (million entering vehicles), and hence does not exhibit an elevated crash rate.

**Table 6: VDOT Crash Data for the Intersection of University Drive and Democracy Lane/Whitehead Street (Intersection 7)**

| Crash Data for the Intersection of University Drive and Democracy Ln/Whitehead St (January 2018 - December 2022) |          |          |          |          |          |             |                        |
|------------------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|----------|-------------|------------------------|
| Intersection Crash Analysis                                                                                      | 2018     | 2019     | 2020     | 2021     | 2022     | Total       | Relative Frequency     |
| <b>Crash Severity</b>                                                                                            |          |          |          |          |          |             |                        |
| Fatal Collision (Type K)                                                                                         |          |          |          |          |          |             | 0.00%                  |
| Injury Collision (Type A, B, and C)                                                                              |          |          |          |          | 1        | 1           | 14.29%                 |
| Type A                                                                                                           |          |          |          |          |          |             |                        |
| Type B                                                                                                           |          |          |          |          | 1        | 1           |                        |
| Type C                                                                                                           |          |          |          |          |          |             |                        |
| Property Damage Only (Type PDO)                                                                                  | 1        | 3        | 1        | 1        |          | 6           | 85.71%                 |
| <b>TOTAL*</b>                                                                                                    | <b>1</b> | <b>3</b> | <b>1</b> | <b>1</b> | <b>1</b> | <b>7</b>    | <b>100.00%</b>         |
| <b>Crash Type</b>                                                                                                |          |          |          |          |          |             |                        |
| Fixed Object/ Single-Vehicle Crash                                                                               | 1        |          |          |          |          | 1           | 14.29%                 |
| Head-On                                                                                                          |          |          |          |          |          |             | 0.00%                  |
| Sideswipe / Same Direction                                                                                       |          | 1        |          |          |          | 1           | 14.29%                 |
| Sideswipe / Opposite Direction                                                                                   |          |          |          |          |          |             | 0.00%                  |
| Rear-End Collision                                                                                               |          |          | 1        |          |          | 1           | 14.29%                 |
| Angle Collision                                                                                                  |          | 2        |          | 1        | 1        | 4           | 57.14%                 |
| Backed Into                                                                                                      |          |          |          |          |          |             | 0.00%                  |
| Pedestrian Collision                                                                                             |          |          |          |          |          |             | 0.00%                  |
| Deer/Animal                                                                                                      |          |          |          |          |          |             | 0.00%                  |
| Other                                                                                                            |          |          |          |          |          |             | 0.00%                  |
| <b>TOTAL*</b>                                                                                                    | <b>1</b> | <b>3</b> | <b>1</b> | <b>1</b> | <b>1</b> | <b>7</b>    | <b>100.00%</b>         |
| <b>Other Factors</b>                                                                                             |          |          |          |          |          |             |                        |
| Distracted Driver                                                                                                |          |          |          |          |          |             | 0.00%                  |
| Alcohol**                                                                                                        |          |          |          |          |          |             | 0.00%                  |
| Work-Zone                                                                                                        |          |          |          |          |          |             | 0.00%                  |
| Inclement Weather (Non-Dry)                                                                                      | 1        |          |          |          | 1        | 2           | 28.57%                 |
| Speeding                                                                                                         |          |          |          |          |          |             | 0.00%                  |
| Pedestrian Injury***                                                                                             |          |          |          |          |          |             | N/A                    |
| <b>Time of Day</b>                                                                                               |          |          |          |          |          |             |                        |
| AM Peak Period (6 - 10 AM)                                                                                       | 1        |          |          |          |          | 1           | 14.29%                 |
| Off Peak - Daytime (10 AM - 3 PM)                                                                                |          | 1        |          |          |          | 1           | 14.29%                 |
| PM Peak Period (3 - 7 PM)                                                                                        |          | 2        | 1        |          | 1        | 4           | 57.14%                 |
| Off Peak - Nighttime (7 PM - 6 AM)                                                                               |          |          |          | 1        |          | 1           | 14.29%                 |
| <b>CALCULATED CRASH RATE****</b>                                                                                 |          |          |          |          |          | <b>0.41</b> | <b>Crashes per MEV</b> |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

\*\*\*\*Crash rate based on an approximated 9390 ADT.

\*Estimated ADT = (6,850+7,830+2,320+1,790) / 2 = 9,395

The intersection of University Drive and Democracy Ln/Whitehead St experienced a total of 7 crashes during the five-year study period, as depicted in the table above. There was one "Injury Collision (IC) and 6 PDO crashes "Property Damage Only (PDO)". Furthermore, 57.14% were angle collisions,14.29% rear-end collisions and 14.29% were caused by a fixed object or single vehicle crash. Inclement weather was a factor for two of the crashes. Four out of the seven crashes occurred during the PM Peak Period, one crash occurred during the AM Peak Period, and two crashes occurred during the Off-Peak Period: one during the daytime and the other during nighttime. The intersection had a crash rate of 0.41 MEV (million entering vehicles), and hence does not exhibit an elevated crash rate.

**Table 7: VDOT Crash Data for the Intersection of Layton Hall Drive and Democracy Lane (Intersection 9)**

| Crash Data for the Intersection of Layton Hall Drive and Democracy Ln (January 2018 - December 2022) |          |      |      |      |          |             |                        |
|------------------------------------------------------------------------------------------------------|----------|------|------|------|----------|-------------|------------------------|
| Intersection Crash Analysis                                                                          | 2018     | 2019 | 2020 | 2021 | 2022     | Total       | Relative Frequency     |
| <b><u>Crash Severity</u></b>                                                                         |          |      |      |      |          |             |                        |
| Fatal Collision (Type K)                                                                             |          |      |      |      |          |             | 0.00%                  |
| Injury Collision (Type A, B, and C)                                                                  |          |      |      |      |          |             | 0.00%                  |
| Type A                                                                                               |          |      |      |      |          |             |                        |
| Type B                                                                                               |          |      |      |      |          |             |                        |
| Type C                                                                                               |          |      |      |      |          |             |                        |
| Property Damage Only (Type PDO)                                                                      | 2        |      |      |      | 1        | 3           | 100.00%                |
| <b>TOTAL*</b>                                                                                        | <b>2</b> |      |      |      | <b>1</b> | <b>3</b>    | <b>100.00%</b>         |
| <b><u>Crash Type</u></b>                                                                             |          |      |      |      |          |             |                        |
| Fixed Object/ Single-Vehicle Crash                                                                   |          |      |      |      |          |             | 0.00%                  |
| Head-On                                                                                              |          |      |      |      |          |             | 0.00%                  |
| Sideswipe / Same Direction                                                                           |          |      |      |      |          |             | 0.00%                  |
| Sideswipe / Opposite Direction                                                                       |          |      |      |      |          |             | 0.00%                  |
| Rear-End Collision                                                                                   |          |      |      |      | 1        | 1           | 33.33%                 |
| Angle Collision                                                                                      | 1        |      |      |      |          | 1           | 33.33%                 |
| Backed Into                                                                                          |          |      |      |      |          |             | 0.00%                  |
| Pedestrian Collision                                                                                 |          |      |      |      |          |             | 0.00%                  |
| Deer/Animal                                                                                          |          |      |      |      |          |             | 0.00%                  |
| Other                                                                                                | 1        |      |      |      |          | 1           | 33.33%                 |
| <b>TOTAL*</b>                                                                                        | <b>2</b> |      |      |      | <b>1</b> | <b>3</b>    | <b>100.00%</b>         |
| <b><u>Other Factors</u></b>                                                                          |          |      |      |      |          |             |                        |
| Distracted Driver                                                                                    |          |      |      |      |          |             | 0.00%                  |
| Alcohol**                                                                                            |          |      |      |      |          |             | 0.00%                  |
| Work-Zone                                                                                            |          |      |      |      |          |             | 0.00%                  |
| Inclement Weather (Non-Dry)                                                                          |          |      |      |      |          |             | 0.00%                  |
| Speeding                                                                                             |          |      |      |      |          |             | 0.00%                  |
| Pedestrian Injury***                                                                                 |          |      |      |      |          |             | N/A                    |
| Time of Day                                                                                          |          |      |      |      |          |             |                        |
| AM Peak Period (6 - 10 AM)                                                                           | 1        |      |      |      |          | 1           | 33.33%                 |
| Off Peak - Daytime (10 AM - 3 PM)                                                                    |          |      |      |      |          |             | 0.00%                  |
| PM Peak Period (3 - 7 PM)                                                                            |          |      |      |      | 1        | 1           | 33.33%                 |
| Off Peak - Nighttime (7 PM - 6 AM)                                                                   | 1        |      |      |      |          | 1           | 33.33%                 |
| <b>CALCULATED CRASH RATE****</b>                                                                     |          |      |      |      |          | <b>0.37</b> | <b>Crashes per MEV</b> |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

\*\*\*\*Crash rate based on an approximated 4450 ADT.

\*Estimated ADT =  $(170+650+4,010+4,070) / 2 = 4,450$

The intersection of Layton Hall Drive and Democracy Ln experienced a total of 3 crashes during the five-year study period, as depicted in the table above. All three crashes were classified as Property Damage Only (PDO) crashes. Among these crashes, one involved an angle collision, and one involved a rear-end collision. The intersection had a crash rate of 0.37 MEV (million entering vehicles), indicating that it does not exhibit an elevated crash rate.

**Table 8: VDOT Crash Data for the Intersection of Blenheim Blvd and Layton Hall Drive (Intersection 10)**

| Crash Data for the Intersection of Blenheim Blvd and Layton Hall Dr (January 2018 - December 2022)                                                                                                                                               |          |          |      |          |      |  |             |                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|------|----------|------|--|-------------|------------------------|
| Intersection Crash Analysis                                                                                                                                                                                                                      | 2018     | 2019     | 2020 | 2021     | 2022 |  | Total       | Relative Frequency     |
| <b><u>Crash Severity</u></b>                                                                                                                                                                                                                     |          |          |      |          |      |  |             |                        |
| Fatal Collision (Type K)                                                                                                                                                                                                                         |          |          |      |          |      |  |             | 0.00%                  |
| Injury Collision (Type A, B, and C)                                                                                                                                                                                                              | 1        | 1        |      |          |      |  | 2           | 25.00%                 |
| Type A                                                                                                                                                                                                                                           |          | 1        |      |          |      |  | 1           |                        |
| Type B                                                                                                                                                                                                                                           | 1        |          |      |          |      |  | 1           |                        |
| Type C                                                                                                                                                                                                                                           |          |          |      |          |      |  |             |                        |
| Property Damage Only (Type PDO)                                                                                                                                                                                                                  | 1        | 3        |      | 2        |      |  | 6           | 75.00%                 |
| <b>TOTAL*</b>                                                                                                                                                                                                                                    | <b>2</b> | <b>4</b> |      | <b>2</b> |      |  | <b>8</b>    | <b>100.00%</b>         |
| <b><u>Crash Type</u></b>                                                                                                                                                                                                                         |          |          |      |          |      |  |             |                        |
| Fixed Object/ Single-Vehicle Crash                                                                                                                                                                                                               |          |          |      |          |      |  |             | 0.00%                  |
| Head-On                                                                                                                                                                                                                                          |          |          |      |          |      |  |             | 0.00%                  |
| Sideswipe / Same Direction                                                                                                                                                                                                                       | 1        |          |      |          |      |  | 1           | 12.50%                 |
| Sideswipe / Opposite Direction                                                                                                                                                                                                                   |          |          |      |          |      |  |             | 0.00%                  |
| Rear-End Collision                                                                                                                                                                                                                               | 1        | 2        |      | 2        |      |  | 5           | 62.50%                 |
| Angle Collision                                                                                                                                                                                                                                  |          | 2        |      |          |      |  | 2           | 25.00%                 |
| Backed Into                                                                                                                                                                                                                                      |          |          |      |          |      |  |             | 0.00%                  |
| Pedestrian Collision                                                                                                                                                                                                                             |          |          |      |          |      |  |             | 0.00%                  |
| Deer/Animal                                                                                                                                                                                                                                      |          |          |      |          |      |  |             | 0.00%                  |
| Other                                                                                                                                                                                                                                            |          |          |      |          |      |  |             | 0.00%                  |
| <b>TOTAL*</b>                                                                                                                                                                                                                                    | <b>2</b> | <b>4</b> |      | <b>2</b> |      |  | <b>8</b>    | <b>100.00%</b>         |
| <b><u>Other Factors</u></b>                                                                                                                                                                                                                      |          |          |      |          |      |  |             |                        |
| Distracted Driver                                                                                                                                                                                                                                |          |          |      |          |      |  |             | 0.00%                  |
| Alcohol**                                                                                                                                                                                                                                        |          |          |      |          |      |  |             | 0.00%                  |
| Work-Zone                                                                                                                                                                                                                                        |          |          |      |          |      |  |             | 0.00%                  |
| Inclement Weather (Non-Dry)                                                                                                                                                                                                                      |          | 1        |      | 1        |      |  | 2           | 25.00%                 |
| Speeding                                                                                                                                                                                                                                         |          |          |      |          |      |  |             | 0.00%                  |
| Pedestrian Injury***                                                                                                                                                                                                                             |          |          |      |          |      |  |             | N/A                    |
| Time of Day                                                                                                                                                                                                                                      |          |          |      |          |      |  |             |                        |
| AM Peak Period (6 - 10 AM)                                                                                                                                                                                                                       | 1        |          |      | 2        |      |  | 3           | 37.50%                 |
| Off Peak - Daytime (10 AM - 3 PM)                                                                                                                                                                                                                | 1        | 2        |      |          |      |  | 3           | 37.50%                 |
| PM Peak Period (3 - 7 PM)                                                                                                                                                                                                                        |          | 2        |      |          |      |  | 2           | 25.00%                 |
| Off Peak - Nighttime (7 PM - 6 AM)                                                                                                                                                                                                               |          |          |      |          |      |  |             | 0.00%                  |
| <b>CALCULATED CRASH RATE****</b>                                                                                                                                                                                                                 |          |          |      |          |      |  | <b>0.31</b> | <b>Crashes per MEV</b> |
| * It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.               |          |          |      |          |      |  |             |                        |
| ** Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.                                                       |          |          |      |          |      |  |             |                        |
| *** Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1"). |          |          |      |          |      |  |             |                        |
| ****Crash rate based on an approximated 14210 ADT.                                                                                                                                                                                               |          |          |      |          |      |  |             |                        |

\*Estimated ADT = (12,630 + 10,740 + 940 + 4,110) / 2 = 14,210

The intersection of Blenheim Blvd and Layton Hall Dr experienced a total of 8 crashes during the five-year study period, as depicted in the table above. There were two "Injury Collision (IC)" and six PDO crashes "Property Damage Only (PDO)". Furthermore, 62.50% were rear-end collisions and 25% angle collisions. The other crash was categorized as a sideswipe: one in the same direction. Inclement weather was a factor for two of the crashes. Three crashes occurred during the AM Peak Period, two crashes occurred during the PM Peak Period, and three crashes occurred during the Off-Peak Daytime. The intersection had a crash rate of 0.31 MEV (million entering vehicles), and hence does not exhibit an elevated crash rate.

## Intersection Analysis of Existing Conditions (2023)

The lane configuration observed at the existing study intersections within the study area is presented in Figure 20.

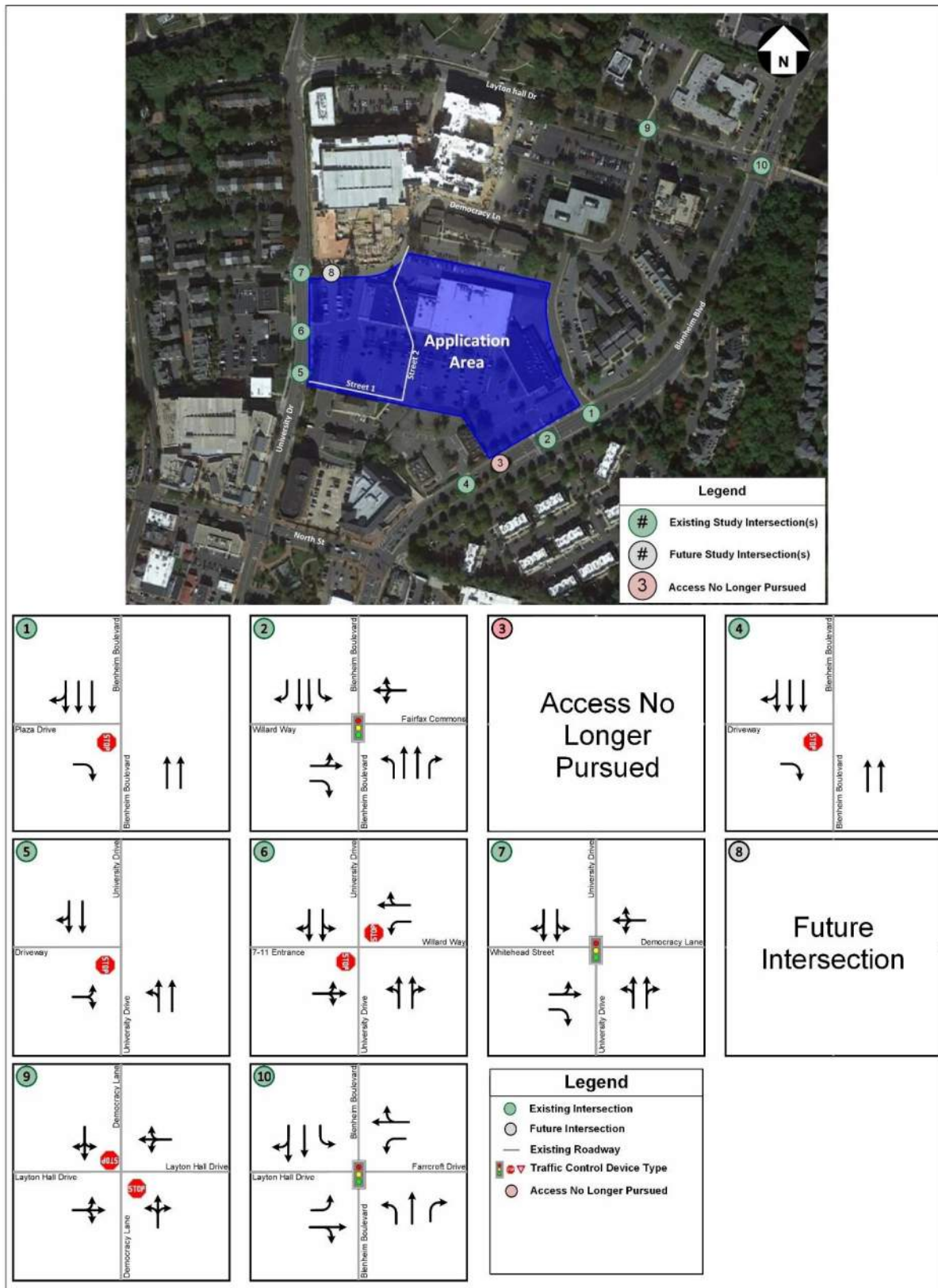


Figure 20: Existing 2023 – Lane Configuration

## Existing Traffic Volumes

Turning movement counts were collected at the study area intersections on Thursday, March 30, 2023. The peak hours for the system were determined to be 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM.

The existing peak hour traffic volumes for the study area intersections are presented on Figure 21. The existing raw turning movement counts are included in Appendix D.

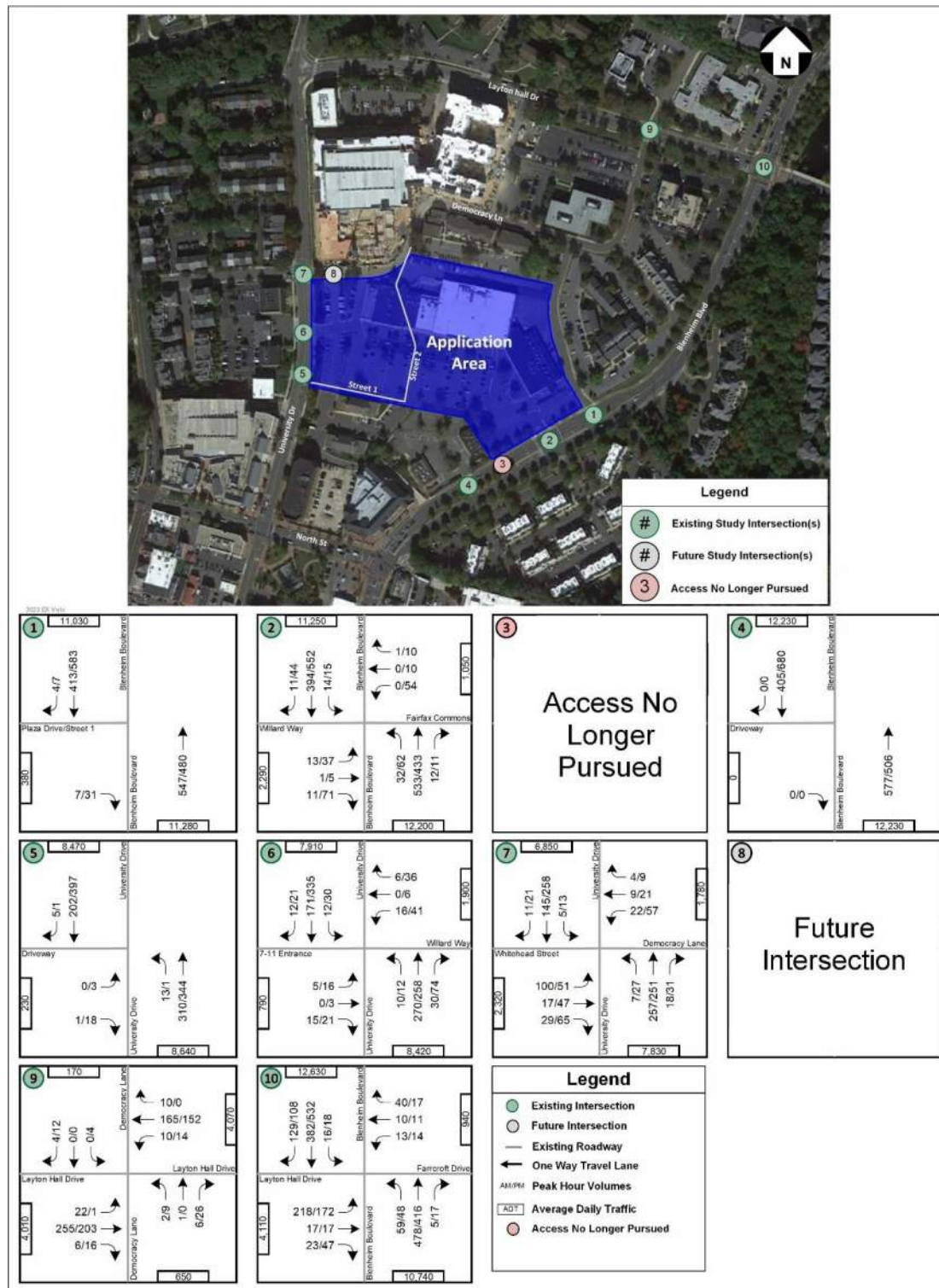


Figure 21: Existing 2023 - Traffic Volumes

## Existing (2023) Intersection Capacity and Queuing Analysis

Capacity analysis was performed at the intersections within the study area during the weekday morning and evening peak hours under existing conditions. *Synchro Version 11* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition methodology and includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.

Synchro files with existing signal timings were provided by City staff and used as a base for the existing analysis. Existing peak hour factors found in the field were used, except where the field peak hour factor was lower than 0.85 in which case a minimum value of 0.85 was used, consistent with VDOT analysis guidelines. Heavy vehicle percentages determined by existing traffic counts were used for analysis. Pedestrian volumes were also collected during the intersection traffic counts and included in the analysis.

The results of the existing intersection analysis are presented in Table 9, and are expressed in LOS and delay (seconds per vehicle) per lane group. The 95<sup>th</sup> percentile queue results for each intersection are also presented in Table 9 and are expressed in feet, along with 50<sup>th</sup> percentile queues shown for signalized intersections. The detailed analysis worksheets are included in Appendix F.

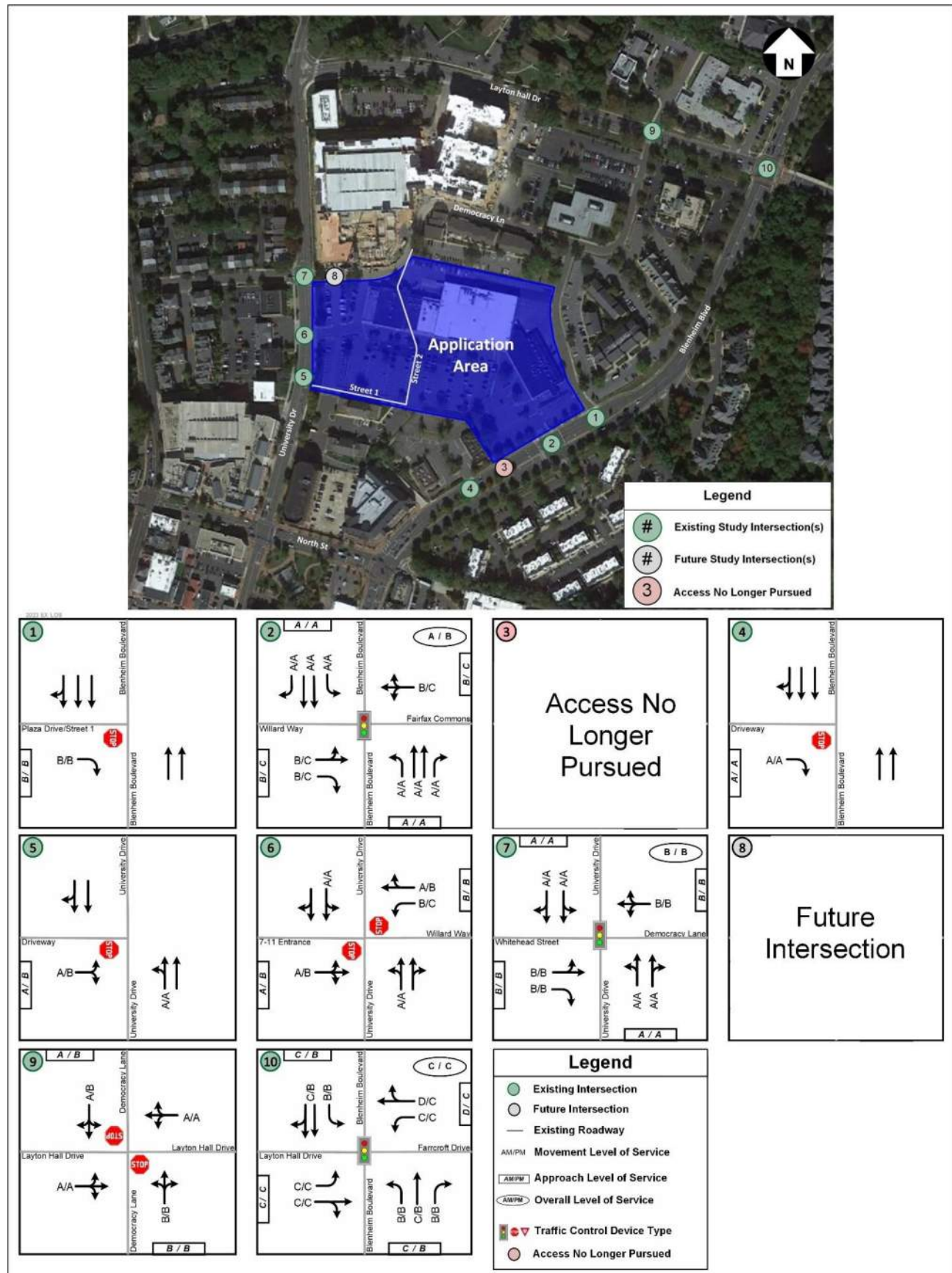
**Table 9: Existing 2023 – Intersection Capacity and Queuing Analysis**

| No. | Intersection (Movement)                                                                | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |              |
|-----|----------------------------------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------|
|     |                                                                                        |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue |
| 1   | Blenheim Boulevard (N/S) at Plaza Drive (E/W)<br>Overall Intersection (TWSC)           |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>10.9</b>     |                           |                    | <b>B</b>     | <b>11.7</b>     |                           |              |
|     | Eastbound Right                                                                        |                                       | B            | 10.9            |                           | 0                  | B            | 11.7            |                           | 5            |
| 2   | Blenheim Boulevard (N/S) at Fairfax Commons (E/W)<br>Overall Intersection (Signalized) |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>8.8</b>      |                           |                    | <b>B</b>     | <b>11.2</b>     |                           |              |
|     | Eastbound Thru/Left                                                                    |                                       | <b>B</b>     | <b>18.3</b>     |                           |                    | <b>C</b>     | <b>26.1</b>     |                           |              |
|     | Eastbound Right                                                                        |                                       | B            | 17.9            | 1                         | 17                 | C            | 24.9            | 17                        | 45           |
|     | Eastbound Right                                                                        |                                       | B            | 18.7            | 0                         | 0                  | C            | 26.8            | 0                         | 18           |
|     | Westbound Approach                                                                     |                                       | <b>B</b>     | <b>17.7</b>     |                           |                    | <b>C</b>     | <b>26.5</b>     |                           |              |
|     | Westbound Left/Thru/Right                                                              |                                       | B            | 17.7            | 0                         | 0                  | C            | 26.5            | 27                        | 66           |
|     | Northbound Approach                                                                    |                                       | <b>A</b>     | <b>8.4</b>      |                           |                    | <b>A</b>     | <b>7.6</b>      |                           |              |
|     | Northbound Left                                                                        | 120                                   | A            | 6.8             | 0                         | 11                 | A            | 6.8             | 8                         | 22           |
|     | Northbound Thru                                                                        |                                       | A            | 8.6             | 0                         | 108                | A            | 7.7             | 32                        | 94           |
|     | Northbound Right                                                                       |                                       | A            | 6.9             | 0                         | 0                  | A            | 6.7             | 0                         | 0            |
|     | Southbound Approach                                                                    |                                       | <b>A</b>     | <b>8.6</b>      |                           |                    | <b>A</b>     | <b>9.6</b>      |                           |              |
|     | Southbound Left                                                                        | 120                                   | A            | 7.2             | 1                         | 6                  | A            | 7.2             | 2                         | 8            |
|     | Southbound Thru                                                                        |                                       | A            | 8.7             | 0                         | 83                 | A            | 9.8             | 80                        | 132          |
|     | Southbound Right                                                                       |                                       | A            | 7.5             | 0                         | 0                  | A            | 8.1             | 0                         | 0            |
| 3   | Access No Longer Pursued                                                               |                                       |              |                 |                           |                    |              |                 |                           |              |
| 4   | Blenheim Boulevard (N/S) at Existing Driveway (E/W)<br>Overall Intersection (TWSC)     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>0.0</b>      |                           |                    | <b>A</b>     | <b>0.0</b>      |                           |              |
|     | Eastbound Right                                                                        |                                       | A            | 0.0             |                           | 0                  | A            | 0.0             |                           | 0            |
| 5   | University Drive (N/S) at Existing Driveway (E/W)<br>Overall Intersection (TWSC)       |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>8.9</b>      |                           |                    | <b>B</b>     | <b>10.3</b>     |                           |              |
|     | Eastbound Left/Right                                                                   |                                       | A            | 8.9             |                           | 0                  | B            | 10.3            |                           | 3            |
|     | Northbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Northbound Left                                                                        |                                       | A            | 7.7             |                           | 0                  | A            | 8.2             |                           | 0            |

| No.                                                                                                                                                                                                                        | Intersection (Movement)                                        | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------------|
|                                                                                                                                                                                                                            |                                                                |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) |
| 6                                                                                                                                                                                                                          | University Drive (N/S) at 7-11 Driveway (EW)                   |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Overall Intersection (TWSC)                                    |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Approach                                             |                                       | A            | 9.9             |                           |                    | B            | 13.2            |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Left/Thru/Right                                      |                                       | A            | 9.9             |                           | 3                  | B            | 13.2            |                           | 8                  |
|                                                                                                                                                                                                                            | Westbound Approach                                             |                                       | B            | 12.4            |                           |                    | B            | 13.6            |                           |                    |
|                                                                                                                                                                                                                            | Westbound Left                                                 |                                       | B            | 13.5            |                           | 3                  | C            | 16.4            |                           | 10                 |
|                                                                                                                                                                                                                            | Westbound Thru/Right                                           |                                       | A            | 9.3             |                           | 0                  | B            | 10.8            |                           | 5                  |
|                                                                                                                                                                                                                            | Northbound Approach                                            |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Northbound Thru/Left                                           |                                       | A            | 7.8             |                           | 0                  | A            | 8.1             |                           | 0                  |
|                                                                                                                                                                                                                            | Southbound Approach                                            |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Southbound Thru/Left                                           |                                       | A            | 8.0             |                           | 0                  | A            | 8.1             |                           | 3                  |
| 7                                                                                                                                                                                                                          | University Drive (N/S) at Whitehead Street/Democracy Lane (EW) |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Overall Intersection (Signalized)                              |                                       | B            | 10.4            |                           |                    | B            | 10.3            |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Approach                                             |                                       | B            | 13.5            |                           |                    | B            | 12.8            |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Left/Thru                                            |                                       | B            | 14.0            | 15                        | 91                 | B            | 13.5            | 11                        | 79                 |
|                                                                                                                                                                                                                            | Eastbound Right                                                |                                       | B            | 11.3            | 0                         | 9                  | B            | 11.7            | 0                         | 28                 |
|                                                                                                                                                                                                                            | Westbound Approach                                             |                                       | B            | 11.8            |                           |                    | B            | 13.4            |                           |                    |
|                                                                                                                                                                                                                            | Westbound Left/Thru/Right                                      |                                       | B            | 11.8            | 4                         | 33                 | B            | 13.4            | 10                        | 70                 |
|                                                                                                                                                                                                                            | Northbound Approach                                            |                                       | A            | 9.5             |                           |                    | A            | 9.2             |                           |                    |
|                                                                                                                                                                                                                            | Northbound Thru/Left                                           |                                       | A            | 9.5             | 17                        | 89                 | A            | 9.2             | 17                        | 92                 |
|                                                                                                                                                                                                                            | Northbound Thru/Right                                          |                                       | A            | 9.5             | 17                        | 89                 | A            | 9.2             | 17                        | 92                 |
|                                                                                                                                                                                                                            | Southbound Approach                                            |                                       | A            | 9.1             |                           |                    | A            | 9.1             |                           |                    |
|                                                                                                                                                                                                                            | Southbound Thru/Left                                           |                                       | A            | 9.1             | 9                         | 55                 | A            | 9.1             | 16                        | 87                 |
|                                                                                                                                                                                                                            | Southbound Thru/Right                                          |                                       | A            | 9.1             | 9                         | 55                 | A            | 9.1             | 16                        | 87                 |
|                                                                                                                                                                                                                            | Future Intersection                                            |                                       |              |                 |                           |                    |              |                 |                           |                    |
| 9                                                                                                                                                                                                                          | Layton Hall Drive (EW) at Democracy Lane (N/S)                 |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Overall Intersection (TWSC)                                    |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Approach                                             |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Left                                                 |                                       | A            | 7.7             |                           | 3                  | A            | 7.6             |                           | 0                  |
|                                                                                                                                                                                                                            | Westbound Approach                                             |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Westbound Left                                                 |                                       | A            | 7.9             |                           | 0                  | A            | 7.8             |                           | 0                  |
|                                                                                                                                                                                                                            | Northbound Approach                                            |                                       | B            | 11.5            |                           |                    | B            | 10.5            |                           |                    |
|                                                                                                                                                                                                                            | Northbound Left/Thru/Right                                     |                                       | B            | 11.5            |                           | 3                  | B            | 10.5            |                           | 5                  |
| 10                                                                                                                                                                                                                         | Southbound Approach                                            |                                       | A            | 9.4             |                           |                    | B            | 10.1            |                           |                    |
|                                                                                                                                                                                                                            | Southbound Left/Thru/Right                                     |                                       | A            | 9.4             |                           | 0                  | B            | 10.1            |                           | 3                  |
|                                                                                                                                                                                                                            | Blenheim Boulevard (N/S) at Layton Hall Drive (EW)             |                                       |              |                 |                           |                    |              |                 |                           |                    |
|                                                                                                                                                                                                                            | Overall Intersection (Signalized)                              |                                       | C            | 24.9            |                           |                    | C            | 20.7            |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Approach                                             |                                       | C            | 32.4            |                           |                    | C            | 26.8            |                           |                    |
|                                                                                                                                                                                                                            | Eastbound Left                                                 |                                       | C            | 33.6            | 125                       | 279                | C            | 27.9            | 78                        | 172                |
|                                                                                                                                                                                                                            | Eastbound Thru/Right                                           |                                       | C            | 25.8            | 8                         | 44                 | C            | 23.8            | 7                         | 46                 |
|                                                                                                                                                                                                                            | Westbound Approach                                             |                                       | D            | 38.7            |                           |                    | C            | 30.0            |                           |                    |
|                                                                                                                                                                                                                            | Westbound Left                                                 |                                       | C            | 33.9            | 8                         | 34                 | C            | 28.6            | 6                         | 29                 |
|                                                                                                                                                                                                                            | Westbound Thru/Right                                           |                                       | D            | 39.9            | 6                         | 50                 | C            | 30.7            | 5                         | 35                 |
|                                                                                                                                                                                                                            | Northbound Approach                                            |                                       | C            | 23.7            |                           |                    | B            | 18.7            |                           |                    |
|                                                                                                                                                                                                                            | Northbound Left                                                |                                       | B            | 15.9            | 22                        | 49                 | B            | 14.4            | 12                        | 35                 |
|                                                                                                                                                                                                                            | Northbound Thru                                                |                                       | C            | 24.8            | 248                       | 490                | B            | 19.3            | 136                       | 338                |
|                                                                                                                                                                                                                            | Northbound Right                                               | 230                                   | B            | 15.2            | 0                         | 0                  | B            | 14.0            | 0                         | 0                  |
|                                                                                                                                                                                                                            | Southbound Approach                                            |                                       | C            | 20.9            |                           |                    | B            | 19.3            |                           |                    |
|                                                                                                                                                                                                                            | Southbound Left                                                | 150                                   | B            | 18.3            | 6                         | 19                 | B            | 15.1            | 5                         | 18                 |
|                                                                                                                                                                                                                            | Southbound Thru/Right                                          |                                       | C            | 20.9            | 147                       | 217                | B            | 19.4            | 142                       | 234                |
| NOTES:<br>[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.<br>[2] 50th Percentile Queues are not reported for TWSC intersections under HCM Methodology. |                                                                |                                       |              |                 |                           |                    |              |                 |                           |                    |

For the purposes of this analysis, it is desirable to achieve a LOS of D or better for each lane group at the intersections. The capacity analysis results indicate that all movements operate at acceptable LOS under existing conditions.

The queueing analysis results indicate that none of the movements at the study intersections have 95<sup>th</sup> percentile queues exceeding available storage. The intersection capacity results are summarized below in Figure 22.



## Future Conditions without Development (2028)

### ***Future without Development (2028) Traffic Volumes***

The Courthouse Plaza Development (Full-Build) is anticipated to be complete by the year 2028. To reflect inherent growth in the study area, existing volumes at the major movements within the study area were grown to reflect 2028 conditions. The future traffic volumes were projected to 2028 by using a 1 percent per year background growth rate. This rate was developed after discussions with the City staff during the scoping process for this transportation analysis. No approved additional background developments were identified within the study area.

The inherent growth volumes on the network shown in Figure 23 were added to the Existing (2023) traffic volumes shown in Figure 21 in order to generate the Future without Development (2028) volumes. The vehicular volumes for the Future (2028) without Development scenario are presented on Figure 24.

### ***Assumed Background Improvements***

University Drive Bicycle Facilities: To achieve the vision of the Small Area Plan, a multimodal ‘spine’ with enhanced pedestrian and bicycle facilities along University Drive are planned to be constructed by 2025. The proposed improvements include bicycle lanes or sharrows with a conversion of existing four-lane section of University Drive to a two-lane section with two-way left turn lanes. The lane configuration and the future without development Level of Service results are shown in Figure 25

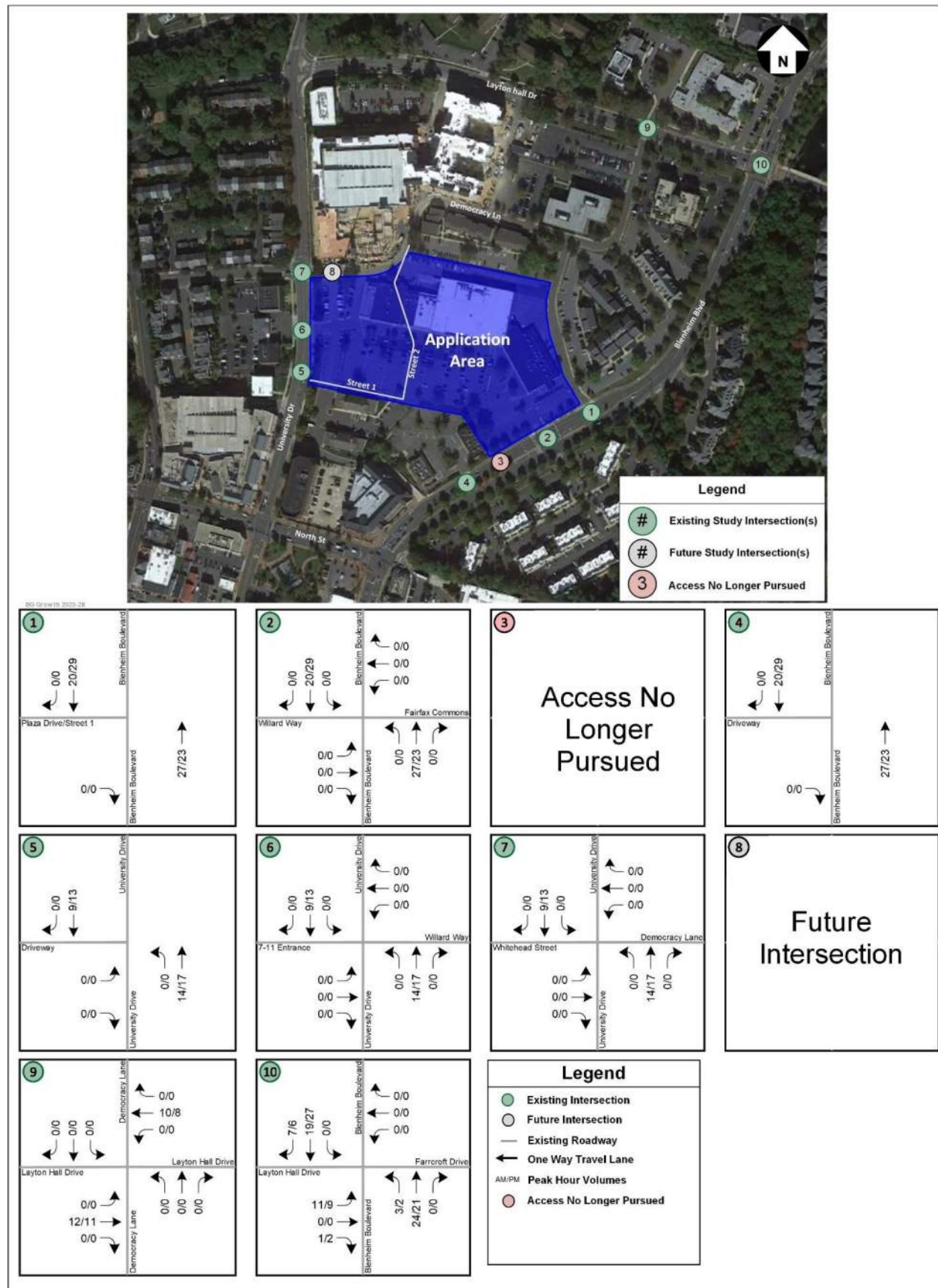


Figure 23: Inherent Growth Volumes (2023-2028)

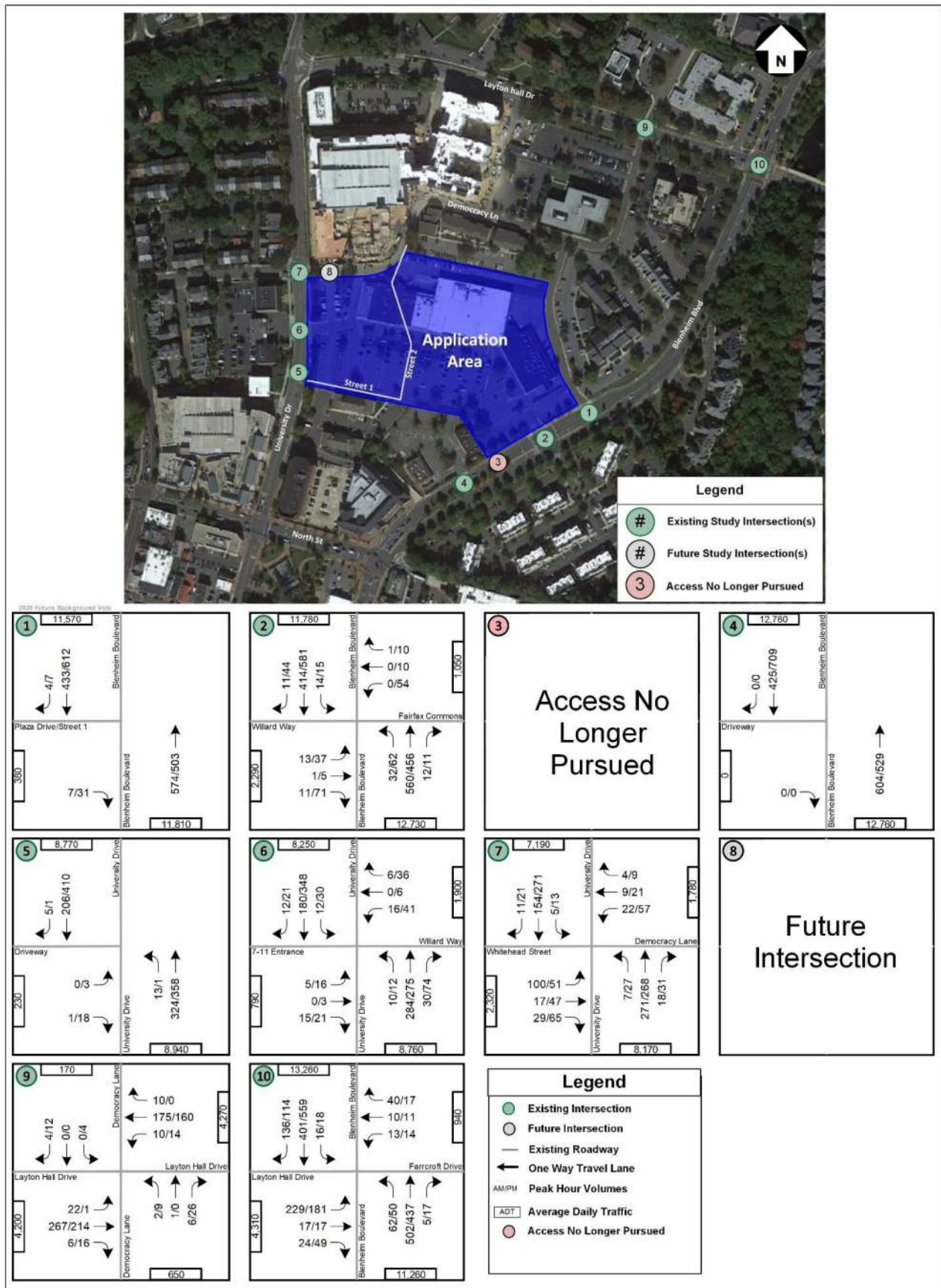


Figure 24: Future (2028) without Development Traffic Volumes

## Future without Development (2028) Intersection Capacity and Queuing Analysis

Capacity and queuing analysis was performed at the intersections within the study area during the weekday morning and evening peak hours under Future without Development conditions. Synchro Version 11 was used to analyze the study intersections based on the Highway Capacity Manual (HCM) 6th methodology and includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.

Existing peak hour factors found in the field were used, except where the field peak hour factor was lower than 0.92 in which case a minimum value of 0.92 was used, consistent with VDOT analysis guidelines.

The results of the intersection analysis are presented in Table 10 and are expressed in LOS and delay (seconds per vehicle) per lane group. The 95th percentile queue results for each intersection are also presented in Table 10 and are expressed in feet, along with 50<sup>th</sup> percentile queue results for signalized intersections. The detailed analysis worksheets are included in Appendix G.

**Table 10: Future (2028) without Development Intersection Capacity and Queuing Analysis**

| No. | Intersection (Movement)                                                                | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |              |
|-----|----------------------------------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------|
|     |                                                                                        |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue |
|     |                                                                                        |                                       | Synchro      |                 |                           |                    | Synchro      |                 |                           |              |
| 1   | Blenheim Boulevard (N/S) at Plaza Drive (E/W)<br>Overall Intersection (TWSC)           |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>10.0</b>     |                           |                    | <b>B</b>     | <b>10.7</b>     |                           |              |
|     | Eastbound Right                                                                        |                                       | B            | 10.0            |                           | 0                  | B            | 10.7            |                           | 5            |
| 2   | Blenheim Boulevard (N/S) at Fairfax Commons (E/W)<br>Overall Intersection (Signalized) |                                       | <b>A</b>     | <b>8.6</b>      |                           |                    | <b>B</b>     | <b>11.2</b>     |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>18.3</b>     |                           |                    | <b>C</b>     | <b>26.1</b>     |                           |              |
|     | Eastbound Thru/Left                                                                    |                                       | B            | 17.9            | 1                         | 17                 | C            | 24.9            | 17                        | 45           |
|     | Eastbound Right                                                                        |                                       | B            | 18.8            | 0                         | 0                  | C            | 26.8            | 0                         | 18           |
|     | Westbound Approach                                                                     |                                       | <b>B</b>     | <b>17.7</b>     |                           |                    | <b>C</b>     | <b>26.5</b>     |                           |              |
|     | Westbound Left/Thru/Right                                                              |                                       | B            | 17.7            | 0                         | 0                  | C            | 26.5            | 27                        | 66           |
|     | Northbound Approach                                                                    |                                       | <b>A</b>     | <b>8.3</b>      |                           |                    | <b>A</b>     | <b>7.6</b>      |                           |              |
|     | Northbound Left                                                                        | 120                                   | A            | 6.7             | 0                         | 11                 | A            | 6.8             | 8                         | 22           |
|     | Northbound Thru                                                                        |                                       | A            | 8.4             | 0                         | 113                | A            | 7.8             | 34                        | 100          |
|     | Northbound Right                                                                       |                                       | A            | 6.9             | 0                         | 0                  | A            | 6.7             | 0                         | 0            |
|     | Southbound Approach                                                                    |                                       | <b>A</b>     | <b>8.5</b>      |                           |                    | <b>A</b>     | <b>9.7</b>      |                           |              |
|     | Southbound Left                                                                        | 120                                   | A            | 7.1             | 1                         | 7                  | A            | 7.3             | 2                         | 8            |
|     | Southbound Thru                                                                        |                                       | A            | 8.5             | 0                         | 86                 | A            | 9.9             | 85                        | 140          |
|     | Southbound Right                                                                       |                                       | A            | 7.4             | 0                         | 0                  | A            | 8.1             | 0                         | 0            |
| 3   | Access No Longer Pursued                                                               |                                       |              |                 |                           |                    |              |                 |                           |              |
| 4   | Blenheim Boulevard (N/S) at Existing Driveway (E/W)<br>Overall Intersection (TWSC)     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>0.0</b>      |                           |                    | <b>A</b>     | <b>0.0</b>      |                           |              |
|     | Eastbound Right                                                                        |                                       | A            | 0.0             |                           | 0                  | A            | 0.0             |                           | 0            |
| 5   | University Drive (N/S) at Existing Driveway (E/W)<br>Overall Intersection (TWSC)       |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>9.4</b>      |                           |                    | <b>B</b>     | <b>11.4</b>     |                           |              |
|     | Eastbound Left/Right                                                                   |                                       | A            | 9.4             |                           | 0                  | B            | 11.4            |                           | 3            |
|     | Northbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Northbound Left                                                                        |                                       | A            | 7.7             |                           | 0                  | A            | 8.2             |                           | 0            |
| 6   | University Drive (N/S) at 7-11 Driveway (E/W)<br>Overall Intersection (TWSC)           |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>10.6</b>     |                           |                    | <b>C</b>     | <b>15.7</b>     |                           |              |
|     | Eastbound Left/Thru/Right                                                              |                                       | B            | 10.6            |                           | 3                  | C            | 15.7            |                           | 10           |
|     | Westbound Approach                                                                     |                                       | <b>B</b>     | <b>13.1</b>     |                           |                    | <b>C</b>     | <b>16.4</b>     |                           |              |
|     | Westbound Left                                                                         |                                       | B            | 14.2            |                           | 3                  | C            | 21.2            |                           | 15           |
|     | Westbound Thru/Right                                                                   |                                       | B            | 10.1            |                           | 0                  | B            | 11.7            |                           | 8            |
|     | Northbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Northbound Left                                                                        |                                       | <b>A</b>     | <b>7.8</b>      |                           | 0                  | <b>A</b>     | <b>8.1</b>      |                           | 0            |
|     | Southbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Southbound Left                                                                        |                                       | A            | 8.0             |                           | 0                  | A            | 8.2             |                           | 3            |

| No. | Intersection (Movement)                                         | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |              |
|-----|-----------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------|
|     |                                                                 |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue |
| 7   | University Drive (N/S) at Whitehead Street/Democracy Lane (E/W) |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (Signalized)                               |                                       | <b>B</b>     | <b>11.0</b>     |                           |                    | <b>B</b>     | <b>10.8</b>     |                           |              |
|     | Eastbound Approach                                              |                                       | <b>B</b>     | <b>14.9</b>     |                           |                    | <b>B</b>     | <b>14.2</b>     |                           |              |
|     | Eastbound Left/Thru                                             |                                       | B            | 15.5            | 16                        | 105                | B            | 14.9            | 13                        | 88           |
|     | Eastbound Right                                                 |                                       | B            | 12.7            | 0                         | 10                 | B            | 13.0            | 0                         | 32           |
|     | Westbound Approach                                              |                                       | <b>B</b>     | <b>13.2</b>     |                           |                    | <b>B</b>     | <b>14.9</b>     |                           |              |
|     | Westbound Left/Thru/Right                                       |                                       | B            | 13.2            | 4                         | 38                 | B            | 14.9            | 11                        | 79           |
|     | Northbound Approach                                             |                                       | <b>A</b>     | <b>9.9</b>      |                           |                    | <b>A</b>     | <b>9.4</b>      |                           |              |
|     | Northbound Left                                                 |                                       | A            | 7.9             | 1                         | 12                 | A            | 9.5             | 3                         | 27           |
|     | Northbound Thru/Right                                           |                                       | A            | 9.9             | 36                        | 200                | A            | 9.5             | 35                        | 193          |
|     | Southbound Approach                                             |                                       | <b>A</b>     | <b>9.2</b>      |                           |                    | <b>A</b>     | <b>9.4</b>      |                           |              |
|     | Southbound Left                                                 | 150                                   | A            | 7.9             | 1                         | 9                  | A            | 9.5             | 1                         | 16           |
|     | Southbound Thru/Right                                           |                                       | A            | 9.2             | 19                        | 118                | A            | 9.5             | 34                        | 189          |
|     |                                                                 |                                       |              |                 |                           |                    |              |                 |                           |              |
| 8   | Future Intersection                                             |                                       |              |                 |                           |                    |              |                 |                           |              |
| 9   | Layton Hall Drive (E/W) at Democracy Lane (N/S)                 |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (TWSC)                                     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                              |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Left                                                  |                                       | A            | 7.7             |                           | 3                  | A            | 7.6             |                           | 0            |
|     | Westbound Approach                                              |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Westbound Left                                                  |                                       | A            | 7.9             |                           | 0                  | A            | 7.8             |                           | 0            |
|     | Northbound Approach                                             |                                       | <b>B</b>     | <b>11.3</b>     |                           |                    | <b>B</b>     | <b>10.5</b>     |                           |              |
|     | Northbound Left/Thru/Right                                      |                                       | B            | 11.3            |                           | 3                  | B            | 10.5            |                           | 5            |
| 10  | Southbound Approach                                             |                                       | <b>A</b>     | <b>9.4</b>      |                           |                    | <b>B</b>     | <b>10.1</b>     |                           |              |
|     | Southbound Left/Thru/Right                                      |                                       | A            | 9.4             |                           | 0                  | B            | 10.1            |                           | 3            |
|     | Blenheim Boulevard (N/S) at Layton Hall Drive (E/W)             |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (Signalized)                               |                                       | <b>C</b>     | <b>24.3</b>     |                           |                    | <b>C</b>     | <b>21.2</b>     |                           |              |
|     | Eastbound Approach                                              |                                       | <b>C</b>     | <b>31.4</b>     |                           |                    | <b>C</b>     | <b>27.3</b>     |                           |              |
|     | Eastbound Left                                                  |                                       | C            | 32.6            | 115                       | 284                | C            | 28.5            | 86                        | 187          |
|     | Eastbound Thru/Right                                            |                                       | C            | 25.1            | 7                         | 44                 | C            | 24.2            | 7                         | 47           |
|     | Westbound Approach                                              |                                       | <b>D</b>     | <b>36.9</b>     |                           |                    | <b>C</b>     | <b>30.8</b>     |                           |              |
|     | Westbound Left                                                  |                                       | C            | 32.8            | 7                         | 33                 | C            | 29.4            | 7                         | 29           |
|     | Westbound Thru/Right                                            |                                       | D            | 37.9            | 5                         | 52                 | C            | 31.5            | 5                         | 36           |
|     | Northbound Approach                                             |                                       | <b>C</b>     | <b>23.2</b>     |                           |                    | <b>B</b>     | <b>19.1</b>     |                           |              |
|     | Northbound Left                                                 |                                       | B            | 15.7            | 20                        | 51                 | B            | 14.6            | 14                        | 38           |
|     | Northbound Thru                                                 |                                       | C            | 24.2            | 218                       | 515                | B            | 19.9            | 150                       | 366          |
|     | Northbound Right                                                | 230                                   | B            | 15.0            | 0                         | 0                  | B            | 14.1            | 0                         | 0            |
|     | Southbound Approach                                             |                                       | <b>C</b>     | <b>20.6</b>     |                           |                    | <b>B</b>     | <b>19.8</b>     |                           |              |
|     | Southbound Left                                                 | 150                                   | B            | 18.0            | 5                         | 19                 | B            | 15.4            | 5                         | 18           |
|     | Southbound Thru/Right                                           |                                       | C            | 20.7            | 133                       | 226                | B            | 19.9            | 155                       | 254          |

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] 50th Percentile Queues are not reported for TWSC intersections under HCM Methodology.

For the purpose of this analysis, it is desirable to achieve a LOS of D or better for each lane group at the intersections. The capacity analysis results indicate that all movements operate at acceptable LOS under 2028 Future without Development scenario.

Based on the queuing analysis performed at the study intersections, no movements have 95<sup>th</sup> percentile queues that exceed the available storage at the turning movements. The results of the intersection capacity analysis for the 2028 Future without Development conditions are summarized below in Figure 25.

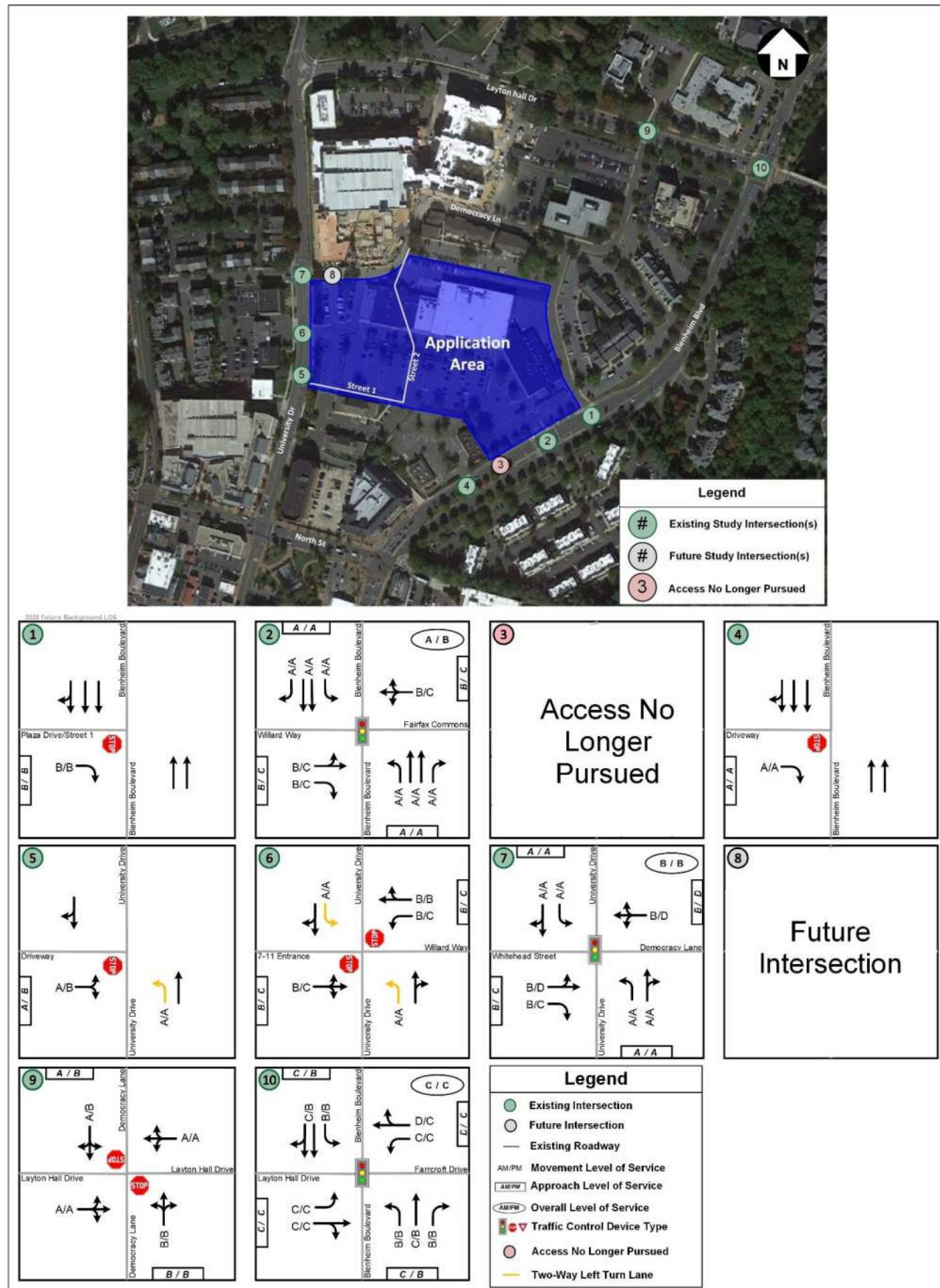


Figure 25: Future Without Development (2028) Level of Service

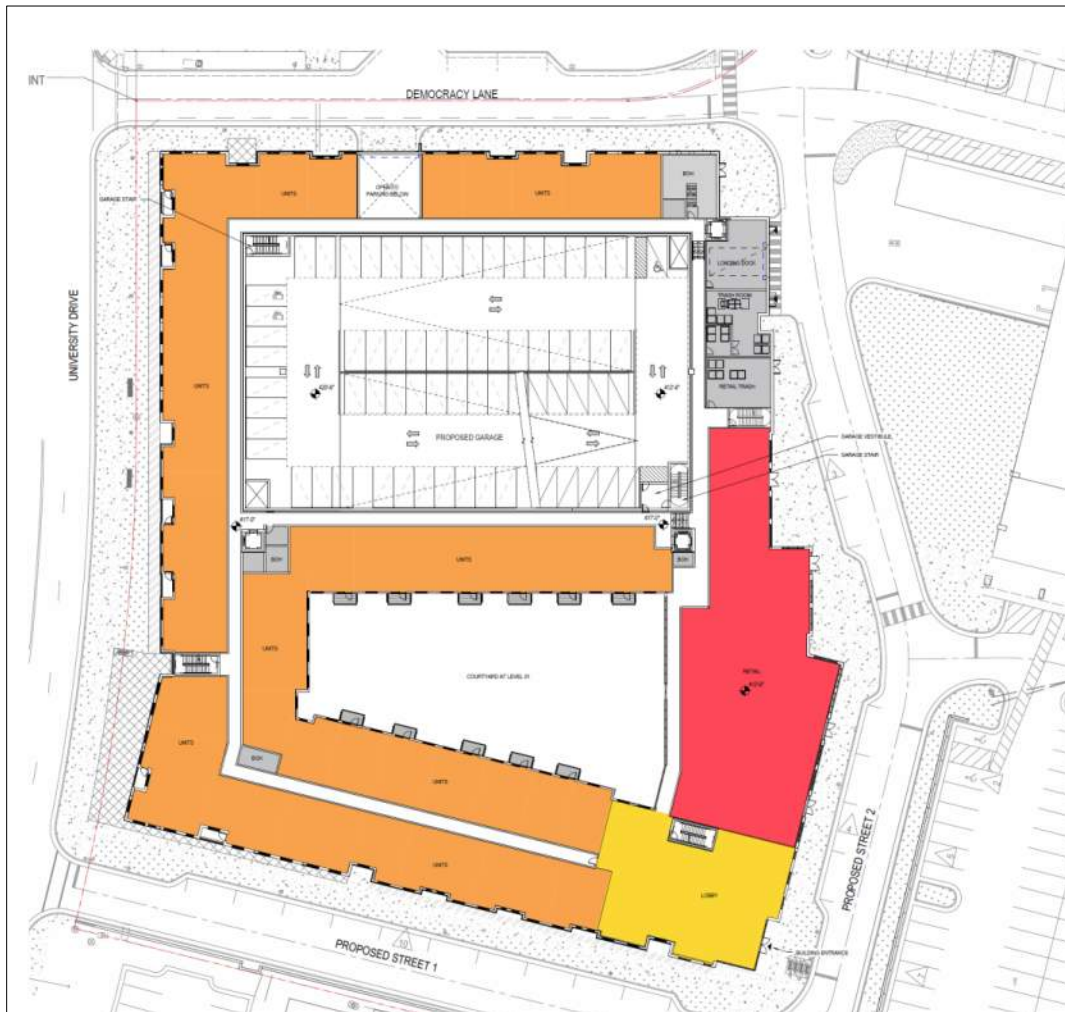
## Future with Development (Full-Build 2028)

### ***Project Description & Site Access***

The Courthouse Plaza Development is currently accessed via multiple entrances on Blenheim Boulevard and University Drive.

The addition of 315 units at Courthouse Plaza Development is anticipated to be complete and in operation by the year 2028. Approximately 25k SF of existing retail uses will be removed and replaced with the mixed-use building leaving approximately 67k SF of existing retail remaining with the addition of some ground floor retail of up to 13,000 SF in the proposed building.

The plan for the development (subject to change) is shown below in Figure 26.

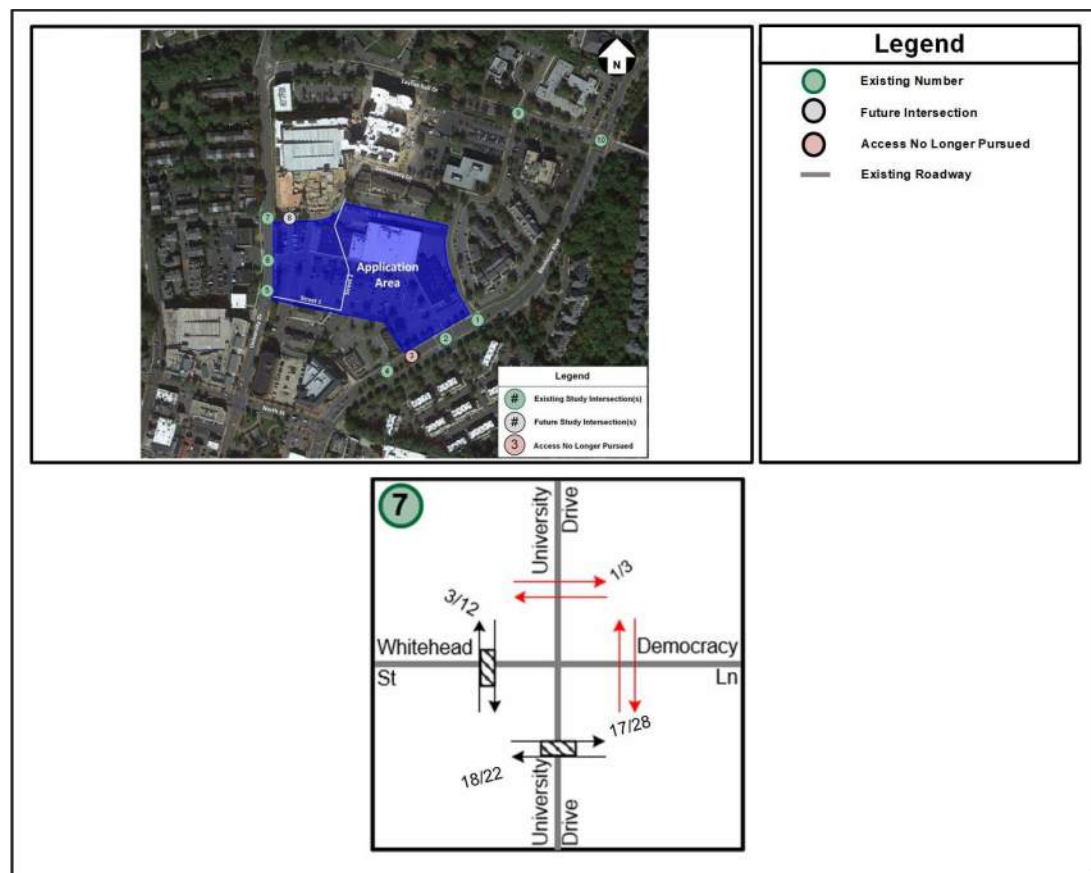


**Figure 26: Concept Plan (Subject to Change)**

With the redevelopment, two new roadways (Street 1 and Street 2) will be constructed adjacent to the new multifamily building which will provide additional vehicular and pedestrian paths. These roadways align with future plans in the Small Area Plan. The lane configuration for 2028 future conditions (Full Build) are shown in Figure 28.

Based on the proposed number of units in the development program, an estimation for the number of walking trips generated by the proposed land use is developed using ITE Trip Generation Manual 11th Edition. Based on 315 units, approximately 16 walking trips are estimated in the AM peak hour and 19 walking trips are estimated in the PM peak hour. Similarly, the addition of 13,000 SF of retail will generate 7 walking trips in the PM peak hour. No ITE data is available for AM peak hour walking trips for retail uses. Based on engineering judgement, it is approximated that 10% of the pedestrian generated trips will use the

eastbound/westbound crosswalk at Intersection 7 (University Drive and Democracy Lane). However, to be conservative, 12 pedestrian trips and calls are added as crossing trips to Intersection 7 Synchro analysis to account for site generated pedestrian trips in the model (future pedestrian calls were modeled at 20 AM calls and 24 PM calls). Please note that there may be existing pedestrian volumes from the existing retail that are being removed from the network that were not included in this analysis to be conservative. Figure 27 shows the anticipated number of pedestrian trips at Intersection 7 (University Drive and Democracy Lane) for the future with development (full build) scenario.



**Figure 27: Future with Development (Full-Build) Pedestrian Volumes at Intersection 7**

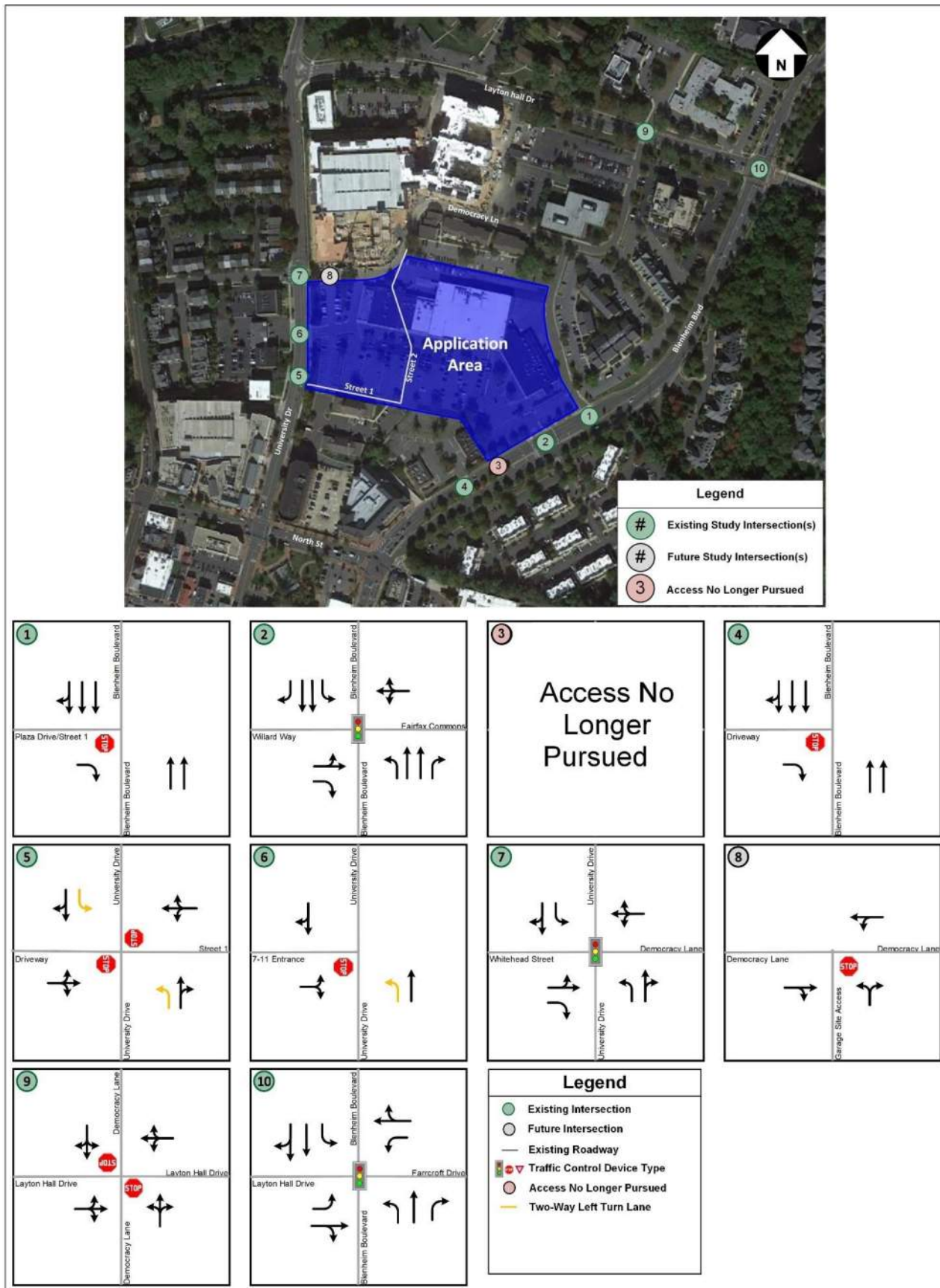


Figure 28: 2028 Future with Development (Full-Build) Lane Configuration

### ***Existing Trips to be Removed***

The Courthouse Plaza Development replaces a portion of the existing inline retail uses at the site. Currently there is approximately 58 kSF of inline retail (exclusive of pad sites) and approximately 25.17 kSF of the existing inline retail uses will be removed (43% removed). Based on ITE 11<sup>th</sup> Edition Trip Generation Manual, approximately 5,876 daily trips could be generated by the existing 58.0 KSF inline retail uses (with supermarket) and approximately 1,292 daily trips could be generated by the 25.17 kSF of existing inline retail uses to be removed. This represents an approximately 22% reduction in trips due to the removal of the portion of the existing inline retail. For the purposes of this analysis, and in order to be conservative, 20% of the existing site trips were assumed to be removed with the removal of the existing 25.17 kSF of inline retail. The comparison of trips associated with the existing inline retail and inline retail to be removed is included in Appendix E.

In order to remove the trips associated with the 25.17 kSF of inline retail proposed to be removed, the following assumptions were made:

- 20% of the inbound and outbound trips were removed at Intersection 1, Intersection 2, Intersection 6.
- The inbound and outbound trips removed from these intersections were distributed to the adjacent downstream intersections as appropriate.

Additionally, it noted that with the development, the westbound leg of Study Intersection 6 (University Drive and Existing Driveway/7-11 Driveway) would be closed, and the intersection would be converted to a 3-legged intersection. The turning volumes associated with the westbound leg of Study Intersection 6 have been added to Study Intersection 5 (University Drive and Street 1). The portion of the inline retail trips to be removed and the trips removed associated with the westbound approach at Study Intersection 6 are shown in Figure 29 and Figure 30.

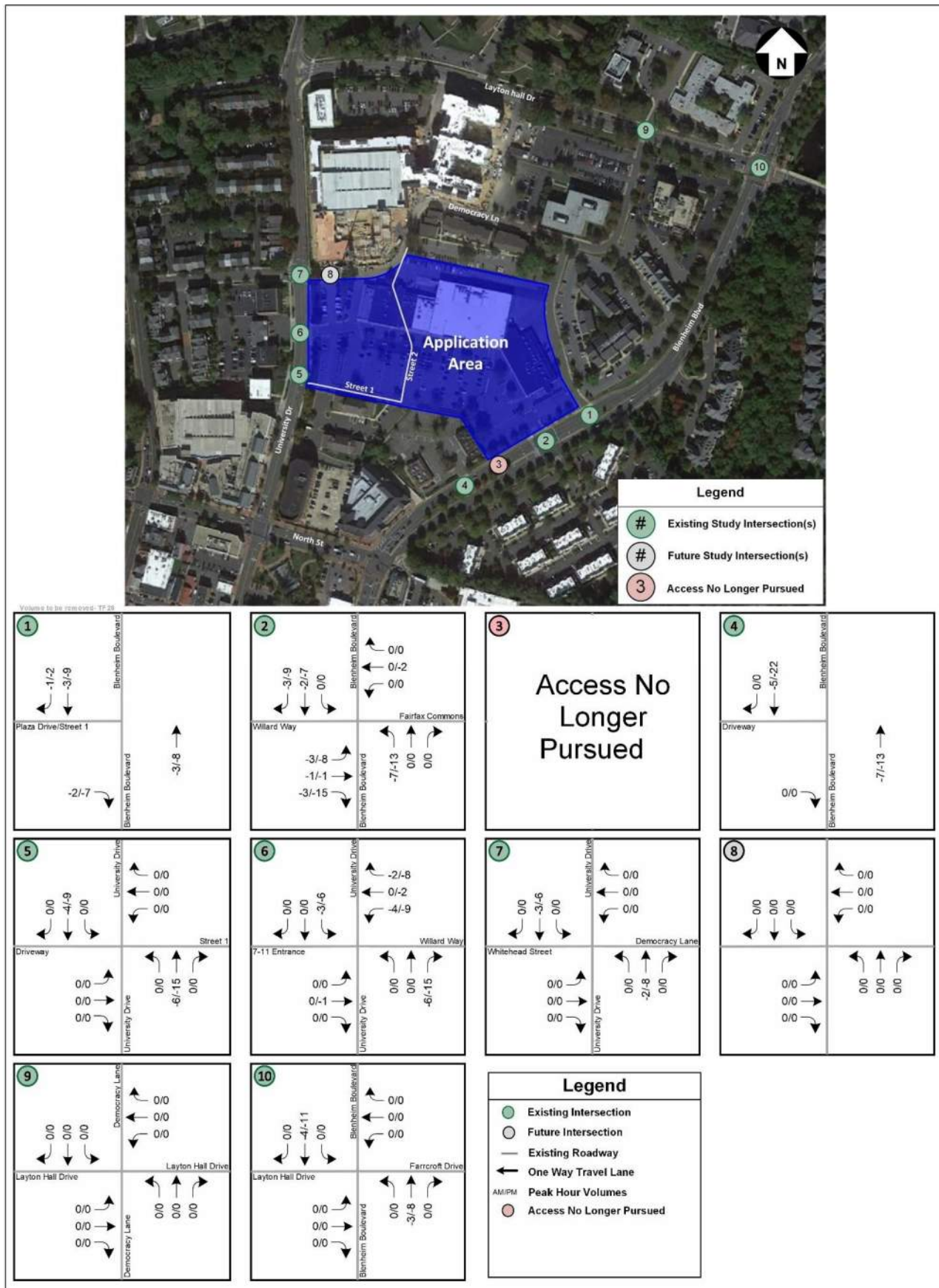


Figure 29: Existing Trips to be Removed

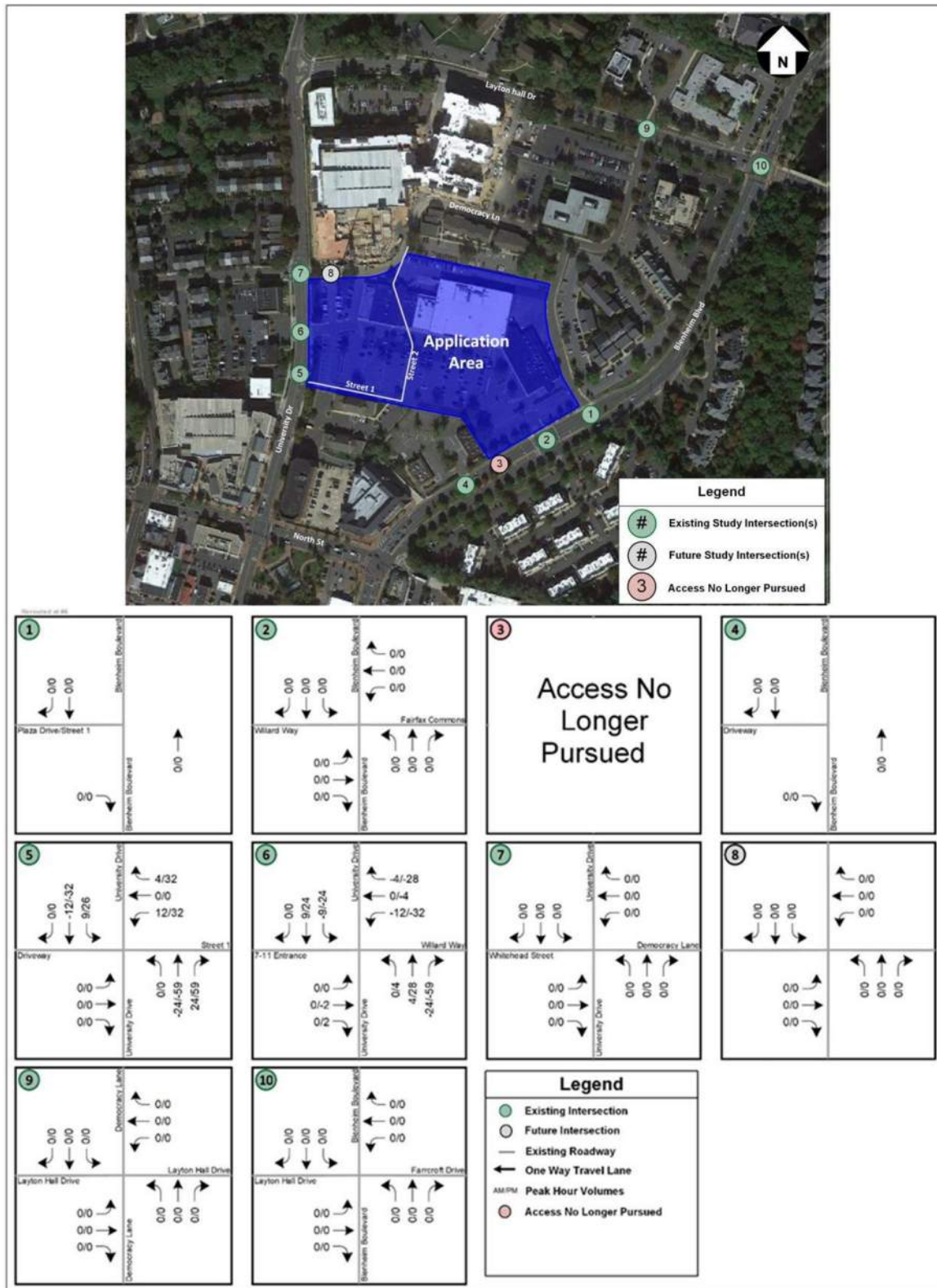


Figure 30: Trips Rerouted due to Removal of Westbound Leg at Intersection 6

## Site Generated Traffic

The Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11<sup>th</sup> Edition was used to determine the future trips generated by the proposed development as shown in Table 11. As discussed during the scoping meeting, a TDM Reduction/Mode Split of 15 percent was applied to residential use as agreed upon by the City officials. Similarly, Pass-By and Internal Capture reductions were applied based on ITE *Trip Generation Handbook*, 3<sup>rd</sup> Edition and after discussions with City officials. Please note that the proposed development has changed slightly from what was scoped and has been updated to be consistent with the proposed application. The addition of up to 13,000 SF of retail use is analyzed in this revised submission of the TIS with approximately 66.7 kSF of existing retail uses to remain at the site.

**Table 11: Trip Generation for (2028 Full Build) (ITE 11<sup>th</sup> Edition; Peak Hour of Adjacent Street)**

| Land Use                       | ITE Code                                           | Size                                                 | Weekday      |     |       |              |     |       |       |
|--------------------------------|----------------------------------------------------|------------------------------------------------------|--------------|-----|-------|--------------|-----|-------|-------|
|                                |                                                    |                                                      | AM Peak Hour |     |       | PM Peak Hour |     |       | Daily |
|                                |                                                    |                                                      | In           | Out | Total | In           | Out | Total |       |
| Proposed Development           |                                                    |                                                      |              |     |       |              |     |       |       |
| Multifamily Housing (Mid-Rise) | 221                                                | 315 DU                                               | 29           | 98  | 127   | 75           | 48  | 123   | 1,456 |
|                                | Internal Capture Residential - Retail <sup>1</sup> | (1)                                                  | -1           | -2  | -3    | -5           | -5  | -10   | -78   |
|                                | Mode Split/TDM Reduction                           | 15%                                                  | -4           | -14 | -19   | -11          | -6  | -17   | -207  |
|                                |                                                    | Residential Subtotal (with Reductions)               | 24           | 82  | 105   | 59           | 37  | 96    | 1,171 |
| Shopping Center (<40 kSF)      | 822                                                | 13.0 kSF of GFA                                      | 20           | 14  | 34    | 47           | 47  | 94    | 778   |
|                                | Internal Capture Retail - Residential <sup>1</sup> | (1)                                                  | -2           | -1  | -3    | -5           | -5  | -10   | -78   |
|                                | Pass-By Reduction <sup>2</sup>                     | 25% AM/40% PM/25% Daily                              | -4           | -4  | -8    | -17          | -17 | -34   | -175  |
|                                |                                                    | Currently Analyzed Retail Subtotal (with Reductions) | 14           | 9   | 23    | 25           | 25  | 50    | 525   |
|                                |                                                    | Total Proposed Trips (with Reductions)               | 38           | 91  | 127   | 84           | 62  | 146   | 1,696 |

<sup>1</sup> Internal Capture rates consider site trips "captured" within a mixed-use development, recognising that trips from one land use can access another land use within a site (1) residential / retail - smaller of 10% of residential trips or 10% of retail trips

<sup>2</sup> The pass by reduction for Shopping Center is based on the ITE Trip Generation methodology, as provided in the ITE Pass-By Tables for the ITE 11th Edition Trip Generation Handbook. The average rate for Shopping Centers is 40% for the PM Peak. For all other time periods, the default Pass-By rate of 25% is assumed

As shown, the proposed development will generate approximately 127 trips in the AM peak hour, 146 trips in the PM peak hour and 1,696 trips on a typical weekday, after reductions. Please note that this proposed development represents an overall reduction of trips on the property. Table 12 was not used for analysis purposes but is presented to show the comparison to the existing shopping center and the overall proposed development with the retail to remain.

**Table 12: Trip Generation Comparison (Existing vs. Proposed with Retail to Remain)**

| Land Use                                              | ITE Code | Size                                                   | Weekday      |     |       |              |     |       |       |
|-------------------------------------------------------|----------|--------------------------------------------------------|--------------|-----|-------|--------------|-----|-------|-------|
|                                                       |          |                                                        | AM Peak Hour |     |       | PM Peak Hour |     |       | Daily |
|                                                       |          |                                                        | In           | Out | Total | In           | Out | Total |       |
| Existing Development                                  |          |                                                        |              |     |       |              |     |       |       |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket) | 821      | 91.9 kSF of GFA                                        | 201          | 123 | 324   | 396          | 428 | 824   | 8,485 |
| Subtotal (Existing)                                   |          |                                                        | 201          | 123 | 324   | 396          | 428 | 824   | 8,485 |
| Proposed Development (with portion remaining)         |          |                                                        |              |     |       |              |     |       |       |
| Multifamily Housing (Mid-Rise)                        | 221      | 315 DU                                                 | 29           | 98  | 127   | 75           | 48  | 123   | 1,456 |
|                                                       |          | Internal Capture Residential - Retail <sup>1</sup> (1) | -3           | -10 | -13   | -8           | -5  | -12   | -146  |
|                                                       |          | Mode Split/TDM Reduction 15%                           | -4           | -13 | -17   | -10          | -6  | -17   | -197  |
| Residential Subtotal                                  |          |                                                        | 22           | 75  | 97    | 58           | 37  | 94    | 1,113 |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket) | 821      | 66.7 kSF of GFA                                        | 146          | 89  | 235   | 302          | 328 | 630   | 6,546 |
| Shopping Center (<40 kSF)                             | 822      | 13.0 kSF of GFA                                        | 20           | 14  | 34    | 47           | 47  | 94    | 778   |
|                                                       |          | Internal Capture Residential - Retail <sup>1</sup> (1) | -10          | -3  | -13   | -5           | -8  | -12   | -146  |
| Retail Subtotal                                       |          |                                                        | 156          | 100 | 256   | 344          | 368 | 712   | 7,178 |
| Subtotal (Proposed)(Residential+Retail)               |          |                                                        | 178          | 175 | 354   | 402          | 405 | 805   | 8,292 |
| Net New Trips (Proposed - Existing)                   |          |                                                        | -23          | 52  | 30    | 6            | -23 | -19   | -193  |

As seen from Table 12, the proposed development with the existing uses to remain generates approximately 193 fewer overall typical daily trips as compared to the existing retail uses at the Courthouse Plaza site.

## Transportation Demand Management

The Courthouse Plaza Development project aims to provide a vibrant and thriving mixed-use community compatible with surrounding land uses in the City. Transportation Demand Management (TDM) is an important goal for the applicant, with the intent of achieving reduced site generated peak hour vehicular trips generated by the residential and commercial uses proposed with the redevelopment. TDM is achieved by establishing measures to influence travel behavior by mode, frequency, time, route,

or trip length in order to achieve a maximally efficient use of transportation facilities. TDM commitments and strategies for the project are included in a separate TDM Plan document for City review.

### Site Trip Distribution

The distribution of site trips was based on historical data, observed turning movement volumes and guidance and input from the City staff. The directional distribution percentages are presented in Figure 31.



Figure 31: Site Trip Distribution/Direction of Approach (DOA)

### Future with Development Traffic Volumes

In order to determine the traffic volumes on the roadways in the vicinity of the development at full build, the site generated traffic volumes presented in Figure 32, the existing volumes removed presented in Figure 29 and pass-by trips shown in Figure 33 were added to the 2028 Future without Development traffic volumes presented in Figure 24. It is noted that a portion of trips continuing north on University Drive towards Layton Hall Drive and continuing south towards North Street are now assigned via Chain Bridge Road with Eastbound Thru and Westbound Thru movements on Democracy Lane and Whitehead Street based on feedback received from City Staff. Also, please note that retail trips are planned to park in the existing surface lot or on-street parking and therefore have not been routed into/out of the garage entrance (Intersection #8).

The 2028 future with development (Full-Build) volumes are shown in Figure 34.

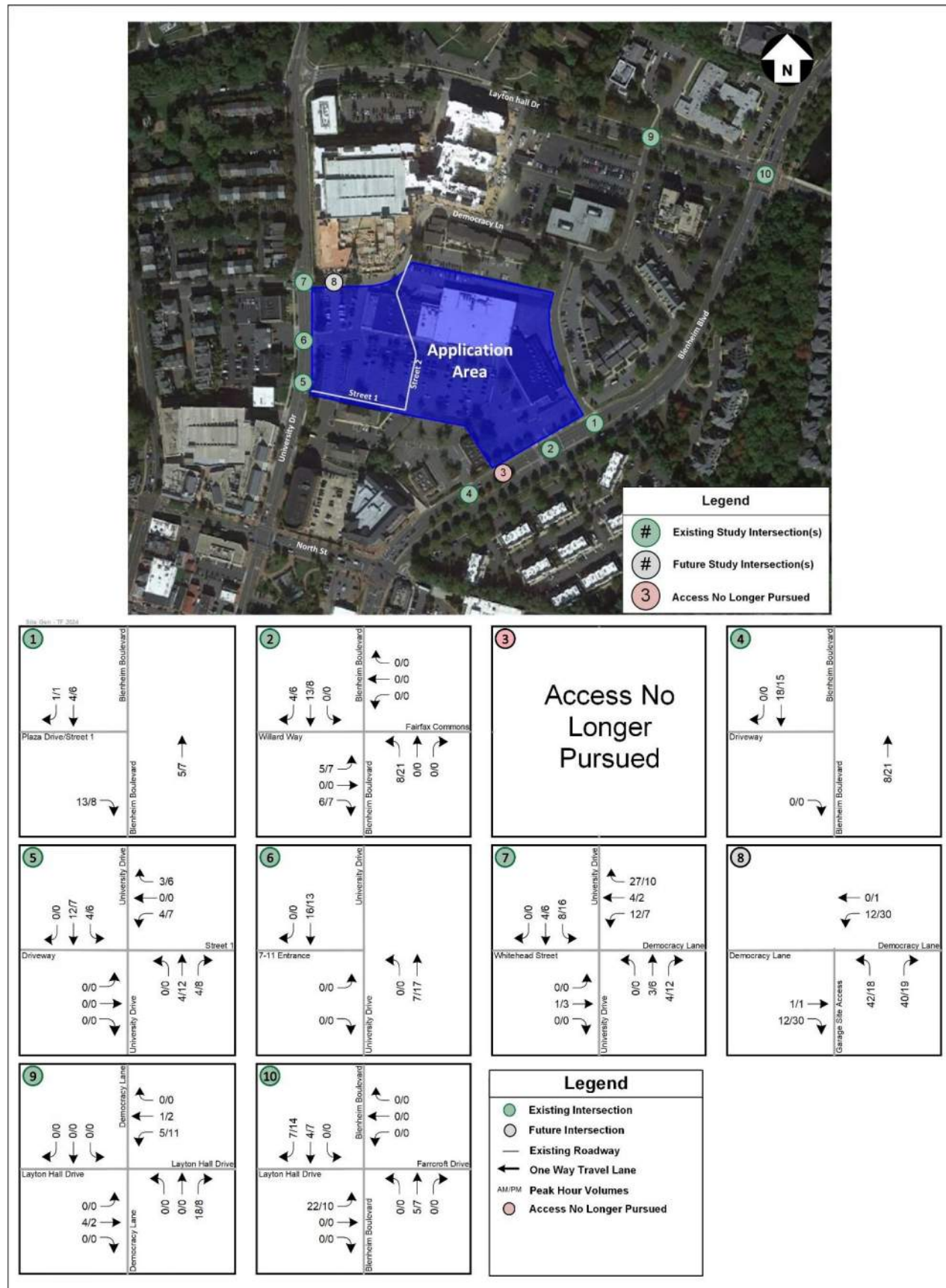


Figure 32: Site Trips (2028, Full-Build)

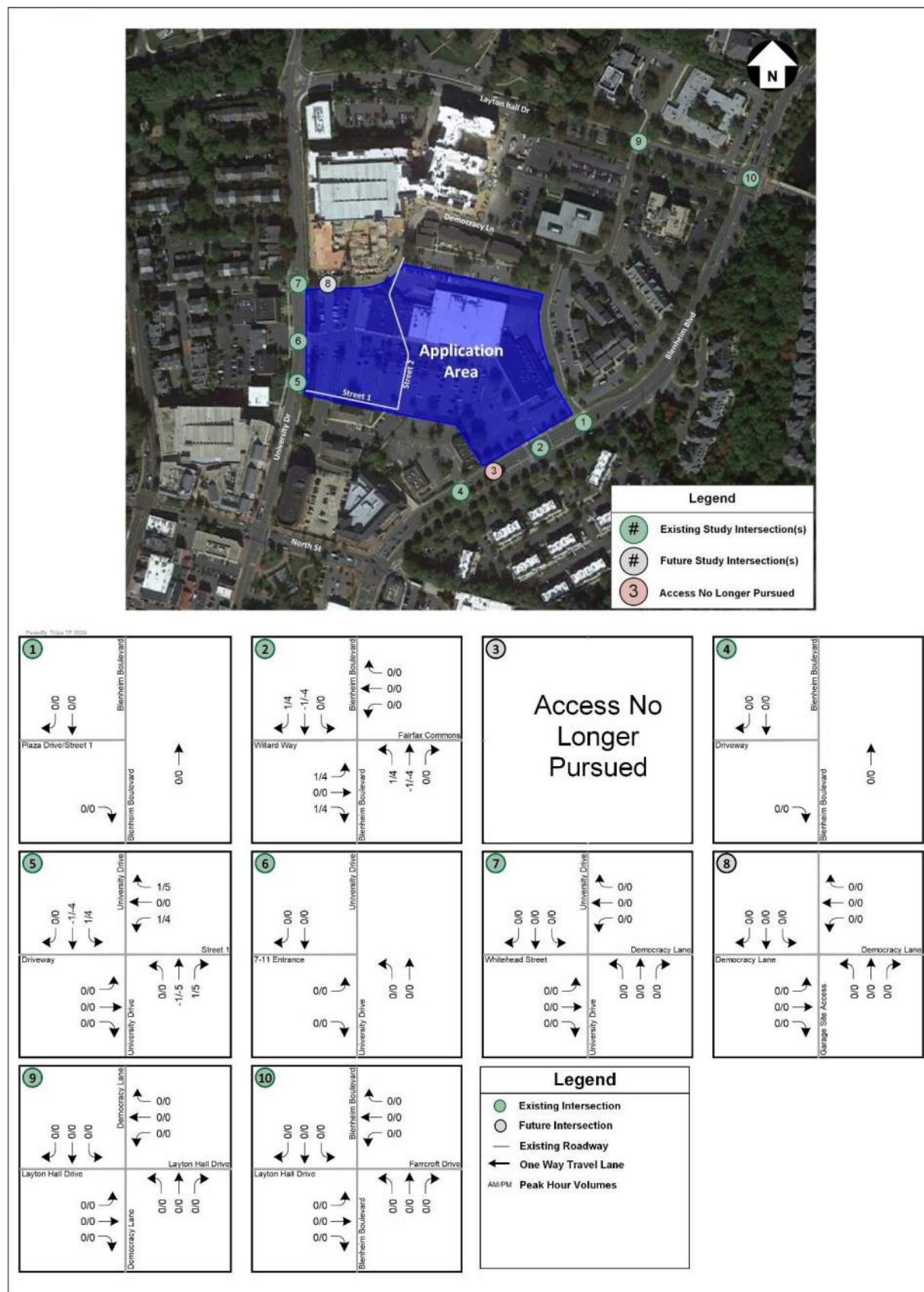
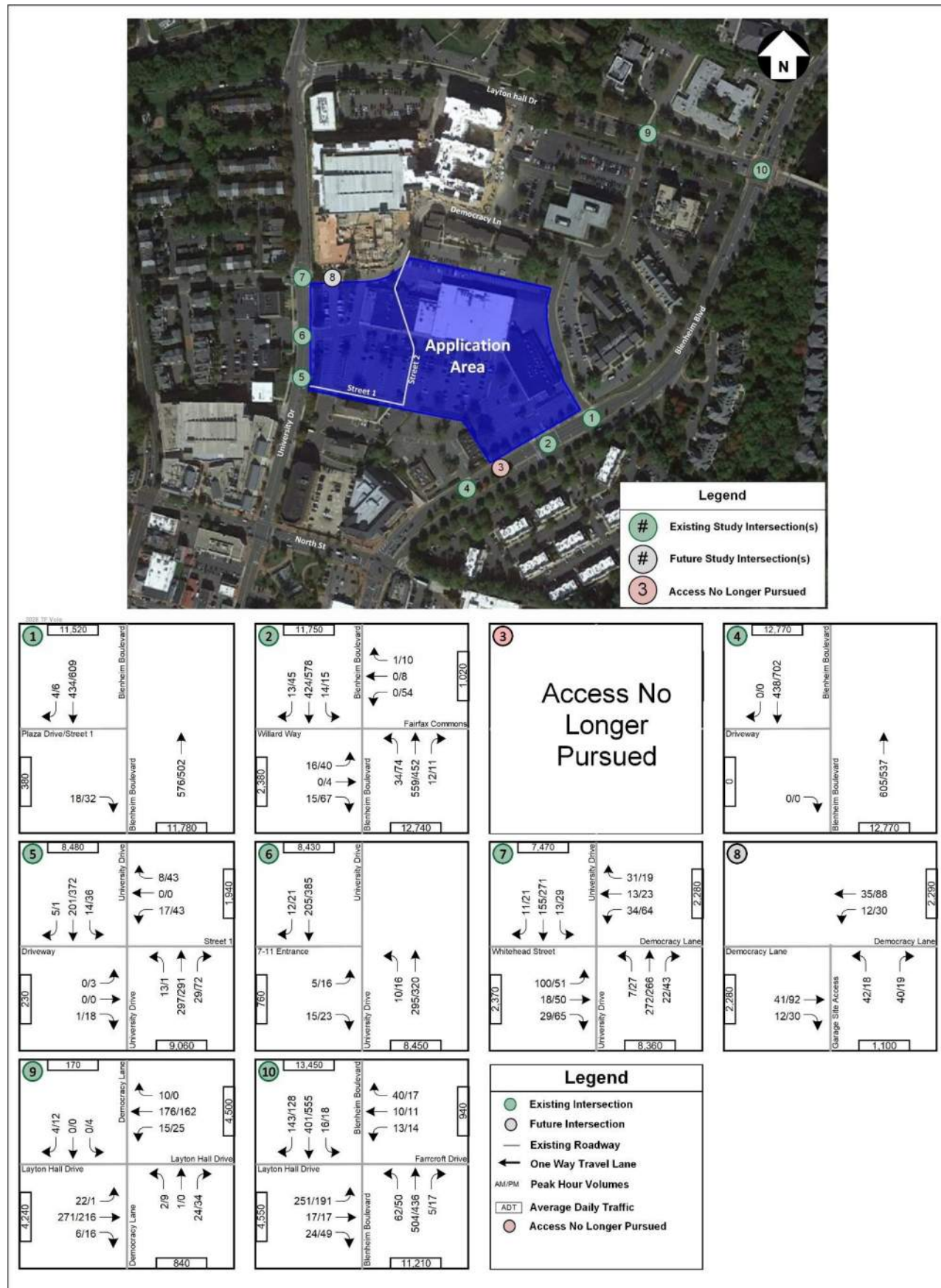


Figure 33: Pass-By Trips Attributed to Retail



## Future with Development (2028) (Full-Build) Intersection Analysis

Capacity analysis was performed at the intersections within the study area during the weekday morning and evening peak hours under Future with Development conditions. *Synchro Version 11* was used to analyze the study intersections based on the Highway Capacity Manual (HCM) methodology and includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed.

Existing peak hour factors found in the field were used, except where the field peak hour factor was lower than 0.92 in which case a minimum value of 0.92 was used, consistent with VDOT analysis guidelines.

The results of the intersection analysis are presented in Table 13 and Figure 35 and are expressed in LOS and delay (seconds per vehicle) per lane group. The mitigation analysis results are shown in grey. The 95<sup>th</sup> percentile queue results for each intersection are also presented in Table 10 and are expressed in feet, along with the 50<sup>th</sup> percentile queue results for each of the signalized intersections. The detailed analysis worksheets are included in Appendix H.

**Table 13: Future with Development Intersection Analysis (2028 Full-Build)**

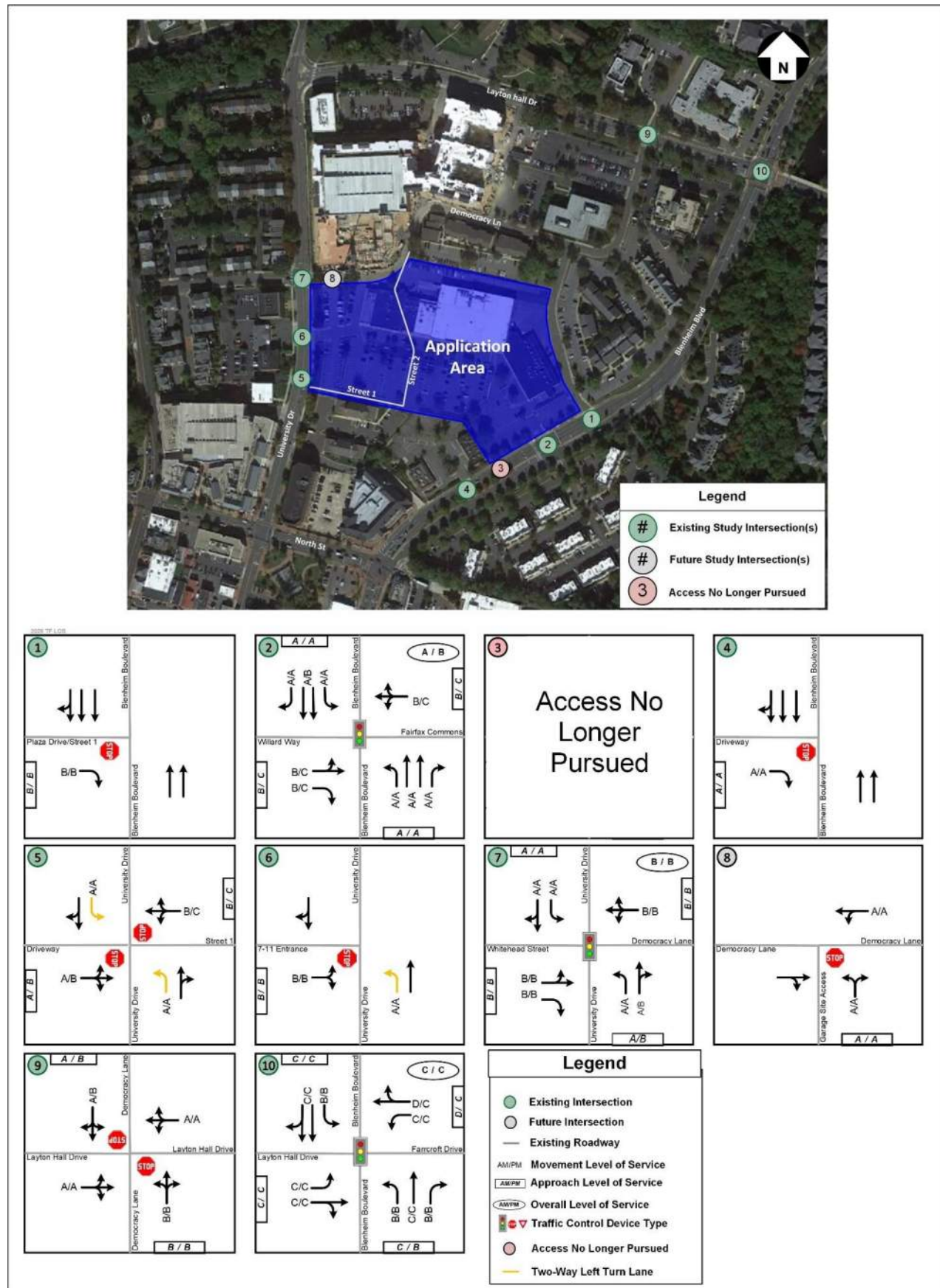
| No. | Intersection (Movement)                                                                | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |              |
|-----|----------------------------------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------|
|     |                                                                                        |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue |
| 1   | Blenheim Boulevard (N/S) at Plaza Drive (E/W)<br>Overall Intersection (TWSC)           |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>10.1</b>     |                           |                    | <b>B</b>     | <b>10.7</b>     |                           |              |
|     | Eastbound Right                                                                        |                                       | B            | 10.1            |                           | 3                  | B            | 10.7            |                           | 5            |
| 2   | Blenheim Boulevard (N/S) at Fairfax Commons (E/W)<br>Overall Intersection (Signalized) |                                       | <b>A</b>     | <b>8.8</b>      |                           |                    | <b>B</b>     | <b>11.2</b>     |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>B</b>     | <b>18.2</b>     |                           |                    | <b>C</b>     | <b>26.1</b>     |                           |              |
|     | Eastbound Thru/Left                                                                    |                                       | B            | 17.8            | 1                         | 19                 | C            | 25.1            | 18                        | 47           |
|     | Eastbound Right                                                                        |                                       | B            | 18.7            | 0                         | 0                  | C            | 26.8            | 0                         | 15           |
|     | Westbound Approach                                                                     |                                       | <b>B</b>     | <b>17.6</b>     |                           |                    | <b>C</b>     | <b>26.8</b>     |                           |              |
|     | Westbound Left/Thru/Right                                                              |                                       | B            | 17.6            | 0                         | 0                  | C            | 26.8            | 27                        | 65           |
|     | Northbound Approach                                                                    |                                       | <b>A</b>     | <b>8.5</b>      |                           |                    | <b>A</b>     | <b>7.6</b>      |                           |              |
|     | Northbound Left                                                                        | 120                                   | A            | 6.9             | 0                         | 12                 | A            | 6.9             | 9                         | 25           |
|     | Northbound Thru                                                                        |                                       | A            | 8.6             | 0                         | 114                | A            | 7.7             | 33                        | 98           |
|     | Northbound Right                                                                       |                                       | A            | 7.0             | 0                         | 0                  | A            | 6.7             | 0                         | 0            |
|     | Southbound Approach                                                                    |                                       | <b>A</b>     | <b>8.7</b>      |                           |                    | <b>A</b>     | <b>9.9</b>      |                           |              |
|     | Southbound Left                                                                        | 120                                   | A            | 7.3             | 1                         | 7                  | A            | 7.4             | 2                         | 8            |
|     | Southbound Thru                                                                        |                                       | A            | 8.8             | 0                         | 89                 | B            | 10.1            | 85                        | 141          |
|     | Southbound Right                                                                       |                                       | A            | 7.6             | 0                         | 0                  | A            | 8.2             | 0                         | 1            |
| 3   | Access No Longer Pursued                                                               |                                       |              |                 |                           |                    |              |                 |                           |              |
| 4   | Blenheim Boulevard (N/S) at Existing Driveway (E/W)<br>Overall Intersection (TWSC)     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>0.0</b>      |                           |                    | <b>A</b>     | <b>0.0</b>      |                           |              |
|     | Eastbound Right                                                                        |                                       | A            | 0.0             |                           | 0                  | A            | 0.0             |                           | 0            |
| 5   | University Drive (N/S) at Street 1(E/W)<br>Overall Intersection (TWSC)                 |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                                                     |                                       | <b>A</b>     | <b>9.4</b>      |                           |                    | <b>B</b>     | <b>12.2</b>     |                           |              |
|     | Eastbound Left/Thru/Right                                                              |                                       | A            | 9.4             |                           | 0                  | B            | 12.2            |                           | 3            |
|     | Westbound Approach                                                                     |                                       | <b>B</b>     | <b>13.4</b>     |                           |                    | <b>C</b>     | <b>17.5</b>     |                           |              |
|     | Westbound Left/Thru/Right                                                              |                                       | B            | 13.4            |                           | 0                  | C            | 17.5            |                           | 3            |
|     | Northbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Northbound Left                                                                        |                                       | A            | 7.7             |                           | 0                  | A            | 8.1             |                           | 0            |
|     | Southbound Approach                                                                    |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Southbound Left                                                                        |                                       | A            | 8.0             |                           | 5                  | A            | 8.2             |                           | 23           |

| No. | Intersection (Movement)                                         | Effective Storage Length (ft.)<br>[1] | AM Peak Hour |                 |                           |                    | PM Peak Hour |                 |                           |              |
|-----|-----------------------------------------------------------------|---------------------------------------|--------------|-----------------|---------------------------|--------------------|--------------|-----------------|---------------------------|--------------|
|     |                                                                 |                                       | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 50th % Queue (ft.)<br>[2] | 95th % Queue |
| 6   | University Drive (N/S) at 7-11 Driveway (N/S)                   |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (TWSC)                                     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                              |                                       | <b>B</b>     | <b>10.1</b>     |                           |                    | <b>B</b>     | <b>12.2</b>     |                           |              |
|     | Eastbound Left/Thru/Right                                       |                                       | B            | 10.1            |                           | 3                  | B            | 12.2            |                           | 8            |
| 7   | University Drive (N/S) at Whitehead Street/Democracy Lane (E/W) |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (Signalized)                               |                                       | <b>B</b>     | <b>11.4</b>     |                           |                    | <b>B</b>     | <b>12.7</b>     |                           |              |
|     | Eastbound Approach                                              |                                       | <b>B</b>     | <b>15.7</b>     |                           |                    | <b>B</b>     | <b>16.8</b>     |                           |              |
|     | Eastbound Left/Thru                                             |                                       | B            | 16.3            | 17                        | 108                | B            | 17.7            | 13                        | 91           |
| 8   | Eastbound Right                                                 |                                       | B            | 13.3            | 0                         | 10                 | B            | 15.4            | 0                         | 32           |
|     | Westbound Approach                                              |                                       | <b>B</b>     | <b>14.2</b>     |                           |                    | <b>B</b>     | <b>18.0</b>     |                           |              |
|     | Westbound Left/Thru/Right                                       |                                       | B            | 13.8            | 7                         | 60                 | B            | 18.0            | 13                        | 93           |
|     | Northbound Approach                                             |                                       | <b>A</b>     | <b>10.0</b>     |                           |                    | <b>B</b>     | <b>10.9</b>     |                           |              |
|     | Northbound Left                                                 |                                       | A            | 8.0             | 1                         | 12                 | A            | 9.1             | 3                         | 28           |
|     | Northbound Thru/Right                                           |                                       | A            | 10.0            | 37                        | 203                | B            | 11.0            | 37                        | 206          |
|     | Southbound Approach                                             |                                       | <b>A</b>     | <b>9.2</b>      |                           |                    | <b>B</b>     | <b>10.7</b>     |                           |              |
|     | Southbound Left                                                 | 150                                   | A            | 8.1             | 1                         | 17                 | A            | 9.0             | 3                         | 30           |
|     | Southbound Thru/Right                                           |                                       | A            | 9.3             | 20                        | 119                | B            | 10.9            | 35                        | 196          |
|     | Democracy Lane (E/W) at Garage Entrance (N/S)                   |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (TWSC)                                     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Westbound Approach                                              |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Westbound Left                                                  |                                       | A            | 7.3             |                           | 0                  | A            | 7.5             |                           | 3            |
|     | Northbound Approach                                             |                                       | <b>A</b>     | <b>9.2</b>      |                           |                    | <b>A</b>     | <b>9.7</b>      |                           |              |
|     | Northbound Left/Right                                           |                                       | A            | 9.2             |                           | 8                  | A            | 9.7             |                           | 5            |
| 9   | Layton Hall Drive (E/W) at Democracy Lane (N/S)                 |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (TWSC)                                     |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Approach                                              |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Eastbound Left                                                  |                                       | A            | 7.7             |                           | 3                  | A            | 7.6             |                           | 0            |
|     | Westbound Approach                                              |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Westbound Left                                                  |                                       | A            | 7.9             |                           | 0                  | A            | 7.9             |                           | 3            |
|     | Northbound Approach                                             |                                       | <b>B</b>     | <b>10.8</b>     |                           |                    | <b>B</b>     | <b>10.5</b>     |                           |              |
|     | Northbound Left/Thru/Right                                      |                                       | B            | 10.8            |                           | 3                  | B            | 10.5            |                           | 5            |
| 10  | Southbound Approach                                             |                                       | <b>A</b>     | <b>9.4</b>      |                           |                    | <b>B</b>     | <b>10.3</b>     |                           |              |
|     | Southbound Left/Thru/Right                                      |                                       | A            | 9.4             |                           | 0                  | B            | 10.3            |                           | 3            |
|     | Blenheim Boulevard (N/S) at Layton Hall Drive (E/W)             |                                       |              |                 |                           |                    |              |                 |                           |              |
|     | Overall Intersection (Signalized)                               |                                       | <b>C</b>     | <b>25.1</b>     |                           |                    | <b>C</b>     | <b>21.5</b>     |                           |              |
|     | Eastbound Approach                                              |                                       | <b>C</b>     | <b>32.1</b>     |                           |                    | <b>C</b>     | <b>27.5</b>     |                           |              |
|     | Eastbound Left                                                  |                                       | C            | 33.2            | 130                       | 313                | C            | 28.7            | 91                        | 196          |
|     | Eastbound Thru/Right                                            |                                       | C            | 25.0            | 7                         | 44                 | C            | 24.1            | 8                         | 47           |
|     | Westbound Approach                                              |                                       | <b>D</b>     | <b>38.1</b>     |                           |                    | <b>C</b>     | <b>31.2</b>     |                           |              |
|     | Westbound Left                                                  |                                       | C            | 33.8            | 7                         | 33                 | C            | 29.8            | 7                         | 30           |
|     | Westbound Thru/Right                                            |                                       | D            | 39.2            | 6                         | 52                 | C            | 31.9            | 5                         | 37           |
|     | Northbound Approach                                             |                                       | <b>C</b>     | <b>23.9</b>     |                           |                    | <b>B</b>     | <b>19.3</b>     |                           |              |
|     | Northbound Left                                                 | 250                                   | B            | 16.2            | 21                        | 51                 | B            | 14.8            | 14                        | 38           |
|     | Northbound Thru                                                 |                                       | C            | 25.0            | 232                       | 517                | C            | 20.0            | 150                       | 368          |
|     | Northbound Right                                                | 230                                   | B            | 15.5            | 0                         | 0                  | B            | 14.2            | 0                         | 0            |
|     | Southbound Approach                                             |                                       | <b>C</b>     | <b>21.3</b>     |                           |                    | <b>C</b>     | <b>20.2</b>     |                           |              |
|     | Southbound Left                                                 | 150                                   | B            | 18.5            | 5                         | 19                 | B            | 15.5            | 5                         | 19           |
|     | Southbound Thru/Right                                           |                                       | C            | 21.3            | 140                       | 228                | C            | 20.3            | 158                       | 262          |

NOTES:

[1] Effective storage length is based on the storage length plus one-half of the taper length per TOSAM guidelines.

[2] 50th Percentile Queues are not reported for TWSC intersections under HCM Methodology.



For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of D or better for each lane group at the intersections. The capacity analysis results indicate that **all movements operate at acceptable LOS** under Future (2028) with Development (Full-Build)

Queuing analysis results indicate that all study movements have 95th percentile queues accommodated in the available storage bays. Additionally, it was noted that the queueing on Democracy Lane is not anticipated to cause operational issues for the garage entrance for the development, which is located approximately 117 feet east of University Drive as the 50<sup>th</sup> and 95<sup>th</sup> percentile queues per Synchro analysis results for the westbound approach (Democracy Lane) are under 117 feet during both the AM and PM peak hours. With the development, the existing curb cut on Democracy Lane closest to University Drive (located about 90 feet from University Drive) will be closed and would mark an improvement upon the existing queuing conditions on Democracy Lane. The garage entrance gate is also planned to be located 50 feet away from Democracy Lane into the garage structure and hence will provide an additional two car storage for vehicles to queue without blocking the intersection at Democracy Lane. Additionally, Street 2 is now proposed to connect between Street 1 and Democracy Lane which will provide more options for vehicles and pedestrians to disperse between multiple paths.

### ***Internal Road Network***

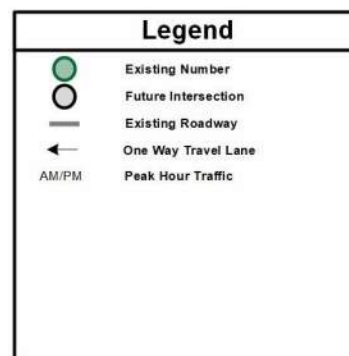
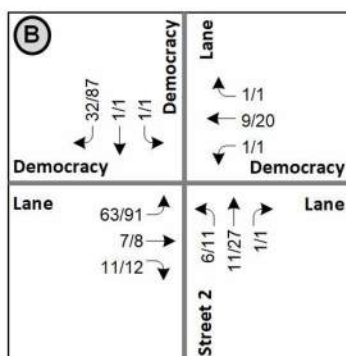
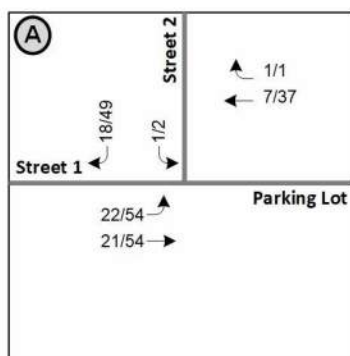
As mentioned previously, Street 1 and Street 2 are added within the application area to achieve City of Fairfax Small Area Plan vision for the site area of creating a grid-system of streets with emphasis on walkability within the Courthouse Plaza shopping center. With the addition of Street 1 at Study Intersection 5 and Street 2 between Democracy Lane and Street 1, future intersections are created. The intersection of Street 1 and Street 2 is labeled as 'Intersection A' and the intersection of Democracy Lane and Street 2 is named 'Intersection B'. Figure 36 shows the locations of these internal intersections with respect to the application area.



**Figure 36: Internal Intersections Locations**

The volumes at Intersection A were developed based on the westbound approach volumes at Study Intersection 5 for the 2028 Future Conditions with Development (Full Build) analysis scenario. Based on engineering judgement, 50% of the eastbound volumes on Street 1 were assigned as eastbound lefts onto Street 2 with the remaining 50% of the eastbound retail volumes on Street 1 continuing through to the parking lot.

For Intersection B, the site trips from the mixed-use building and a portion of site retail trips destined to/from the south on University Drive were assigned to the intersection. Approximately 90% of the remaining volume was assigned onto Democracy Lane and 10% as going eastward towards the back of the shopping center. Figure 37 shows the volumes at the two internal intersections.



**Figure 37: 2028 Future with Development (Full Build) Volumes at Internal Intersections**

It is noted that both Intersection A and Intersection B are planned to be Two-Way Stop Controlled intersections in the currently proposed conditions and potentially could be All-Way Stop Controlled if warranted based on results of MUTCD warrant analyses at a future stage in the project.

### ***Future with Development (2028) (Full-Build) - Internal Intersection Analysis***

Consistent with previous analysis scenarios, capacity analysis was performed at the two internal intersections within the study area during the weekday morning and evening peak hours under Future with Development conditions. *Synchro Version 11* was

used to analyze the study intersections based on the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition methodology and includes level of service (LOS), delay, and queue length comparisons for the turning movements analyzed. A peak hour-factor of 0.92 was used for the two future intersections.

The results of the intersection analysis are presented in Table 14 and are expressed in LOS and delay (seconds per vehicle) per lane group. The 95<sup>th</sup> percentile queue results for each intersection are also presented in Table 14 and are expressed in feet. The detailed analysis worksheets are included in Appendix J.

**Table 14: Future with Development Internal Intersection Analysis (2028 Full-Build)**

| No.      | Intersection (Movement)                        | Effective Storage Length (ft.) | AM Peak Hour |                 |                    | PM Peak Hour |                 |              |
|----------|------------------------------------------------|--------------------------------|--------------|-----------------|--------------------|--------------|-----------------|--------------|
|          |                                                |                                | LOS          | Delay (sec/veh) | 95th % Queue (ft.) | LOS          | Delay (sec/veh) | 95th % Queue |
| <b>A</b> | <b>Street 1 (E/W) and Street 2 (N/S)</b>       |                                |              |                 |                    |              |                 |              |
|          | <b>Overall Intersection (TWSC)</b>             |                                |              |                 |                    |              |                 |              |
|          | <b>Eastbound Approach</b>                      |                                |              |                 |                    |              |                 |              |
|          | Eastbound Left                                 |                                | A            | 7.3             | 0                  | A            | 0.0             | 0            |
|          | <b>Southbound Approach</b>                     |                                | A            | 8.5             |                    | A            | 0.0             |              |
|          | Southbound Left/Thru/Right                     |                                | A            | 8.5             | 3                  | A            | 0.0             | 0            |
| <b>B</b> | <b>Democracy Lane (E/W) and Street 2 (N/S)</b> |                                |              |                 |                    |              |                 |              |
|          | <b>Overall Intersection (TWSC)</b>             |                                |              |                 |                    |              |                 |              |
|          | <b>Eastbound Approach</b>                      |                                | A            | 9.4             |                    | A            | 9.7             |              |
|          | Eastbound Left/Thru/Right                      |                                | A            | 9.4             | 8                  | A            | 9.7             | 13           |
|          | <b>Westbound Approach</b>                      |                                | A            | 9.5             |                    | A            | 9.8             |              |
|          | Westbound Left/Thru/Right                      |                                | A            | 9.5             | 0                  | A            | 9.8             | 3            |
|          | <b>Northbound Approach</b>                     |                                |              |                 |                    |              |                 |              |
|          | Northbound Left                                |                                | A            | 7.3             | 0                  | A            | 7.4             | 0            |
|          | <b>Southbound Approach</b>                     |                                |              |                 |                    | A            | 7.2             |              |
|          | Southbound Left                                |                                | A            | 7.2             | 0                  | A            | 7.2             | 0            |

As observed from Table 14, all intersection approaches and movements operate at LOS A, with minimal queuing.

## Overall Comparison of Intersection Capacity and Queuing Analysis Results

As described in the previous sections, vehicular capacity analysis was performed for the following three scenarios:

- **Existing (2023) Scenario** – assumes existing traffic volume based on the counts.
- **Future without Development 2028** – assumes existing traffic volume plus additional traffic due to a 1% annual growth rate.
- **Future with Development 2028 (Full-Build)** – assumes Future without Development 2028 traffic plus traffic generated by the proposed Courthouse Plaza Development (Full Build). Trips associated with the inline retail to be removed (approximately 25.2 kSF) were removed from the existing driveways.

A comparison of the delays and LOS results is presented in Table 15 and the queue comparison for the study scenarios is included in Table 16 and Table 17.

**Table 15: Delay Comparison Table**

| No. | Intersection (Movement)                                             | Level of Service (LOS) (Sec./Veh.) |          |          |              |          |          |
|-----|---------------------------------------------------------------------|------------------------------------|----------|----------|--------------|----------|----------|
|     |                                                                     | AM Peak Hour                       |          |          | PM Peak Hour |          |          |
|     |                                                                     | 2023 EX                            | 2028 FB  | 2028 TF  | 2023 EX      | 2028 FB  | 2028 TF  |
| 1   | <b>Blenheim Boulevard (N/S) at Plaza Drive (E/W)</b>                |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                  | B (10.9)                           | B (10)   | B (10.1) | B (11.7)     | B (10.7) | B (10.7) |
| 2   | <b>Blenheim Boulevard (N/S) at Fairfax Commons (E/W)</b>            |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (Signalized)</b>                            | A (8.8)                            | A (8.6)  | A (8.8)  | B (11.2)     | B (11.2) | B (11.2) |
|     | Eastbound Approach                                                  | B (18.3)                           | B (18.3) | B (18.2) | C (26.1)     | C (26.1) | C (26.1) |
|     | Eastbound Thru/Left                                                 | B (17.9)                           | B (17.9) | B (17.8) | C (24.9)     | C (24.9) | C (25.1) |
|     | Eastbound Right                                                     | B (18.7)                           | B (18.8) | B (18.7) | C (26.8)     | C (26.8) | C (26.8) |
|     | Westbound Approach                                                  | B (17.7)                           | B (17.7) | B (17.6) | C (26.5)     | C (26.5) | C (26.8) |
|     | Westbound Left/Thru/Right                                           | B (17.7)                           | B (17.7) | B (17.6) | C (26.5)     | C (26.5) | C (26.8) |
|     | Northbound Approach                                                 | A (8.4)                            | A (8.3)  | A (8.5)  | A (7.6)      | A (7.6)  | A (7.6)  |
|     | Northbound Left                                                     | A (6.8)                            | A (6.7)  | A (6.9)  | A (6.8)      | A (6.8)  | A (6.9)  |
|     | Northbound Thru                                                     | A (8.6)                            | A (8.4)  | A (8.6)  | A (7.7)      | A (7.8)  | A (7.7)  |
|     | Northbound Right                                                    | A (6.9)                            | A (6.9)  | A (7)    | A (6.7)      | A (6.7)  | A (6.7)  |
|     | Southbound Approach                                                 | A (8.6)                            | A (8.5)  | A (8.7)  | A (9.6)      | A (9.7)  | A (9.9)  |
|     | Southbound Left                                                     | A (7.2)                            | A (7.1)  | A (7.3)  | A (7.2)      | A (7.3)  | A (7.4)  |
|     | Southbound Thru                                                     | A (8.7)                            | A (8.5)  | A (8.8)  | A (9.8)      | A (9.9)  | B (10.1) |
|     | Southbound Right                                                    | A (7.5)                            | A (7.4)  | A (7.6)  | A (8.1)      | A (8.1)  | A (8.2)  |
| 4   | <b>Blenheim Boulevard (N/S) at Existing Driveway (E/W)</b>          |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                  | A (0)                              | A (0)    | A (0)    | A (0)        | A (0)    | A (0)    |
| 5   | <b>University Drive (N/S) at Existing Driveway (E/W) (3-Legged)</b> |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                  | A (8.9)                            | A (9.4)  |          | B (10.3)     | B (11.4) |          |
|     | Eastbound Left/Right                                                | A (8.9)                            | A (9.4)  |          | B (10.3)     | B (11.4) |          |
|     | Northbound Approach                                                 |                                    |          |          |              |          |          |
|     | Northbound Left                                                     | A (7.7)                            | A (7.7)  |          | A (8.2)      | A (8.2)  |          |
| 5   | <b>University Drive (N/S) at Street 1(E/W) (4-Legged)</b>           |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                  |                                    |          | A (9.4)  |              |          | B (12.2) |
|     | Eastbound Left/Thru/Right                                           |                                    |          | A (9.4)  |              |          | B (12.2) |
|     | Westbound Approach                                                  |                                    |          | B (13.4) |              |          | C (17.5) |
|     | Westbound Left/Thru/Right                                           |                                    |          | B (13.4) |              |          | C (17.5) |
|     | Northbound Approach                                                 |                                    |          |          |              |          |          |
|     | Northbound Left                                                     |                                    |          | A (7.7)  |              |          | A (8.1)  |
|     | Southbound Approach                                                 |                                    |          |          |              |          |          |
|     | Southbound Left                                                     |                                    |          | A (8)    |              |          | A (8.2)  |

| No. | Intersection (Movement)                                                | Level of Service (LOS) (Sec./Veh.) |          |          |              |          |          |
|-----|------------------------------------------------------------------------|------------------------------------|----------|----------|--------------|----------|----------|
|     |                                                                        | AM Peak Hour                       |          |          | PM Peak Hour |          |          |
|     |                                                                        | 2023 EX                            | 2028 FB  | 2028 TF  | 2023 EX      | 2028 FB  | 2028 TF  |
| 6   | <b>University Drive (N/S) at 7-11 Driveway (E/W) (4-Legged)</b>        |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                     |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                     | A (9.9)                            | B (10.6) |          | B (13.2)     | C (15.7) |          |
|     | Eastbound Left/Thru/Right                                              | A (9.9)                            | B (10.6) |          | B (13.2)     | C (15.7) |          |
|     | Westbound Approach                                                     | B (12.4)                           | B (13.1) |          | B (13.6)     | C (16.4) |          |
|     | Westbound Left                                                         | B (13.5)                           | B (14.2) |          | C (16.4)     | C (21.2) |          |
|     | Westbound Thru/Right                                                   | A (9.3)                            | B (10.1) |          | B (10.8)     | B (11.7) |          |
|     | Northbound Approach                                                    |                                    |          |          |              |          |          |
| 6   | <b>University Drive (N/S) at 7-11 Driveway (N/S) (3-Legged)</b>        |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                     |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                     |                                    |          | B (10.1) |              |          | B (12.2) |
|     | Eastbound Left/Thru/Right                                              |                                    |          | B (10.1) |              |          | B (12.2) |
|     | Northbound Approach                                                    |                                    |          |          |              |          |          |
|     | Northbound Thru/Left                                                   |                                    |          | A (7.8)  |              |          | A (8.3)  |
|     |                                                                        |                                    |          |          |              |          |          |
|     |                                                                        |                                    |          |          |              |          |          |
| 7   | <b>University Drive (N/S) at Whitehead Street/Democracy Lane (E/W)</b> |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (Signalized)</b>                               |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                     | B (10.4)                           | B (11)   | B (11.4) | B (10.3)     | B (10.8) | B (12.7) |
|     | Eastbound Left/Thru                                                    | B (13.5)                           | B (14.9) | B (15.7) | B (12.8)     | B (14.2) | B (16.8) |
|     | Eastbound Right                                                        | B (14)                             | B (15.5) | B (16.3) | B (13.5)     | B (14.9) | B (17.7) |
|     | Westbound Approach                                                     | B (11.3)                           | B (12.7) | B (13.3) | B (11.7)     | B (13)   | B (15.4) |
|     | Westbound Left/Thru/Right                                              | B (11.8)                           | B (13.2) | B (14.2) | B (13.4)     | B (14.9) | B (18)   |
|     | Northbound Approach                                                    | B (11.8)                           | B (13.2) | B (13.8) | B (13.4)     | B (14.9) | B (18)   |
|     | Northbound Thru/Left (Northbound Left in 2028)                         | A (9.5)                            | A (9.9)  | A (10)   | A (9.2)      | A (9.4)  | B (10.9) |
|     | Northbound Thru/Right                                                  | A (9.5)                            | A (7.9)  | A (8)    | A (9.2)      | A (9.5)  | A (9.1)  |
|     | Southbound Approach                                                    | A (9.5)                            | A (9.9)  | A (10)   | A (9.2)      | A (9.5)  | B (11)   |
|     | Southbound Thru/Left (Southbound Left in 2028)                         | A (9.1)                            | A (9.2)  | A (9.2)  | A (9.1)      | A (9.4)  | B (10.7) |
|     | Southbound Thru/Right                                                  | A (9.1)                            | A (7.9)  | A (8.1)  | A (9.1)      | A (9.5)  | A (9)    |
|     | Southbound Thru/Right                                                  | A (9.1)                            | A (9.2)  | A (9.3)  | A (9.1)      | A (9.5)  | B (10.9) |
| 8   | <b>Democracy Lane (E/W) at Garage Entrance (N/S)</b>                   |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                     |                                    |          |          |              |          |          |
|     | Westbound Approach                                                     |                                    |          |          |              |          |          |
|     | Westbound Left                                                         |                                    |          | A (7.3)  |              |          | A (7.5)  |
|     | Northbound Approach                                                    |                                    |          | A (9.2)  |              |          | A (9.7)  |
| 9   | <b>Layton Hall Drive (E/W) at Democracy Lane (N/S)</b>                 |                                    |          |          |              |          |          |
|     | <b>Overall Intersection (TWSC)</b>                                     |                                    |          |          |              |          |          |
|     | Eastbound Approach                                                     |                                    |          |          |              |          |          |
|     | Eastbound Left                                                         | A (7.7)                            | A (7.7)  | A (7.7)  | A (7.6)      | A (7.6)  | A (7.6)  |
|     | Westbound Approach                                                     |                                    |          |          |              |          |          |
|     | Westbound Left                                                         | A (7.9)                            | A (7.9)  | A (7.9)  | A (7.8)      | A (7.8)  | A (7.9)  |
|     | Northbound Approach                                                    | B (11.5)                           | B (11.3) | B (10.8) | B (10.5)     | B (10.5) | B (10.5) |
|     | Northbound Left/Thru/Right                                             | B (11.5)                           | B (11.3) | B (10.8) | B (10.5)     | B (10.5) | B (10.5) |
|     | Southbound Approach                                                    | A (9.4)                            | A (9.4)  | A (9.4)  | B (10.1)     | B (10.1) | B (10.3) |
|     | Southbound Left/Thru/Right                                             | A (9.4)                            | A (9.4)  | A (9.4)  | B (10.1)     | B (10.1) | B (10.3) |

| No. | Intersection (Movement)                                    | Level of Service (LOS) (Sec./Veh.) |                 |                 |                     |                 |                 |
|-----|------------------------------------------------------------|------------------------------------|-----------------|-----------------|---------------------|-----------------|-----------------|
|     |                                                            | <u>AM Peak Hour</u>                |                 |                 | <u>PM Peak Hour</u> |                 |                 |
|     |                                                            | 2023 EX                            | 2028 FB         | 2028 TF         | 2023 EX             | 2028 FB         | 2028 TF         |
| 10  | <b>Blenheim Boulevard (N/S) at Layton Hall Drive (E/W)</b> |                                    |                 |                 |                     |                 |                 |
|     | <b>Overall Intersection (Signalized)</b>                   | <b>C (24.9)</b>                    | <b>C (24.3)</b> | <b>C (25.1)</b> | <b>C (20.7)</b>     | <b>C (21.2)</b> | <b>C (21.5)</b> |
|     | <i>Eastbound Approach</i>                                  | <i>C (32.4)</i>                    | <i>C (31.4)</i> | <i>C (32.1)</i> | <i>C (26.8)</i>     | <i>C (27.3)</i> | <i>C (27.5)</i> |
|     | Eastbound Left                                             | C (33.6)                           | C (32.6)        | C (33.2)        | C (27.9)            | C (28.5)        | C (28.7)        |
|     | Eastbound Thru/Right                                       | C (25.8)                           | C (25.1)        | C (25)          | C (23.8)            | C (24.2)        | C (24.1)        |
|     | <i>Westbound Approach</i>                                  | <i>D (38.7)</i>                    | <i>D (36.9)</i> | <i>D (38.1)</i> | <i>C (30)</i>       | <i>C (30.8)</i> | <i>C (31.2)</i> |
|     | Westbound Left                                             | C (33.9)                           | C (32.8)        | C (33.8)        | C (28.6)            | C (29.4)        | C (29.8)        |
|     | Westbound Thru/Right                                       | D (39.9)                           | D (37.9)        | D (39.2)        | C (30.7)            | C (31.5)        | C (31.9)        |
|     | <i>Northbound Approach</i>                                 | <i>C (23.7)</i>                    | <i>C (23.2)</i> | <i>C (23.9)</i> | <i>B (18.7)</i>     | <i>B (19.1)</i> | <i>B (19.3)</i> |
|     | Northbound Left                                            | B (15.9)                           | B (15.7)        | B (16.2)        | B (14.4)            | B (14.6)        | B (14.8)        |
|     | Northbound Thru                                            | C (24.8)                           | C (24.2)        | C (25)          | B (19.3)            | B (19.9)        | C (20)          |
|     | Northbound Right                                           | B (15.2)                           | B (15)          | B (15.5)        | B (14)              | B (14.1)        | B (14.2)        |
|     | <i>Southbound Approach</i>                                 | <i>C (20.9)</i>                    | <i>C (20.6)</i> | <i>C (21.3)</i> | <i>B (19.3)</i>     | <i>B (19.8)</i> | <i>C (20.2)</i> |
|     | Southbound Left                                            | B (18.3)                           | B (18)          | B (18.5)        | B (15.1)            | B (15.4)        | B (15.5)        |
|     | Southbound Thru/Right                                      | C (20.9)                           | C (20.7)        | C (21.3)        | B (19.4)            | B (19.9)        | C (20.3)        |

**Note: EX = Existing, FB = Future Background, TF = Total Future/Future with Development**

As mentioned previously, it is desirable to achieve a level of service (LOS) of D or better for each lane group at the intersections. Table 15 shows that the capacity analysis results indicate that all movements operate at acceptable LOS under all analysis scenarios.

**Table 16: Queue Comparison Table (50<sup>th</sup> Percentile – for Signalized Intersections Only)**

| No. | Intersection (Movement)                                                | 50th Percentile Queue (ft.)    |              |         |         |              |         |         |
|-----|------------------------------------------------------------------------|--------------------------------|--------------|---------|---------|--------------|---------|---------|
|     |                                                                        | Effective Storage Length (ft.) | AM Peak Hour |         |         | PM Peak Hour |         |         |
|     |                                                                        |                                | 2023 EX      | 2028 FB | 2028 TF | 2023 EX      | 2028 FB | 2028 TF |
| 2   | <b>Blenheim Boulevard (N/S) at Fairfax Commons (E/W)</b>               |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                               |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Eastbound Thru/Left                                                    |                                | 1            | 1       | 1       | 17           | 17      | 14      |
|     | Eastbound Right                                                        |                                | 0            | 0       | 0       | 0            | 0       | 0       |
|     | <i>Westbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Westbound Left/Thru/Right                                              |                                | 0            | 0       | 0       | 27           | 27      | 27      |
|     | <i>Northbound Approach</i>                                             |                                |              |         |         |              |         |         |
|     | Northbound Left                                                        | 120                            | 0            | 0       | 0       | 8            | 8       | 8       |
|     | Northbound Thru                                                        |                                | 0            | 0       | 0       | 32           | 34      | 33      |
|     | Northbound Right                                                       |                                | 0            | 0       | 0       | 0            | 0       | 0       |
|     | <i>Southbound Approach</i>                                             |                                |              |         |         |              |         |         |
| 7   | <b>University Drive (N/S) at Whitehead Street/Democracy Lane (E/W)</b> |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                               |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Eastbound Left/Thru                                                    |                                | 15           | 16      | 16      | 11           | 13      | 13      |
|     | Eastbound Right                                                        |                                | 0            | 0       | 0       | 0            | 0       | 0       |
|     | <i>Westbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Westbound Left/Thru/Right                                              |                                | 4            | 4       | 7       | 10           | 11      | 14      |
|     | <i>Northbound Approach</i>                                             |                                |              |         |         |              |         |         |
|     | Northbound Thru/Left (Northbound Left in 2028)                         | 150                            | 17           | 1       | 1       | 17           | 3       | 3       |
|     | Northbound Thru/Right                                                  |                                | 17           | 36      | 37      | 17           | 35      | 37      |
|     | <i>Southbound Approach</i>                                             |                                |              |         |         |              |         |         |
|     | Southbound Thru/Left (Southbound Left in 2028)                         |                                | 9            | 1       | 1       | 16           | 1       | 3       |
| 10  | <b>Blenheim Boulevard (N/S) at Layton Hall Drive (E/W)</b>             |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                               |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Eastbound Left                                                         |                                | 125          | 115     | 128     | 78           | 86      | 90      |
|     | Eastbound Thru/Right                                                   |                                | 8            | 7       | 7       | 7            | 7       | 7       |
|     | <i>Westbound Approach</i>                                              |                                |              |         |         |              |         |         |
|     | Westbound Left                                                         |                                | 8            | 7       | 7       | 6            | 7       | 7       |
|     | Westbound Thru/Right                                                   |                                | 6            | 5       | 6       | 5            | 5       | 5       |
|     | <i>Northbound Approach</i>                                             |                                |              |         |         |              |         |         |
|     | Northbound Left                                                        | 250                            | 22           | 20      | 21      | 12           | 14      | 14      |
|     | Northbound Thru                                                        |                                | 248          | 218     | 231     | 136          | 150     | 148     |
|     | Northbound Right                                                       | 230                            | 0            | 0       | 0       | 0            | 0       | 0       |
|     | <i>Southbound Approach</i>                                             |                                |              |         |         |              |         |         |
|     | Southbound Left                                                        | 150                            | 6            | 5       | 5       | 5            | 5       | 5       |
|     | Southbound Thru/Right                                                  |                                | 147          | 133     | 139     | 142          | 155     | 156     |

**Note: EX = Existing, FB = Future Background, TF = Total Future/Future with Development**

Table 16 shows that all 50th percentile queues are accommodated within the available storage for all movements at the signalized intersections in the study area.

**Table 17: Queue Comparison Table (95<sup>th</sup> Percentile)**

| No. | Intersection (Movement)                                             | 95th Percentile Queues (ft.)   |              |         |         |              |         |         |
|-----|---------------------------------------------------------------------|--------------------------------|--------------|---------|---------|--------------|---------|---------|
|     |                                                                     | Effective Storage Length (ft.) | AM Peak Hour |         |         | PM Peak Hour |         |         |
|     |                                                                     |                                | 2023 EX      | 2028 FB | 2028 TF | 2023 EX      | 2028 FB | 2028 TF |
| 1   | <b>Blenheim Boulevard (N/S) at Plaza Drive (E/W)</b>                |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                |              |         |         |              |         |         |
|     | Eastbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Eastbound Right                                                     |                                | 0            | 0       | 3       | 5            | 5       | 5       |
| 2   | <b>Blenheim Boulevard (N/S) at Fairfax Commons (E/W)</b>            |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                            |                                |              |         |         |              |         |         |
|     | Eastbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Eastbound Thru/Left                                                 |                                | 17           | 17      | 19      | 45           | 45      | 47      |
|     | Eastbound Right                                                     |                                | 0            | 0       | 0       | 18           | 18      | 15      |
|     | Westbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Westbound Left/Thru/Right                                           |                                | 0            | 0       | 0       | 66           | 66      | 65      |
|     | Northbound Approach                                                 |                                |              |         |         |              |         |         |
|     | Northbound Left                                                     | 120                            | 11           | 11      | 12      | 22           | 22      | 25      |
|     | Northbound Thru                                                     |                                | 108          | 113     | 114     | 94           | 100     | 98      |
|     | Northbound Right                                                    |                                | 0            | 0       | 0       | 0            | 0       | 0       |
|     | Southbound Approach                                                 |                                |              |         |         |              |         |         |
|     | Southbound Left                                                     | 120                            | 6            | 7       | 7       | 8            | 8       | 8       |
|     | Southbound Thru                                                     |                                | 83           | 86      | 89      | 132          | 140     | 141     |
|     | Southbound Right                                                    |                                | 0            | 0       | 0       | 0            | 0       | 1       |
| 4   | <b>Blenheim Boulevard (N/S) at Existing Driveway (E/W)</b>          |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                |              |         |         |              |         |         |
|     | Eastbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Eastbound Right                                                     |                                | 0            | 0       | 0       | 0            | 0       | 0       |
| 5   | <b>University Drive (N/S) at Existing Driveway (E/W) (3-Legged)</b> |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                |              |         |         |              |         |         |
|     | Eastbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Eastbound Left/Right                                                |                                | 0            | 0       |         | 3            | 3       |         |
|     | Northbound Approach                                                 |                                |              |         |         |              |         |         |
|     | Northbound Left                                                     |                                | 0            | 0       |         | 0            | 0       |         |
| 5   | <b>University Drive (N/S) at Street 1(E/W) (4-Legged)</b>           |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                  |                                |              |         |         |              |         |         |
|     | Eastbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Eastbound Left/Thru/Right                                           |                                |              |         | 0       |              |         | 3       |
|     | Westbound Approach                                                  |                                |              |         |         |              |         |         |
|     | Westbound Left/Thru/Right                                           |                                |              |         | 0       |              |         | 3       |
|     | Northbound Approach                                                 |                                |              |         |         |              |         |         |
|     | Northbound Left                                                     |                                |              |         | 0       |              |         | 0       |
|     | Southbound Approach                                                 |                                |              |         |         |              |         |         |
|     | Southbound Left                                                     |                                |              |         | 5       |              |         | 23      |

| No. | Intersection (Movement)                                                           | 95th Percentile Queues (ft.)   |              |         |         |              |         |         |
|-----|-----------------------------------------------------------------------------------|--------------------------------|--------------|---------|---------|--------------|---------|---------|
|     |                                                                                   | Effective Storage Length (ft.) | AM Peak Hour |         |         | PM Peak Hour |         |         |
|     |                                                                                   |                                | 2023 EX      | 2028 FB | 2028 TF | 2023 EX      | 2028 FB | 2028 TF |
| 6   | <b>University Drive (N/S) at 7-11 Driveway (E/W) (4-Legged)</b>                   |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                                |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Eastbound Left/Thru/Right                                                         |                                | 3            | 3       |         | 8            | 10      |         |
|     | <i>Westbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Westbound Left                                                                    |                                | 3            | 3       |         | 10           | 15      |         |
|     | Westbound Thru/Right                                                              |                                | 0            | 0       |         | 5            | 8       |         |
|     | <i>Northbound Approach</i>                                                        |                                |              |         |         |              |         |         |
| 6   | <b>University Drive (N/S) at 7-11 Driveway (N/S) (3-Legged)</b>                   |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                                |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Eastbound Left/Thru/Right                                                         |                                |              |         | 3       |              |         | 8       |
|     | <i>Northbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Northbound Thru/Left                                                              |                                |              |         | 0       |              |         | 0       |
|     | <i>Southbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Southbound Thru/Left (EX Only)                                                    |                                | 0            | 0       |         | 3            | 3       |         |
| 7   | <b>University Drive (N/S) at Whitehead Street/Democracy Lane (E/W) (4-Legged)</b> |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                                          |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Eastbound Left/Thru                                                               |                                | 91           | 105     | 108     | 79           | 88      | 91      |
|     | Eastbound Right                                                                   |                                | 9            | 10      | 10      | 28           | 32      | 32      |
|     | <i>Westbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Westbound Left/Thru/Right                                                         |                                | 33           | 38      | 60      | 70           | 79      | 93      |
|     | <i>Northbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Northbound Thru/Left (Northbound Left in 2028)                                    | 150                            | 89           | 12      | 12      | 92           | 27      | 28      |
|     | Northbound Thru/Right                                                             |                                | 89           | 200     | 203     | 92           | 193     | 206     |
|     | <i>Southbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Southbound Thru/Left (Southbound Left in 2028)                                    |                                | 55           | 9       | 17      | 87           | 16      | 30      |
|     | Southbound Thru/Right                                                             |                                | 55           | 118     | 119     | 87           | 189     | 196     |
| 8   | <b>Democracy Lane (E/W) at Garage Entrance (N/S)</b>                              |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                                |                                |              |         |         |              |         |         |
|     | <i>Westbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Westbound Left                                                                    |                                |              |         | 0       |              |         | 3       |
|     | <i>Northbound Approach</i>                                                        |                                |              |         |         |              |         |         |
| 9   | <b>Layton Hall Drive (E/W) at Democracy Lane (N/S)</b>                            |                                |              |         |         |              |         |         |
|     | <b>Overall Intersection (TWSC)</b>                                                |                                |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Eastbound Left                                                                    |                                | 3            | 3       | 3       | 0            | 0       | 0       |
|     | <i>Westbound Approach</i>                                                         |                                |              |         |         |              |         |         |
|     | Westbound Left                                                                    |                                | 0            | 0       | 0       | 0            | 0       | 3       |
|     | <i>Northbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Northbound Left/Thru/Right                                                        |                                | 3            | 3       | 3       | 5            | 5       | 5       |
|     | <i>Southbound Approach</i>                                                        |                                |              |         |         |              |         |         |
|     | Southbound Left/Thru/Right                                                        |                                | 0            | 0       | 0       | 3            | 3       | 3       |

| No. | Intersection (Movement)                                    | 95th Percentile Queues (ft.)         |              |         |         |              |         |         |
|-----|------------------------------------------------------------|--------------------------------------|--------------|---------|---------|--------------|---------|---------|
|     |                                                            | Effective<br>Storage<br>Length (ft.) | AM Peak Hour |         |         | PM Peak Hour |         |         |
|     |                                                            |                                      | 2023 EX      | 2028 FB | 2028 TF | 2023 EX      | 2028 FB | 2028 TF |
| 10  | <b>Blenheim Boulevard (N/S) at Layton Hall Drive (E/W)</b> |                                      |              |         |         |              |         |         |
|     | <b>Overall Intersection (Signalized)</b>                   |                                      |              |         |         |              |         |         |
|     | <i>Eastbound Approach</i>                                  |                                      |              |         |         |              |         |         |
|     | Eastbound Left                                             |                                      | 279          | 284     | 313     | 172          | 187     | 196     |
|     | Eastbound Thru/Right                                       |                                      | 44           | 44      | 44      | 46           | 47      | 47      |
|     | <i>Westbound Approach</i>                                  |                                      |              |         |         |              |         |         |
|     | Westbound Left                                             |                                      | 34           | 33      | 33      | 29           | 29      | 30      |
|     | Westbound Thru/Right                                       |                                      | 50           | 52      | 52      | 35           | 36      | 37      |
|     | <i>Northbound Approach</i>                                 |                                      |              |         |         |              |         |         |
|     | Northbound Left                                            | 250                                  | 49           | 51      | 51      | 35           | 38      | 38      |
|     | Northbound Thru                                            |                                      | 490          | 515     | 517     | 338          | 366     | 368     |
|     | Northbound Right                                           | 230                                  | 0            | 0       | 0       | 0            | 0       | 0       |
|     | <i>Southbound Approach</i>                                 |                                      |              |         |         |              |         |         |
|     | Southbound Left                                            | 150                                  | 19           | 19      | 19      | 18           | 18      | 19      |
|     | Southbound Thru/Right                                      |                                      | 217          | 226     | 228     | 234          | 254     | 262     |

**Note: EX = Existing, FB = Future Background, TF = Total Future/Future with Development**

Table 17 shows that the 95<sup>th</sup> percentile queues are accommodated in the available storage bays for all lane movements at the study intersections within the study area.

## Supplemental SimTraffic Analysis for Democracy Lane and University Drive Intersection

Queuing analyses for the intersection of Democracy Lane and University Drive (Intersection 7) were performed using *SimTraffic*, version 11. *SimTraffic* micro-simulation model calibration was based on volume as per the collected counts which serve the basis of this TIS.

*SimTraffic* analysis for the intersection in Existing (2023) and Full-Build (2028) conditions was performed using *SimTraffic*, version 11. All *SimTraffic* model parameters and assumptions for this report, including simulation seeding time, determination of the number of simulation runs, simulation parameters, and MOE outputs are consistent with VDOT's TOSAM - Version 2.0 guidelines. The parameters used for simulation are depicted in Table 18. Per Section 7.6 of the TOSAM, all other parameters not addressed in the table should not be modified.

**Table 18: SimTraffic Input Parameters**

| <b>SimTraffic (Ver. 11) Analysis Input Parameters</b> |                                                                                                                                                                                      |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Intervals                                   | One (1) Seeding Interval and Four (4) Recording Intervals                                                                                                                            |
| Seeding and Recording Interval Duration               | 15-minutes (each)                                                                                                                                                                    |
| Peak Hour Factor (PHF) Adjustment                     | Selected "Yes" to One of the Four (1 of 4) Recording Intervals<br>Selected "No" for all Other Intervals                                                                              |
| Anti-PHF Adjustment                                   | Selected "Yes" for Three (3) Recording Intervals, where PHF Adjustment is set to "No"<br>Selected "No" for the seeding and recording intervals, where PHF Adjustment is set to "Yes" |
| Number of Runs                                        | Based on the Microsimulation Sample Size Direction Guidance                                                                                                                          |

10 model runs were conducted, with queuing reports representing the average of the 10 simulation runs generated, starting with random seed 1, except where noted in the results. A 15-minute seeding period was utilized. The simulations were recorded for four 15-minute periods for a total of one hour, with anti-PHF volume adjustment for periods 1, 3, and 4, and PHF volume adjustment for period 2.

The input parameters for the Simtraffic conditions are consistent with the previous Synchro results for all inputs. The vehicular and pedestrian volumes that were analyzed are shown previously in the Existing and Future with Development Volume graphics. The intersection phasing is consistent with what was presented in the Synchro analysis and is shown below for reference. A summary of the number of pedestrian calls assumed at the intersection of University Drive and Whitehead Street/Democracy Lane in the Existing and Future scenarios are shown in Table 20. Please note that for the purposes of this analysis it was conservatively assumed that each pedestrian would have an individual pedestrian call. This is conservative as a number of the pedestrians are anticipated to be going to/from the bus stop which would have platooned pedestrian trips.

| PHASING SETTINGS    |  2-NBTL |  3-Ped |  4-WBTL |  6-SBTL |  8-EBTL |
|---------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Minimum Initial (s) | 7.0                                                                                        | 1.0                                                                                       | 7.0                                                                                        | 7.0                                                                                        | 7.0                                                                                        |
| Minimum Split (s)   | 22.0                                                                                       | 24.0                                                                                      | 13.0                                                                                       | 22.0                                                                                       | 13.0                                                                                       |
| Maximum Split (s)   | 55.0                                                                                       | 24.0                                                                                      | 31.0                                                                                       | 55.0                                                                                       | 31.0                                                                                       |
| Yellow Time (s)     | 3.5                                                                                        | 3.0                                                                                       | 3.9                                                                                        | 3.5                                                                                        | 3.9                                                                                        |
| All-Red Time (s)    | 1.5                                                                                        | 1.0                                                                                       | 2.1                                                                                        | 1.5                                                                                        | 2.1                                                                                        |

**Figure 38: Phasing Parameters**

**Table 19: Analyzed Pedestrian Calls at University Drive and Whitehead Street/Democracy**

|                         | Number of Pedestrian Calls |    |
|-------------------------|----------------------------|----|
|                         | AM                         | PM |
| Existing                | 8                          | 12 |
| Future with Development | 20                         | 24 |

Table 20 shows the results of the *SimTraffic* analysis for the existing (2023) conditions.

**Table 20: 2023 Existing Conditions - Simulation Analysis Results**

| No. | Intersection (Movement)                                         | Effective Storage Length (ft.) | SimTraffic Delay (s) | AM Peak            |                 | SimTraffic Delay (s) | PM Peak            |                 |
|-----|-----------------------------------------------------------------|--------------------------------|----------------------|--------------------|-----------------|----------------------|--------------------|-----------------|
|     |                                                                 |                                |                      | 50th % Queue (ft.) | Max Queue (ft.) |                      | 50th % Queue (ft.) | Max Queue (ft.) |
| 7   | University Drive (N/S) at Whitehead Street/Democracy Lane (E/W) |                                |                      |                    |                 |                      |                    |                 |
|     | Overall Intersection (Signalized)                               |                                | 7.2                  |                    |                 | 9.0                  |                    |                 |
|     | <b>Eastbound Approach</b>                                       |                                |                      |                    |                 |                      |                    |                 |
|     | Eastbound Left/Thru                                             |                                | 10                   | 43                 | 114             | 13.7                 | 36                 | 94              |
|     | Eastbound Right                                                 |                                | 3.2                  | 16                 | 48              | 3.8                  | 25                 | 56              |
|     | <b>Westbound Approach</b>                                       |                                |                      |                    |                 |                      |                    |                 |
|     | Westbound Left/Thru/Right                                       |                                | 8.1                  | 18                 | 67              | 13.1                 | 42                 | 114             |
|     | <b>Northbound Approach</b>                                      |                                |                      |                    |                 |                      |                    |                 |
|     | Northbound Left                                                 |                                | 6.9                  | 46                 | 95              | 9.0                  | 49                 | 128             |
|     | Northbound Thru/Right                                           |                                | 5.0                  | 23                 | 86              | 6.4                  | 31                 | 123             |
|     | <b>Southbound Approach</b>                                      |                                |                      |                    |                 |                      |                    |                 |
|     | Southbound Left                                                 | 150                            | 7.3                  | 48                 | 122             | 9.1                  | 65                 | 132             |
|     | Southbound Thru/Right                                           |                                | 4.6                  | 11                 | 48              | 6.2                  | 20                 | 50              |

Table 21 shows the results of the *SimTraffic* analysis at the intersection of Democracy Lane and University Drive for the Full-Build (2028) conditions. The results show the delay, average and maximum queues expressed in feet.

**Table 21: 2028 Full Build Conditions – Simulation Analysis Results**

| No. | Intersection (Movement)                                                                              | Effective Storage Length (ft.) | SimTraffic Delay (s) | AM Peak            |                 | SimTraffic Delay (s) | PM Peak            |                 |
|-----|------------------------------------------------------------------------------------------------------|--------------------------------|----------------------|--------------------|-----------------|----------------------|--------------------|-----------------|
|     |                                                                                                      |                                |                      | 50th % Queue (ft.) | Max Queue (ft.) |                      | 50th % Queue (ft.) | Max Queue (ft.) |
| 7   | University Drive (N/S) at Whitehead Street/Democracy Lane (E/W)<br>Overall Intersection (Signalized) |                                | 10.7                 |                    |                 | 12.4                 |                    |                 |
|     | <b>Eastbound Approach</b>                                                                            |                                |                      |                    |                 |                      |                    |                 |
|     | Eastbound Left                                                                                       |                                | 15.1                 | 54                 | 127             | 17.3                 | 45                 | 108             |
|     | Eastbound Thru                                                                                       |                                | 14.2                 | 54                 | 53              | 16.3                 | 45                 | 108             |
|     | Eastbound Right                                                                                      |                                | 4.3                  | 36                 | 53              | 4.8                  | 29                 | 59              |
|     | <b>Westbound Approach</b>                                                                            |                                |                      |                    |                 |                      |                    |                 |
|     | Westbound Left                                                                                       |                                | 13.4                 | 36                 | 94              | 18.3                 | 49                 | 114             |
|     | Westbound Thru                                                                                       |                                | 12.7                 | 36                 | 94              | 15.2                 | 49                 | 114             |
|     | Westbound Right                                                                                      |                                | 6.4                  | 36                 | 94              | 7.6                  | 49                 | 114             |
|     | <b>Northbound Approach</b>                                                                           |                                |                      |                    |                 |                      |                    |                 |
|     | Northbound Left                                                                                      |                                | 17.4                 | 25                 | 56              | 16.4                 | 16                 | 65              |
|     | Northbound Thru                                                                                      |                                | 10.3                 | 129                | 139             | 11.2                 | 79                 | 132             |
|     | Northbound Right                                                                                     |                                | 7.3                  | 129                | 139             | 7.6                  | 79                 | 96              |
|     | <b>Southbound Approach</b>                                                                           |                                |                      |                    |                 |                      |                    |                 |
|     | Southbound Left                                                                                      | 150                            | 14.7                 | 31                 | 37              | 19.8                 | 20                 | 96              |
|     | Southbound Thru                                                                                      |                                | 9.8                  | 132                | 166             | 12.4                 | 91                 | 203             |
|     | Southbound Right                                                                                     |                                | 4.4                  | 132                | 166             | 8.4                  | 91                 | 203             |

Based on the *SimTraffic* results shown in Table 20 and Table 21, the 50<sup>th</sup> percentile queue and the maximum for the westbound left/thru/right movement (Democracy Lane) have peak hour queues of below 117 feet (the distance from the garage entrance to University Drive). These queues were visually observed in *SimTraffic* with an exclusive pedestrian phase and it was observed that the westbound queue never exceeded over 3 to 4 car lengths. The delay and queuing results presented above are comparable to the Synchro results presented for the Existing (2023) and Full Build (2028) conditions. The *SimTraffic* results sheets are included in Appendix K.

## Conclusion

The analysis of the traffic operations for the proposed Courthouse Plaza Development supports the following major conclusions:

### ***Principal Findings and Conclusions***

Discussions regarding the study assumptions and relevant background information were held with City of Fairfax staff during the scoping meeting held on Monday, May 22, 2023. A copy of the signed scoping document is included in Appendix A. Please note, the pre-application submission illustrated potential future phases are possible at the site that align with the overall Comprehensive Plan vision for this area, however, no future phases are included with the application submission.

The analysis of the traffic operations for the proposed Courthouse Plaza Development supports the following major conclusions:

### ***Analysis Components***

- As determined based on discussions with City of Fairfax staff at the scoping meeting, the following growth was applied to the major movements to account for a regional increase in background traffic.
  - A 1.0 % per year growth rate from the year 2023 to 2028
- A TDM/mode split reduction of 15 percent was applied to the residential use, as agreed upon by City of Fairfax staff.
- At full build-out (2028), the proposed development will generate approximately 127 AM peak hour trips, 146 PM peak hour trips and 1,696 trips on a typical weekday per ITE Trip Generation Manual (11<sup>th</sup> Edition).
- The proposed development continues to generate fewer trips than the existing shopping center development at the site which is approximately 91.9 kSF in size.
- Please note that the application has evolved throughout the process, and as such the TIA has evolved to reflect the current plans. As compared to the previous TIA submission dated May 17, 2024, the development program has changed to include up to 13,000 SF of retail within the proposed building. The proposed access points to the development are unchanged, however, internally Street 2 has been extended to the north to intersect Democracy Lane. This configuration achieves the City's Comprehensive Plan vision of a grid system of streets within the Courthouse Plaza site. Lastly, in the latest submission, the analysis scenario with an adjacent separate Special Use Permit (SUP) application which included a coffee shop has been removed from the TIA, as that SUP is no longer being pursued and is no longer applicable.

### ***Multimodal Transportation Elements***

- Sidewalks currently exist at all study intersections, with a minimum width of 5 feet and up to 10 feet. Further pedestrian safety and convenience will be enhanced by the proposed development, with additional pedestrian accommodations within the block.
- The analysis assumes the City Project 'University Drive Spine' as a background improvement for all Future (2028) scenarios.
- Four (4) bus routes operated by CUE system currently serve the site area. The system provides scheduled, low-cost transportation services to George Mason University, to shopping centers and other locations within the City of Fairfax as well as the Vienna/Fairfax GMU WMATA station.

### ***Infrastructure***

- The Courthouse Plaza Development in existing conditions is accessed via multiple entrances on Blenheim Boulevard and University Drive.

- During the proposed redevelopment (Full-Build 2028), two new roadways (Street 1 and Street 2) will be constructed adjacent to the new multifamily building.
- Primary access to the site will continue to be provided via University Drive, Blenheim Boulevard, and Democracy Lane.
- The City of Fairfax project 'University Drive Spine', which provides multimodal improvements along University Drive with conversion of existing four-lane configuration to a three-lane configuration with Two-Way Left Turn Lanes (TWLTLs) and bike lanes is included in the analysis for all future scenarios.

### ***Analysis Results***

- All the study intersections operate at acceptable levels of service during all the study periods and analysis conditions.
- 95th percentile queues are contained within the available storage at the turning movements during all the study periods/conditions.
- The internal intersections within the development with the introduced Street 1 and Street 2 operate with minimal delays and queuing.

The location of the garage entrance and the westbound queue along Democracy Lane is not anticipated to cause operational issues. Analysis results show the 50<sup>th</sup> and 95<sup>th</sup> percentile queues are accommodated during all peak times, with the location of the garage gate allowing up to a two-car storage inside the garage.

# TECHNICAL ATTACHMENTS

**Appendix A – Signed Scoping Document**

**Appendix B – CUE Bus Schedules**

**Appendix C – Crash Data**

**Appendix D – Existing Turning Movement Counts**

**Appendix E – Comparison of Existing Inline Retail Trips and Inline Retail Trips to be Removed**

**Appendix F – Intersection Analysis Worksheets – Existing 2023**

**Appendix G – Intersection Analysis Worksheets – 2028 Future without Development**

**Appendix H – Intersection Analysis Worksheets – 2028 Future with Development (Full-Build)**

**Appendix I – Site Visit Photographs**

**Appendix J – Intersection Analysis Worksheet – Internal Intersections**

**Appendix K – Simtraffic Analysis Results (Democracy Lane and University Drive intersection)**

## **Appendix A – Signed Scoping Document**

# PRE-SCOPE OF WORK MEETING FORM

## Information on the Project

### Traffic Impact Analysis Base Assumptions

The applicant is responsible for entering the relevant information and submitting the form to the locality no less than three (3) business days prior to the meeting. If a form is not received by this deadline, the scope of work meeting may be postponed.

#### Contact Information

|                       |                           |
|-----------------------|---------------------------|
| Consultant Name:      | Kayla Ord, Gorove Slade   |
| Tele:                 | 703-657-0270              |
| E-mail:               | kayla.ord@goroveslade.com |
| Developer/Owner Name: | Combined Properties, Inc  |
| Tele:                 |                           |
| E-mail:               |                           |

#### Project Information

|                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                              |                                    |                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------|------------------------------------|
| Project Name:                                                                                                                                                                                                | Courthouse Plaza                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                              |                                    |                                    |
| Project Location:<br>(Attach regional and site specific location map)<br><b>PLEASE SEE FIGURE 1</b>                                                                                                          | The project is located north of North St, south of Democracy Ln, east of University Dr, and west of Blenheim Blvd in the City of Fairfax, VA. The site is located in the Old Town Fairfax Transition Overlay District.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                              |                                    |                                    |
| Submission Type                                                                                                                                                                                              | Comp Plan <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Rezoning <input checked="" type="checkbox"/> | Site Plan <input type="checkbox"/> | Subd Plat <input type="checkbox"/> |
| Project Description:<br>Including type of application (rezoning, subdivision, site plan), acreage, business square ft, number of dwelling units, access location, etc. Attach additional sheet if necessary) | <p>This rezoning application is for the Courthouse Plaza redevelopment. The 10.4-acre site consists of one (1) parcel (Tax Map # 57-2-20-004 D). The existing site is currently occupied by 91,860 SF of retail and surface parking.</p> <p>The proposed redevelopment is planned to be constructed in 2 phases; Phase 1 is planned to approximately consist of a new 300 multifamily units residential building on the west side of the property with approximately 64,000 SF of existing retail to remain. Phase 2 is planned to approximately consist of an additional 300 multifamily units (600 total units) along with approximately 62,000 SF of future retail which will replace the existing retail. Phase 1 is anticipated to be in place by 2028 and Phase 2 is anticipated to be completed by 2038 for the purposes of this analysis. Under both phases, the proposed trip differential between existing and proposed is considered negligible. An alternative scenario is also being included with Phase 1 which includes a Coffee Shop Drive-Thru which is being considered on the site in a separate application.</p> <p>Site access is planned to be provided via two curb cuts along University Drive and three curb cuts along Blenheim Blvd.</p> |                                              |                                    |                                    |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

|                                                                                                      |                                                                                                                                                                                                                                                                                                                                               |                                                  |                                                                                                                                                                                        |                                                                                                               |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Locality/County:                                                                                     | City of Fairfax, VA                                                                                                                                                                                                                                                                                                                           |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Proposed Use:<br>(Check all that apply; attach additional pages as necessary)                        | <b>Residential</b> <input type="checkbox"/>                                                                                                                                                                                                                                                                                                   | <b>Commercial</b> <input type="checkbox"/>       | <b>Mixed Use</b> <input checked="" type="checkbox"/>                                                                                                                                   | <b>Other</b> <input type="checkbox"/>                                                                         |
|                                                                                                      | <b>Residential</b> # of Units:<br><br><b>Commercial</b> Use Sq Ft:<br><br>ITE LU Code(s):                                                                                                                                                                                                                                                     |                                                  | <b>Mixed Use:</b><br>(Ultimate Scenario) <ul style="list-style-type: none"> <li>• 600 DU (ITE LUC 221)</li> <li>• 57,800 SF (ITE LUC 821)</li> <li>• 4,200 SF (ITE LUC 937)</li> </ul> |                                                                                                               |
| Total Peak Hour Trip Projection:                                                                     | Less than 100 <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                             | 100 – 499 <input type="checkbox"/>               | 500 – 999 <input type="checkbox"/>                                                                                                                                                     | 1,000 or more <input type="checkbox"/>                                                                        |
| <b>Traffic Impact Analysis Assumptions</b>                                                           |                                                                                                                                                                                                                                                                                                                                               |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Study Period                                                                                         | Existing Year: 2023                                                                                                                                                                                                                                                                                                                           | Build-out Year: Phase 1 – 2028<br>Phase 2 - 2038 |                                                                                                                                                                                        | Design Year: N/A                                                                                              |
| Study Area Boundaries<br>(Attach map)<br><b>PLEASE SEE FIGURE 2</b>                                  | North: Democracy Lane                                                                                                                                                                                                                                                                                                                         |                                                  | South: North St                                                                                                                                                                        |                                                                                                               |
|                                                                                                      | East: Blenheim Road                                                                                                                                                                                                                                                                                                                           |                                                  | West: University Drive                                                                                                                                                                 |                                                                                                               |
| External Factors That Could Affect Project<br>(Planned road improvements, other nearby developments) | <ul style="list-style-type: none"> <li>• Old Lee Highway Multimodal Improvements</li> <li>• University Drive Road Diet</li> </ul>                                                                                                                                                                                                             |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Consistency With Comprehensive Plan                                                                  | The site is within the Old Town Fairfax Small Area Plan where pedestrian-oriented, mixed-use development is strongly encouraged. The proposed redevelopment of Courthouse Plaza (Mixed-Use development) is working to be consistent with the City of Fairfax Comprehensive Plan by providing new grid links and pedestrian friendly networks. |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Available Traffic Data<br>(Historical, forecasts)                                                    | <ul style="list-style-type: none"> <li>• VDOT AADT Data</li> <li>• Traffic Counts dated March 30, 2023</li> </ul>                                                                                                                                                                                                                             |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Trip Distribution<br>(Attach sketch)<br><b>PLEASE SEE FIGURE 3</b>                                   | Please refer to Figure 3.                                                                                                                                                                                                                                                                                                                     |                                                  |                                                                                                                                                                                        |                                                                                                               |
| Annual Vehicle Trip Growth Rate:<br><b>PLEASE SEE TABLE 1</b>                                        | 1.0% - 2023 to 2028<br>0.5% - 2029 to 2038<br>On all major roadways                                                                                                                                                                                                                                                                           | Peak Period for Study<br>(check all that apply)  |                                                                                                                                                                                        | <input checked="" type="checkbox"/> AM <input checked="" type="checkbox"/> PM<br><input type="checkbox"/> SAT |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

|                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Study Intersections and/or Road Segments</b><br>(Attach additional sheets as necessary)<br><b>PLEASE SEE FIGURE 2</b> | <ol style="list-style-type: none"> <li>1. Blenheim Blvd and Street 3</li> <li>2. Blenheim Blvd and Fairfax Commons Entrance</li> <li>3. Blenheim Blvd and Street 1 (future Intersection)</li> <li>4. Blenheim Blvd and Southern Entrance</li> <li>5. University Drive and Street 1 (future Intersection)</li> <li>6. University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance</li> <li>7. University Drive and Democracy Ln/Whitehead St</li> <li>8. Democracy Ln and Garage Entrance</li> <li>9. Democracy Ln and Layton Hall Drive</li> <li>10. Blenheim Blvd and Layton Hall Dr</li> </ol> |                                                                                        |
| <b>Trip Adjustment Factors</b><br><b>PLEASE SEE TABLE 3</b>                                                              | Internal allowance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Pass-by allowance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <b>Software Methodology</b>                                                                                              | <input checked="" type="checkbox"/> Synchro <input type="checkbox"/> HCS (v.2000/+) <input type="checkbox"/> SIDRA <input type="checkbox"/> CORSIM <input type="checkbox"/> VISSIM                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                        |
| <b>Traffic Signal Proposed or Affected</b><br>(Analysis software to be used, progression speed, cycle length)            | <ol style="list-style-type: none"> <li>2. Blenheim Blvd and Fairfax Commons Entrance/Street 1</li> <li>7. University Drive and Democracy Ln/Whitehead St</li> <li>10. Blenheim Blvd and Layton Hall Dr</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                        |
| <b>Improvement(s) Assumed or to be Considered</b>                                                                        | <ul style="list-style-type: none"> <li>• University Drive Bike Lanes (City of Fairfax Publication August 2021)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                        |
| <b>Background Traffic Studies Considered</b>                                                                             | <p style="text-align: center;">None</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                        |
| <b>Plan Submission</b>                                                                                                   | <input type="checkbox"/> Master Development Plan (MDP) <input type="checkbox"/> Generalized Development Plan (GDP)<br><input checked="" type="checkbox"/> Preliminary/Sketch Plan <input type="checkbox"/> Other Plan type (Final Site, Subd. Plan)                                                                                                                                                                                                                                                                                                                                                        |                                                                                        |
| <b>Additional Issues to be addressed</b>                                                                                 | <input checked="" type="checkbox"/> Queuing analysis <input type="checkbox"/> Actuation/Coordination <input type="checkbox"/> Weaving analysis<br><input type="checkbox"/> Merge analysis <input checked="" type="checkbox"/> Bike/Ped Accommodations <input checked="" type="checkbox"/> Intersection(s)<br><input checked="" type="checkbox"/> TDM Measures <input type="checkbox"/> Other _____                                                                                                                                                                                                         |                                                                                        |

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

NOTES on ASSUMPTIONS:

1. Synchro 11, HCM 6 methodology will be used for intersection analysis where applicable. HCM 2000 methodology will be used if HCM 6 is not applicable.
2. A vehicle classification count will be conducted to verify heavy vehicle percentages. The vehicle classification count will include pedestrian and bicycle counts.
3. Peak hour factors will be consistent with VDOT guidelines (VDOT TOSAM v2.0)
  - a. Existing peak hour factors by overall intersection (minimum of 0.85) will be used for existing year analysis.
  - b. For future year analysis, the PHF will be minimum 0.92 or existing, whichever is higher.
4. Analysis procedures consistent with the VDOT Traffic Operations And Safety Analysis Manual Version 2.0 will be used unless otherwise noted.
5. Old Synchro files and the latest signal timings will be obtained from the City of Fairfax.
6. LOS D or non-degradation from future without development scenario is considered to be an acceptable design standard for non-NHS roadways.
7. The site's traffic impact will be mitigated based on Synchro results.
8. Crash data at the existing study intersections for 2018 through 2022 will be obtained from VDOT.
9. Transportation Demand Management (TDM) discussion will be provided.
10. Relevant Pages on guidance from ITE and VDOT TIA Administrative Guidelines for Pass-By and Internal Capture percentages are included in the scoping document supplement.
11. Review of the garage entrance and the proximity to University Drive will be included in the study.

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



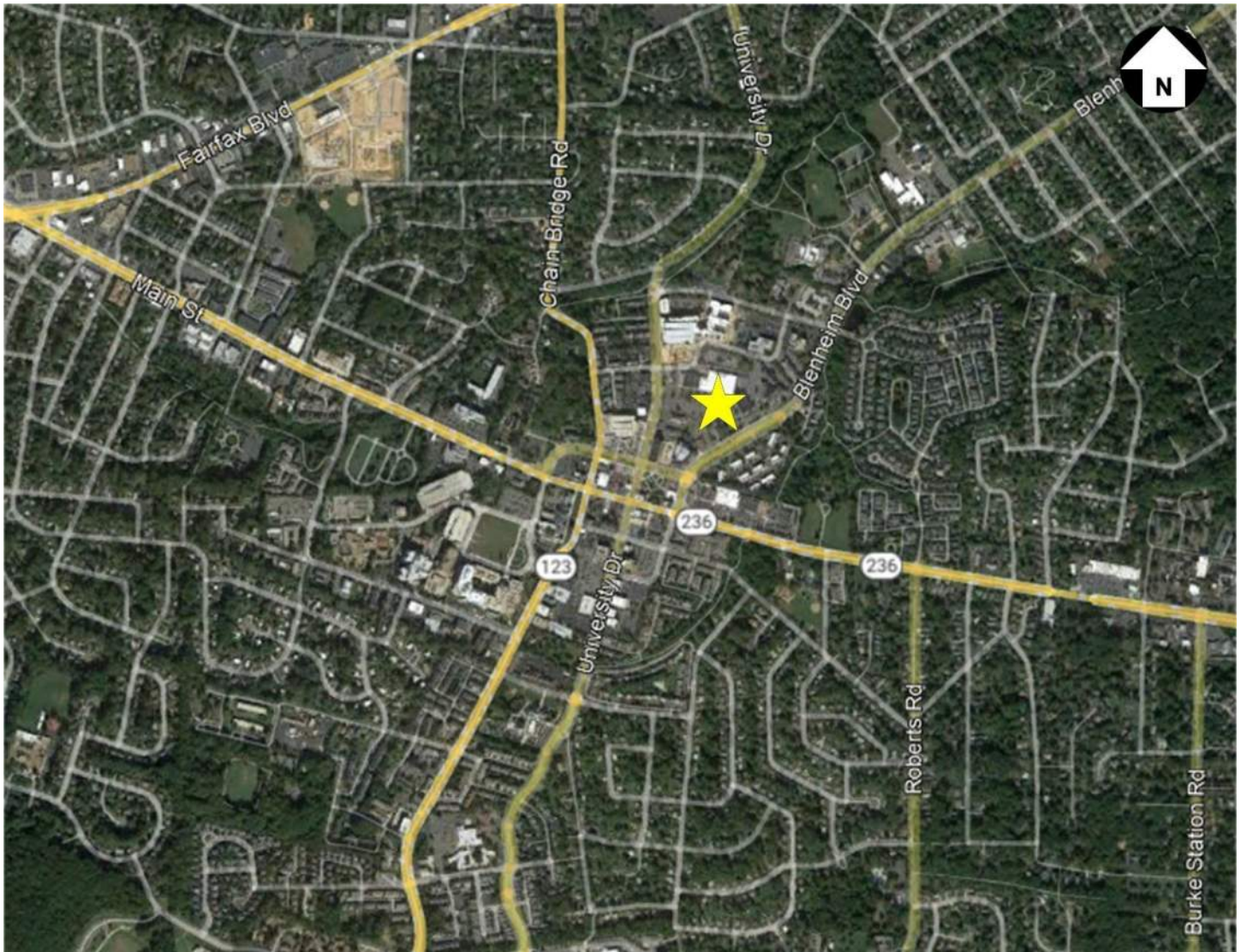
SIGNED: \_\_\_\_\_ DATE: 07/11/2023  
Applicant or Consultant

PRINT NAME: Kayla Ord, P.E., PTOE, Gorove Slade Associates, Inc.  
Applicant or Consultant

SIGNED: Curt M. Conley DATE: \_\_\_\_\_  
City of Fairfax

PRINT NAME: \_\_\_\_\_  
City of Fairfax

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



**FIGURE 1: REGIONAL MAP**

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



**FIGURE 2: STUDY INTERSECTIONS**

Please Note: Plans have changed since the original scope, see TIA Application for final layout

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



FIGURE 3: SITE TRIP DISTRIBUTION

Please Note: Plans have changed since the original scope, see TIA Application for final layout

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**TABLE 1: HISTORICAL AADT COMPARISON**

| Road Segment:               | From:            | To:              | Published VDOT AADT |        |        |        |        | Annual Growth Rate |             |             |             |
|-----------------------------|------------------|------------------|---------------------|--------|--------|--------|--------|--------------------|-------------|-------------|-------------|
|                             |                  |                  | 2017                | 2018   | 2019   | 2020   | 2021   | 2017 - 2018        | 2018 - 2019 | 2019 - 2020 | 2020 - 2021 |
| University Dr               | SR-236 Main St   | Whitehead St     | 11,000              | 11,000 | 11,000 | 4,900  | 5,700  | 0%                 | 0%          | -55%        | 16%         |
| North St                    | SR-236 W Main St | SR-236 E Main St | 20,000              | 20,000 | 20,000 | 15,000 | 17,000 | 0%                 | 0%          | -25%        | 13%         |
| Blenheim Blvd (Old Lee Hwy) | SR-236 Main St   | Layton Hall Rd   | 16,000              | 16,000 | 17,000 | 8,300  | 9,600  | 0%                 | 6%          | -51%        | 16%         |
| Democracy Ln                | SR-236 Main St   | Layton Hall Rd   | 840                 | 840    | 840    | 590    | 670    | 0%                 | 0%          | -30%        | 14%         |

Source: VDOT Traffic Data (<http://www.virginiadot.org/info/ct-trafficcounts.asp>)

**TABLE 2: TRIP GENERATION: EXISTING DEVELOPMENT**

| Land Use                                              | ITE Code | Size            | ----- Week day ----- |     |       |              |     |       |       |
|-------------------------------------------------------|----------|-----------------|----------------------|-----|-------|--------------|-----|-------|-------|
|                                                       |          |                 | AM Peak Hour         |     |       | PM Peak Hour |     |       | Daily |
|                                                       |          |                 | In                   | Out | Total | In           | Out | Total |       |
| Existing Development                                  |          |                 |                      |     |       |              |     |       |       |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket) | 821      | 91.9 kSF of GFA | 201                  | 123 | 324   | 395          | 428 | 823   | 8,482 |
| Subtotal (Existing)                                   |          |                 | 201                  | 123 | 324   | 395          | 428 | 823   | 8,482 |

**TABLE 3: TRIP GENERATION: PHASE 1 WITH NO REDUCTIONS**

| Land Use                                                      | ITE Code | Size            | ----- Week day ----- |     |       |              |     |       | Daily Total |
|---------------------------------------------------------------|----------|-----------------|----------------------|-----|-------|--------------|-----|-------|-------------|
|                                                               |          |                 | AM Peak Hour         |     |       | PM Peak Hour |     |       |             |
|                                                               |          |                 | In                   | Out | Total | In           | Out | Total |             |
| Proposed Development - Phase 1                                |          |                 |                      |     |       |              |     |       |             |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo) | 221      | 300 DU          | 28                   | 92  | 120   | 71           | 46  | 117   | 1,385       |
| Shopping Center (40 kSF<X<150 KSF) (with Supermarket)         | 821      | 64.0 kSF of GFA | 140                  | 86  | 226   | 293          | 317 | 610   | 6,338       |
| Subtotal (Proposed Phase 1)                                   |          |                 | 168                  | 178 | 346   | 364          | 363 | 727   | 7,723       |

**TABLE 4: TRIP GENERATION: PHASE 1 WITH REDUCTIONS**

| Land Use                                                      | ITE Code | Size                                                   | ----- Week day ----- |     |       |              |      |       |        |
|---------------------------------------------------------------|----------|--------------------------------------------------------|----------------------|-----|-------|--------------|------|-------|--------|
|                                                               |          |                                                        | AM Peak Hour         |     |       | PM Peak Hour |      |       | Daily  |
|                                                               |          |                                                        | In                   | Out | Total | In           | Out  | Total |        |
| Existing Development                                          |          |                                                        |                      |     |       |              |      |       |        |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)         | 821      | 91.9 kSF of GFA                                        | 201                  | 123 | 324   | 395          | 428  | 823   | 8,482  |
| Subtotal (Existing)                                           |          |                                                        | 201                  | 123 | 324   | 395          | 428  | 823   | 8,482  |
| Proposed Development - Proposed Concept (Phase 1)             |          |                                                        |                      |     |       |              |      |       |        |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo) | 221      | 300 DU                                                 | 28                   | 92  | 120   | 71           | 46   | 117   | 1,385  |
|                                                               |          | Internal Capture Residential - Retail <sup>1</sup> (1) | -3                   | -9  | -12   | -7           | -5   | -12   | -139   |
|                                                               |          | Mode Split/TDM Reduction 15%                           | -4                   | -12 | -16   | -10          | -6   | -16   | -187   |
|                                                               |          | Residential Subtotal (with Reductions)                 | 21                   | 71  | 92    | 54           | 35   | 89    | 1,059  |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)         | 821      | 64.0 kSF of GFA                                        | 140                  | 86  | 226   | 293          | 317  | 610   | 6,338  |
|                                                               |          | Internal Capture Retail - Residential <sup>1</sup> (1) | -9                   | -3  | -12   | -5           | -7   | -12   | -139   |
|                                                               |          | Pass-By Reduction <sup>2</sup> 25%/40%/25%             | -27                  | -27 | -54   | -120         | -119 | -239  | -1,550 |
|                                                               |          | Retail Subtotal (with Reductions)                      | 104                  | 56  | 160   | 168          | 191  | 359   | 4,649  |
|                                                               |          | Total Proposed Trips (with Reductions)                 | 125                  | 127 | 252   | 222          | 226  | 448   | 5,708  |
|                                                               |          | Total Trips (Proposed - Existing)                      | -76                  | 4   | -72   | -173         | -202 | -375  | -2,774 |

<sup>1</sup> Internal Capture rates consider site trips "captured" within a mixed-use development, recognising that trips from one land use can access another land use within a site development (1) residential / retail - smaller of 10% of residential trips or 10% of retail trips

<sup>2</sup> The pass by reduction for Shopping Center is based on the ITE Trip Generation methodology, as provided in the ITE Pass-By Tables for the ITE 11th Edition Trip Generation Handbook. The average rate for Shopping Centers is 40% for the PM Peak. For all other time periods, the default Pass-By rate of 25% is assumed

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

**TABLE 5: TRIP GENERATION: PHASE 1 WITH COFFEE SHOP ALTERNATIVE SCENARIO**

| Land Use                                                      | ITE Code | Size            | ----- Week day ----- |     |       |              |      |       | Daily<br>Total |
|---------------------------------------------------------------|----------|-----------------|----------------------|-----|-------|--------------|------|-------|----------------|
|                                                               |          |                 | AM Peak Hour         |     |       | PM Peak Hour |      |       |                |
|                                                               |          |                 | In                   | Out | Total | In           | Out  | Total |                |
| Proposed Development - Proposed Concept (Phase 1)             |          |                 |                      |     |       |              |      |       |                |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo) | 221      | 300 DU          | 28                   | 92  | 120   | 71           | 46   | 117   | 1,385          |
| Internal Capture Residential - Retail <sup>1</sup>            |          | (1)             | -3                   | -9  | -12   | -7           | -5   | -12   | -139           |
| Mode Split/TDM Reduction                                      |          | 15%             | -4                   | -12 | -16   | -10          | -6   | -16   | -187           |
| Residential Subtotal (with Reductions)                        |          |                 | 21                   | 71  | 92    | 54           | 35   | 89    | 1,059          |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)         | 821      | 64.0 kSF of GFA | 140                  | 86  | 226   | 293          | 317  | 610   | 6,338          |
| Coffee/Donut Shop with Drive-Thru Window                      | 937      | 4.2 kSF of GFA  | 191                  | 183 | 374   | 91           | 91   | 182   | 3,446          |
| Internal Capture Retail - Residential <sup>1</sup>            |          | (1)             | -9                   | -3  | -12   | -5           | -7   | -12   | -139           |
| Retail Pass-By Reduction <sup>2</sup>                         |          | 25%/40%/25%     | -27                  | -27 | -54   | -120         | -119 | -239  | -1,550         |
| Coffee Shop w/Drive Thru Pass-By Reduction <sup>3</sup>       |          | 25%/40%/25%     | -48                  | -46 | -94   | -36          | -36  | -73   | -862           |
| Coffee Shop and Retail Subtotal (with Reductions)             |          |                 | 247                  | 193 | 440   | 223          | 246  | 468   | 7,233          |
| Total Proposed Trips (with Reductions)                        |          |                 | 268                  | 264 | 532   | 277          | 281  | 557   | 8,292          |

<sup>1</sup> Internal Capture rates consider site trips "captured" within a mixed-use development, recognising that trips from one land use can access another land use within a site development (1) residential / retail - smaller of 10% of residential trips or 10% of retail trips

<sup>2</sup> The pass by reduction for Shopping Center is based on the ITE Trip Generation methodology, as provided in the ITE Pass-By Tables for the ITE 11th Edition Trip Generation Handbook. The average rate for Shopping Centers is 40% for the PM Peak. For all other time periods, the default Pass-By rate of 25% is assumed

<sup>3</sup> Assumed since no data available in ITE Trip Generation Handbook

**TABLE 6: TRIP GENERATION: PHASE 2 WITH NO REDUCTIONS**

| Land Use                                                      | ITE Code | Size            | ----- Week day ----- |     |       |              |     |       |             |
|---------------------------------------------------------------|----------|-----------------|----------------------|-----|-------|--------------|-----|-------|-------------|
|                                                               |          |                 | AM Peak Hour         |     |       | PM Peak Hour |     |       | Daily Total |
|                                                               |          |                 | In                   | Out | Total | In           | Out | Total |             |
| Proposed Development - Phase 2                                |          |                 |                      |     |       |              |     |       |             |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo) | 221      | 600 DU          | 58                   | 194 | 252   | 143          | 91  | 234   | 2,816       |
| Shopping Center (40 KSF<X<150 KSF) (with Supermarket)         | 821      | 62.0 kSF of GFA | 136                  | 83  | 219   | 285          | 309 | 594   | 6,184       |
| Subtotal (Proposed Phase 2)                                   |          |                 | 194                  | 277 | 471   | 428          | 400 | 828   | 9,000       |

**TABLE 7: TRIP GENERATION: PHASE 2 WITH REDUCTIONS**

| Land Use                                                      | ITE Code                                           | Size            | ----- Week day ----- |     |       |              |      |       | Daily Total |
|---------------------------------------------------------------|----------------------------------------------------|-----------------|----------------------|-----|-------|--------------|------|-------|-------------|
|                                                               |                                                    |                 | AM Peak Hour         |     |       | PM Peak Hour |      |       |             |
|                                                               |                                                    |                 | In                   | Out | Total | In           | Out  | Total |             |
| Existing Development                                          |                                                    |                 |                      |     |       |              |      |       |             |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)         | 821                                                | 91.9 kSF of GFA | 201                  | 123 | 324   | 395          | 428  | 823   | 8,482       |
| Subtotal (Existing)                                           |                                                    |                 | 201                  | 123 | 324   | 395          | 428  | 823   | 8,482       |
| Proposed Development - Proposed Concept (Phase 2)             |                                                    |                 |                      |     |       |              |      |       |             |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo) | 221                                                | 600 DU          | 58                   | 194 | 252   | 143          | 91   | 234   | 2,816       |
|                                                               | Internal Capture Residential - Retail <sup>1</sup> | (1)             | -6                   | -19 | -25   | -14          | -9   | -23   | -282        |
|                                                               | Mode Split/TDM Reduction                           | 15%             | -8                   | -26 | -34   | -19          | -12  | -32   | -380        |
|                                                               | Residential Subtotal (with Reductions)             |                 | 44                   | 149 | 193   | 110          | 70   | 179   | 2,154       |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)         | 821                                                | 62.0 kSF of GFA | 136                  | 83  | 219   | 285          | 309  | 594   | 6,184       |
|                                                               | Internal Capture Retail -Residential <sup>1</sup>  | (1)             | -19                  | -6  | -25   | -9           | -14  | -23   | -282        |
|                                                               | Retail Pass-By Reduction <sup>2</sup>              | 25%/40%/25%     | -25                  | -24 | -49   | -114         | -114 | -228  | -1,476      |
|                                                               | Retail Subtotal (with Reductions)                  |                 | 92                   | 53  | 145   | 162          | 181  | 343   | 4,426       |
|                                                               | Total Proposed Trips (with Reductions)             |                 | 136                  | 202 | 338   | 272          | 251  | 522   | 6,580       |
|                                                               | Total Trips (Proposed - Existing)                  |                 | -65                  | 79  | 14    | -123         | -177 | -301  | -1,902      |

<sup>1</sup> Internal Capture rates consider site trips "captured" within a mixed-use development, recognising that trips from one land use can access another land use within a site development (1) residential / retail - smaller of 10% of residential trips or 10% of retail trips

<sup>2</sup> The pass by reduction for Shopping Center is based on the ITE Trip Generation methodology, as provided in the ITE Pass-By Tables for the ITE 11th Edition Trip Generation Handbook. The average rate for Shopping Centers is 40% for the PM Peak. For all other time periods, the default Pass-By rate of 25% is assumed

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

**TABLE 8: TRIP GENERATION: PHASE 2 WITH COFFEE SHOP ALTERNATIVE SCENARIO**

| Land Use                                                           | ITE Code    | Size            | ----- W e e k d a y ----- |     |       |              |      |       |        | Daily<br>Total |
|--------------------------------------------------------------------|-------------|-----------------|---------------------------|-----|-------|--------------|------|-------|--------|----------------|
|                                                                    |             |                 | AM Peak Hour              |     |       | PM Peak Hour |      |       |        |                |
|                                                                    |             |                 | In                        | Out | Total | In           | Out  | Total |        |                |
| Proposed Development - Proposed Concept (Phase 2)                  |             |                 |                           |     |       |              |      |       |        |                |
| Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo)      | 221         | 600 DU          | 58                        | 194 | 252   | 143          | 91   | 234   | 2,816  |                |
| Internal Capture Residential - Retail <sup>1</sup>                 |             | (1)             | -6                        | -19 | -25   | -14          | -9   | -23   | -282   |                |
| Mode Split/TDM Reduction                                           |             | 15%             | -8                        | -26 | -34   | -19          | -12  | -32   | -380   |                |
| Residential Subtotal (with Reductions)                             |             |                 | 44                        | 149 | 193   | 110          | 70   | 179   | 2,154  |                |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket)              | 821         | 57.8 kSF of GFA | 126                       | 78  | 204   | 270          | 292  | 562   | 5,861  |                |
| Coffee/Donut Shop with Drive-Thru Window                           | 937         | 4.2 kSF of GFA  | 191                       | 183 | 374   | 91           | 91   | 182   | 3,446  |                |
| Internal Capture Coffee Shop + Retail and Residential <sup>1</sup> |             | (1)             | -19                       | -6  | -25   | -9           | -14  | -23   | -282   |                |
| Retail Pass-By Reduction <sup>2</sup>                              | 25%/40%/25% |                 | -23                       | -22 | -45   | -108         | -108 | -216  | -1,395 |                |
| Coffee Shop w/Drive Thru Pass-By Reduction <sup>3</sup>            | 25%/40%/25% |                 | -48                       | -46 | -94   | -36          | -36  | -73   | -862   |                |
| Coffee Shop and Retail Subtotal (with Reductions)                  |             |                 | 227                       | 187 | 414   | 208          | 225  | 432   | 6,768  |                |
| Total Proposed Trips (with Reductions)                             |             |                 | 271                       | 336 | 607   | 318          | 295  | 611   | 8,922  |                |

<sup>1</sup> Internal Capture rates consider site trips "captured" within a mixed-use development, recognising that trips from one land use can access another land use within a site development (1) residential / retail - smaller of 10% of residential trips or 10% of retail trips

<sup>2</sup> The pass by reduction for Shopping Center is based on the ITE Trip Generation methodology, as provided in the Trip Generation Handbook, 3rd Edition. The average rate for Shopping Centers is 34% for the PM Peak. For all other time periods, the default pass by rate is 25%

<sup>3</sup> Assumed since no data available in ITE Trip Generation Handbook

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



FIGURE 4: MULTIMODAL ITEMS INCLUDED IN STUDY

Please Note: Plans have changed since the original scope, see TIA Application for final layout

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.



FIGURE 5: CONCEPT PLAN (PHASE 1)

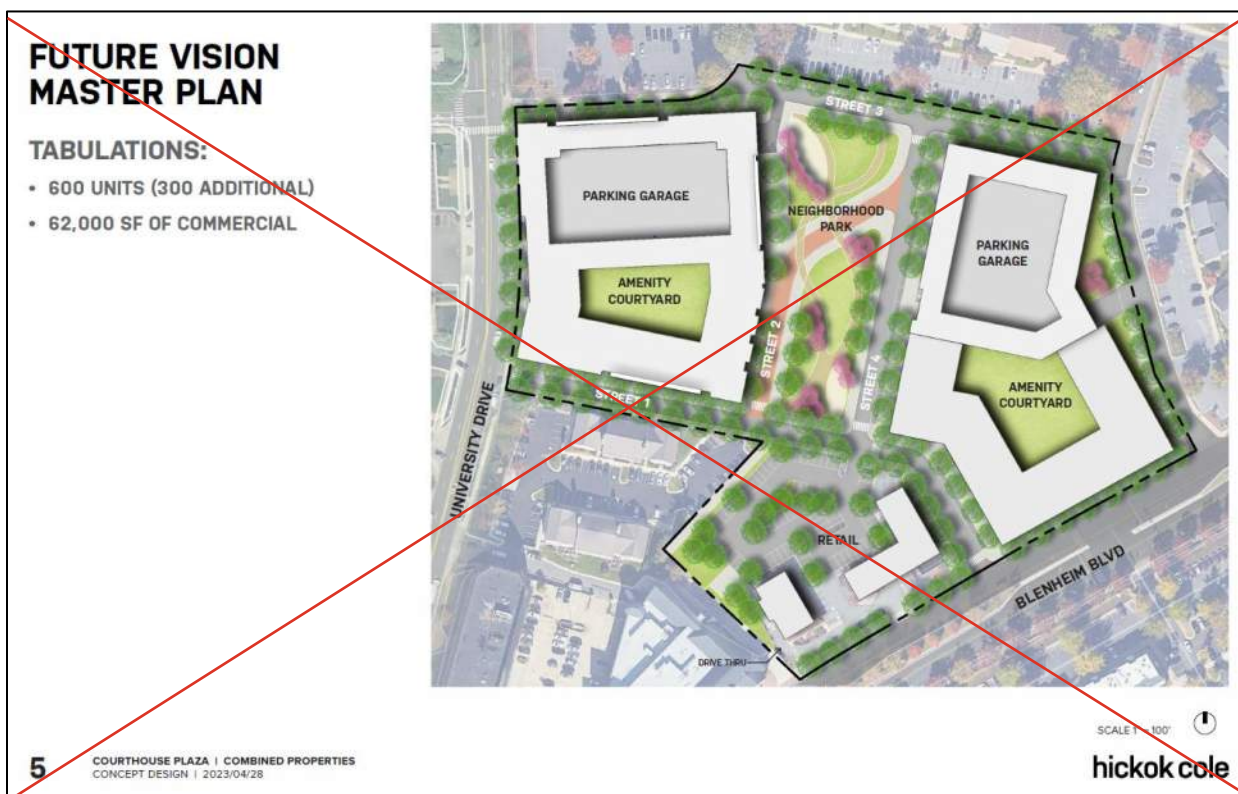


FIGURE 6: CONCEPT PLAN (FULL BUILDOUT)

Please Note: Plans have changed since the original scope, see TIA Application for final layout

It is important for the applicant to provide sufficient information to county and VDOT staff so that questions regarding geographic scope, alternate methodology, or other issues can be answered at the scoping meeting.

## **Appendix B – CUE Bus Schedules**



# Rider Guide

## Routes

Four bus routes operate during weekdays and weekends according to the published schedules. The Green 1 and Gold 1 routes operate in a clockwise direction, while the Green 2 and Gold 2 routes run counterclockwise (see Route Map).

## Bus Stops

CUE Bus stop signs are posted at convenient locations along all routes. Buses will only stop at designated bus stops.

## Services for Persons with Disabilities

Specialized transportation services for individuals who are unable to use the CUE Bus because of a disability are provided through the City Wheels 703-385-7859; TTY: 711 and Metro Access 301-562-5360; TTY: 711, 301-588-7535 programs.

## Accessibility

All CUE buses are wheelchair accessible. Service animals are welcome on board CUE buses. The information in this brochure is also available in alternative formats and may be obtained by calling 703-385-7859; TTY: 711.



## Holiday Service

| Holiday                     | Type of Service                                                            |
|-----------------------------|----------------------------------------------------------------------------|
| New Year's Day.....         | None                                                                       |
| Martin Luther King Day..... | Modified Weekday**                                                         |
| Washington's Birthday.....  | Modified Weekday**                                                         |
| Memorial Day.....           | Saturday                                                                   |
| Juneteenth.....             | Modified Weekday**                                                         |
| Independence Day.....       | Special*                                                                   |
| Labor Day.....              | Saturday                                                                   |
| Columbus Day.....           | Regular                                                                    |
| Veterans Day.....           | Modified Weekday**                                                         |
| Thanksgiving Day.....       | None                                                                       |
| Day after Thanksgiving..... | Modified Weekday**                                                         |
| Christmas Eve.....          | Normal weekday schedule, except that all CUE service will end at 7:00 p.m. |
| Christmas Day.....          | None                                                                       |

\*CUE buses provide extensive special event service within the City during its Independence Day activities; therefore, no regular service is provided on that day.

\*\*Modified weekday service consists of one bus on each route. Refer to the unshaded portion of the weekday schedule.

# CUE is FREE to ride for Everyone!

No ID or pass is required, just hop on and take your CUE!

| 1 Green Route 1 / Ruta 1 Verde |       | MONDAY-FRIDAY / LUNES-VIERNES |       |
|--------------------------------|-------|-------------------------------|-------|
| Departs                        |       | Arrives                       |       |
| AM                             | 6:15  | 6:26                          | 6:33  |
|                                | 6:45  | 6:56                          | 7:03  |
|                                | 7:15  | 7:30                          | 7:37  |
|                                | 7:49  | 8:00                          | 8:07  |
|                                | 8:28  | 8:40                          | 8:47  |
|                                | 8:58  | 9:10                          | 9:17  |
|                                | 9:36  | 9:48                          | 9:55  |
|                                | 10:06 | 10:18                         | 10:25 |
|                                | 10:44 | 10:56                         | 11:03 |
|                                | 11:14 | 11:26                         | 11:33 |
| PM                             | 11:52 | 12:04                         | 12:11 |
|                                | 12:22 | 12:34                         | 12:41 |
|                                | 1:00  | 1:12                          | 1:19  |
|                                | 1:30  | 1:42                          | 1:49  |
|                                | 2:08  | 2:20                          | 2:27  |
|                                | 2:38  | 2:50                          | 2:57  |
|                                | 3:16  | 3:28                          | 3:35  |
|                                | 3:46  | 3:58                          | 4:05  |
|                                | 4:26  | 4:38                          | 4:45  |
|                                | 4:56  | 5:08                          | 5:15  |
| PM                             | 5:36  | 5:48                          | 5:55  |
|                                | 6:06  | 6:18                          | 6:25  |
|                                | 6:46  | 6:58                          | 7:05  |
|                                | 7:56  | 8:08                          | 8:15  |
|                                | 9:03  | 9:15                          | 9:22  |
|                                | 10:08 | 10:18                         | 10:25 |
|                                | 10:35 | 10:43                         | 10:50 |
|                                | 11:00 | 11:08                         | 11:15 |
|                                | 11:40 | 11:50                         | 11:58 |
|                                | 12:20 | 12:30                         | 12:38 |

| 2 Green Route 2 / Ruta 2 Verde |       | MONDAY-FRIDAY / LUNES-VIERNES |       |
|--------------------------------|-------|-------------------------------|-------|
| Departs                        |       | Arrives                       |       |
| AM                             | 6:00  | 6:11                          | 6:19  |
|                                | 6:30  | 6:41                          | 6:49  |
|                                | 7:07  | 7:18                          | 7:26  |
|                                | 7:37  | 7:49                          | 7:57  |
|                                | 8:14  | 8:26                          | 8:34  |
|                                | 8:45  | 8:57                          | 9:05  |
|                                | 9:22  | 9:34                          | 9:42  |
|                                | 9:53  | 10:05                         | 10:13 |
|                                | 10:30 | 10:42                         | 10:50 |
|                                | 11:01 | 11:13                         | 11:21 |
| PM                             | 11:38 | 11:50                         | 11:58 |
|                                | 12:09 | 12:21                         | 12:29 |
|                                | 12:46 | 12:58                         | 1:06  |
|                                | 1:17  | 1:29                          | 1:37  |
|                                | 1:54  | 2:06                          | 2:14  |
|                                | 2:25  | 2:37                          | 2:45  |
|                                | 3:02  | 3:14                          | 3:22  |
|                                | 3:33  | 3:45                          | 3:53  |
|                                | 4:10  | 4:22                          | 4:30  |
|                                | 4:41  | 4:53                          | 5:01  |
| PM                             | 5:20  | 5:32                          | 5:40  |
|                                | 5:49  | 6:01                          | 6:09  |
|                                | 6:30  | 6:42                          | 6:50  |
|                                | 7:40  | 7:52                          | 8:00  |
|                                | 8:10  | 8:22                          | 8:30  |
|                                | 8:31  | 8:43                          | 8:51  |
|                                | 9:02  | 9:14                          | 9:22  |
|                                | 9:33  | 9:45                          | 9:53  |
|                                | 10:04 | 10:16                         | 10:24 |
|                                | 10:35 | 10:47                         | 10:55 |

| 1 Gold Route 1 / Ruta 1 Dorada |       | MONDAY-FRIDAY / LUNES-VIERNES |       |
|--------------------------------|-------|-------------------------------|-------|
| Departs                        |       | Arrives                       |       |
| AM                             | 6:04  | 6:12                          | 6:25  |
|                                | 6:34  | 6:42                          | 6:55  |
|                                | 7:08  | 7:16                          | 7:25  |
|                                | 7:38  | 7:46                          | 7:55  |
|                                | 8:08  | 8:18                          | 8:29  |
|                                | 8:39  | 8:49                          | 9:00  |
|                                | 9:17  | 9:27                          | 9:40  |
|                                | 9:44  | 9:54                          | 10:07 |
|                                | 10:23 | 10:33                         | 10:46 |
|                                | 10:50 | 11:00                         | 11:13 |
| PM                             | 11:29 | 11:39                         | 11:52 |
|                                | 11:56 | 12:06                         | 12:19 |
|                                | 12:35 | 12:45                         | 12:58 |
|                                | 1:02  | 1:12                          | 1:26  |
|                                | 1:41  | 1:51                          | 2:06  |
|                                | 2:08  | 2:18                          | 2:31  |
|                                | 2:47  | 2:57                          | 3:10  |
|                                | 3:14  | 3:24                          | 3:37  |
|                                | 3:53  | 4:03                          | 4:16  |
|                                | 4:20  | 4:30                          | 4:43  |
| PM                             | 4:59  | 5:09                          | 5:22  |
|                                | 5:26  | 5:36                          | 5:49  |
|                                | 6:05  | 6:15                          | 6:28  |
|                                | 6:32  | 6:42                          | 6:55  |
|                                | 7:11  | 7:21                          | 7:34  |
|                                | 8:17  | 8:27                          | 8:40  |
|                                | 9:18  | 9:28                          | 9:41  |
|                                | 10:19 | 10:27                         | 10:37 |
|                                | 10:50 | 10:59                         | 11:03 |
|                                | 11:10 | 11:19                         | 11:23 |

Shaded trips do not operate on Modified Weekdays. See Holiday Service for more information. / Los viajes marcados con color en sombra no operan en días de semana modificados. Para mayor información consulte la seccion Servicio en Días Festivos.

| 1 Gold Route 1 / Ruta 1 Dorada |       | SATURDAY / SÁBADO |       |
|--------------------------------|-------|-------------------|-------|
| Departs                        |       | Arrives           |       |
| AM                             | 8:25  | 8:33              | 8:45  |
|                                | 9:26  | 9:34              | 9:46  |
|                                | 10:27 | 10:35             | 10:47 |
|                                | 11:38 | 11:46             | 11:58 |
|                                | 12:39 | 12:47             | 12:59 |
|                                | 1:40  | 1:48              | 2:00  |
|                                | 2:41  | 2:49              | 3:01  |
|                                | 3:42  | 3:50              | 4:02  |
|                                | 4:43  | 4:51              | 5:03  |
|                                | 5:54  | 6:02              | 6:14  |
| PM                             | 6:55  | 7:03              | 7:15  |
|                                | 7:56  | 8:04              | 8:16  |
|                                | 8:28  | 8:36              | 8:48  |
|                                | 9:07  | 9:14              | 9:21  |
|                                | 10:15 | 10:22             | 10:29 |
|                                | 11:16 | 11:23             | 11:30 |
|                                | 12:31 | 12:38             | 12:45 |
|                                | 1:36  | 1:43              | 1:50  |
|                                | 2:51  | 2:58              | 3:05  |
|                                | 4:10  | 4:17              | 4:24  |

| 1 Gold Route 1 / Ruta 1 Dorada |       | SUNDAY / DOMINGO |       |
|--------------------------------|-------|------------------|-------|
| Departs                        |       | Arrives          |       |
| AM                             | 10:00 | 10:08            | 10:20 |
|                                | 11:01 | 11:09            | 11:21 |
|                                | 12:02 | 12:10            | 12:22 |
|                                | 1:28  | 1:36             | 1:48  |
|                                | 2:29  | 2:37             | 2:49  |
|                                | 3:30  | 3:38             | 3:50  |
|                                | 4:31  | 4:39             | 4:51  |
|                                | 5:32  | 5:40             | 5:52  |
|                                | 6:05  | 6:13             | 6:25  |
|                                | 6:21  | 6:29             | 6:41  |
| PM                             | 10:42 | 10:50            | 11:02 |
|                                | 11:43 | 11:51            | 12:03 |
|                                | 12:04 | 12:12            | 12:24 |
|                                | 1:49  | 1:57             | 2:09  |
|                                | 2:10  | 2:18             | 2:30  |
|                                | 3:11  | 3:19             | 3:31  |
|                                | 4:12  | 4:20             | 4:32  |
|                                | 5:13  | 5:21             | 5:33  |
|                                | 6:14  | 6:22             | 6:34  |
|                                | 6:28  | 6:36             | 6:48  |

| 2 Gold Route 2 / Ruta 2 Dorada |       | MONDAY-FRIDAY / LUNES-VIERNES |       |
|--------------------------------|-------|-------------------------------|-------|
| Departs                        |       | Arrives                       |       |
| AM                             | 6:02  | 6:09                          | 6:13  |
|                                | 6:32  | 6:39                          | 6:43  |
|                                | 6:58  | 7:05                          | 7:09  |
|                                | 7:29  | 7:36                          | 7:40  |
|                                | 8:00  | 8:07                          | 8:11  |
|                                | 8:31  | 8:38                          | 8:42  |
|                                | 9:02  | 9:09                          | 9:13  |
|                                | 9:33  | 9:40                          | 9:44  |
|                                | 10:04 | 10:14                         | 10:18 |
|                                | 10:35 | 10:45                         | 10:49 |
| PM                             | 11:09 | 11:19                         | 11:23 |
|                                | 11:40 | 11:50                         | 11:54 |
|                                | 12:14 | 12:24                         | 12:28 |
|                                | 12:45 | 12:55                         | 12:59 |
|                                | 1:19  | 1:29                          | 1:33  |
|                                | 1:50  | 2:00                          | 2:04  |
|                                | 2:24  | 2:34                          | 2:39  |
|                                | 2:55  | 3:05                          | 3:10  |
|                                | 3:30  | 3:40                          | 3:45  |
|                                | 4:01  | 4:11                          | 4:17  |
| PM                             | 4:35  | 4:45                          | 4:51  |
|                                | 5:09  | 5:19                          | 5:25  |
|                                | 5:43  | 5:53                          | 5:59  |
|                                | 6:17  | 6:27                          | 6:33  |
|                                | 6:52  | 7:02                          | 7:08  |
|                                | 8:00  | 8:10                          | 8:15  |
|                                | 9:02  | 9:12                          | 9:17  |
|                                | 9:25  | 9:37                          | 9:47  |
|                                | 9:57  | 10:07                         | 10:17 |
|                                | 10:14 | 10:24                         | 10:34 |

Shaded trips do not operate on Modified Weekdays. See Holiday Service for more information. / Los viajes marcados con color en sombra no operan en días de semana modificados. Para mayor información consulte la seccion Servicio en Días Festivos.

| 2 Gold Route 2 / Ruta 2 Dorada |       | SATURDAY / SÁBADO |       |
|--------------------------------|-------|-------------------|-------|
| Departs                        |       | Arrives           |       |
| AM                             | 8:00  | 8:07              | 8:14  |
|                                | 9:01  | 9:08              | 9:15  |
|                                | 10:02 | 10:09             | 10:16 |
|                                | 11:13 | 11:20             | 11:27 |
|                                | 12:14 | 12:21             | 12:28 |
|                                | 1:15  | 1:22              | 1:29  |
|                                | 2:16  | 2:23              | 2:30  |
|                                | 3:17  | 3:24              | 3:31  |
|                                | 4:18  | 4:25              | 4:32  |
|                                | 5:29  | 5:36              | 5:43  |
| PM                             | 6:30  | 6:37              | 6:44  |
|                                | 7:31  | 7:38              | 7:45  |
|                                | 8:06  | 8:13              | 8:20  |
|                                | 9:07  | 9:14              | 9:21  |
|                                | 10:25 | 10:32             | 10:39 |
|                                | 11:30 | 11:37             | 11:44 |
|                                | 12:39 | 12:46             | 12:53 |
|                                | 1:38  | 1:45              | 1:52  |
|                                | 2:57  | 3:04              | 3:11  |
|                                | 4:10  | 4:17              | 4:24  |

| 2 Gold Route 2 / Ruta 2 Dorada |       | SUNDAY / DOMINGO |       |
|--------------------------------|-------|------------------|-------|
| Departs                        |       | Arrives          |       |
| AM                             | 9:33  | 9:40             | 9:47  |
|                                | 10:34 | 10:41            | 10:48 |
|                                | 11:35 | 11:42            | 11:49 |
|                                | 12:36 | 12:43            | 12:50 |
|                                | 2:02  | 2:09             | 2:16  |
|                                | 3:03  | 3:10             | 3:17  |
|                                | 4:04  | 4:11             | 4:18  |
|                                | 5:05  | 5:12             | 5:19  |
|                                | 5:28  | 5:35             | 5:42  |
|                                | 6:01  | 6:08             | 6:15  |
| PM                             | 10:21 | 10:28            | 10:35 |
|                                | 11:22 | 11:29            | 11:36 |
|                                | 12:31 | 12:38            | 12:45 |
|                                | 1:24  | 1:31             | 1:38  |
|                                | 2:58  | 3:05             | 3:12  |
|                                | 3:51  | 3:58             | 4:05  |
|                                | 4:52  | 4:59             | 5:06  |
|                                | 5:00  | 5:07             | 5:14  |
|                                | 6:15  | 6:22             | 6:29  |
|                                | 6:41  | 6:48             | 6:55  |

# Guia para el Pasajero

## Rutas

Cuatro rutas de buses operan durante la semana y fin de semana de acuerdo con los horarios publicados. Las rutas Verde 1 y Dorado 1 operan en el sentido de las agujas del reloj, mientras que las rutas Verde 2 y Dorado 2 operan en el sentido contrario de las agujas del reloj (ver Mapa de Rutas).

## Paradas de Bus

Las señales de parada de bus de CUE están ubicados en lugares convenientes a lo largo de todas las rutas. Los buses solo pueden parar en las paradas designadas.

## Servicio para Personas con Discapacidad

El servicio de transporte especializado para personas que no son capaces de usar el bus CUE debido a una discapacidad es ofrecido a través de los programas City Wheels 703-385-7859; TTY: 711 y Metro Access 301-562-5360; TTY: 711, 301-588-7535.

## Accesibilidad

Todos los buses CUE tienen acceso para sillas de ruedas. Los animales de servicio son bienvenidos abordo de los buses CUE. La información contenida en este folleto también está disponible en otros formatos y se puede solicitar llamando al 703-385-7859; TTY: 711.



## Servicio en Días Festivos

| Día de Fiesta                                            | Tipo de Servicio                                                                             |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Víspera de Año Nuevo .....                               | Ninguno                                                                                      |
| Martin Luther King .....                                 | Día entre semana modificado**                                                                |
| Cumpleaños de Washington...Día entre semana modificado** |                                                                                              |
| Día de Homenaje a los Caídos .....                       | Sábado                                                                                       |
| Juneteenth.....                                          | Día entre semana modificado**                                                                |
| Día de la Independencia .....                            | Especial*                                                                                    |
| Día del Trabajo .....                                    | Sábado                                                                                       |
| Columbus (Colón).....                                    | Regular                                                                                      |
| Veteranos.....                                           | Día entre semana modificado**                                                                |
| Acción de gracias.....                                   | Ninguno                                                                                      |
| Día después de acción de gracias.....                    | Día entre semana modificado**                                                                |
| Noche buena (Diciembre 24).....                          | Horario normal entre semana, salvo que todos los servicios de CUE terminarán a las 7:00 p.m. |

Navidad (Diciembre 25)..... Ninguno

\*Los buses CUE ofrecen un servicio especial extensivo dentro de la ciudad durante las actividades del día de Independencia; por lo tanto no se presta servicio regular ese día.

\*\*Día entre semana modificado consistirá en un bus en cada ruta. Consulte la parte sin sombread del horario entre semana.

# ¡CUE es GRATIS para todos!

No se requiere identificación o pase, ¡solo súbete y toma tu CUE!

## Riding Tips

### Waiting for the Bus

- When waiting for the bus, stand at the nearest bus stop sign.
- Please try to arrive at least five minutes before the scheduled arrival time.
- Make sure that the bus driver can see you.

### Boarding the Bus

- Please board the bus carefully. Your driver is able to lower the bus or deploy the wheelchair ramp if requested.
- Please limit the amount of items brought onboard. Drivers are not able to assist you with loading and unloading of items. For safety reasons, no items can block the aisle.
- Please have strollers and carts collapsed before stepping on the bus.

### Riding the Bus

- Move to the rear of the bus. Please make front seats available for elderly or disabled passengers.
- Please take your seat as quickly as possible. This allows the driver to start moving and maintain the schedule. When walking on a bus, hold on to the grab rails or

## Appendix C – Crash Data

# VDOT Crash Data Summary Table

| Intersection Crash Analysis         | Crash Data for the Intersection of Blenheim Blvd and Fairfax Commons Entrance (January 2018 - December 2022) |      |      |      |      |  | Total | Relative Frequency |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------|------|------|------|------|--|-------|--------------------|
|                                     | 2018                                                                                                         | 2019 | 2020 | 2021 | 2022 |  |       |                    |
| <u>Crash Severity</u>               |                                                                                                              |      |      |      |      |  |       |                    |
| Fatal Collision (Type K)            |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Injury Collision (Type A, B, and C) |                                                                                                              |      |      |      |      |  | 1     | 50.00%             |
| Type A                              |                                                                                                              |      |      |      |      |  |       |                    |
| Type B                              |                                                                                                              |      |      |      |      |  | 1     |                    |
| Type C                              |                                                                                                              |      |      |      |      |  |       |                    |
| Property Damage Only (Type PDO)     |                                                                                                              |      |      |      |      |  | 1     | 50.00%             |
| TOTAL *                             |                                                                                                              |      |      |      |      |  | 1     | 100.00%            |
| <u>Crash Type</u>                   |                                                                                                              |      |      |      |      |  |       |                    |
| Fixed Object/ Single-Vehicle Crash  |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Head-On                             |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Sideswipe / Same Direction          |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Sideswipe / Opposite Direction      |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Rear-End Collision                  |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Angle Collision                     |                                                                                                              |      |      |      |      |  | 1     | 100.00%            |
| Backed Into                         |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Pedestrian Collision                |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Deer/Animal                         |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Other                               |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| TOTAL *                             |                                                                                                              |      |      |      |      |  | 1     | 100.00%            |
| <u>Other Factors</u>                |                                                                                                              |      |      |      |      |  |       |                    |
| Distracted Driver                   |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Alcohol**                           |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Work-Zone                           |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Inclement Weather (Non-Dry)         |                                                                                                              |      |      |      |      |  | 1     | 50.00%             |
| Speeding                            |                                                                                                              |      |      |      |      |  | 1     | 50.00%             |
| Pedestrian Injury***                |                                                                                                              |      |      |      |      |  |       | N/A                |
| Time of Day                         |                                                                                                              |      |      |      |      |  |       |                    |
| AM Peak Period (6 - 10 AM)          |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| Off Peak - Daytime (10 AM - 3 PM)   |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| PM Peak Period (3 - 7 PM)           |                                                                                                              |      |      |      |      |  | 1     | 100.00%            |
| Off Peak - Nighttime (7 PM - 6 AM)  |                                                                                                              |      |      |      |      |  |       | 0.00%              |
| CALCULATED CRASH RATE****           |                                                                                                              |      |      |      |      |  | 0.08  | Crashes per MEV    |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

VDOT Crash Data Summary Table

| Intersection Crash Analysis         | Crash Data for the Intersection of University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance (January 2018 - December 2022) |      |          |      |      |             |                        |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|----------|------|------|-------------|------------------------|
|                                     | 2018                                                                                                                                    | 2019 | 2020     | 2021 | 2022 | Total       | Relative Frequency     |
| <b>Crash Severity</b>               |                                                                                                                                         |      |          |      |      |             |                        |
| Fatal Collision (Type K)            |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Injury Collision (Type A, B, and C) |                                                                                                                                         |      | 1        |      |      | 1           | 33.33%                 |
| Type A                              |                                                                                                                                         |      |          |      |      |             |                        |
| Type B                              |                                                                                                                                         |      | 1        |      |      | 1           |                        |
| Type C                              |                                                                                                                                         |      |          |      |      |             |                        |
| Property Damage Only (Type PDO)     | 1                                                                                                                                       |      | 1        |      |      | 2           | 66.67%                 |
| <b>TOTAL*</b>                       | <b>1</b>                                                                                                                                |      | <b>2</b> |      |      | <b>3</b>    | <b>100.00%</b>         |
| <b>Crash Type</b>                   |                                                                                                                                         |      |          |      |      |             |                        |
| Fixed Object/ Single-Vehicle Crash  |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Head-On                             |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Sideswipe / Same Direction          |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Sideswipe / Opposite Direction      |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Rear-End Collision                  |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Angle Collision                     | 1                                                                                                                                       |      | 2        |      |      | 3           | 100.00%                |
| Backed Into                         |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Pedestrian Collision                |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Deer/Animal                         |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Other                               |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| <b>TOTAL*</b>                       | <b>1</b>                                                                                                                                |      | <b>2</b> |      |      | <b>3</b>    | <b>100.00%</b>         |
| <b>Other Factors</b>                |                                                                                                                                         |      |          |      |      |             |                        |
| Distracted Driver                   |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Alcohol**                           |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Work-Zone                           |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Inclement Weather (Non-Dry)         |                                                                                                                                         |      | 1        |      |      | 1           | 33.33%                 |
| Speeding                            |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Pedestrian Injury***                |                                                                                                                                         |      |          |      |      |             | N/A                    |
| Time of Day                         |                                                                                                                                         |      |          |      |      |             |                        |
| AM Peak Period (6 - 10 AM)          |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| Off Peak - Daytime (10 AM - 3 PM)   |                                                                                                                                         |      | 1        |      |      | 1           | 33.33%                 |
| PM Peak Period (3 - 7 PM)           | 1                                                                                                                                       |      | 1        |      |      | 2           | 66.67%                 |
| Off Peak - Nighttime (7 PM - 6 AM)  |                                                                                                                                         |      |          |      |      |             | 0.00%                  |
| <b>CALCULATED CRASH RATE****</b>    |                                                                                                                                         |      |          |      |      | <b>0.17</b> | <b>Crashes per MEV</b> |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

| Intersection Crash Analysis         | Crash Data for the Intersection of University Drive and Democracy Ln/Whitehead St (January 2018 - December 2022) |          |          |          |          |             |                        |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------|----------|----------|----------|----------|-------------|------------------------|
|                                     | 2018                                                                                                             | 2019     | 2020     | 2021     | 2022     | Total       | Relative Frequency     |
| <b><u>Crash Severity</u></b>        |                                                                                                                  |          |          |          |          |             |                        |
| Fatal Collision (Type K)            |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Injury Collision (Type A, B, and C) |                                                                                                                  |          |          |          | 1        | 1           | 14.29%                 |
| Type A                              |                                                                                                                  |          |          |          |          |             |                        |
| Type B                              |                                                                                                                  |          |          |          | 1        | 1           |                        |
| Type C                              |                                                                                                                  |          |          |          |          |             |                        |
| Property Damage Only (Type PDO)     | 1                                                                                                                | 3        | 1        | 1        |          | 6           | 85.71%                 |
| <b>TOTAL*</b>                       | <b>1</b>                                                                                                         | <b>3</b> | <b>1</b> | <b>1</b> | <b>1</b> | <b>7</b>    | <b>100.00%</b>         |
| <b><u>Crash Type</u></b>            |                                                                                                                  |          |          |          |          |             |                        |
| Fixed Object/ Single-Vehicle Crash  | 1                                                                                                                |          |          |          |          | 1           | 14.29%                 |
| Head-On                             |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Sideswipe / Same Direction          |                                                                                                                  | 1        |          |          |          | 1           | 14.29%                 |
| Sideswipe / Opposite Direction      |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Rear-End Collision                  |                                                                                                                  |          | 1        |          |          | 1           | 14.29%                 |
| Angle Collision                     |                                                                                                                  | 2        |          | 1        | 1        | 4           | 57.14%                 |
| Backed Into                         |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Pedestrian Collision                |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Deer/Animal                         |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Other                               |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| <b>TOTAL*</b>                       | <b>1</b>                                                                                                         | <b>3</b> | <b>1</b> | <b>1</b> | <b>1</b> | <b>7</b>    | <b>100.00%</b>         |
| <b><u>Other Factors</u></b>         |                                                                                                                  |          |          |          |          |             |                        |
| Distracted Driver                   |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Alcohol**                           |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Work-Zone                           |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Inclement Weather (Non-Dry)         | 1                                                                                                                |          |          |          | 1        | 2           | 28.57%                 |
| Speeding                            |                                                                                                                  |          |          |          |          |             | 0.00%                  |
| Pedestrian Injury***                |                                                                                                                  |          |          |          |          |             | N/A                    |
| Time of Day                         |                                                                                                                  |          |          |          |          |             |                        |
| AM Peak Period (6 - 10 AM)          | 1                                                                                                                |          |          |          |          | 1           | 14.29%                 |
| Off Peak - Daytime (10 AM - 3 PM)   |                                                                                                                  | 1        |          |          |          | 1           | 14.29%                 |
| PM Peak Period (3 - 7 PM)           |                                                                                                                  | 2        | 1        |          | 1        | 4           | 57.14%                 |
| Off Peak - Nighttime (7 PM - 6 AM)  |                                                                                                                  |          |          | 1        |          | 1           | 14.29%                 |
| <b>CALCULATED CRASH RATE****</b>    |                                                                                                                  |          |          |          |          | <b>0.41</b> | <b>Crashes per MEV</b> |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

| Intersection Crash Analysis         | Crash Data for the Intersection of Layton Hall Drive and Democracy Ln (January 2018 - December 2022) |      |      |      |          |             |                        |
|-------------------------------------|------------------------------------------------------------------------------------------------------|------|------|------|----------|-------------|------------------------|
|                                     | 2018                                                                                                 | 2019 | 2020 | 2021 | 2022     | Total       | Relative Frequency     |
| <b><u>Crash Severity</u></b>        |                                                                                                      |      |      |      |          |             |                        |
| Fatal Collision (Type K)            |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Injury Collision (Type A, B, and C) |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Type A                              |                                                                                                      |      |      |      |          |             |                        |
| Type B                              |                                                                                                      |      |      |      |          |             |                        |
| Type C                              |                                                                                                      |      |      |      |          |             |                        |
| Property Damage Only (Type PDO)     | 2                                                                                                    |      |      |      | 1        | 3           | 100.00%                |
| <b>TOTAL*</b>                       | <b>2</b>                                                                                             |      |      |      | <b>1</b> | <b>3</b>    | <b>100.00%</b>         |
| <b><u>Crash Type</u></b>            |                                                                                                      |      |      |      |          |             |                        |
| Fixed Object/ Single-Vehicle Crash  |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Head-On                             |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Sideswipe / Same Direction          |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Sideswipe / Opposite Direction      |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Rear-End Collision                  |                                                                                                      |      |      |      | 1        | 1           | 33.33%                 |
| Angle Collision                     | 1                                                                                                    |      |      |      |          | 1           | 33.33%                 |
| Backed Into                         |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Pedestrian Collision                |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Deer/Animal                         |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Other                               | 1                                                                                                    |      |      |      |          | 1           | 33.33%                 |
| <b>TOTAL*</b>                       | <b>2</b>                                                                                             |      |      |      | <b>1</b> | <b>3</b>    | <b>100.00%</b>         |
| <b><u>Other Factors</u></b>         |                                                                                                      |      |      |      |          |             |                        |
| Distracted Driver                   |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Alcohol**                           |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Work-Zone                           |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Inclement Weather (Non-Dry)         |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Speeding                            |                                                                                                      |      |      |      |          |             | 0.00%                  |
| Pedestrian Injury***                |                                                                                                      |      |      |      |          |             | N/A                    |
| Time of Day                         |                                                                                                      |      |      |      |          |             |                        |
| AM Peak Period (6 - 10 AM)          | 1                                                                                                    |      |      |      |          | 1           | 33.33%                 |
| Off Peak - Daytime (10 AM - 3 PM)   |                                                                                                      |      |      |      |          |             | 0.00%                  |
| PM Peak Period (3 - 7 PM)           |                                                                                                      |      |      |      | 1        | 1           | 33.33%                 |
| Off Peak - Nighttime (7 PM - 6 AM)  | 1                                                                                                    |      |      |      |          | 1           | 33.33%                 |
| <b>CALCULATED CRASH RATE****</b>    |                                                                                                      |      |      |      |          | <b>0.37</b> | <b>Crashes per MEV</b> |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

# VDOT Crash Data Summary Table

| Intersection Crash Analysis         | Crash Data for the Intersection of Blenheim Blvd and Layton Hall Dr (January 2018 - December 2022) |      |      |      |      |  | Total | Relative Frequency |
|-------------------------------------|----------------------------------------------------------------------------------------------------|------|------|------|------|--|-------|--------------------|
|                                     | 2018                                                                                               | 2019 | 2020 | 2021 | 2022 |  |       |                    |
| <u>Crash Severity</u>               |                                                                                                    |      |      |      |      |  |       |                    |
| Fatal Collision (Type K)            |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Injury Collision (Type A, B, and C) | 1                                                                                                  | 1    |      |      |      |  | 2     | 25.00%             |
| Type A                              |                                                                                                    | 1    |      |      |      |  | 1     |                    |
| Type B                              | 1                                                                                                  |      |      |      |      |  | 1     |                    |
| Type C                              |                                                                                                    |      |      |      |      |  |       |                    |
| Property Damage Only (Type PDO)     | 1                                                                                                  | 3    |      | 2    |      |  | 6     | 75.00%             |
| TOTAL *                             | 2                                                                                                  | 4    |      | 2    |      |  | 8     | 100.00%            |
| <u>Crash Type</u>                   |                                                                                                    |      |      |      |      |  |       |                    |
| Fixed Object/ Single-Vehicle Crash  |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Head-On                             |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Sideswipe / Same Direction          | 1                                                                                                  |      |      |      |      |  | 1     | 12.50%             |
| Sideswipe / Opposite Direction      |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Rear-End Collision                  | 1                                                                                                  | 2    |      | 2    |      |  | 5     | 62.50%             |
| Angle Collision                     |                                                                                                    | 2    |      |      |      |  | 2     | 25.00%             |
| Backed Into                         |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Pedestrian Collision                |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Deer/Animal                         |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Other                               |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| TOTAL *                             | 2                                                                                                  | 4    |      | 2    |      |  | 8     | 100.00%            |
| <u>Other Factors</u>                |                                                                                                    |      |      |      |      |  |       |                    |
| Distracted Driver                   |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Alcohol**                           |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Work-Zone                           |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Inclement Weather (Non-Dry)         |                                                                                                    | 1    |      | 1    |      |  | 2     | 25.00%             |
| Speeding                            |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| Pedestrian Injury***                |                                                                                                    |      |      |      |      |  |       | N/A                |
| Time of Day                         |                                                                                                    |      |      |      |      |  |       |                    |
| AM Peak Period (6 - 10 AM)          | 1                                                                                                  |      |      | 2    |      |  | 3     | 37.50%             |
| Off Peak - Daytime (10 AM - 3 PM)   | 1                                                                                                  | 2    |      |      |      |  | 3     | 37.50%             |
| PM Peak Period (3 - 7 PM)           |                                                                                                    | 2    |      |      |      |  | 2     | 25.00%             |
| Off Peak - Nighttime (7 PM - 6 AM)  |                                                                                                    |      |      |      |      |  |       | 0.00%              |
| CALCULATED CRASH RATE****           |                                                                                                    |      |      |      |      |  | 0.31  | Crashes per MEV    |

\* It should be noted that an intersection radius of 150 feet was used in this analysis. Crashes also thought to be caused by the intersection may have been added based on the description of the crash and engineering judgement.

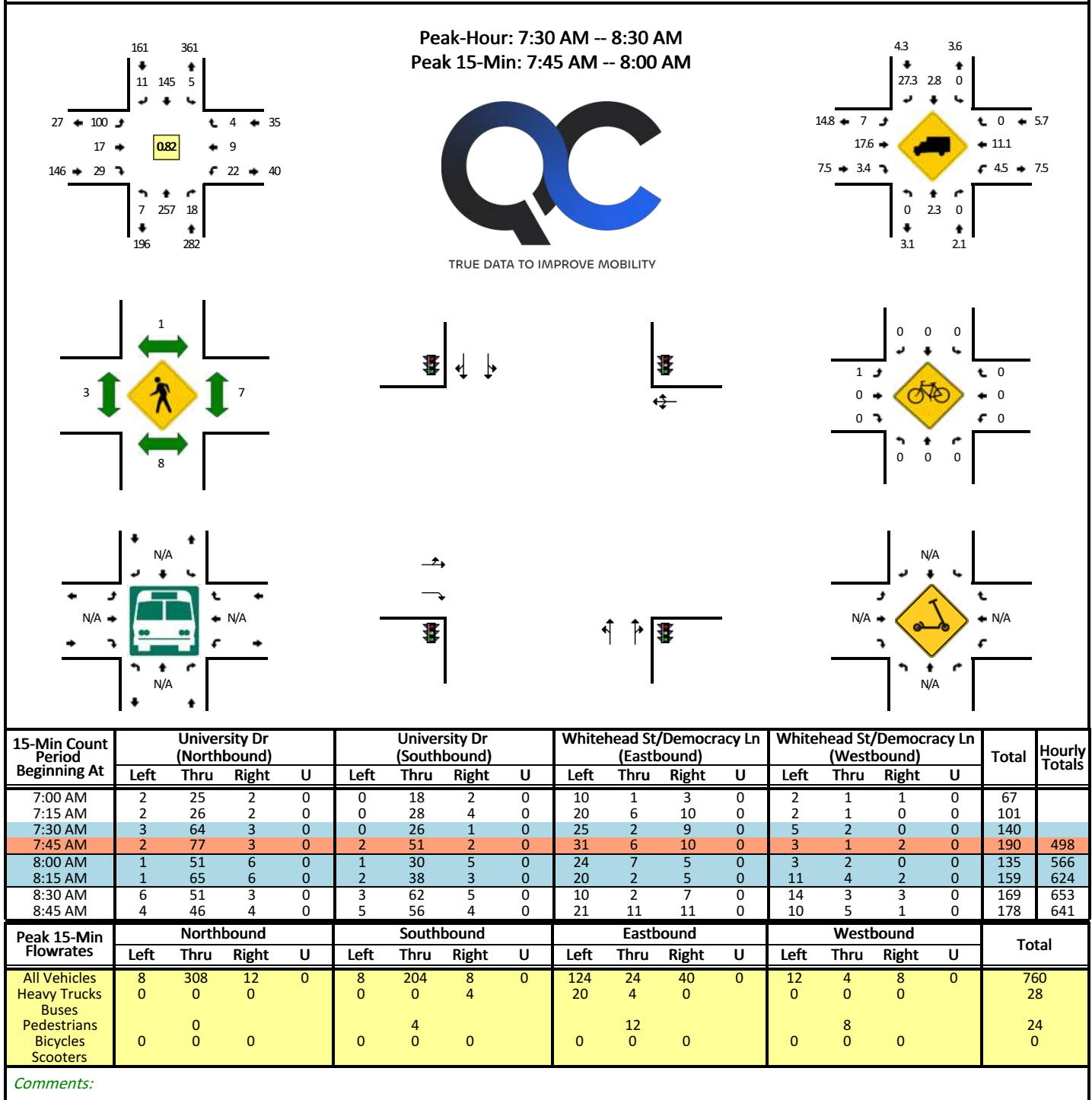
\*\* Instances where the event was classified as "Unknown", "Not Known Whether Impaired", "Ability Not Impaired" were classified as alcohol related to provide a more conservative analysis.

\*\*\* Pedestrian injuries are based on the number of pedestrians injured and may not be directly be related to the number of crash incidences (i.e., if one crash occurred injuring two pedestrians, the table would show a "2" instead of a "1").

## **Appendix D – Existing Turning Movement Counts**

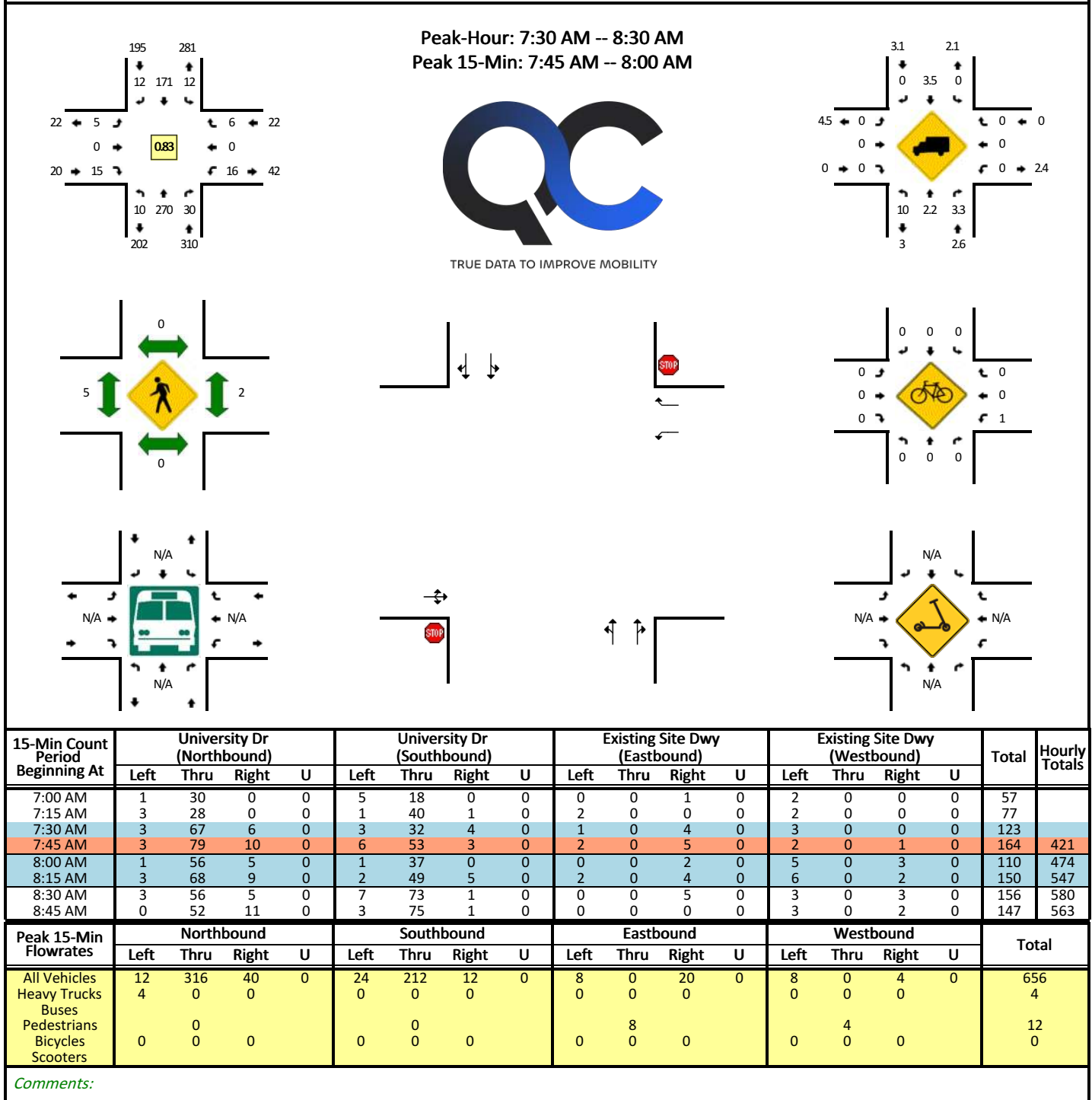
**LOCATION:** University Dr -- Whitehead St/Democracy Ln  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229801  
**DATE:** Thu, Mar 30 2023



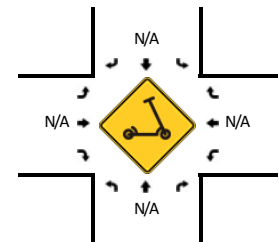
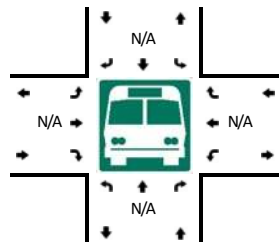
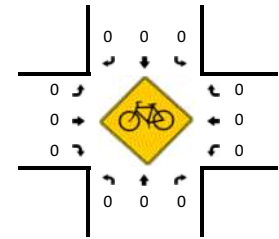
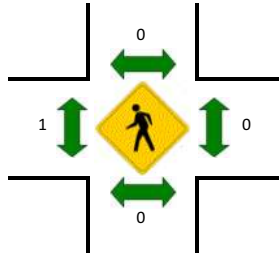
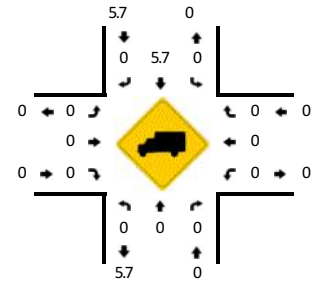
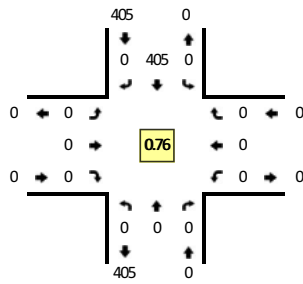
**LOCATION:** University Dr -- Existing Site Dwy  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229802  
**DATE:** Thu, Mar 30 2023



**LOCATION:** Blenheim Blvd -- Site Entrance 2**CITY/STATE:** Fairfax, VA**QC JOB #:** 16229803**DATE:** Thu, Mar 30 2023

Peak-Hour: 7:30 AM -- 8:30 AM  
Peak 15-Min: 7:45 AM -- 8:00 AM

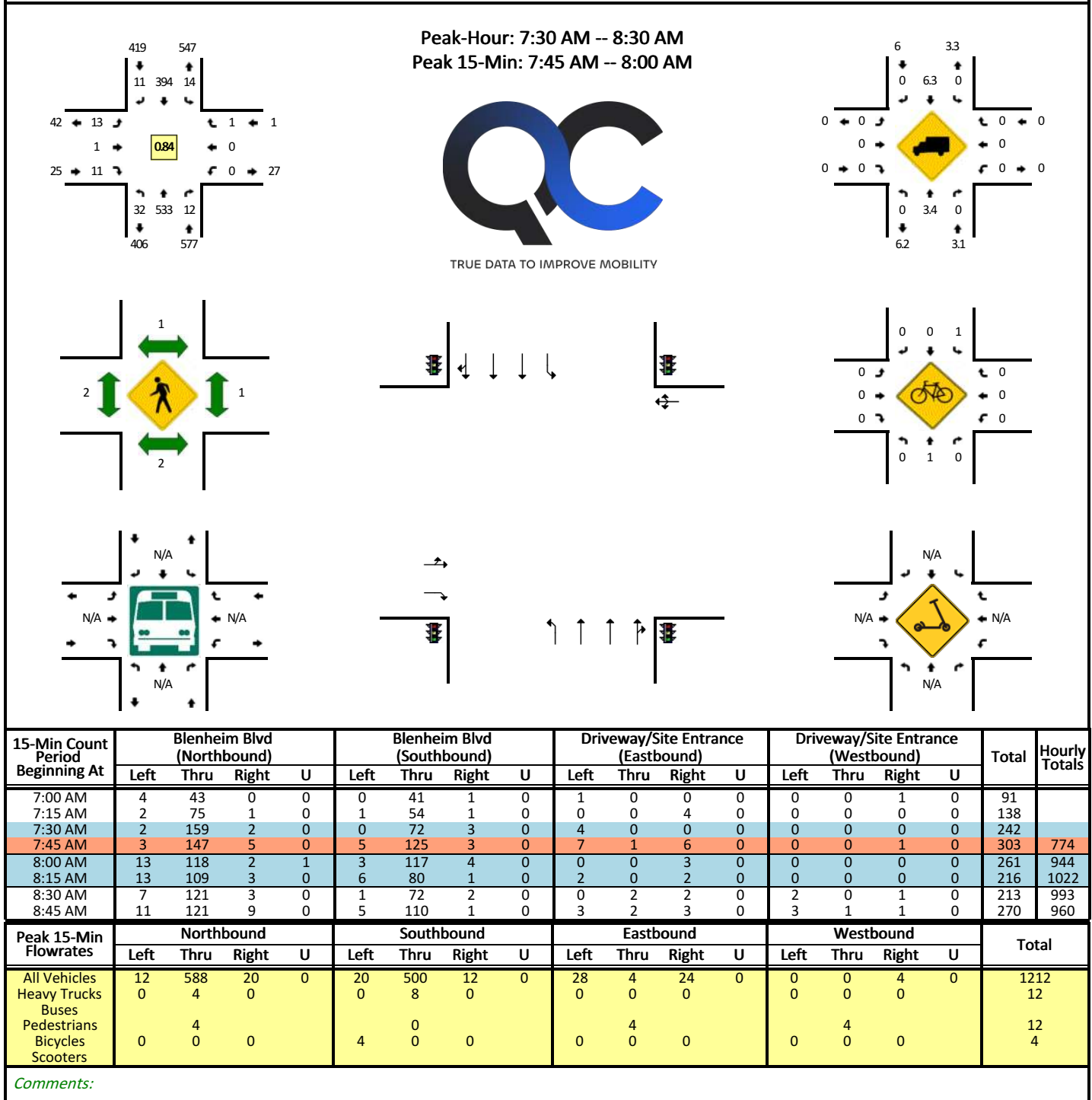


| 15-Min Count Period Beginning At | Blenheim Blvd (Northbound) |      |       |   | Blenheim Blvd (Southbound) |      |       |   | Site Entrance 2 (Eastbound) |      |       |   | Site Entrance 2 (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-----------------------------|------|-------|---|-----------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| 7:00 AM                          | 0                          | 0    | 0     | 0 | 0                          | 41   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 41    |               |
| 7:15 AM                          | 0                          | 0    | 0     | 0 | 0                          | 58   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 58    |               |
| 7:30 AM                          | 0                          | 0    | 0     | 0 | 0                          | 70   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 70    |               |
| 7:45 AM                          | 0                          | 0    | 0     | 0 | 0                          | 134  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 134   | 303           |
| 8:00 AM                          | 0                          | 0    | 0     | 0 | 0                          | 121  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 121   | 383           |
| 8:15 AM                          | 0                          | 0    | 0     | 0 | 0                          | 80   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 80    | 405           |
| 8:30 AM                          | 0                          | 0    | 0     | 0 | 0                          | 77   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 77    | 412           |
| 8:45 AM                          | 0                          | 0    | 0     | 0 | 0                          | 114  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 114   | 392           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                   |      |       |   | Westbound                   |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| All Vehicles                     | 0                          | 0    | 0     | 0 | 0                          | 536  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 536   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 12   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 12    |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                             |      |       |   |                             |      |       |   |       |               |
| Pedestrians                      |                            | 0    |       |   |                            | 0    |       |   |                             | 4    |       |   |                             | 0    |       |   | 4     |               |
| Bicycles                         | 0                          | 0    | 0     |   | 0                          | 0    | 0     |   | 0                           | 0    | 0     |   | 0                           | 0    | 0     |   | 0     |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                             |      |       |   |                             |      |       |   |       |               |

**Comments:**

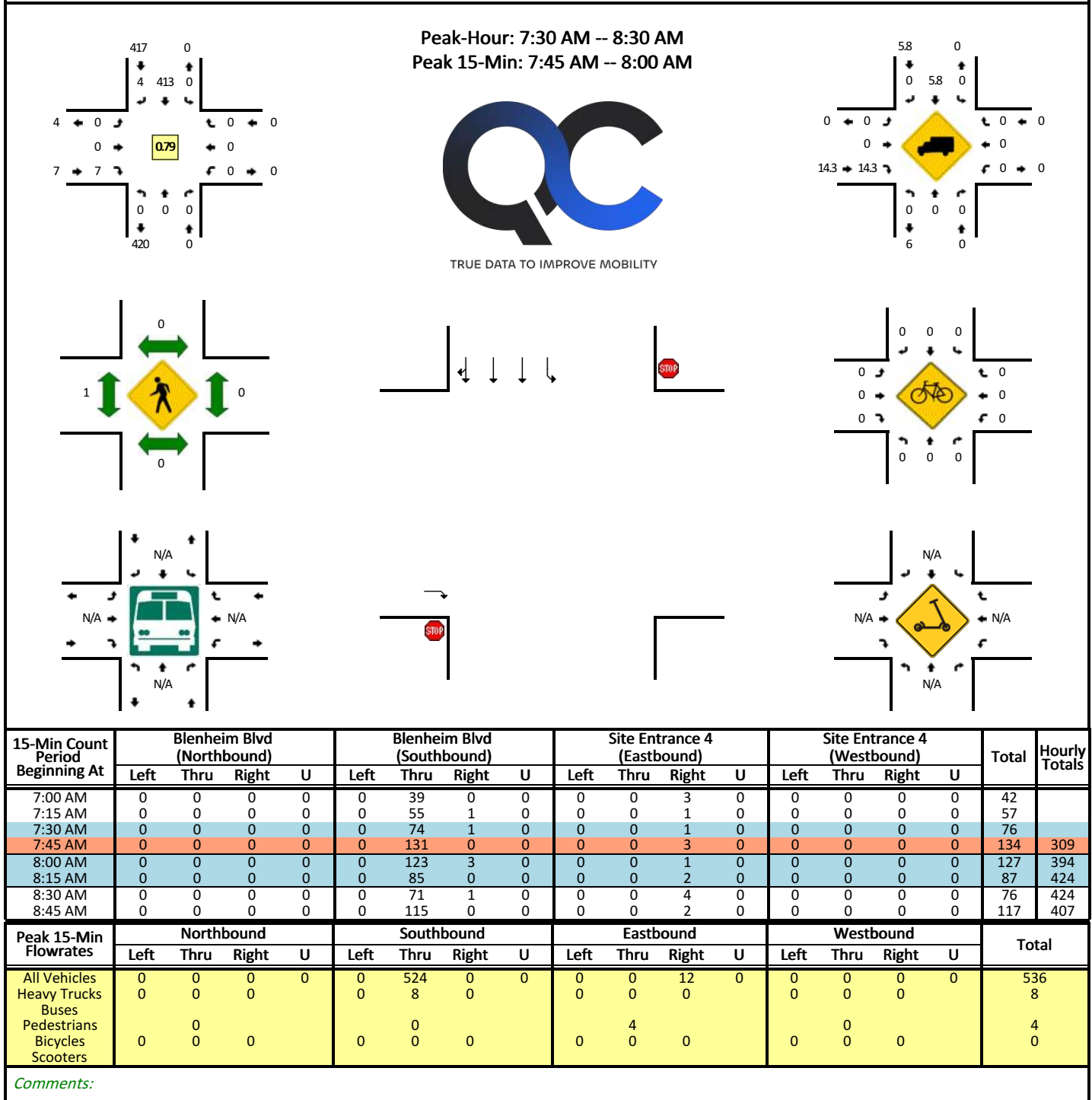
Report generated on 8/13/2024 2:47 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Blenheim Blvd -- Driveway/Site Entrance**CITY/STATE:** Fairfax, VA**QC JOB #:** 16229804**DATE:** Thu, Mar 30 2023

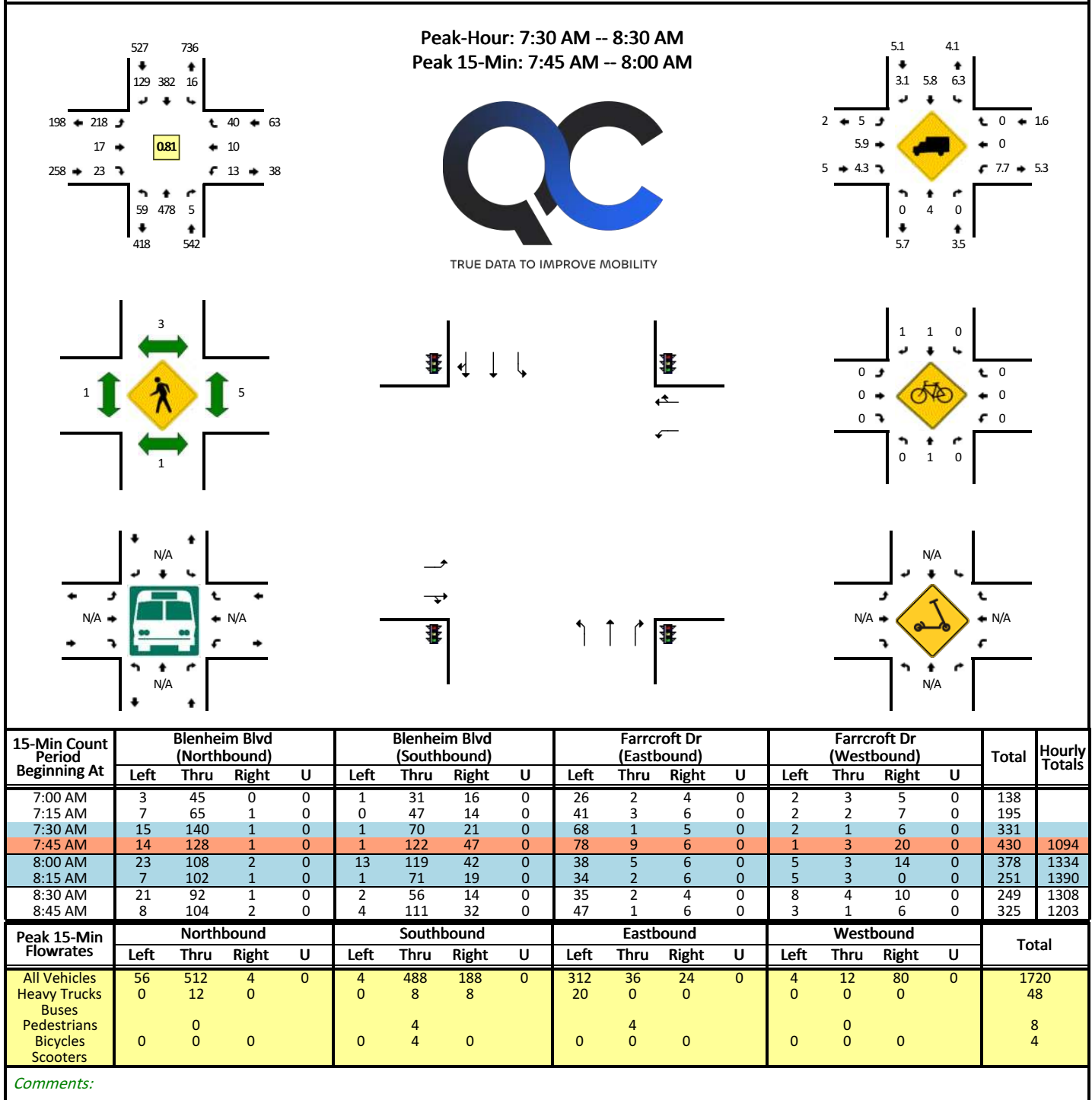
**LOCATION:** Blenheim Blvd -- Site Entrance 4  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229805  
**DATE:** Thu, Mar 30 2023



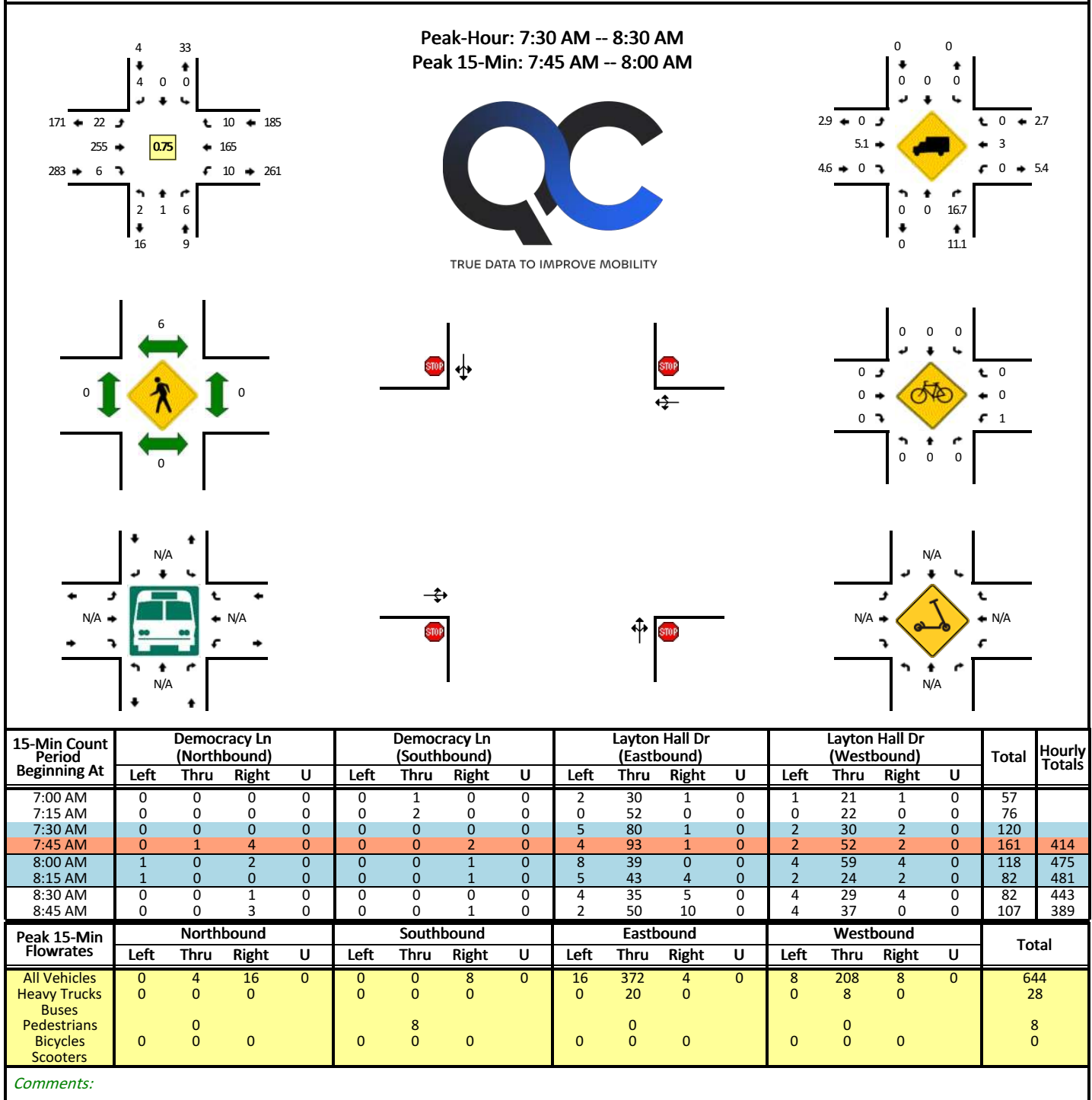
**LOCATION:** Blenheim Blvd -- Farrcroft Dr  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229806  
**DATE:** Thu, Mar 30 2023



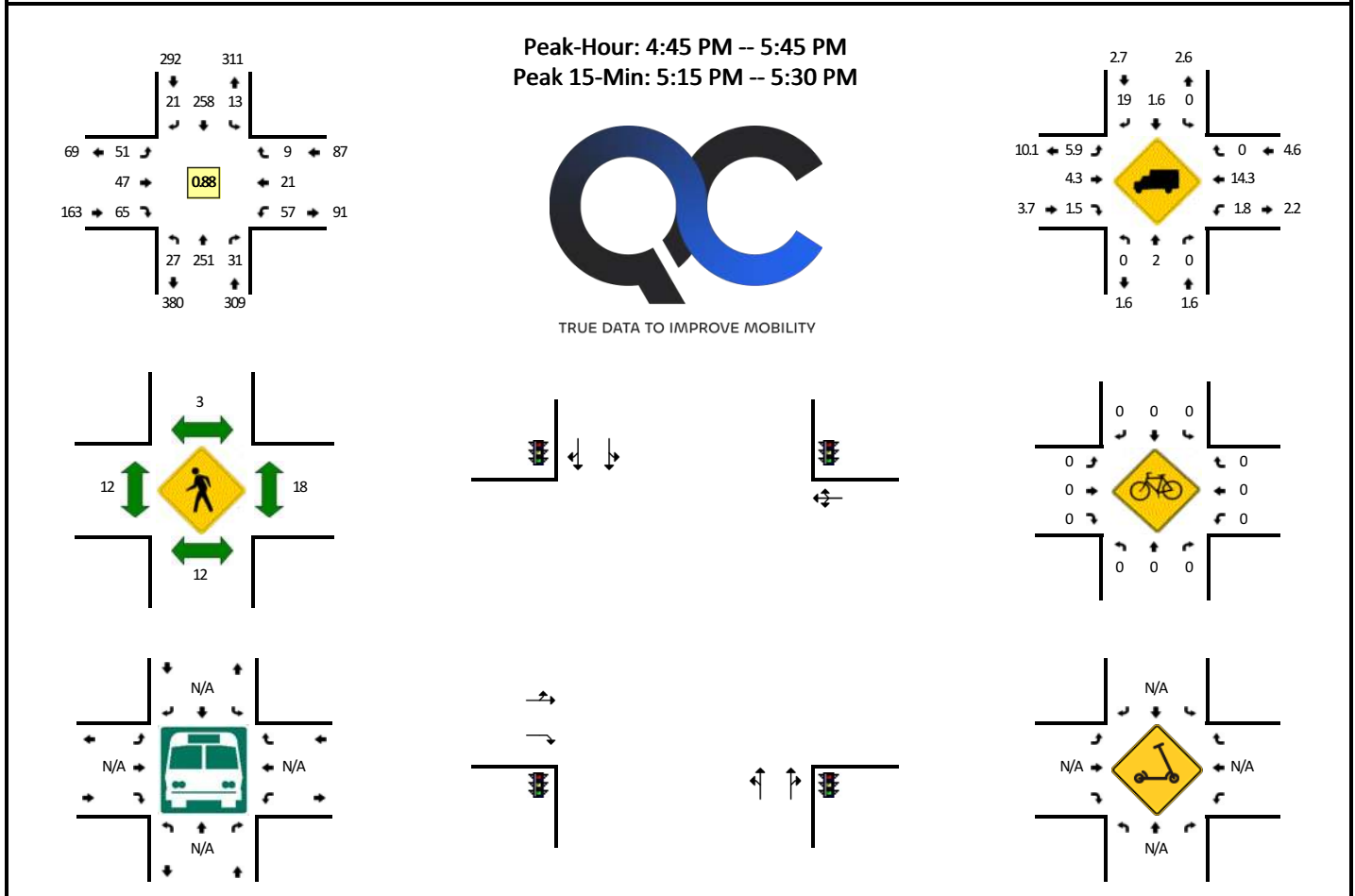
**LOCATION:** Democracy Ln -- Layton Hall Dr  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229807  
**DATE:** Thu, Mar 30 2023



**LOCATION:** University Dr -- Whitehead St/Democracy Ln  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229808  
**DATE:** Thu, Mar 30 2023



| 15-Min Count Period Beginning At | University Dr (Northbound) |      |       |   | University Dr (Southbound) |      |       |   | Whitehead St/Democracy Ln (Eastbound) |      |       |   | Whitehead St/Democracy Ln (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|---------------------------------------|------|-------|---|---------------------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                                  | Thru | Right | U | Left                                  | Thru | Right | U |       |               |
| 4:00 PM                          | 6                          | 40   | 5     | 0 | 1                          | 86   | 10    | 0 | 11                                    | 5    | 7     | 0 | 17                                    | 3    | 5     | 0 | 196   |               |
| 4:15 PM                          | 9                          | 78   | 6     | 0 | 2                          | 72   | 4     | 0 | 16                                    | 8    | 13    | 0 | 13                                    | 3    | 3     | 0 | 227   |               |
| 4:30 PM                          | 12                         | 41   | 10    | 0 | 3                          | 89   | 3     | 0 | 14                                    | 9    | 18    | 0 | 10                                    | 3    | 2     | 0 | 214   |               |
| 4:45 PM                          | 9                          | 45   | 5     | 0 | 3                          | 48   | 2     | 0 | 15                                    | 10   | 22    | 0 | 6                                     | 2    | 1     | 0 | 168   | 805           |
| 5:00 PM                          | 6                          | 54   | 11    | 0 | 2                          | 82   | 8     | 0 | 9                                     | 10   | 17    | 0 | 12                                    | 11   | 2     | 0 | 224   | 833           |
| 5:15 PM                          | 5                          | 76   | 8     | 0 | 6                          | 62   | 8     | 0 | 19                                    | 16   | 19    | 0 | 15                                    | 4    | 4     | 0 | 242   | 848           |
| 5:30 PM                          | 7                          | 76   | 7     | 0 | 2                          | 66   | 3     | 0 | 8                                     | 11   | 7     | 0 | 24                                    | 4    | 2     | 0 | 217   | 851           |
| 5:45 PM                          | 5                          | 56   | 9     | 0 | 2                          | 49   | 9     | 0 | 12                                    | 5    | 10    | 0 | 6                                     | 2    | 4     | 0 | 169   | 852           |
| 6:00 PM                          | 12                         | 51   | 7     | 0 | 4                          | 55   | 2     | 0 | 9                                     | 8    | 9     | 0 | 7                                     | 6    | 1     | 0 | 171   | 799           |
| 6:15 PM                          | 8                          | 38   | 10    | 0 | 2                          | 46   | 5     | 0 | 6                                     | 7    | 6     | 0 | 12                                    | 8    | 2     | 0 | 150   | 707           |
| 6:30 PM                          | 10                         | 36   | 10    | 0 | 0                          | 43   | 5     | 0 | 7                                     | 10   | 12    | 0 | 13                                    | 5    | 1     | 0 | 152   | 642           |
| 6:45 PM                          | 6                          | 35   | 10    | 0 | 3                          | 40   | 2     | 0 | 11                                    | 5    | 10    | 0 | 12                                    | 2    | 2     | 0 | 138   | 611           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                             |      |       |   | Westbound                             |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                                  | Thru | Right | U | Left                                  | Thru | Right | U |       |               |
| All Vehicles                     | 20                         | 304  | 32    | 0 | 24                         | 248  | 32    | 0 | 76                                    | 64   | 76    | 0 | 60                                    | 16   | 16    | 0 | 968   |               |
| Heavy Trucks                     | 0                          | 4    | 0     | 0 | 0                          | 4    | 8     | 0 | 0                                     | 4    | 4     | 0 | 0                                     | 0    | 0     | 0 | 24    |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                                       |      |       |   |                                       |      |       |   |       |               |
| Pedestrians                      |                            | 16   |       |   |                            | 0    |       |   |                                       | 28   |       |   |                                       | 20   |       |   | 64    |               |
| Bicycles                         | 0                          | 0    | 0     |   | 0                          | 0    | 0     |   | 0                                     | 0    | 0     |   | 0                                     | 0    | 0     |   | 0     |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                                       |      |       |   |                                       |      |       |   |       |               |

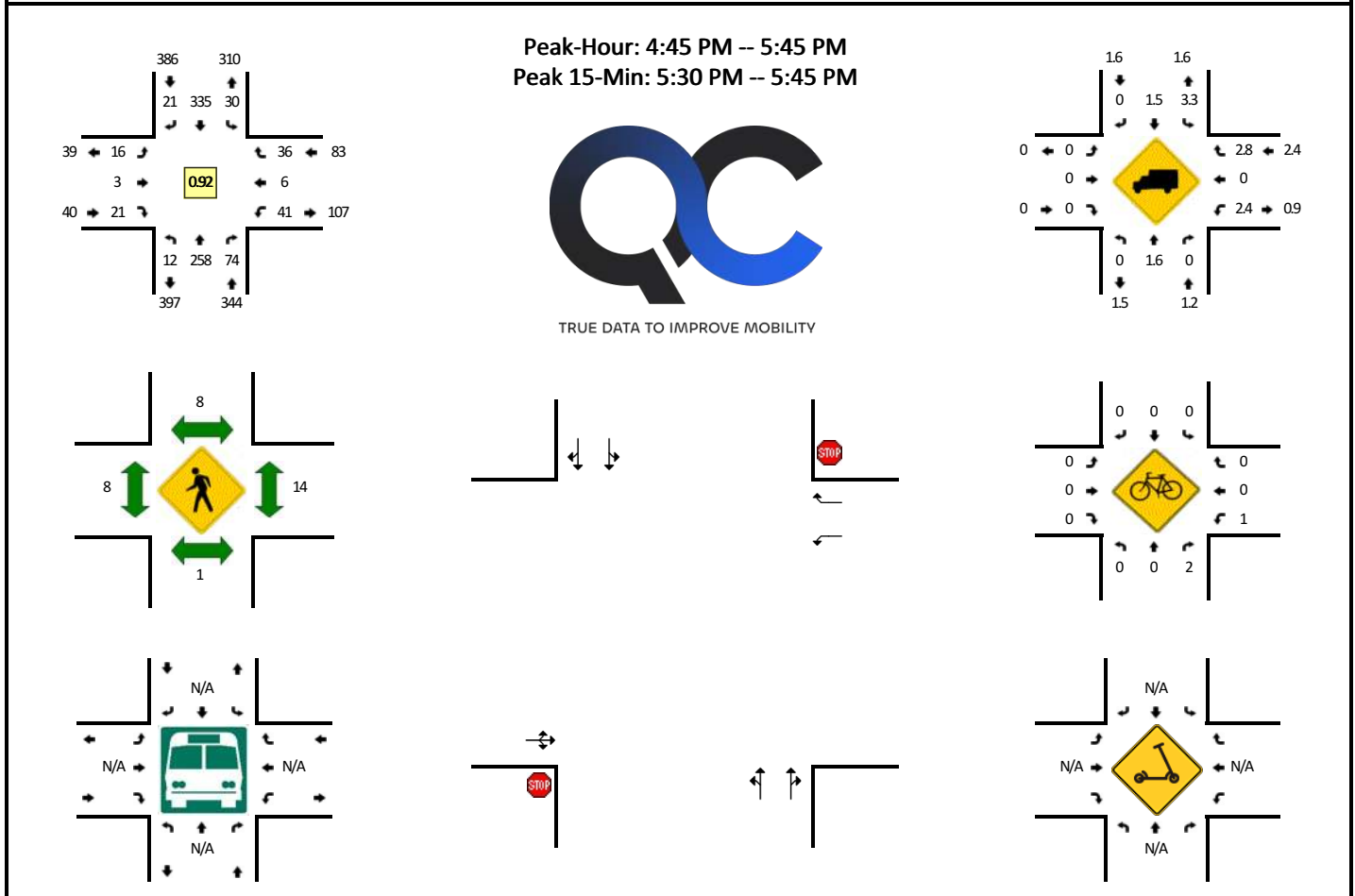
*Comments:*

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** University Dr -- Existing Site Dwy  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229809  
**DATE:** Thu, Mar 30 2023



| 15-Min Count Period Beginning At | University Dr (Northbound) |      |       |   | University Dr (Southbound) |      |       |   | Existing Site Dwy (Eastbound) |      |       |   | Existing Site Dwy (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-------------------------------|------|-------|---|-------------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| 4:00 PM                          | 4                          | 44   | 11    | 0 | 8                          | 100  | 3     | 0 | 0                             | 1    | 4     | 0 | 8                             | 0    | 8     | 0 | 191   |               |
| 4:15 PM                          | 4                          | 78   | 20    | 0 | 7                          | 84   | 6     | 0 | 4                             | 0    | 5     | 0 | 9                             | 0    | 10    | 0 | 227   |               |
| 4:30 PM                          | 3                          | 57   | 14    | 0 | 8                          | 107  | 4     | 0 | 0                             | 1    | 8     | 0 | 14                            | 3    | 7     | 0 | 226   |               |
| 4:45 PM                          | 2                          | 51   | 17    | 0 | 9                          | 68   | 3     | 0 | 1                             | 1    | 6     | 0 | 9                             | 0    | 6     | 0 | 173   | 817           |
| 5:00 PM                          | 4                          | 57   | 15    | 0 | 6                          | 93   | 7     | 0 | 5                             | 1    | 6     | 0 | 7                             | 3    | 11    | 0 | 215   | 841           |
| 5:15 PM                          | 3                          | 81   | 14    | 0 | 7                          | 90   | 6     | 0 | 3                             | 1    | 5     | 0 | 12                            | 1    | 9     | 0 | 232   | 846           |
| 5:30 PM                          | 3                          | 69   | 28    | 0 | 8                          | 84   | 5     | 0 | 7                             | 0    | 4     | 0 | 13                            | 2    | 10    | 0 | 233   | 853           |
| 5:45 PM                          | 1                          | 56   | 21    | 0 | 7                          | 54   | 4     | 0 | 2                             | 0    | 5     | 0 | 14                            | 0    | 11    | 0 | 175   | 855           |
| 6:00 PM                          | 1                          | 63   | 22    | 0 | 6                          | 60   | 4     | 0 | 1                             | 0    | 3     | 0 | 18                            | 1    | 6     | 0 | 185   | 825           |
| 6:15 PM                          | 1                          | 49   | 15    | 0 | 6                          | 57   | 2     | 0 | 1                             | 0    | 5     | 0 | 10                            | 1    | 6     | 0 | 153   | 746           |
| 6:30 PM                          | 3                          | 48   | 13    | 0 | 7                          | 60   | 2     | 0 | 2                             | 0    | 3     | 0 | 19                            | 0    | 7     | 0 | 164   | 677           |
| 6:45 PM                          | 4                          | 39   | 6     | 0 | 4                          | 53   | 5     | 0 | 3                             | 0    | 2     | 0 | 15                            | 0    | 9     | 0 | 140   | 642           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                     |      |       |   | Westbound                     |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| All Vehicles                     | 12                         | 276  | 112   | 0 | 32                         | 336  | 20    | 0 | 28                            | 0    | 16    | 0 | 52                            | 8    | 40    | 0 | 932   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 12   | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 12    |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                               |      |       |   |                               |      |       |   |       |               |
| Pedestrians                      | 0                          | 0    |       |   | 0                          | 0    |       |   | 8                             |      |       |   | 16                            |      |       |   | 24    |               |
| Bicycles                         | 0                          | 0    | 4     |   | 0                          | 0    | 0     |   | 0                             | 0    | 0     |   | 4                             | 0    | 0     |   | 8     |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                               |      |       |   |                               |      |       |   |       |               |

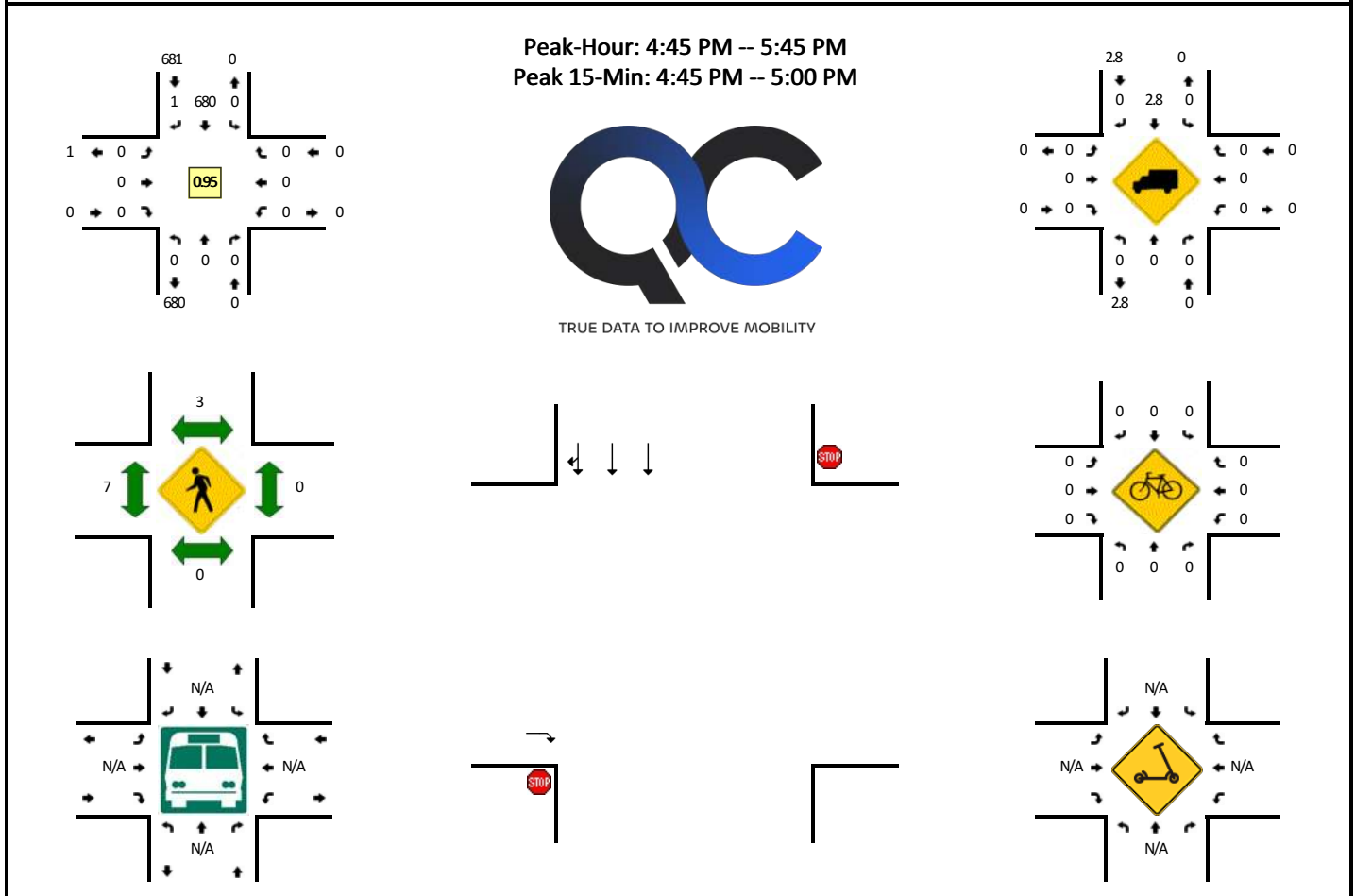
*Comments:*

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Blenheim Blvd -- Site Entrance 2  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229810  
**DATE:** Thu, Mar 30 2023

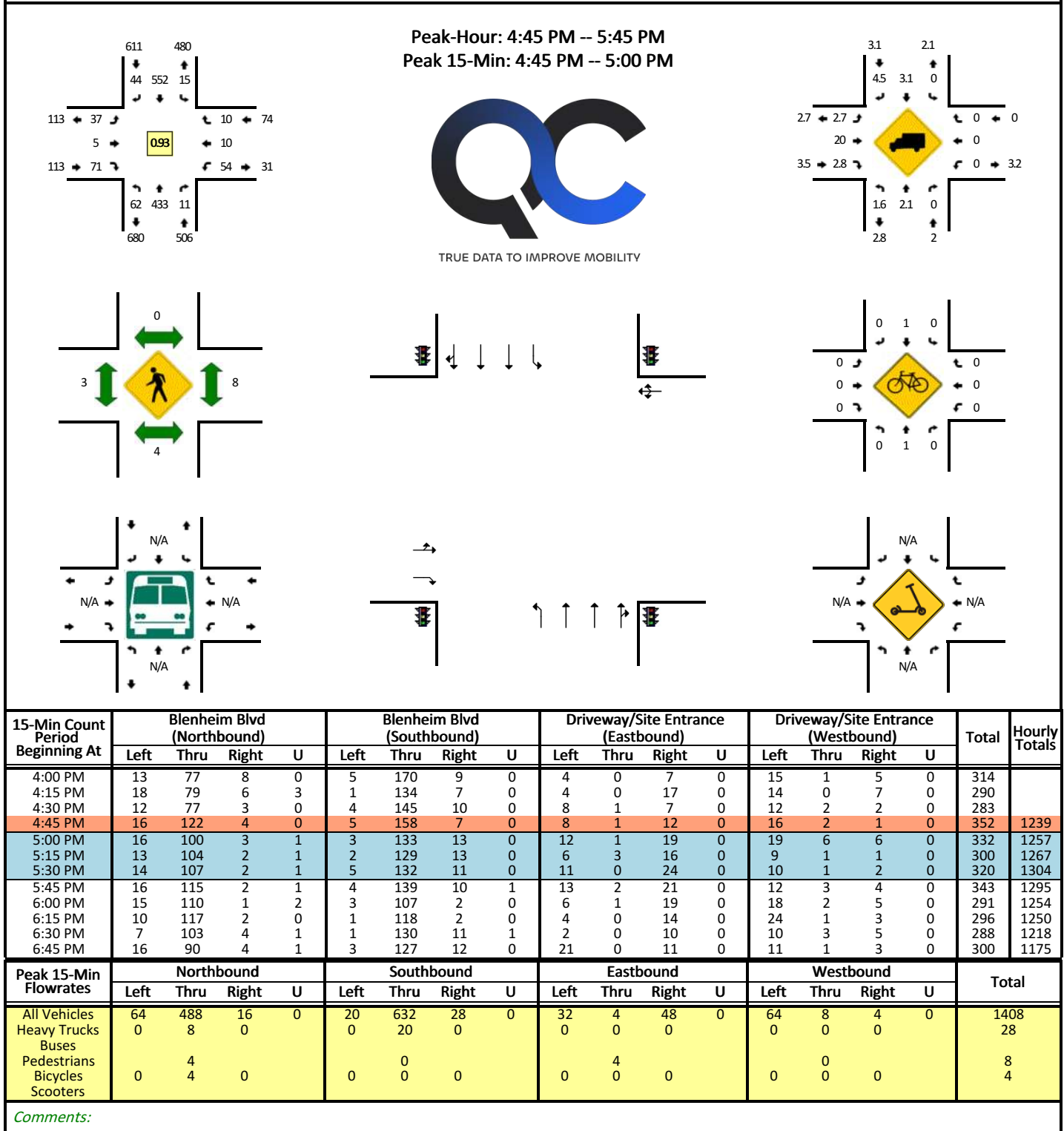


| 15-Min Count Period Beginning At | Blenheim Blvd (Northbound) |      |       |   | Blenheim Blvd (Southbound) |      |       |   | Site Entrance 2 (Eastbound) |      |       |   | Site Entrance 2 (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-----------------------------|------|-------|---|-----------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| 4:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 192  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 192   |               |
| 4:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 163  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 163   |               |
| 4:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 170  | 1     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 171   |               |
| 4:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 179  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 179   | 705           |
| 5:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 175  | 1     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 176   | 689           |
| 5:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 159  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 159   | 685           |
| 5:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 167  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 167   | 681           |
| 5:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 174  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 174   | 676           |
| 6:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 146  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 146   | 646           |
| 6:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 144  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 144   | 631           |
| 6:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 152  | 1     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 153   | 617           |
| 6:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 148  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 148   | 591           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                   |      |       |   | Westbound                   |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| All Vehicles                     | 0                          | 0    | 0     | 0 | 0                          | 716  | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 716   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 20   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 20    |               |
| Buses                            | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0     |               |
| Pedestrians                      | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0     |               |
| Bicycles                         | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0     |               |
| Scoters                          | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0     |               |

*Comments:*

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

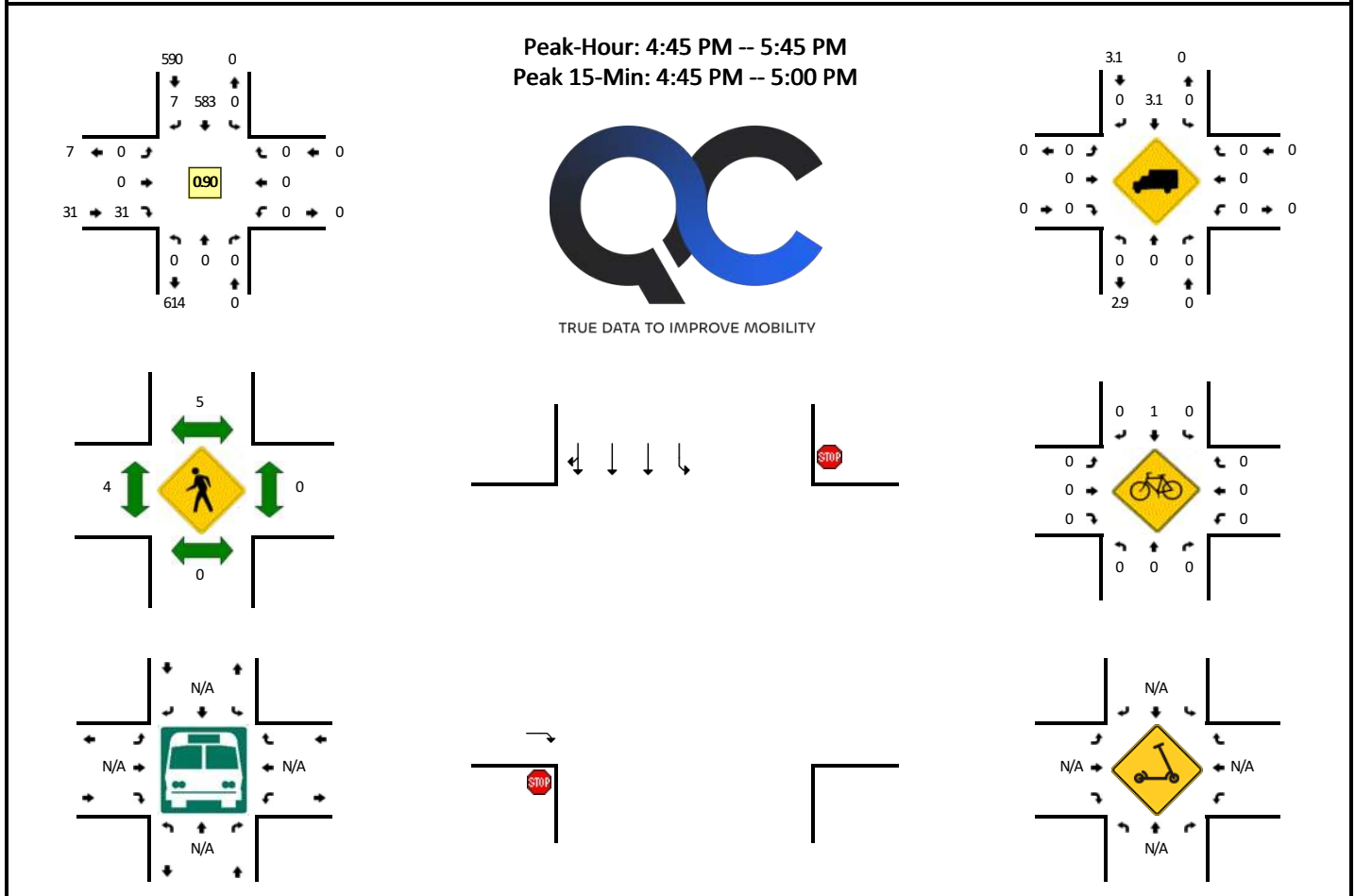
**LOCATION:** Blenheim Blvd -- Driveway/Site Entrance**CITY/STATE:** Fairfax, VA**QC JOB #:** 16229811**DATE:** Thu, Mar 30 2023

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Blenheim Blvd -- Site Entrance 4  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229812  
**DATE:** Thu, Mar 30 2023



| 15-Min Count Period Beginning At | Blenheim Blvd (Northbound) |      |       |   | Blenheim Blvd (Southbound) |      |       |   | Site Entrance 4 (Eastbound) |      |       |   | Site Entrance 4 (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-----------------------------|------|-------|---|-----------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| 4:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 178  | 3     | 0 | 0                           | 0    | 7     | 0 | 0                           | 0    | 0     | 0 | 188   |               |
| 4:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 140  | 1     | 0 | 0                           | 0    | 4     | 0 | 0                           | 0    | 0     | 0 | 145   |               |
| 4:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 154  | 1     | 0 | 0                           | 0    | 6     | 0 | 0                           | 0    | 0     | 0 | 161   |               |
| 4:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 161  | 5     | 0 | 0                           | 0    | 6     | 0 | 0                           | 0    | 0     | 0 | 172   | 666           |
| 5:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 140  | 0     | 0 | 0                           | 0    | 10    | 0 | 0                           | 0    | 0     | 0 | 150   | 628           |
| 5:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 137  | 0     | 0 | 0                           | 0    | 8     | 0 | 0                           | 0    | 0     | 0 | 145   | 628           |
| 5:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 145  | 2     | 0 | 0                           | 0    | 7     | 0 | 0                           | 0    | 0     | 0 | 154   | 621           |
| 5:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 136  | 2     | 0 | 0                           | 0    | 13    | 0 | 0                           | 0    | 0     | 0 | 151   | 600           |
| 6:00 PM                          | 0                          | 0    | 0     | 0 | 0                          | 110  | 1     | 0 | 0                           | 0    | 6     | 0 | 0                           | 0    | 0     | 0 | 117   | 567           |
| 6:15 PM                          | 0                          | 0    | 0     | 0 | 0                          | 113  | 1     | 0 | 0                           | 0    | 4     | 0 | 0                           | 0    | 0     | 0 | 118   | 540           |
| 6:30 PM                          | 0                          | 0    | 0     | 0 | 0                          | 130  | 1     | 0 | 0                           | 0    | 12    | 0 | 0                           | 0    | 0     | 0 | 143   | 529           |
| 6:45 PM                          | 0                          | 0    | 0     | 0 | 0                          | 133  | 1     | 0 | 0                           | 0    | 11    | 0 | 0                           | 0    | 0     | 0 | 145   | 523           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                   |      |       |   | Westbound                   |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                        | Thru | Right | U | Left                        | Thru | Right | U |       |               |
| All Vehicles                     | 0                          | 0    | 0     | 0 | 0                          | 644  | 20    | 0 | 0                           | 0    | 24    | 0 | 0                           | 0    | 0     | 0 | 688   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 16   | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 16    |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                             |      |       |   |                             |      |       |   |       |               |
| Pedestrians                      | 0                          | 0    | 0     | 0 | 0                          | 12   | 0     | 0 | 0                           | 4    | 0     | 0 | 0                           | 0    | 0     | 0 | 16    |               |
| Bicycles                         | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0                           | 0    | 0     | 0 | 0     |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                             |      |       |   |                             |      |       |   |       |               |

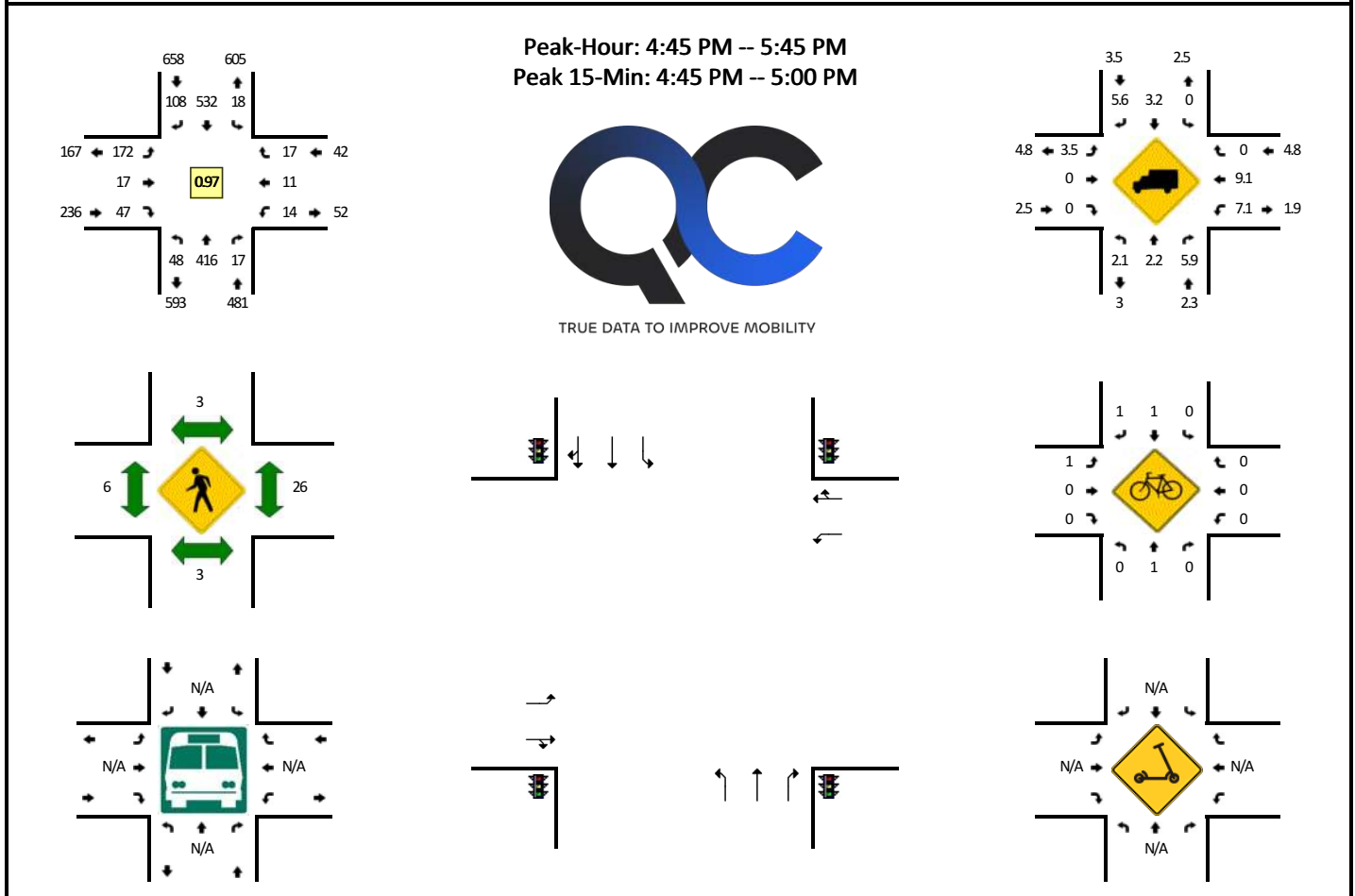
*Comments:*

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

**LOCATION:** Blenheim Blvd -- Farrcroft Dr  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229813  
**DATE:** Thu, Mar 30 2023

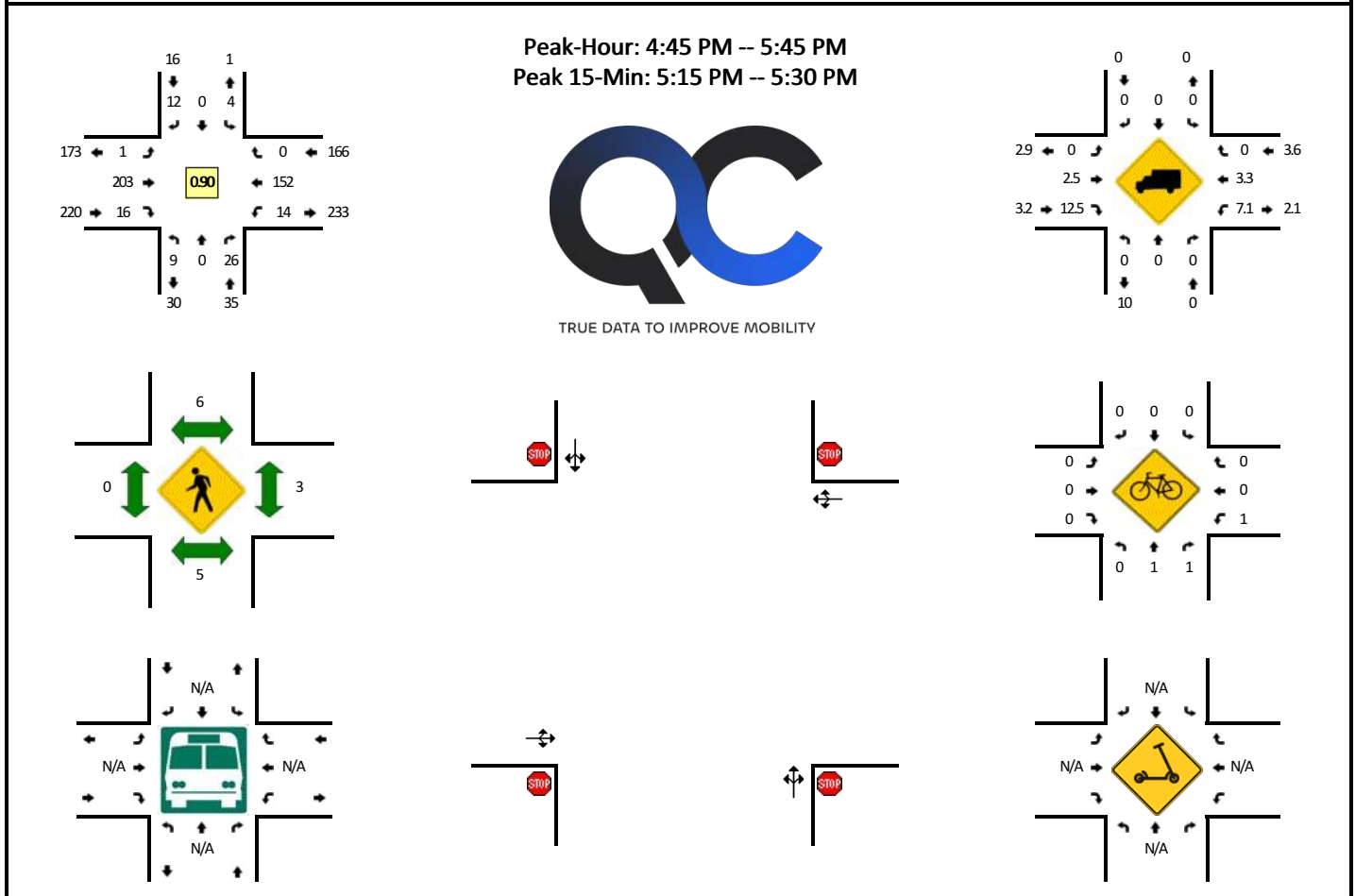


| 15-Min Count Period Beginning At | Blenheim Blvd (Northbound) |      |       |   | Blenheim Blvd (Southbound) |      |       |   | Farrcroft Dr (Eastbound) |      |       |   | Farrcroft Dr (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|--------------------------|------|-------|---|--------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                     | Thru | Right | U | Left                     | Thru | Right | U |       |               |
| 4:00 PM                          | 14                         | 69   | 4     | 0 | 8                          | 155  | 46    | 0 | 26                       | 3    | 14    | 0 | 7                        | 2    | 2     | 0 | 350   |               |
| 4:15 PM                          | 8                          | 80   | 2     | 0 | 11                         | 137  | 25    | 0 | 39                       | 1    | 7     | 0 | 6                        | 1    | 4     | 0 | 321   |               |
| 4:30 PM                          | 8                          | 78   | 2     | 0 | 2                          | 112  | 22    | 0 | 39                       | 1    | 27    | 0 | 4                        | 2    | 4     | 0 | 301   |               |
| 4:45 PM                          | 20                         | 96   | 8     | 0 | 7                          | 148  | 22    | 0 | 43                       | 3    | 12    | 0 | 1                        | 1    | 5     | 0 | 366   | 1338          |
| 5:00 PM                          | 11                         | 115  | 3     | 0 | 5                          | 127  | 40    | 0 | 32                       | 3    | 12    | 0 | 4                        | 5    | 3     | 0 | 360   | 1348          |
| 5:15 PM                          | 8                          | 97   | 5     | 0 | 5                          | 117  | 28    | 0 | 49                       | 4    | 13    | 0 | 8                        | 5    | 4     | 0 | 343   | 1370          |
| 5:30 PM                          | 9                          | 108  | 1     | 0 | 1                          | 140  | 18    | 0 | 48                       | 7    | 10    | 0 | 1                        | 0    | 5     | 0 | 348   | 1417          |
| 5:45 PM                          | 15                         | 120  | 2     | 0 | 6                          | 125  | 19    | 0 | 52                       | 7    | 4     | 0 | 3                        | 1    | 6     | 0 | 360   | 1411          |
| 6:00 PM                          | 9                          | 109  | 4     | 0 | 7                          | 106  | 20    | 0 | 50                       | 3    | 3     | 0 | 2                        | 1    | 6     | 0 | 320   | 1371          |
| 6:15 PM                          | 13                         | 110  | 7     | 0 | 6                          | 114  | 21    | 0 | 45                       | 3    | 8     | 0 | 3                        | 3    | 4     | 0 | 337   | 1365          |
| 6:30 PM                          | 11                         | 94   | 2     | 0 | 5                          | 118  | 19    | 0 | 25                       | 1    | 5     | 0 | 6                        | 1    | 4     | 0 | 291   | 1308          |
| 6:45 PM                          | 9                          | 104  | 4     | 0 | 4                          | 117  | 14    | 0 | 35                       | 2    | 7     | 0 | 2                        | 2    | 3     | 0 | 303   | 1251          |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                |      |       |   | Westbound                |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                     | Thru | Right | U | Left                     | Thru | Right | U |       |               |
| All Vehicles                     | 80                         | 384  | 32    | 0 | 28                         | 592  | 88    | 0 | 172                      | 12   | 48    | 0 | 4                        | 4    | 20    | 0 | 1464  |               |
| Heavy Trucks                     | 0                          | 4    | 4     |   | 0                          | 16   | 0     |   | 4                        | 0    | 0     |   | 0                        | 0    | 0     |   | 28    |               |
| Buses                            |                            |      |       |   |                            |      |       |   |                          |      |       |   |                          |      |       |   |       |               |
| Pedestrians                      |                            | 8    |       |   |                            | 8    |       |   |                          | 8    |       |   |                          | 28   |       |   | 52    |               |
| Bicycles                         | 0                          | 4    | 0     |   | 0                          | 0    | 0     |   | 0                        | 0    | 0     |   | 0                        | 0    | 0     |   | 4     |               |
| Scooters                         |                            |      |       |   |                            |      |       |   |                          |      |       |   |                          |      |       |   |       |               |

*Comments:*

**LOCATION:** Democracy Ln -- Layton Hall Dr  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16229814  
**DATE:** Thu, Mar 30 2023



| 15-Min Count Period Beginning At | Democracy Ln (Northbound) |      |       |   | Democracy Ln (Southbound) |      |       |   | Layton Hall Dr (Eastbound) |      |       |   | Layton Hall Dr (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|---------------------------|------|-------|---|---------------------------|------|-------|---|----------------------------|------|-------|---|----------------------------|------|-------|---|-------|---------------|
|                                  | Left                      | Thru | Right | U | Left                      | Thru | Right | U | Left                       | Thru | Right | U | Left                       | Thru | Right | U |       |               |
| 4:00 PM                          | 7                         | 0    | 7     | 0 | 1                         | 0    | 1     | 0 | 0                          | 34   | 1     | 0 | 4                          | 59   | 0     | 0 | 114   |               |
| 4:15 PM                          | 4                         | 0    | 6     | 0 | 0                         | 0    | 1     | 0 | 2                          | 42   | 3     | 0 | 5                          | 29   | 0     | 0 | 92    |               |
| 4:30 PM                          | 2                         | 0    | 5     | 0 | 11                        | 1    | 5     | 0 | 1                          | 48   | 1     | 0 | 1                          | 39   | 0     | 0 | 114   |               |
| 4:45 PM                          | 3                         | 0    | 3     | 0 | 1                         | 0    | 0     | 0 | 0                          | 48   | 5     | 0 | 5                          | 40   | 0     | 0 | 105   | 425           |
| 5:00 PM                          | 2                         | 0    | 6     | 0 | 2                         | 0    | 5     | 0 | 1                          | 40   | 4     | 0 | 5                          | 51   | 0     | 0 | 116   | 427           |
| 5:15 PM                          | 4                         | 0    | 7     | 0 | 1                         | 0    | 7     | 0 | 0                          | 58   | 5     | 0 | 4                          | 35   | 0     | 0 | 121   | 456           |
| 5:30 PM                          | 0                         | 0    | 10    | 0 | 0                         | 0    | 0     | 0 | 0                          | 57   | 2     | 0 | 0                          | 26   | 0     | 0 | 95    | 437           |
| 5:45 PM                          | 3                         | 0    | 5     | 0 | 0                         | 0    | 0     | 0 | 0                          | 53   | 5     | 0 | 2                          | 33   | 0     | 0 | 101   | 433           |
| 6:00 PM                          | 4                         | 0    | 5     | 0 | 0                         | 0    | 0     | 0 | 0                          | 54   | 2     | 0 | 5                          | 25   | 0     | 0 | 95    | 412           |
| 6:15 PM                          | 9                         | 0    | 10    | 0 | 0                         | 0    | 0     | 0 | 0                          | 43   | 0     | 0 | 5                          | 32   | 0     | 0 | 99    | 390           |
| 6:30 PM                          | 2                         | 0    | 3     | 0 | 0                         | 0    | 1     | 0 | 0                          | 29   | 1     | 0 | 4                          | 28   | 0     | 0 | 68    | 363           |
| 6:45 PM                          | 5                         | 0    | 5     | 0 | 0                         | 0    | 0     | 0 | 0                          | 37   | 1     | 0 | 0                          | 25   | 0     | 0 | 73    | 335           |
| Peak 15-Min Flowrates            | Northbound                |      |       |   | Southbound                |      |       |   | Eastbound                  |      |       |   | Westbound                  |      |       |   | Total |               |
|                                  | Left                      | Thru | Right | U | Left                      | Thru | Right | U | Left                       | Thru | Right | U | Left                       | Thru | Right | U |       |               |
| All Vehicles                     | 16                        | 0    | 28    | 0 | 4                         | 0    | 28    | 0 | 0                          | 232  | 20    | 0 | 16                         | 140  | 0     | 0 | 484   |               |
| Heavy Trucks                     | 0                         | 0    | 0     | 0 | 0                         | 0    | 0     | 0 | 0                          | 4    | 0     | 0 | 4                          | 0    | 0     | 0 | 8     |               |
| Buses                            |                           |      |       |   |                           |      |       |   |                            |      |       |   |                            |      |       |   |       |               |
| Pedestrians                      |                           | 8    |       |   |                           | 4    |       |   |                            | 0    |       |   |                            | 0    |       |   | 12    |               |
| Bicycles                         | 0                         | 0    | 0     | 0 | 0                         | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0     |               |
| Scooters                         |                           |      |       |   |                           |      |       |   |                            |      |       |   |                            |      |       |   |       |               |

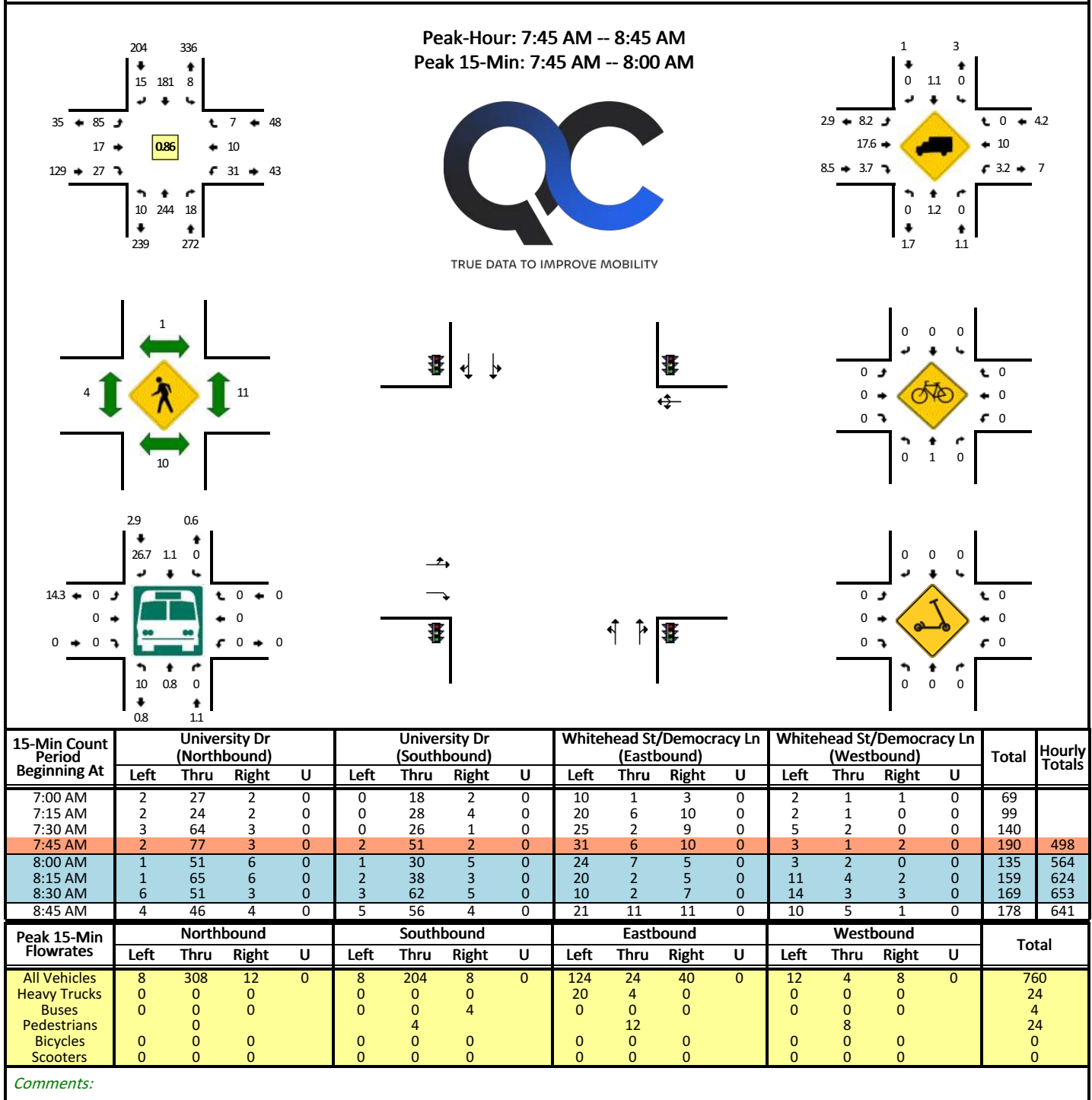
*Comments:*

Report generated on 8/13/2024 2:49 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

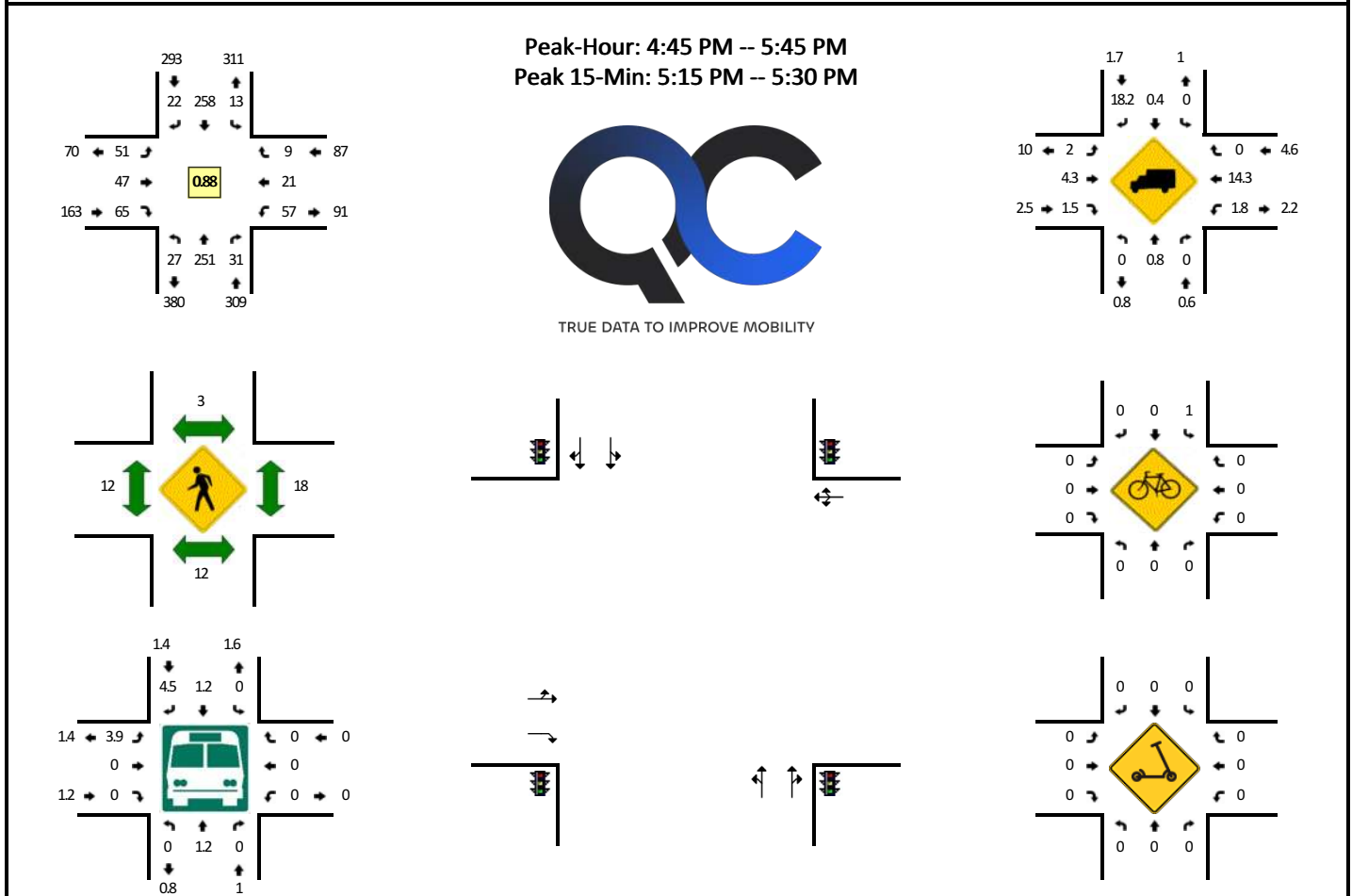
**LOCATION:** University Dr -- Whitehead St/Democracy Ln  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16704605  
**DATE:** Thu, Mar 30 2023



**LOCATION:** University Dr -- Whitehead St/Democracy Ln  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16704606  
**DATE:** Thu, Mar 30 2023

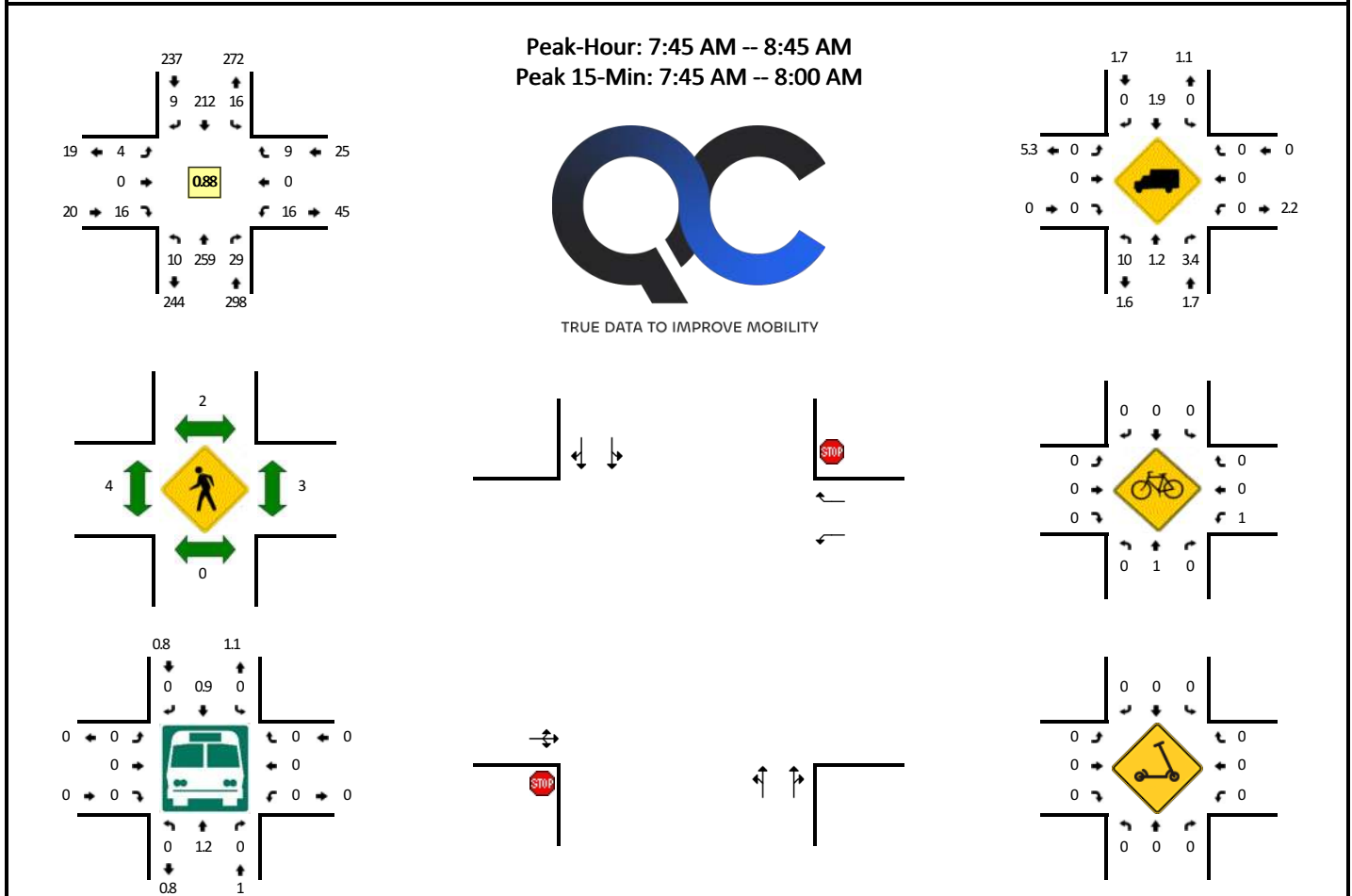


| 15-Min Count Period Beginning At | University Dr (Northbound) |      |       |   | University Dr (Southbound) |      |       |   | Whitehead St/Democracy Ln (Eastbound) |      |       |   | Whitehead St/Democracy Ln (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|---------------------------------------|------|-------|---|---------------------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                                  | Thru | Right | U | Left                                  | Thru | Right | U |       |               |
| 4:00 PM                          | 6                          | 40   | 5     | 0 | 1                          | 86   | 10    | 0 | 11                                    | 5    | 7     | 0 | 17                                    | 3    | 5     | 0 | 196   |               |
| 4:15 PM                          | 9                          | 78   | 6     | 0 | 2                          | 72   | 4     | 0 | 16                                    | 8    | 13    | 0 | 13                                    | 3    | 3     | 0 | 227   |               |
| 4:30 PM                          | 12                         | 41   | 10    | 0 | 3                          | 89   | 3     | 0 | 14                                    | 9    | 18    | 0 | 10                                    | 3    | 2     | 0 | 214   |               |
| 4:45 PM                          | 9                          | 45   | 5     | 0 | 3                          | 48   | 3     | 0 | 15                                    | 10   | 22    | 0 | 6                                     | 2    | 1     | 0 | 169   | 806           |
| 5:00 PM                          | 6                          | 54   | 11    | 0 | 2                          | 82   | 8     | 0 | 9                                     | 10   | 17    | 0 | 12                                    | 11   | 2     | 0 | 224   | 834           |
| 5:15 PM                          | 5                          | 76   | 8     | 0 | 6                          | 62   | 8     | 0 | 19                                    | 16   | 19    | 0 | 15                                    | 4    | 4     | 0 | 242   | 849           |
| 5:30 PM                          | 7                          | 76   | 7     | 0 | 2                          | 66   | 3     | 0 | 8                                     | 11   | 7     | 0 | 24                                    | 4    | 2     | 0 | 217   | 852           |
| 5:45 PM                          | 5                          | 56   | 9     | 0 | 2                          | 49   | 9     | 0 | 12                                    | 5    | 10    | 0 | 6                                     | 2    | 4     | 0 | 169   | 852           |
| 6:00 PM                          | 12                         | 51   | 7     | 0 | 4                          | 55   | 2     | 0 | 9                                     | 8    | 9     | 0 | 7                                     | 6    | 1     | 0 | 171   | 799           |
| 6:15 PM                          | 8                          | 38   | 10    | 0 | 2                          | 46   | 5     | 0 | 6                                     | 7    | 6     | 0 | 12                                    | 8    | 2     | 0 | 150   | 707           |
| 6:30 PM                          | 10                         | 36   | 10    | 0 | 0                          | 43   | 5     | 0 | 7                                     | 10   | 12    | 0 | 13                                    | 5    | 1     | 0 | 152   | 642           |
| 6:45 PM                          | 6                          | 35   | 10    | 0 | 3                          | 40   | 2     | 0 | 11                                    | 5    | 10    | 0 | 12                                    | 2    | 2     | 0 | 138   | 611           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                             |      |       |   | Westbound                             |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                                  | Thru | Right | U | Left                                  | Thru | Right | U |       |               |
| All Vehicles                     | 20                         | 304  | 32    | 0 | 24                         | 248  | 32    | 0 | 76                                    | 64   | 76    | 0 | 60                                    | 16   | 16    | 0 | 968   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 0    | 8     | 0 | 0                                     | 4    | 4     | 0 | 0                                     | 0    | 0     | 0 | 16    |               |
| Buses                            | 0                          | 4    | 0     | 0 | 0                          | 4    | 0     | 0 | 0                                     | 0    | 0     | 0 | 0                                     | 0    | 0     | 0 | 8     |               |
| Pedestrians                      | 0                          | 16   | 0     | 0 | 0                          | 0    | 0     | 0 | 0                                     | 28   | 0     | 0 | 0                                     | 20   | 0     | 0 | 64    |               |
| Bicycles                         | 0                          | 0    | 0     | 0 | 4                          | 0    | 0     | 0 | 0                                     | 0    | 0     | 0 | 0                                     | 0    | 0     | 0 | 4     |               |
| Scoters                          | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                                     | 0    | 0     | 0 | 0                                     | 0    | 0     | 0 | 0     |               |

*Comments:*

**LOCATION:** University Dr -- Existing Site Dwy  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16704607  
**DATE:** Thu, Mar 30 2023

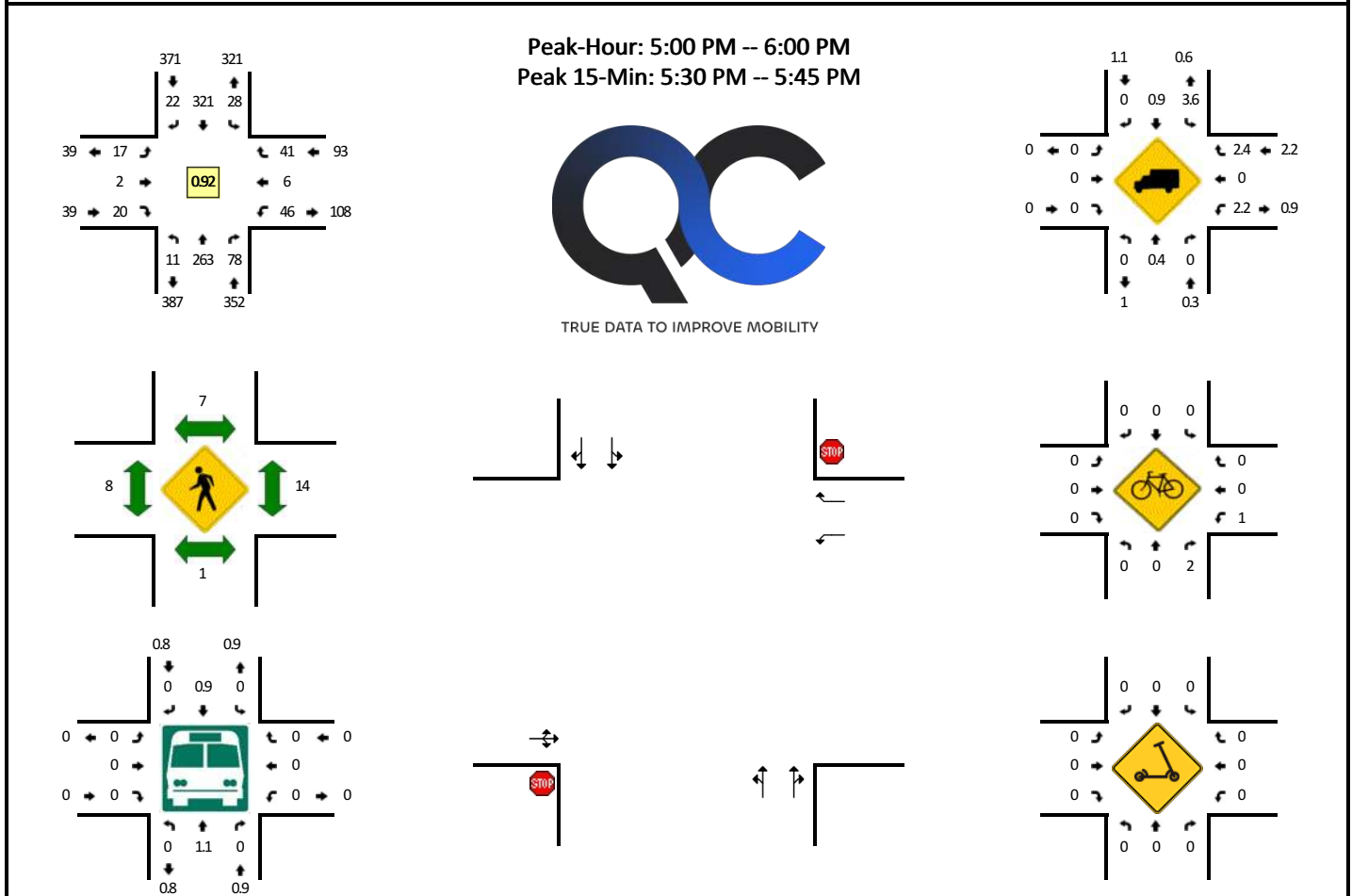


| 15-Min Count Period Beginning At | University Dr (Northbound) |      |       |   | University Dr (Southbound) |      |       |   | Existing Site Dwy (Eastbound) |      |       |   | Existing Site Dwy (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-------------------------------|------|-------|---|-------------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| 7:00 AM                          | 1                          | 30   | 0     | 0 | 5                          | 18   | 0     | 0 | 0                             | 0    | 1     | 0 | 2                             | 0    | 0     | 0 | 57    |               |
| 7:15 AM                          | 3                          | 28   | 0     | 0 | 1                          | 40   | 1     | 0 | 2                             | 0    | 0     | 0 | 2                             | 0    | 0     | 0 | 77    |               |
| 7:30 AM                          | 3                          | 67   | 6     | 0 | 3                          | 32   | 4     | 0 | 1                             | 0    | 4     | 0 | 3                             | 0    | 0     | 0 | 123   |               |
| 7:45 AM                          | 3                          | 79   | 10    | 0 | 6                          | 53   | 3     | 0 | 2                             | 0    | 5     | 0 | 2                             | 0    | 1     | 0 | 164   | 421           |
| 8:00 AM                          | 1                          | 56   | 5     | 0 | 1                          | 37   | 0     | 0 | 0                             | 0    | 2     | 0 | 5                             | 0    | 3     | 0 | 110   | 474           |
| 8:15 AM                          | 3                          | 68   | 9     | 0 | 2                          | 49   | 5     | 0 | 2                             | 0    | 4     | 0 | 6                             | 0    | 2     | 0 | 150   | 547           |
| 8:30 AM                          | 3                          | 56   | 5     | 0 | 7                          | 73   | 1     | 0 | 0                             | 0    | 5     | 0 | 3                             | 0    | 3     | 0 | 156   | 580           |
| 8:45 AM                          | 0                          | 52   | 11    | 0 | 3                          | 75   | 1     | 0 | 0                             | 0    | 0     | 0 | 3                             | 0    | 2     | 0 | 147   | 563           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                     |      |       |   | Westbound                     |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| All Vehicles                     | 12                         | 316  | 40    | 0 | 24                         | 212  | 12    | 0 | 8                             | 0    | 20    | 0 | 8                             | 0    | 4     | 0 | 656   |               |
| Heavy Trucks                     | 4                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 4     |               |
| Buses                            | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| Pedestrians                      | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 8    | 0     | 0 | 0                             | 4    | 0     | 0 | 12    |               |
| Bicycles                         | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |
| Scooters                         | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |

**Comments:**

**LOCATION:** University Dr -- Existing Site Dwy  
**CITY/STATE:** Fairfax, VA

**QC JOB #:** 16704608  
**DATE:** Thu, Mar 30 2023



| 15-Min Count Period Beginning At | University Dr (Northbound) |      |       |   | University Dr (Southbound) |      |       |   | Existing Site Dwy (Eastbound) |      |       |   | Existing Site Dwy (Westbound) |      |       |   | Total | Hourly Totals |
|----------------------------------|----------------------------|------|-------|---|----------------------------|------|-------|---|-------------------------------|------|-------|---|-------------------------------|------|-------|---|-------|---------------|
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| 4:00 PM                          | 4                          | 44   | 11    | 0 | 8                          | 100  | 3     | 0 | 0                             | 1    | 4     | 0 | 8                             | 0    | 8     | 0 | 191   |               |
| 4:15 PM                          | 4                          | 78   | 20    | 0 | 7                          | 84   | 6     | 0 | 4                             | 0    | 5     | 0 | 9                             | 0    | 10    | 0 | 227   |               |
| 4:30 PM                          | 3                          | 57   | 14    | 0 | 8                          | 107  | 4     | 0 | 0                             | 1    | 8     | 0 | 14                            | 3    | 7     | 0 | 226   |               |
| 4:45 PM                          | 2                          | 51   | 17    | 0 | 9                          | 68   | 3     | 0 | 1                             | 1    | 6     | 0 | 9                             | 0    | 6     | 0 | 173   | 817           |
| 5:00 PM                          | 4                          | 57   | 15    | 0 | 6                          | 93   | 7     | 0 | 5                             | 1    | 6     | 0 | 7                             | 3    | 11    | 0 | 215   | 841           |
| 5:15 PM                          | 3                          | 81   | 14    | 0 | 7                          | 90   | 6     | 0 | 3                             | 1    | 5     | 0 | 12                            | 1    | 9     | 0 | 232   | 846           |
| 5:30 PM                          | 3                          | 69   | 28    | 0 | 8                          | 84   | 5     | 0 | 7                             | 0    | 4     | 0 | 13                            | 2    | 10    | 0 | 233   | 853           |
| 5:45 PM                          | 1                          | 56   | 21    | 0 | 7                          | 54   | 4     | 0 | 2                             | 0    | 5     | 0 | 14                            | 0    | 11    | 0 | 175   | 855           |
| 6:00 PM                          | 1                          | 63   | 22    | 0 | 6                          | 60   | 4     | 0 | 1                             | 0    | 3     | 0 | 18                            | 1    | 6     | 0 | 185   | 825           |
| 6:15 PM                          | 1                          | 49   | 15    | 0 | 6                          | 57   | 2     | 0 | 1                             | 0    | 5     | 0 | 10                            | 1    | 6     | 0 | 153   | 746           |
| 6:30 PM                          | 3                          | 48   | 13    | 0 | 7                          | 60   | 2     | 0 | 2                             | 0    | 3     | 0 | 19                            | 0    | 7     | 0 | 164   | 677           |
| 6:45 PM                          | 4                          | 39   | 6     | 0 | 4                          | 53   | 5     | 0 | 3                             | 0    | 2     | 0 | 15                            | 0    | 9     | 0 | 140   | 642           |
| Peak 15-Min Flowrates            | Northbound                 |      |       |   | Southbound                 |      |       |   | Eastbound                     |      |       |   | Westbound                     |      |       |   | Total |               |
|                                  | Left                       | Thru | Right | U | Left                       | Thru | Right | U | Left                          | Thru | Right | U | Left                          | Thru | Right | U |       |               |
| All Vehicles                     | 12                         | 276  | 112   | 0 | 32                         | 336  | 20    | 0 | 28                            | 0    | 16    | 0 | 52                            | 8    | 40    | 0 | 932   |               |
| Heavy Trucks                     | 0                          | 0    | 0     | 0 | 0                          | 8    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 8     |               |
| Buses                            | 0                          | 0    | 0     | 0 | 0                          | 4    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 4     |               |
| Pedestrians                      | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 8                             | 0    | 0     | 0 | 16                            | 0    | 0     | 0 | 24    |               |
| Bicycles                         | 0                          | 0    | 4     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 4                             | 0    | 0     | 0 | 8     |               |
| Scooters                         | 0                          | 0    | 0     | 0 | 0                          | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0                             | 0    | 0     | 0 | 0     |               |

*Comments:*

Report generated on 8/6/2024 1:54 PM

SOURCE: Quality Counts, LLC (<http://www.qualitycounts.net>) 1-877-580-2212

## Appendix E – Comparison of Existing Inline Retail Trips and Inline Retail Trips to be Removed

| Land Use                                                  | ITE Code | Size            | ----- W e e k d a y ----- |     |       |              |       |       |       |
|-----------------------------------------------------------|----------|-----------------|---------------------------|-----|-------|--------------|-------|-------|-------|
|                                                           |          |                 | AM Peak Hour              |     |       | PM Peak Hour |       |       | Daily |
|                                                           |          |                 | In                        | Out | Total | In           | Out   | Total |       |
| Existing Inline Retail                                    |          |                 |                           |     |       |              |       |       |       |
| Shopping Center (40 kSF<X<150 kSF) (with Supermarket) (1) | 821      | 91.9 kSF of GFA | 201                       | 123 | 324   | 396          | 428   | 824   | 8,485 |
| Inline Retail to be Removed                               |          |                 |                           |     |       |              |       |       |       |
| Shopping Center (<40 kSF) (2)                             | 822      | 25.2 kSF of GFA | 32                        | 21  | 53    | 75           | 75    | 150   | 1,292 |
| % Comparison (2) / (1)                                    |          |                 |                           |     | 16.4% |              | 18.2% |       | 15.2% |

## **Appendix F – Intersection Analysis Worksheets – Existing 2023**

HCM 6th TWSC  
1: Old Lee Highway & Plaza Drive

Timing Plan: AM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0.1       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑↑     | ↑↑↑  |      |
| Traffic Vol, veh/h       | 0         | 7      | 0    | 547    | 413  | 4    |
| Future Vol, veh/h        | 0         | 7      | 0    | 547    | 413  | 4    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 120  |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 85        | 85     | 85   | 85     | 85   | 85   |
| Heavy Vehicles, %        | 2         | 14     | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 8      | 0    | 644    | 486  | 5    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 246    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.38   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 4.04   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 616    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 616    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 10.9      | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 616     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.013   |        | -    | -      |      |      |
| HCM Control Delay (s)    | - 10.9    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0       |        | -    | -      |      |      |

## Queues

## 2: Old Lee Highway &amp; FFX Commons

Timing Plan: AM Peak

|                         | →    | ↘    | ←    | ↙    | ↑    | ↗    | ↘    | ↓    | ↙    |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Group Flow (vph)   | 16   | 13   | 1    | 38   | 627  | 14   | 16   | 464  | 13   |
| v/c Ratio               | 0.03 | 0.03 | 0.00 | 0.05 | 0.23 | 0.01 | 0.02 | 0.19 | 0.01 |
| Control Delay           | 17.7 | 0.1  | 0.0  | 4.0  | 5.6  | 0.0  | 4.4  | 8.0  | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 17.7 | 0.1  | 0.0  | 4.0  | 5.6  | 0.0  | 4.4  | 8.0  | 0.0  |
| Queue Length 50th (ft)  | 1    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0    |
| Queue Length 95th (ft)  | 17   | 0    | 0    | 11   | 108  | 0    | 6    | 83   | 0    |
| Internal Link Dist (ft) | 124  |      | 135  |      | 259  |      |      | 157  |      |
| Turn Bay Length (ft)    |      |      |      | 120  |      |      | 120  |      |      |
| Base Capacity (vph)     | 1568 | 1351 | 1431 | 1320 | 2923 | 1339 | 1313 | 2841 | 1339 |
| 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       | 0.01 | 0.01 | 0.00 | 0.03 | 0.21 | 0.01 | 0.01 | 0.16 | 0.01 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway & FFX Commons

Timing Plan: AM Peak

|                                   |  |       |       |      |      |      |       |       |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|-------|-------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL   | NBT   | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↔     | ↔     |      | ↔    |      | ↔     | ↕     | ↕    | ↔     | ↕    | ↕    |
| Traffic Volume (vph)              | 13                                                                                 | 1     | 11    | 0    | 0    | 1    | 32    | 533   | 12   | 14    | 394  | 11   |
| Future Volume (vph)               | 13                                                                                 | 1     | 11    | 0    | 0    | 1    | 32    | 533   | 12   | 14    | 394  | 11   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  | 1900  | 1900 | 1900  | 1900 | 1900 |
| Total Lost time (s)               |                                                                                    | 6.8   | 6.8   |      | 6.8  |      | 6.8   | 6.8   | 6.8  | 6.8   | 6.8  | 6.8  |
| Lane Util. Factor                 |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 0.95  | 1.00 | 1.00  | 0.95 | 1.00 |
| Frt                               |                                                                                    | 1.00  | 0.85  |      | 0.86 |      | 1.00  | 1.00  | 0.85 | 1.00  | 1.00 | 0.85 |
| Flt Protected                     |                                                                                    | 0.96  | 1.00  |      | 1.00 |      | 0.95  | 1.00  | 1.00 | 0.95  | 1.00 | 1.00 |
| Satd. Flow (prot)                 |                                                                                    | 1779  | 1583  |      | 1611 |      | 1770  | 3505  | 1583 | 1770  | 3406 | 1583 |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 0.46  | 1.00  | 1.00 | 0.41  | 1.00 | 1.00 |
| Satd. Flow (perm)                 |                                                                                    | 1863  | 1583  |      | 1611 |      | 860   | 3505  | 1583 | 771   | 3406 | 1583 |
| Peak-hour factor, PHF             | 0.85                                                                               | 0.85  | 0.85  | 0.85 | 0.85 | 0.85 | 0.85  | 0.85  | 0.85 | 0.85  | 0.85 | 0.85 |
| Adj. Flow (vph)                   | 15                                                                                 | 1     | 13    | 0    | 0    | 1    | 38    | 627   | 14   | 16    | 464  | 13   |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 12    | 0    | 1    | 0    | 0     | 0     | 7    | 0     | 0    | 7    |
| Lane Group Flow (vph)             | 0                                                                                  | 16    | 1     | 0    | 0    | 0    | 38    | 627   | 7    | 16    | 464  | 6    |
| Heavy Vehicles (%)                | 2%                                                                                 | 2%    | 2%    | 2%   | 2%   | 2%   | 2%    | 3%    | 2%   | 2%    | 6%   | 2%   |
| Turn Type                         | Perm                                                                               | NA    | Perm  |      | NA   |      | pm+pt | NA    | Perm | pm+pt | NA   | Perm |
| Protected Phases                  |                                                                                    | 8     |       |      | 4    |      | 5     | 2     |      | 1     | 6    |      |
| Permitted Phases                  | 8                                                                                  |       | 8     | 4    |      |      | 2     |       | 2    | 6     |      | 6    |
| Actuated Green, G (s)             |                                                                                    | 1.9   | 1.9   |      | 1.9  |      | 22.1  | 20.3  | 20.3 | 20.1  | 19.3 | 19.3 |
| Effective Green, g (s)            |                                                                                    | 1.9   | 1.9   |      | 1.9  |      | 22.1  | 20.3  | 20.3 | 20.1  | 19.3 | 19.3 |
| Actuated g/C Ratio                |                                                                                    | 0.04  | 0.04  |      | 0.04 |      | 0.51  | 0.47  | 0.47 | 0.46  | 0.44 | 0.44 |
| Clearance Time (s)                |                                                                                    | 6.8   | 6.8   |      | 6.8  |      | 6.8   | 6.8   | 6.8  | 6.8   | 6.8  | 6.8  |
| Vehicle Extension (s)             |                                                                                    | 3.0   | 3.0   |      | 3.0  |      | 3.0   | 3.0   | 3.0  | 3.0   | 3.0  | 3.0  |
| Lane Grp Cap (vph)                |                                                                                    | 81    | 69    |      | 70   |      | 475   | 1639  | 740  | 375   | 1514 | 703  |
| v/s Ratio Prot                    |                                                                                    |       |       |      | 0.00 |      | c0.00 | c0.18 |      | 0.00  | 0.14 |      |
| v/s Ratio Perm                    |                                                                                    | c0.01 | 0.00  |      |      |      | 0.04  |       | 0.00 | 0.02  |      | 0.00 |
| v/c Ratio                         |                                                                                    | 0.20  | 0.01  |      | 0.00 |      | 0.08  | 0.38  | 0.01 | 0.04  | 0.31 | 0.01 |
| Uniform Delay, d1                 |                                                                                    | 20.0  | 19.8  |      | 19.8 |      | 5.4   | 7.5   | 6.2  | 6.3   | 7.7  | 6.7  |
| Progression Factor                |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Incremental Delay, d2             |                                                                                    | 1.2   | 0.0   |      | 0.0  |      | 0.1   | 0.1   | 0.0  | 0.0   | 0.1  | 0.0  |
| Delay (s)                         |                                                                                    | 21.2  | 19.9  |      | 19.8 |      | 5.4   | 7.6   | 6.2  | 6.4   | 7.9  | 6.7  |
| Level of Service                  |                                                                                    | C     | B     |      | B    |      | A     | A     | A    | A     | A    | A    |
| Approach Delay (s)                |                                                                                    | 20.6  |       |      | 19.8 |      |       | 7.5   |      |       | 7.8  |      |
| Approach LOS                      |                                                                                    | C     |       |      | B    |      |       | A     |      |       | A    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |       |       |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 7.9   |      |      |      |       |       |      |       |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.36  |      |      |      |       |       |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 43.4  |      |      |      |       |       |      | 20.4  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 43.3% |      |      |      |       |       |      |       |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |       |       |      |       |      |      |
| <b>c Critical Lane Group</b>      |                                                                                    |       |       |      |      |      |       |       |      |       |      |      |

# HCM 6th Signalized Intersection Summary

## 2: Old Lee Highway & FFX Commons

Timing Plan: AM Peak

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 13                                                                                | 1                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 32                                                                                  | 533                                                                                 | 12                                                                                  | 14                                                                                  | 394                                                                                 | 11                                                                                  |
| Future Volume (veh/h)        | 13                                                                                | 1                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 32                                                                                  | 533                                                                                 | 12                                                                                  | 14                                                                                  | 394                                                                                 | 11                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 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                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1856                                                                                | 1870                                                                                | 1870                                                                                | 1811                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 15                                                                                | 1                                                                                 | 13                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 38                                                                                  | 627                                                                                 | 14                                                                                  | 16                                                                                  | 464                                                                                 | 13                                                                                  |
| Peak Hour Factor             | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 3                                                                                   | 2                                                                                   | 2                                                                                   | 6                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 245                                                                               | 4                                                                                 | 79                                                                                | 0                                                                                 | 0                                                                                 | 79                                                                                | 526                                                                                 | 1435                                                                                | 645                                                                                 | 441                                                                                 | 1322                                                                                | 609                                                                                 |
| Arrive On Green              | 0.05                                                                              | 0.05                                                                              | 0.05                                                                              | 0.00                                                                              | 0.00                                                                              | 0.05                                                                              | 0.04                                                                                | 0.41                                                                                | 0.41                                                                                | 0.02                                                                                | 0.38                                                                                | 0.38                                                                                |
| Sat Flow, veh/h              | 1332                                                                              | 89                                                                                | 1585                                                                              | 0                                                                                 | 0                                                                                 | 1585                                                                              | 1781                                                                                | 3526                                                                                | 1585                                                                                | 1781                                                                                | 3441                                                                                | 1585                                                                                |
| Grp Volume(v), veh/h         | 16                                                                                | 0                                                                                 | 13                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 38                                                                                  | 627                                                                                 | 14                                                                                  | 16                                                                                  | 464                                                                                 | 13                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1421                                                                              | 0                                                                                 | 1585                                                                              | 0                                                                                 | 0                                                                                 | 1585                                                                              | 1781                                                                                | 1763                                                                                | 1585                                                                                | 1781                                                                                | 1721                                                                                | 1585                                                                                |
| Q Serve(g_s), s              | 0.4                                                                               | 0.0                                                                               | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 5.0                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 3.7                                                                                 | 0.2                                                                                 |
| Cycle Q Clear(g_c), s        | 0.4                                                                               | 0.0                                                                               | 0.3                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 5.0                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 3.7                                                                                 | 0.2                                                                                 |
| Prop In Lane                 | 0.94                                                                              |                                                                                   | 1.00                                                                              | 0.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 249                                                                               | 0                                                                                 | 79                                                                                | 0                                                                                 | 0                                                                                 | 79                                                                                | 526                                                                                 | 1435                                                                                | 645                                                                                 | 441                                                                                 | 1322                                                                                | 609                                                                                 |
| V/C Ratio(X)                 | 0.06                                                                              | 0.00                                                                              | 0.16                                                                              | 0.00                                                                              | 0.00                                                                              | 0.01                                                                              | 0.07                                                                                | 0.44                                                                                | 0.02                                                                                | 0.04                                                                                | 0.35                                                                                | 0.02                                                                                |
| Avail Cap(c_a), veh/h        | 1320                                                                              | 0                                                                                 | 1259                                                                              | 0                                                                                 | 0                                                                                 | 1259                                                                              | 1362                                                                                | 2710                                                                                | 1218                                                                                | 1317                                                                                | 2645                                                                                | 1218                                                                                |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 17.8                                                                              | 0.0                                                                               | 17.8                                                                              | 0.0                                                                               | 0.0                                                                               | 17.6                                                                              | 6.7                                                                                 | 8.3                                                                                 | 6.9                                                                                 | 7.2                                                                                 | 8.6                                                                                 | 7.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 0.1                                                                                 | 0.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 1.4                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 1.0                                                                                 | 0.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 17.9                                                                              | 0.0                                                                               | 18.7                                                                              | 0.0                                                                               | 0.0                                                                               | 17.7                                                                              | 6.8                                                                                 | 8.6                                                                                 | 6.9                                                                                 | 7.2                                                                                 | 8.7                                                                                 | 7.5                                                                                 |
| LnGrp LOS                    | B                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | B                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 29                                                                                |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                     | 679                                                                                 |                                                                                     |                                                                                     | 493                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 18.3                                                                              |                                                                                   |                                                                                   | 17.7                                                                              |                                                                                   |                                                                                     | 8.4                                                                                 |                                                                                     |                                                                                     | 8.6                                                                                 |                                                                                     |
| Approach LOS                 |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 22.7                                                                              |                                                                                   | 8.7                                                                               | 8.5                                                                               | 21.8                                                                              |                                                                                     | 8.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.8                                                                             | * 6.8                                                                             |                                                                                   | * 6.8                                                                             | * 6.8                                                                             | * 6.8                                                                             |                                                                                     | * 6.8                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 20                                                                              | * 30                                                                              |                                                                                   | * 31                                                                              | * 20                                                                              | * 30                                                                              |                                                                                     | * 31                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.2                                                                               | 7.0                                                                               |                                                                                   | 2.0                                                                               | 2.5                                                                               | 5.7                                                                               |                                                                                     | 2.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.5                                                                               |                                                                                   | 0.0                                                                               | 0.1                                                                               | 3.2                                                                               |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 8.8

HCM 6th LOS A

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: Old Lee Highway

Timing Plan: AM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑↑     | ↑↑↑  |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 577    | 405  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 577    | 405  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 85        | 85     | 85   | 85     | 85   | 85   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 679    | 476  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 238    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.14   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.92   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 650    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 650    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         | -      | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         | -      | -    | -      |      |      |
| HCM Control Delay (s)    | -         | 0      | -    | -      |      |      |
| HCM Lane LOS             | -         | A      | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         | -      | -    | -      |      |      |

HCM 6th TWSC  
5: University Drive & Driveway

Timing Plan: AM Peak

| Intersection             |                                                                                   |        |       |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.2                                                                               |        |       |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR    | NBL   | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |        |       |  |  |      |
| Traffic Vol, veh/h       | 0                                                                                 | 1      | 13    | 310                                                                               | 197                                                                               | 5    |
| Future Vol, veh/h        | 0                                                                                 | 1      | 13    | 310                                                                               | 197                                                                               | 5    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0     | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop   | Free  | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None   | -     | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -      | -     | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -      | -     | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92     | 92    | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2     | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 0                                                                                 | 1      | 14    | 337                                                                               | 214                                                                               | 5    |
| Major/Minor              | Minor2                                                                            | Major1 |       | Major2                                                                            |                                                                                   |      |
| Conflicting Flow All     | 414                                                                               | 110    | 219   | 0                                                                                 | -                                                                                 | 0    |
| Stage 1                  | 217                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 197                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy            | 6.84                                                                              | 6.94   | 4.14  | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 1      | 5.84                                                                              | -      | -     | -                                                                                 | -                                                                                 | -    |
| Critical Hdwy Stg 2      | 5.84                                                                              | -      | -     | -                                                                                 | -                                                                                 | -    |
| Follow-up Hdwy           | 3.52                                                                              | 3.32   | 2.22  | -                                                                                 | -                                                                                 | -    |
| Pot Cap-1 Maneuver       | 566                                                                               | 922    | 1348  | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 798                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 817                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Platoon blocked, %       |                                                                                   |        |       | -                                                                                 | -                                                                                 | -    |
| Mov Cap-1 Maneuver       | 559                                                                               | 922    | 1348  | -                                                                                 | -                                                                                 | -    |
| Mov Cap-2 Maneuver       | 559                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Stage 1                  | 788                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Stage 2                  | 817                                                                               | -      | -     | -                                                                                 | -                                                                                 | -    |
| Approach                 | EB                                                                                | NB     |       | SB                                                                                |                                                                                   |      |
| HCM Control Delay, s     | 8.9                                                                               | 0.3    |       | 0                                                                                 |                                                                                   |      |
| HCM LOS                  | A                                                                                 |        |       |                                                                                   |                                                                                   |      |
| Minor Lane/Major Mvmt    | NBL                                                                               | NBT    | EBLn1 | SBT                                                                               | SBR                                                                               |      |
| Capacity (veh/h)         | 1348                                                                              | -      | 922   | -                                                                                 | -                                                                                 |      |
| HCM Lane V/C Ratio       | 0.01                                                                              | -      | 0.001 | -                                                                                 | -                                                                                 |      |
| HCM Control Delay (s)    | 7.7                                                                               | 0      | 8.9   | -                                                                                 | -                                                                                 |      |
| HCM Lane LOS             | A                                                                                 | A      | A     | -                                                                                 | -                                                                                 |      |
| HCM 95th %tile Q(veh)    | 0                                                                                 | -      | 0     | -                                                                                 | -                                                                                 |      |

HCM 6th TWSC  
6: University Drive & 7-11 Entrance

Timing Plan: AM Peak

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      | ↕    |      | ↕    |      | ↕    |      | ↕    |      |      |
| Traffic Vol, veh/h       | 5    | 0    | 15   | 16   | 0    | 6    | 10   | 270  | 30   | 12   | 171  | 12   |
| Future Vol, veh/h        | 5    | 0    | 15   | 16   | 0    | 6    | 10   | 270  | 30   | 12   | 171  | 12   |
| 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           | -    | -    | -    | 0    | -    | 0    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 85   | 85   | 85   | 85   | 85   | 85   | 85   | 85   | 85   | 85   | 85   | 85   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 10   | 2    | 3    | 2    | 4    | 2    |
| Mvmt Flow                | 6    | 0    | 18   | 19   | 0    | 7    | 12   | 318  | 35   | 14   | 201  | 14   |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      |      | Major2 |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|------|--------|---|------|---|---|
| Conflicting Flow All | 419    | 613  | 108    | 489  | -      | 177  | 215  | 0      | 0 | 353  | 0 | 0 |
| Stage 1              | 236    | 236  | -      | 360  | -      | -    | -    | -      | - | -    | - | - |
| Stage 2              | 183    | 377  | -      | 129  | -      | -    | -    | -      | - | -    | - | - |
| Critical Hdwy        | 7.54   | 6.54 | 6.94   | 7.54 | -      | 6.94 | 4.3  | -      | - | 4.14 | - | - |
| Critical Hdwy Stg 1  | 6.54   | 5.54 | -      | 6.54 | -      | -    | -    | -      | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.54   | 5.54 | -      | 6.54 | -      | -    | -    | -      | - | -    | - | - |
| Follow-up Hdwy       | 3.52   | 4.02 | 3.32   | 3.52 | -      | 3.32 | 2.3  | -      | - | 2.22 | - | - |
| Pot Cap-1 Maneuver   | 518    | 406  | 925    | 462  | 0      | 835  | 1296 | -      | - | 1202 | - | - |
| Stage 1              | 746    | 708  | -      | 631  | 0      | -    | -    | -      | - | -    | - | - |
| Stage 2              | 801    | 614  | -      | 861  | 0      | -    | -    | -      | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |      |      | -      | - | -    | - | - |
| Mov Cap-1 Maneuver   | 504    | 396  | 925    | 444  | -      | 835  | 1296 | -      | - | 1202 | - | - |
| Mov Cap-2 Maneuver   | 504    | 396  | -      | 444  | -      | -    | -    | -      | - | -    | - | - |
| Stage 1              | 737    | 699  | -      | 623  | -      | -    | -    | -      | - | -    | - | - |
| Stage 2              | 785    | 607  | -      | 834  | -      | -    | -    | -      | - | -    | - | - |

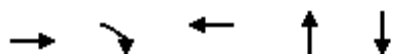
| Approach             | EB  |  | WB   |  | NB  |  |  | SB  |  |  |  |  |
|----------------------|-----|--|------|--|-----|--|--|-----|--|--|--|--|
| HCM Control Delay, s | 9.9 |  | 12.4 |  | 0.3 |  |  | 0.5 |  |  |  |  |
| HCM LOS              | A   |  | B    |  |     |  |  |     |  |  |  |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1 | WBLn1 | WBLn2 | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------|-------|-------|-------|-----|-----|
| Capacity (veh/h)      | 1296  | -   | -   | 765   | 444   | 835   | 1202  | -   | -   |
| HCM Lane V/C Ratio    | 0.009 | -   | -   | 0.031 | 0.042 | 0.008 | 0.012 | -   | -   |
| HCM Control Delay (s) | 7.8   | 0   | -   | 9.9   | 13.5  | 9.3   | 8     | 0   | -   |
| HCM Lane LOS          | A     | A   | -   | A     | B     | A     | A     | A   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0.1   | 0.1   | 0     | 0     | -   | -   |

## Queues

## 7: University Drive &amp; Whitehead Street/Democracy Lane

Timing Plan: AM Peak



| Lane Group              | EBT  | EBR  | WBT  | NBT  | SBT  |
|-------------------------|------|------|------|------|------|
| Lane Group Flow (vph)   | 138  | 34   | 42   | 331  | 190  |
| v/c Ratio               | 0.31 | 0.06 | 0.09 | 0.29 | 0.20 |
| Control Delay           | 15.7 | 3.2  | 12.8 | 12.5 | 12.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 15.7 | 3.2  | 12.8 | 12.5 | 12.5 |
| Queue Length 50th (ft)  | 15   | 0    | 4    | 17   | 9    |
| Queue Length 95th (ft)  | 91   | 9    | 33   | 89   | 55   |
| Internal Link Dist (ft) | 232  |      | 226  | 114  | 218  |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 1021 | 1244 | 1029 | 3128 | 2547 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.14 | 0.03 | 0.04 | 0.11 | 0.07 |
| Intersection Summary    |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: AM Peak

| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|------|-------|-------|------|------|------|------|-------|------|------|------|------|
| Lane Configurations               |      | ↰     | ↱     |      | ↰    |      |      | ↰     |      |      | ↰    | ↱    |
| Traffic Volume (vph)              | 100  | 17    | 29    | 22   | 9    | 4    | 7    | 257   | 18   | 5    | 145  | 11   |
| Future Volume (vph)               | 100  | 17    | 29    | 22   | 9    | 4    | 7    | 257   | 18   | 5    | 145  | 11   |
| Ideal Flow (vphpl)                | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900 | 1900  | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s)               |      | 6.0   | 6.0   |      | 6.0  |      |      | 5.0   |      |      | 5.0  |      |
| Lane Util. Factor                 |      | 1.00  | 1.00  |      | 1.00 |      |      | 0.95  |      |      | 0.95 |      |
| Frpb, ped/bikes                   |      | 1.00  | 0.98  |      | 1.00 |      |      | 1.00  |      |      | 1.00 |      |
| Flpb, ped/bikes                   |      | 1.00  | 1.00  |      | 0.99 |      |      | 1.00  |      |      | 1.00 |      |
| Frt                               |      | 1.00  | 0.85  |      | 0.98 |      |      | 0.99  |      |      | 0.99 |      |
| Flt Protected                     |      | 0.96  | 1.00  |      | 0.97 |      |      | 1.00  |      |      | 1.00 |      |
| Satd. Flow (prot)                 |      | 1676  | 1532  |      | 1695 |      |      | 3495  |      |      | 2860 |      |
| Flt Permitted                     |      | 0.73  | 1.00  |      | 0.73 |      |      | 0.95  |      |      | 0.94 |      |
| Satd. Flow (perm)                 |      | 1271  | 1532  |      | 1279 |      |      | 3311  |      |      | 2692 |      |
| Peak-hour factor, PHF             | 0.85 | 0.85  | 0.85  | 0.85 | 0.85 | 0.85 | 0.85 | 0.85  | 0.85 | 0.85 | 0.85 | 0.85 |
| Adj. Flow (vph)                   | 118  | 20    | 34    | 26   | 11   | 5    | 8    | 302   | 21   | 6    | 171  | 13   |
| RTOR Reduction (vph)              | 0    | 0     | 27    | 0    | 4    | 0    | 0    | 5     | 0    | 0    | 6    | 0    |
| Lane Group Flow (vph)             | 0    | 138   | 7     | 0    | 38   | 0    | 0    | 326   | 0    | 0    | 184  | 0    |
| Confl. Peds. (#/hr)               | 1    |       | 8     | 8    |      | 1    | 3    |       | 7    | 7    |      | 3    |
| Heavy Vehicles (%)                | 7%   | 18%   | 3%    | 5%   | 11%  | 2%   | 2%   | 2%    | 2%   | 3%   | 27%  | 2%   |
| Turn Type                         | Perm | NA    | Perm  | Perm | NA   |      | Perm | NA    |      | Perm | NA   |      |
| Protected Phases                  |      | 8     |       |      | 4    |      |      | 2     |      |      | 6    |      |
| Permitted Phases                  | 8    |       | 8     | 4    |      |      | 2    |       |      | 6    |      |      |
| Actuated Green, G (s)             |      | 7.7   | 7.7   |      | 7.7  |      |      | 11.5  |      |      | 11.5 |      |
| Effective Green, g (s)            |      | 7.7   | 7.7   |      | 7.7  |      |      | 11.5  |      |      | 11.5 |      |
| Actuated g/C Ratio                |      | 0.21  | 0.21  |      | 0.21 |      |      | 0.32  |      |      | 0.32 |      |
| Clearance Time (s)                |      | 6.0   | 6.0   |      | 6.0  |      |      | 5.0   |      |      | 5.0  |      |
| Vehicle Extension (s)             |      | 3.0   | 3.0   |      | 3.0  |      |      | 3.0   |      |      | 3.0  |      |
| Lane Grp Cap (vph)                |      | 271   | 326   |      | 272  |      |      | 1054  |      |      | 857  |      |
| v/s Ratio Prot                    |      |       |       |      |      |      |      |       |      |      |      |      |
| v/s Ratio Perm                    |      | c0.11 | 0.00  |      | 0.03 |      |      | c0.10 |      |      | 0.07 |      |
| v/c Ratio                         |      | 0.51  | 0.02  |      | 0.14 |      |      | 0.31  |      |      | 0.21 |      |
| Uniform Delay, d1                 |      | 12.5  | 11.2  |      | 11.5 |      |      | 9.3   |      |      | 9.0  |      |
| Progression Factor                |      | 1.00  | 1.00  |      | 1.00 |      |      | 1.00  |      |      | 1.00 |      |
| Incremental Delay, d2             |      | 1.5   | 0.0   |      | 0.2  |      |      | 0.2   |      |      | 0.1  |      |
| Delay (s)                         |      | 14.0  | 11.3  |      | 11.8 |      |      | 9.5   |      |      | 9.1  |      |
| Level of Service                  |      | B     | B     |      | B    |      |      | A     |      |      | A    |      |
| Approach Delay (s)                |      | 13.5  |       |      | 11.8 |      |      | 9.5   |      |      | 9.1  |      |
| Approach LOS                      |      | B     |       |      | B    |      |      | A     |      |      | A    |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |      |       |      |      |      |      |
| HCM 2000 Control Delay            |      |       | 10.4  |      |      |      |      |       |      |      |      |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.35  |      |      |      |      |       |      |      |      |      |
| Actuated Cycle Length (s)         |      |       | 36.1  |      |      |      |      |       |      |      |      |      |
| Intersection Capacity Utilization |      |       | 32.5% |      |      |      |      |       |      |      |      |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |      |       |      |      |      |      |
| c Critical Lane Group             |      |       |       |      |      |      |      |       |      |      |      |      |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 0.8    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 22     | 255   | 6    | 10     | 165   | 10   | 2      | 1     | 6     | 0      | 0     | 4     |
| Future Vol, veh/h        | 22     | 255   | 6    | 10     | 165   | 10   | 2      | 1     | 6     | 0      | 0     | 4     |
| Conflicting Peds, #/hr   | 9      | 0     | 0    | 0      | 0     | 9    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 85     | 85    | 85   | 85     | 85    | 85   | 85     | 85    | 85    | 85     | 85    | 85    |
| Heavy Vehicles, %        | 2      | 5     | 2    | 2      | 3     | 2    | 2      | 2     | 17    | 2      | 2     | 2     |
| Mvmt Flow                | 26     | 300   | 7    | 12     | 194   | 12   | 2      | 1     | 7     | 0      | 0     | 5     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 215    | 0     | 0    | 307    | 0     | 0    | 583    | 595   | 304   | 593    | 592   | 209   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 356    | 356   | -     | 233    | 233   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 227    | 239   | -     | 360    | 359   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.37  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.453 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1355   | -     | -    | 1254   | -     | -    | 424    | 417   | 702   | 417    | 419   | 831   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 661    | 629   | -     | 770    | 712   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 776    | 708   | -     | 658    | 627   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1343   | -     | -    | 1254   | -     | -    | 411    | 399   | 702   | 398    | 401   | 824   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 411    | 399   | -     | 398    | 401   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 646    | 615   | -     | 746    | 698   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 763    | 694   | -     | 635    | 613   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.6    |       |      | 0.4    |       |      | 11.5   |       |       | 9.4    |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | A      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 565    | 1343  | -    | -      | 1254  | -    | -      | 824   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.019  | 0.019 | -    | -      | 0.009 | -    | -      | 0.006 |       |        |       |       |
| HCM Control Delay (s)    | 11.5   | 7.7   | 0    | -      | 7.9   | 0    | -      | 9.4   |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0.1   | -    | -      | 0     | -    | -      | 0     |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 256  | 47   | 15   | 59   | 69   | 562  | 6    | 19   | 601  |
| v/c Ratio               | 0.61 | 0.11 | 0.10 | 0.33 | 0.18 | 0.74 | 0.01 | 0.07 | 0.52 |
| Control Delay           | 43.8 | 20.8 | 53.5 | 25.9 | 15.7 | 31.7 | 0.0  | 15.0 | 26.0 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 43.8 | 20.8 | 53.5 | 25.9 | 15.7 | 31.7 | 0.0  | 15.0 | 26.0 |
| Queue Length 50th (ft)  | 125  | 8    | 8    | 6    | 22   | 248  | 0    | 6    | 147  |
| Queue Length 95th (ft)  | 279  | 44   | 34   | 50   | 49   | 490  | 0    | 19   | 217  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 842  |      |      | 355  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 669  | 656  | 542  | 551  | 502  | 1252 | 1081 | 451  | 2259 |
| 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       | 0.38 | 0.07 | 0.03 | 0.11 | 0.14 | 0.45 | 0.01 | 0.04 | 0.27 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak

|                                   |  |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                                | EBT                                                                               | EBR   | WBL                                                                               | WBT                                                                               | WBR                       | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |   |  |       |  |  |                           |  |  |  |  |  |  |
| Traffic Volume (vph)              | 218                                                                                | 17                                                                                | 23    | 13                                                                                | 10                                                                                | 40                        | 59                                                                                 | 478                                                                                 | 5                                                                                   | 16                                                                                  | 382                                                                                 | 129                                                                                 |
| Future Volume (vph)               | 218                                                                                | 17                                                                                | 23    | 13                                                                                | 10                                                                                | 40                        | 59                                                                                 | 478                                                                                 | 5                                                                                   | 16                                                                                  | 382                                                                                 | 129                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900                                                                              | 1900  | 1900                                                                              | 1900                                                                              | 1900                      | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                                | 6.5                                                                               |       | 7.3                                                                               | 7.3                                                                               |                           | 6.9                                                                                | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   | 1.00                                                                               | 0.99                                                                              |       | 1.00                                                                              | 0.98                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 0.97                                                                                | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flpb, ped/bikes                   | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                               | 0.91                                                                              |       | 1.00                                                                              | 0.88                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 0.96                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                               | 1.00                                                                              |       | 0.95                                                                              | 1.00                                                                              |                           | 0.95                                                                               | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1719                                                                               | 1643                                                                              |       | 1671                                                                              | 1606                                                                              |                           | 1769                                                                               | 1827                                                                                | 1533                                                                                | 1702                                                                                | 3282                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                               | 1.00                                                                              |       | 0.95                                                                              | 1.00                                                                              |                           | 0.32                                                                               | 1.00                                                                                | 1.00                                                                                | 0.25                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1719                                                                               | 1643                                                                              |       | 1671                                                                              | 1606                                                                              |                           | 587                                                                                | 1827                                                                                | 1533                                                                                | 447                                                                                 | 3282                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.85                                                                               | 0.85                                                                              | 0.85  | 0.85                                                                              | 0.85                                                                              | 0.85                      | 0.85                                                                               | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                |
| Adj. Flow (vph)                   | 256                                                                                | 20                                                                                | 27    | 15                                                                                | 12                                                                                | 47                        | 69                                                                                 | 562                                                                                 | 6                                                                                   | 19                                                                                  | 449                                                                                 | 152                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                  | 21                                                                                | 0     | 0                                                                                 | 44                                                                                | 0                         | 0                                                                                  | 0                                                                                   | 4                                                                                   | 0                                                                                   | 22                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 256                                                                                | 26                                                                                | 0     | 15                                                                                | 15                                                                                | 0                         | 69                                                                                 | 562                                                                                 | 2                                                                                   | 19                                                                                  | 579                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                  |                                                                                   | 1     | 1                                                                                 |                                                                                   | 3                         | 1                                                                                  |                                                                                     | 5                                                                                   | 5                                                                                   |                                                                                     | 1                                                                                   |
| Heavy Vehicles (%)                | 5%                                                                                 | 6%                                                                                | 4%    | 8%                                                                                | 2%                                                                                | 2%                        | 2%                                                                                 | 4%                                                                                  | 2%                                                                                  | 6%                                                                                  | 6%                                                                                  | 3%                                                                                  |
| Turn Type                         | Split                                                                              | NA                                                                                |       | Split                                                                             | NA                                                                                |                           | pm+pt                                                                              | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                  | 4                                                                                 |       | 8                                                                                 | 8                                                                                 |                           | 1                                                                                  | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           | 6                                                                                  |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 22.2                                                                               | 22.2                                                                              |       | 5.4                                                                               | 5.4                                                                               |                           | 44.0                                                                               | 38.1                                                                                | 38.1                                                                                | 36.6                                                                                | 34.4                                                                                |                                                                                     |
| Effective Green, g (s)            | 22.2                                                                               | 22.2                                                                              |       | 5.4                                                                               | 5.4                                                                               |                           | 44.0                                                                               | 38.1                                                                                | 38.1                                                                                | 36.6                                                                                | 34.4                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.23                                                                               | 0.23                                                                              |       | 0.06                                                                              | 0.06                                                                              |                           | 0.46                                                                               | 0.40                                                                                | 0.40                                                                                | 0.38                                                                                | 0.36                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                                | 6.5                                                                               |       | 7.3                                                                               | 7.3                                                                               |                           | 6.9                                                                                | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 3.0                                                                                | 3.0                                                                               |       | 3.0                                                                               | 3.0                                                                               |                           | 3.0                                                                                | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 399                                                                                | 381                                                                               |       | 94                                                                                | 90                                                                                |                           | 343                                                                                | 728                                                                                 | 611                                                                                 | 200                                                                                 | 1182                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.15                                                                              | 0.02                                                                              |       | 0.01                                                                              | c0.01                                                                             |                           | c0.01                                                                              | c0.31                                                                               |                                                                                     | 0.00                                                                                | 0.18                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           | 0.08                                                                               |                                                                                     | 0.00                                                                                | 0.03                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.64                                                                               | 0.07                                                                              |       | 0.16                                                                              | 0.16                                                                              |                           | 0.20                                                                               | 0.77                                                                                | 0.00                                                                                | 0.10                                                                                | 0.49                                                                                |                                                                                     |
| Uniform Delay, d1                 | 33.1                                                                               | 28.6                                                                              |       | 42.9                                                                              | 42.9                                                                              |                           | 15.0                                                                               | 24.9                                                                                | 17.3                                                                                | 19.6                                                                                | 23.7                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 3.5                                                                                | 0.1                                                                               |       | 0.8                                                                               | 0.9                                                                               |                           | 0.3                                                                                | 5.1                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         | 36.6                                                                               | 28.7                                                                              |       | 43.7                                                                              | 43.8                                                                              |                           | 15.3                                                                               | 30.0                                                                                | 17.3                                                                                | 19.9                                                                                | 24.1                                                                                |                                                                                     |
| Level of Service                  | D                                                                                  | C                                                                                 |       | D                                                                                 | D                                                                                 |                           | B                                                                                  | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                    | 35.3                                                                              |       |                                                                                   | 43.7                                                                              |                           |                                                                                    | 28.3                                                                                |                                                                                     |                                                                                     | 23.9                                                                                |                                                                                     |
| Approach LOS                      |                                                                                    | D                                                                                 |       |                                                                                   | D                                                                                 |                           |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                    |                                                                                   | 28.6  |                                                                                   |                                                                                   | HCM 2000 Level of Service |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                    |                                                                                   | 0.67  |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                    |                                                                                   | 95.5  |                                                                                   |                                                                                   | Sum of lost time (s)      |                                                                                    |                                                                                     | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                    |                                                                                   | 65.1% |                                                                                   |                                                                                   | ICU Level of Service      |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                    |                                                                                   | 15    |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 218                                                                               | 17                                                                                | 23                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 59                                                                                  | 478                                                                                 | 5                                                                                   | 16                                                                                  | 382                                                                                 | 129                                                                                 |
| Future Volume (veh/h)        | 218                                                                               | 17                                                                                | 23                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 59                                                                                  | 478                                                                                 | 5                                                                                   | 16                                                                                  | 382                                                                                 | 129                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                                |                                                                                     | 0.99                                                                                | 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1826                                                                              | 1811                                                                              | 1841                                                                              | 1781                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1841                                                                                | 1870                                                                                | 1811                                                                                | 1811                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 256                                                                               | 20                                                                                | 27                                                                                | 15                                                                                | 12                                                                                | 47                                                                                | 69                                                                                  | 562                                                                                 | 6                                                                                   | 19                                                                                  | 449                                                                                 | 152                                                                                 |
| Peak Hour Factor             | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                              | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                | 0.85                                                                                |
| Percent Heavy Veh, %         | 5                                                                                 | 6                                                                                 | 4                                                                                 | 8                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 4                                                                                   | 2                                                                                   | 6                                                                                   | 6                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 321                                                                               | 128                                                                               | 173                                                                               | 103                                                                               | 20                                                                                | 78                                                                                | 341                                                                                 | 669                                                                                 | 572                                                                                 | 202                                                                                 | 844                                                                                 | 283                                                                                 |
| Arrive On Green              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.05                                                                                | 0.36                                                                                | 0.36                                                                                | 0.02                                                                                | 0.33                                                                                | 0.33                                                                                |
| Sat Flow, veh/h              | 1739                                                                              | 695                                                                               | 938                                                                               | 1697                                                                              | 329                                                                               | 1289                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 2524                                                                                | 847                                                                                 |
| Grp Volume(v), veh/h         | 256                                                                               | 0                                                                                 | 47                                                                                | 15                                                                                | 0                                                                                 | 59                                                                                | 69                                                                                  | 562                                                                                 | 6                                                                                   | 19                                                                                  | 305                                                                                 | 296                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1739                                                                              | 0                                                                                 | 1633                                                                              | 1697                                                                              | 0                                                                                 | 1618                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 1721                                                                                | 1651                                                                                |
| Q Serve(g_s), s              | 10.5                                                                              | 0.0                                                                               | 1.8                                                                               | 0.6                                                                               | 0.0                                                                               | 2.7                                                                               | 1.9                                                                                 | 20.9                                                                                | 0.2                                                                                 | 0.5                                                                                 | 10.7                                                                                | 10.9                                                                                |
| Cycle Q Clear(g_c), s        | 10.5                                                                              | 0.0                                                                               | 1.8                                                                               | 0.6                                                                               | 0.0                                                                               | 2.7                                                                               | 1.9                                                                                 | 20.9                                                                                | 0.2                                                                                 | 0.5                                                                                 | 10.7                                                                                | 10.9                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.57                                                                              | 1.00                                                                              |                                                                                   | 0.80                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.51                                                                                |
| Lane Grp Cap(c), veh/h       | 321                                                                               | 0                                                                                 | 302                                                                               | 103                                                                               | 0                                                                                 | 98                                                                                | 341                                                                                 | 669                                                                                 | 572                                                                                 | 202                                                                                 | 575                                                                                 | 552                                                                                 |
| V/C Ratio(X)                 | 0.80                                                                              | 0.00                                                                              | 0.16                                                                              | 0.15                                                                              | 0.00                                                                              | 0.60                                                                              | 0.20                                                                                | 0.84                                                                                | 0.01                                                                                | 0.09                                                                                | 0.53                                                                                | 0.54                                                                                |
| Avail Cap(c_a), veh/h        | 698                                                                               | 0                                                                                 | 655                                                                               | 567                                                                               | 0                                                                                 | 541                                                                               | 608                                                                                 | 1477                                                                                | 1263                                                                                | 510                                                                                 | 1380                                                                                | 1325                                                                                |
| 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                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 29.1                                                                              | 0.0                                                                               | 25.6                                                                              | 33.3                                                                              | 0.0                                                                               | 34.2                                                                              | 15.6                                                                                | 21.8                                                                                | 15.2                                                                                | 18.1                                                                                | 20.1                                                                                | 20.2                                                                                |
| Incr Delay (d2), s/veh       | 4.5                                                                               | 0.0                                                                               | 0.2                                                                               | 0.6                                                                               | 0.0                                                                               | 5.7                                                                               | 0.3                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.8                                                                                 | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 4.7                                                                               | 0.0                                                                               | 0.7                                                                               | 0.3                                                                               | 0.0                                                                               | 1.2                                                                               | 0.7                                                                                 | 8.9                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 4.2                                                                                 | 4.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 33.6                                                                              | 0.0                                                                               | 25.8                                                                              | 33.9                                                                              | 0.0                                                                               | 39.9                                                                              | 15.9                                                                                | 24.8                                                                                | 15.2                                                                                | 18.3                                                                                | 20.9                                                                                | 21.0                                                                                |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | D                                                                                 | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 303                                                                               |                                                                                   |                                                                                   | 74                                                                                |                                                                                   |                                                                                   | 637                                                                                 |                                                                                     |                                                                                     | 620                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 32.4                                                                              |                                                                                   |                                                                                   | 38.7                                                                              |                                                                                   |                                                                                   | 23.7                                                                                |                                                                                     |                                                                                     | 20.9                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 10.7                                                                              | 31.9                                                                              |                                                                                   | 20.3                                                                              | 8.5                                                                               | 34.1                                                                              |                                                                                     | 11.9                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                             | * 6.9                                                                             |                                                                                   | 6.5                                                                               | * 6.9                                                                             | * 6.9                                                                             |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                              | * 60                                                                              |                                                                                   | 30.0                                                                              | * 15                                                                              | * 60                                                                              |                                                                                     | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.9                                                                               | 12.9                                                                              |                                                                                   | 12.5                                                                              | 2.5                                                                               | 22.9                                                                              |                                                                                     | 4.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 4.3                                                                               |                                                                                   | 1.0                                                                               | 0.0                                                                               | 4.3                                                                               |                                                                                     | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 24.9 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
1: Old Lee Highway

Timing Plan: PM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0.3       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑↑     | ↑↑↑  |      |
| Traffic Vol, veh/h       | 0         | 31     | 0    | 480    | 583  | 7    |
| Future Vol, veh/h        | 0         | 31     | 0    | 480    | 583  | 7    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 120  |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 91        | 91     | 91   | 91     | 91   | 91   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 3    | 2    |
| Mvmt Flow                | 0         | 34     | 0    | 527    | 641  | 8    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 325    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.14   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.92   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 572    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 572    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 11.7      | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 572     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.06    |        | -    | -      |      |      |
| HCM Control Delay (s)    | - 11.7    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0.2     |        | -    | -      |      |      |

## Queues

## 2: Old Lee Highway

Timing Plan: PM Peak

|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Group Flow (vph)   | 45                                                                                | 76                                                                                | 80                                                                                | 67                                                                                | 466                                                                               | 12                                                                                | 16                                                                                  | 594                                                                                 | 47                                                                                  |
| v/c Ratio               | 0.25                                                                              | 0.23                                                                              | 0.38                                                                              | 0.11                                                                              | 0.20                                                                              | 0.01                                                                              | 0.03                                                                                | 0.29                                                                                | 0.05                                                                                |
| Control Delay           | 29.3                                                                              | 4.4                                                                               | 29.7                                                                              | 5.0                                                                               | 6.8                                                                               | 0.0                                                                               | 5.1                                                                                 | 11.3                                                                                | 0.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 29.3                                                                              | 4.4                                                                               | 29.7                                                                              | 5.0                                                                               | 6.8                                                                               | 0.0                                                                               | 5.1                                                                                 | 11.3                                                                                | 0.1                                                                                 |
| Queue Length 50th (ft)  | 17                                                                                | 0                                                                                 | 27                                                                                | 8                                                                                 | 32                                                                                | 0                                                                                 | 2                                                                                   | 80                                                                                  | 0                                                                                   |
| Queue Length 95th (ft)  | 45                                                                                | 18                                                                                | 66                                                                                | 22                                                                                | 94                                                                                | 0                                                                                 | 8                                                                                   | 132                                                                                 | 0                                                                                   |
| Internal Link Dist (ft) | 173                                                                               |                                                                                   | 199                                                                               |                                                                                   | 207                                                                               |                                                                                   |                                                                                     | 142                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 120                                                                               |                                                                                   |                                                                                   | 120                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 641                                                                               | 856                                                                               | 710                                                                               | 840                                                                               | 2383                                                                              | 1103                                                                              | 902                                                                                 | 2027                                                                                | 938                                                                                 |
| 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       | 0.07                                                                              | 0.09                                                                              | 0.11                                                                              | 0.08                                                                              | 0.20                                                                              | 0.01                                                                              | 0.02                                                                                | 0.29                                                                                | 0.05                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway

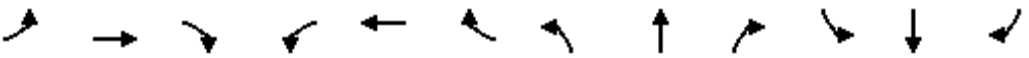
Timing Plan: PM Peak

|                                   |  |  |  |  |  |  |   |                                                                                      |  |  |                                                                                      |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                                                                                                     | NBR                                                                                 | SBL                                                                                 | SBT                                                                                                                                                                     | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |   |  |  |   |  |
| Traffic Volume (vph)              | 37                                                                                | 5                                                                                 | 71                                                                                | 54                                                                                | 10                                                                                | 10                                                                                | 62                                                                                  | 433                                                                                                                                                                     | 11                                                                                  | 15                                                                                  | 552                                                                                                                                                                     | 44                                                                                  |
| Future Volume (vph)               | 37                                                                                | 5                                                                                 | 71                                                                                | 54                                                                                | 10                                                                                | 10                                                                                | 62                                                                                  | 433                                                                                                                                                                     | 11                                                                                  | 15                                                                                  | 552                                                                                                                                                                     | 44                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                | 1900                                                                                | 1900                                                                                                                                                                    | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                                                                                                     | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                                                                                                     | 6.8                                                                                 |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                                                                                                    | 1.00                                                                                |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 0.85                                                                                |
| Flt Protected                     |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   | 1734                                                                              | 1568                                                                              |                                                                                   | 1764                                                                              |                                                                                   | 1770                                                                                | 3539                                                                                                                                                                    | 1583                                                                                | 1770                                                                                | 3505                                                                                                                                                                    | 1538                                                                                |
| Flt Permitted                     |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.76                                                                              |                                                                                   | 0.39                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 0.48                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   | 1256                                                                              | 1568                                                                              |                                                                                   | 1384                                                                              |                                                                                   | 729                                                                                 | 3539                                                                                                                                                                    | 1583                                                                                | 902                                                                                 | 3505                                                                                                                                                                    | 1538                                                                                |
| Peak-hour factor, PHF             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                                                                                                    | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                                                                                                    | 0.93                                                                                |
| Adj. Flow (vph)                   | 40                                                                                | 5                                                                                 | 76                                                                                | 58                                                                                | 11                                                                                | 11                                                                                | 67                                                                                  | 466                                                                                                                                                                     | 12                                                                                  | 16                                                                                  | 594                                                                                                                                                                     | 47                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 68                                                                                | 0                                                                                 | 7                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                                                                                                       | 5                                                                                   | 0                                                                                   | 0                                                                                                                                                                       | 22                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 45                                                                                | 8                                                                                 | 0                                                                                 | 73                                                                                | 0                                                                                 | 67                                                                                  | 466                                                                                                                                                                     | 7                                                                                   | 16                                                                                  | 594                                                                                                                                                                     | 25                                                                                  |
| Heavy Vehicles (%)                | 3%                                                                                | 20%                                                                               | 3%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                                                                                                      | 2%                                                                                  | 2%                                                                                  | 3%                                                                                                                                                                      | 5%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                                                                                                      | Perm                                                                                | pm+pt                                                                               | NA                                                                                                                                                                      | Perm                                                                                |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   | 5                                                                                   | 2                                                                                                                                                                       |                                                                                     | 1                                                                                   | 6                                                                                                                                                                       |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   | 8                                                                                 | 4                                                                                 |                                                                                   |                                                                                   | 2                                                                                   |                                                                                                                                                                         | 2                                                                                   | 6                                                                                   |                                                                                                                                                                         | 6                                                                                   |
| Actuated Green, G (s)             |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 7.3                                                                               |                                                                                   | 44.6                                                                                | 40.1                                                                                                                                                                    | 40.1                                                                                | 37.8                                                                                | 36.7                                                                                                                                                                    | 36.7                                                                                |
| Effective Green, g (s)            |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 7.3                                                                               |                                                                                   | 44.6                                                                                | 40.1                                                                                                                                                                    | 40.1                                                                                | 37.8                                                                                | 36.7                                                                                                                                                                    | 36.7                                                                                |
| Actuated g/C Ratio                |                                                                                   | 0.11                                                                              | 0.11                                                                              |                                                                                   | 0.11                                                                              |                                                                                   | 0.65                                                                                | 0.58                                                                                                                                                                    | 0.58                                                                                | 0.55                                                                                | 0.53                                                                                                                                                                    | 0.53                                                                                |
| Clearance Time (s)                |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                                                                                                     | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                                                                                                     | 6.8                                                                                 |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                                                                                                     | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                                                                                                     | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   | 133                                                                               | 166                                                                               |                                                                                   | 146                                                                               |                                                                                   | 539                                                                                 | 2059                                                                                                                                                                    | 921                                                                                 | 508                                                                                 | 1866                                                                                                                                                                    | 819                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.01                                                                               | c0.13                                                                                                                                                                   |                                                                                     | 0.00                                                                                | c0.17                                                                                                                                                                   |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.04                                                                              | 0.01                                                                              |                                                                                   | c0.05                                                                             |                                                                                   | 0.07                                                                                |                                                                                                                                                                         | 0.00                                                                                | 0.02                                                                                |                                                                                                                                                                         | 0.02                                                                                |
| v/c Ratio                         |                                                                                   | 0.34                                                                              | 0.05                                                                              |                                                                                   | 0.50                                                                              |                                                                                   | 0.12                                                                                | 0.23                                                                                                                                                                    | 0.01                                                                                | 0.03                                                                                | 0.32                                                                                                                                                                    | 0.03                                                                                |
| Uniform Delay, d1                 |                                                                                   | 28.6                                                                              | 27.7                                                                              |                                                                                   | 29.1                                                                              |                                                                                   | 4.5                                                                                 | 6.9                                                                                                                                                                     | 6.0                                                                                 | 7.1                                                                                 | 9.1                                                                                                                                                                     | 7.6                                                                                 |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                                                                                                    | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   | 1.5                                                                               | 0.1                                                                               |                                                                                   | 2.7                                                                               |                                                                                   | 0.1                                                                                 | 0.1                                                                                                                                                                     | 0.0                                                                                 | 0.0                                                                                 | 0.4                                                                                                                                                                     | 0.1                                                                                 |
| Delay (s)                         |                                                                                   | 30.1                                                                              | 27.8                                                                              |                                                                                   | 31.7                                                                              |                                                                                   | 4.6                                                                                 | 7.0                                                                                                                                                                     | 6.0                                                                                 | 7.1                                                                                 | 9.5                                                                                                                                                                     | 7.7                                                                                 |
| Level of Service                  |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 |                                                                                   | A                                                                                   | A                                                                                                                                                                       | A                                                                                   | A                                                                                   | A                                                                                                                                                                       | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 28.6                                                                              |                                                                                   |                                                                                   | 31.7                                                                              |                                                                                   |                                                                                     | 6.7                                                                                                                                                                     |                                                                                     |                                                                                     | 9.3                                                                                                                                                                     |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                                                                                                       |                                                                                     |                                                                                     | A                                                                                                                                                                       |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.2                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                                                                                                         |                                                                                     |                                                                                     | B                                                                                                                                                                       |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.33                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 68.9                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                                                                                                         |                                                                                     | 20.4                                                                                |                                                                                                                                                                         |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 47.2%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                                                                                                         |                                                                                     | A                                                                                   |                                                                                                                                                                         |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                                                                                                         |                                                                                     |                                                                                     |                                                                                                                                                                         |                                                                                     |

## HCM 6th Signalized Intersection Summary

### 2: Old Lee Highway

Timing Plan: PM Peak

|                              |  |       |      |       |       |       |      |       |      |      |      |      |
|------------------------------|------------------------------------------------------------------------------------|-------|------|-------|-------|-------|------|-------|------|------|------|------|
| Movement                     | EBL                                                                                | EBT   | EBR  | WBL   | WBT   | WBR   | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          |                                                                                    | ↩     | ↩    |       | ↩     |       | ↩    | ↩     | ↩    | ↩    | ↩    | ↩    |
| Traffic Volume (veh/h)       | 37                                                                                 | 5     | 71   | 54    | 10    | 10    | 62   | 433   | 11   | 15   | 552  | 44   |
| Future Volume (veh/h)        | 37                                                                                 | 5     | 71   | 54    | 10    | 10    | 62   | 433   | 11   | 15   | 552  | 44   |
| Initial Q (Qb), veh          | 0                                                                                  | 0     | 0    | 0     | 0     | 0     | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                               |       | 1.00 | 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   |      |
| Adj Sat Flow, veh/h/ln       | 1856                                                                               | 1604  | 1856 | 1870  | 1870  | 1870  | 1870 | 1870  | 1870 | 1870 | 1856 | 1826 |
| Adj Flow Rate, veh/h         | 40                                                                                 | 5     | 76   | 58    | 11    | 11    | 67   | 466   | 12   | 16   | 594  | 47   |
| Peak Hour Factor             | 0.93                                                                               | 0.93  | 0.93 | 0.93  | 0.93  | 0.93  | 0.93 | 0.93  | 0.93 | 0.93 | 0.93 | 0.93 |
| Percent Heavy Veh, %         | 3                                                                                  | 20    | 3    | 2     | 2     | 2     | 2    | 2     | 2    | 2    | 3    | 5    |
| Cap, veh/h                   | 246                                                                                | 23    | 176  | 189   | 36    | 20    | 528  | 1890  | 843  | 576  | 1747 | 767  |
| Arrive On Green              | 0.11                                                                               | 0.11  | 0.11 | 0.11  | 0.11  | 0.11  | 0.06 | 0.53  | 0.53 | 0.02 | 0.50 | 0.50 |
| Sat Flow, veh/h              | 1199                                                                               | 209   | 1572 | 777   | 322   | 175   | 1781 | 3554  | 1585 | 1781 | 3526 | 1547 |
| Grp Volume(v), veh/h         | 45                                                                                 | 0     | 76   | 80    | 0     | 0     | 67   | 466   | 12   | 16   | 594  | 47   |
| Grp Sat Flow(s),veh/h/ln     | 1408                                                                               | 0     | 1572 | 1274  | 0     | 0     | 1781 | 1777  | 1585 | 1781 | 1763 | 1547 |
| Q Serve(g_s), s              | 0.0                                                                                | 0.0   | 2.7  | 2.3   | 0.0   | 0.0   | 1.1  | 4.3   | 0.2  | 0.3  | 6.2  | 1.0  |
| Cycle Q Clear(g_c), s        | 1.6                                                                                | 0.0   | 2.7  | 3.9   | 0.0   | 0.0   | 1.1  | 4.3   | 0.2  | 0.3  | 6.2  | 1.0  |
| Prop In Lane                 | 0.89                                                                               |       | 1.00 | 0.72  |       | 0.14  | 1.00 |       | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 270                                                                                | 0     | 176  | 245   | 0     | 0     | 528  | 1890  | 843  | 576  | 1747 | 767  |
| V/C Ratio(X)                 | 0.17                                                                               | 0.00  | 0.43 | 0.33  | 0.00  | 0.00  | 0.13 | 0.25  | 0.01 | 0.03 | 0.34 | 0.06 |
| Avail Cap(c_a), veh/h        | 761                                                                                | 0     | 805  | 808   | 0     | 0     | 1017 | 1890  | 843  | 1130 | 1747 | 767  |
| 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 |
| Upstream Filter(I)           | 1.00                                                                               | 0.00  | 1.00 | 1.00  | 0.00  | 0.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 24.6                                                                               | 0.0   | 25.1 | 25.7  | 0.0   | 0.0   | 6.7  | 7.6   | 6.7  | 7.2  | 9.3  | 7.9  |
| Incr Delay (d2), s/veh       | 0.3                                                                                | 0.0   | 1.7  | 0.8   | 0.0   | 0.0   | 0.1  | 0.1   | 0.0  | 0.0  | 0.5  | 0.2  |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                                | 0.0   | 1.1  | 1.1   | 0.0   | 0.0   | 0.3  | 1.4   | 0.1  | 0.1  | 2.1  | 0.3  |
| Unsig. Movement Delay, s/veh |                                                                                    |       |      |       |       |       |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 24.9                                                                               | 0.0   | 26.8 | 26.5  | 0.0   | 0.0   | 6.8  | 7.7   | 6.7  | 7.2  | 9.8  | 8.1  |
| LnGrp LOS                    | C                                                                                  | A     | C    | C     | A     | A     | A    | A     | A    | A    | A    | A    |
| Approach Vol, veh/h          |                                                                                    | 121   |      |       | 80    |       |      | 545   |      |      | 657  |      |
| Approach Delay, s/veh        |                                                                                    | 26.1  |      |       | 26.5  |       |      | 7.6   |      |      | 9.6  |      |
| Approach LOS                 |                                                                                    | C     |      |       | C     |       |      | A     |      |      | A    |      |
| Timer - Assigned Phs         | 1                                                                                  | 2     |      | 4     | 5     | 6     |      | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 8.0                                                                                | 39.0  |      | 13.6  | 10.2  | 36.8  |      | 13.6  |      |      |      |      |
| Change Period (Y+Rc), s      | * 6.8                                                                              | * 6.8 |      | * 6.8 | * 6.8 | * 6.8 |      | * 6.8 |      |      |      |      |
| Max Green Setting (Gmax), s  | * 20                                                                               | * 30  |      | * 31  | * 20  | * 30  |      | * 31  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 2.3                                                                                | 6.3   |      | 5.9   | 3.1   | 8.2   |      | 4.7   |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0                                                                                | 3.2   |      | 0.4   | 0.1   | 4.3   |      | 0.5   |      |      |      |      |

#### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 11.2 |
| HCM 6th LOS        | B    |

#### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: Old Lee Highway

Timing Plan: PM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↑↑     | ↑↑↑  |      |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 506    | 680  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 506    | 680  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | -    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 95        | 95     | 95   | 95     | 95   | 95   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 3      | 3    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 533    | 716  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 358    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.14   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.92   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 545    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 545    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         | -      | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         | -      | -    | -      |      |      |
| HCM Control Delay (s)    | -         | 0      | -    | -      |      |      |
| HCM Lane LOS             | -         | A      | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         | -      | -    | -      |      |      |

HCM 6th TWSC  
5: University Drive & Driveway

Timing Plan: PM Peak

| Intersection             |                                                                                   |      |      |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.3                                                                               |      |      |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR  | NBL  | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |      |      |  |  |      |
| Traffic Vol, veh/h       | 3                                                                                 | 18   | 1    | 341                                                                               | 397                                                                               | 1    |
| Future Vol, veh/h        | 3                                                                                 | 18   | 1    | 341                                                                               | 397                                                                               | 1    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0    | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -    | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | -    | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92   | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2    | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 3                                                                                 | 20   | 1    | 371                                                                               | 432                                                                               | 1    |

| Major/Minor          | Minor2 | Major1 |      | Major2 |   |   |
|----------------------|--------|--------|------|--------|---|---|
| Conflicting Flow All | 621    | 217    | 433  | 0      | - | 0 |
| Stage 1              | 433    | -      | -    | -      | - | - |
| Stage 2              | 188    | -      | -    | -      | - | - |
| Critical Hdwy        | 6.84   | 6.94   | 4.14 | -      | - | - |
| Critical Hdwy Stg 1  | 5.84   | -      | -    | -      | - | - |
| Critical Hdwy Stg 2  | 5.84   | -      | -    | -      | - | - |
| Follow-up Hdwy       | 3.52   | 3.32   | 2.22 | -      | - | - |
| Pot Cap-1 Maneuver   | 419    | 787    | 1123 | -      | - | - |
| Stage 1              | 621    | -      | -    | -      | - | - |
| Stage 2              | 825    | -      | -    | -      | - | - |
| Platoon blocked, %   |        |        |      | -      | - | - |
| Mov Cap-1 Maneuver   | 419    | 787    | 1123 | -      | - | - |
| Mov Cap-2 Maneuver   | 419    | -      | -    | -      | - | - |
| Stage 1              | 620    | -      | -    | -      | - | - |
| Stage 2              | 825    | -      | -    | -      | - | - |

| Approach             | EB   | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 10.3 | 0  | 0  |
| HCM LOS              | B    |    |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1123  | -   | 699   | -   | -   |
| HCM Lane V/C Ratio    | 0.001 | -   | 0.033 | -   | -   |
| HCM Control Delay (s) | 8.2   | 0   | 10.3  | -   | -   |
| HCM Lane LOS          | A     | A   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.1   | -   | -   |

HCM 6th TWSC  
6: University Drive

Timing Plan: PM Peak

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2.4  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      | ↔    | ↔    |      |      | ↔    |      |      | ↔    |      |
| Traffic Vol, veh/h       | 16   | 3    | 21   | 41   | 6    | 36   | 12   | 258  | 74   | 30   | 335  | 21   |
| Future Vol, veh/h        | 16   | 3    | 21   | 41   | 6    | 36   | 12   | 258  | 74   | 30   | 335  | 21   |
| 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           | -    | -    | -    | 0    | -    | -    | -    | -    | -    | -    | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 2    | 2    |
| Mvmt Flow                | 17   | 3    | 23   | 45   | 7    | 39   | 13   | 280  | 80   | 33   | 364  | 23   |

| Major/Minor          | Minor2 |      | Minor1 |      | Major1 |      | Major2 |   |   |      |   |   |
|----------------------|--------|------|--------|------|--------|------|--------|---|---|------|---|---|
| Conflicting Flow All | 612    | 828  | 194    | 596  | 799    | 180  | 387    | 0 | 0 | 360  | 0 | 0 |
| Stage 1              | 442    | 442  | -      | 346  | 346    | -    | -      | - | - | -    | - | - |
| Stage 2              | 170    | 386  | -      | 250  | 453    | -    | -      | - | - | -    | - | - |
| Critical Hdwy        | 7.54   | 6.54 | 6.94   | 7.54 | 6.54   | 6.94 | 4.14   | - | - | 4.16 | - | - |
| Critical Hdwy Stg 1  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Critical Hdwy Stg 2  | 6.54   | 5.54 | -      | 6.54 | 5.54   | -    | -      | - | - | -    | - | - |
| Follow-up Hdwy       | 3.52   | 4.02 | 3.32   | 3.52 | 4.02   | 3.32 | 2.22   | - | - | 2.23 | - | - |
| Pot Cap-1 Maneuver   | 377    | 305  | 815    | 387  | 317    | 832  | 1168   | - | - | 1188 | - | - |
| Stage 1              | 564    | 575  | -      | 643  | 634    | -    | -      | - | - | -    | - | - |
| Stage 2              | 815    | 609  | -      | 732  | 568    | -    | -      | - | - | -    | - | - |
| Platoon blocked, %   |        |      |        |      |        |      |        | - | - | -    | - | - |
| Mov Cap-1 Maneuver   | 340    | 290  | 815    | 359  | 301    | 832  | 1168   | - | - | 1188 | - | - |
| Mov Cap-2 Maneuver   | 340    | 290  | -      | 359  | 301    | -    | -      | - | - | -    | - | - |
| Stage 1              | 556    | 555  | -      | 634  | 625    | -    | -      | - | - | -    | - | - |
| Stage 2              | 758    | 600  | -      | 683  | 548    | -    | -      | - | - | -    | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 13.2 |  | 13.6 |  | 0.4 |  | 0.7 |  |
| HCM LOS              | B    |  | B    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1WBLn2  | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|------------------|-------|-----|-----|
| Capacity (veh/h)      | 1168  | -   | -   | 481 359 665      | 1188  | -   | -   |
| HCM Lane V/C Ratio    | 0.011 | -   | -   | 0.09 0.124 0.069 | 0.027 | -   | -   |
| HCM Control Delay (s) | 8.1   | 0.1 | -   | 13.2 16.4 10.8   | 8.1   | 0.1 | -   |
| HCM Lane LOS          | A     | A   | -   | B C B            | A     | A   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0.3 0.4 0.2      | 0.1   | -   | -   |

## Queues

### 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: PM Peak

|                         | →    | ↘    | ←    | ↑    | ↓    |
|-------------------------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | WBT  | NBT  | SBT  |
| Lane Group Flow (vph)   | 111  | 74   | 99   | 351  | 332  |
| v/c Ratio               | 0.24 | 0.13 | 0.23 | 0.26 | 0.23 |
| Control Delay           | 15.3 | 6.0  | 14.9 | 11.3 | 11.3 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 15.3 | 6.0  | 14.9 | 11.3 | 11.3 |
| Queue Length 50th (ft)  | 11   | 0    | 10   | 17   | 16   |
| Queue Length 95th (ft)  | 79   | 28   | 70   | 92   | 87   |
| Internal Link Dist (ft) | 245  |      | 249  | 117  | 232  |
| Turn Bay Length (ft)    |      |      |      |      |      |
| Base Capacity (vph)     | 1169 | 1285 | 1074 | 2963 | 3046 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.09 | 0.06 | 0.09 | 0.12 | 0.11 |
| Intersection Summary    |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: PM Peak

| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|------|-------|-------|------|------|------|------|-------|------|------|------|------|
| Lane Configurations               |      | ↰     | ↱     |      | ↰    | ↱    |      | ↰     | ↱    |      | ↰    | ↱    |
| Traffic Volume (vph)              | 51   | 47    | 65    | 57   | 21   | 9    | 27   | 251   | 31   | 13   | 258  | 21   |
| Future Volume (vph)               | 51   | 47    | 65    | 57   | 21   | 9    | 27   | 251   | 31   | 13   | 258  | 21   |
| Ideal Flow (vphpl)                | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900 | 1900  | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s)               |      | 6.0   | 6.0   |      | 6.0  |      |      | 5.0   |      |      | 5.0  |      |
| Lane Util. Factor                 |      | 1.00  | 1.00  |      | 1.00 |      |      | 0.95  |      |      | 0.95 |      |
| Frpb, ped/bikes                   |      | 1.00  | 0.97  |      | 1.00 |      |      | 1.00  |      |      | 1.00 |      |
| Flpb, ped/bikes                   |      | 1.00  | 1.00  |      | 0.99 |      |      | 1.00  |      |      | 1.00 |      |
| Frt                               |      | 1.00  | 0.85  |      | 0.99 |      |      | 0.99  |      |      | 0.99 |      |
| Flt Protected                     |      | 0.97  | 1.00  |      | 0.97 |      |      | 1.00  |      |      | 1.00 |      |
| Satd. Flow (prot)                 |      | 1759  | 1535  |      | 1708 |      |      | 3455  |      |      | 3442 |      |
| Flt Permitted                     |      | 0.78  | 1.00  |      | 0.74 |      |      | 0.90  |      |      | 0.93 |      |
| Satd. Flow (perm)                 |      | 1414  | 1535  |      | 1298 |      |      | 3123  |      |      | 3203 |      |
| Peak-hour factor, PHF             | 0.88 | 0.88  | 0.88  | 0.88 | 0.88 | 0.88 | 0.88 | 0.88  | 0.88 | 0.88 | 0.88 | 0.88 |
| Adj. Flow (vph)                   | 58   | 53    | 74    | 65   | 24   | 10   | 31   | 285   | 35   | 15   | 293  | 24   |
| RTOR Reduction (vph)              | 0    | 0     | 60    | 0    | 4    | 0    | 0    | 9     | 0    | 0    | 7    | 0    |
| Lane Group Flow (vph)             | 0    | 111   | 14    | 0    | 95   | 0    | 0    | 342   | 0    | 0    | 325  | 0    |
| Confl. Peds. (#/hr)               | 3    |       | 12    | 12   |      | 3    | 12   |       | 18   | 18   |      | 12   |
| Heavy Vehicles (%)                | 6%   | 4%    | 2%    | 2%   | 14%  | 2%   | 2%   | 2%    | 2%   | 2%   | 2%   | 19%  |
| Turn Type                         | Perm | NA    | Perm  | Perm | NA   |      | Perm | NA    |      | Perm | NA   |      |
| Protected Phases                  |      | 8     |       |      | 4    |      |      | 2     |      |      | 6    |      |
| Permitted Phases                  | 8    |       | 8     | 4    |      |      | 2    |       |      | 6    |      |      |
| Actuated Green, G (s)             |      | 6.7   | 6.7   |      | 6.7  |      |      | 11.4  |      |      | 11.4 |      |
| Effective Green, g (s)            |      | 6.7   | 6.7   |      | 6.7  |      |      | 11.4  |      |      | 11.4 |      |
| Actuated g/C Ratio                |      | 0.19  | 0.19  |      | 0.19 |      |      | 0.32  |      |      | 0.32 |      |
| Clearance Time (s)                |      | 6.0   | 6.0   |      | 6.0  |      |      | 5.0   |      |      | 5.0  |      |
| Vehicle Extension (s)             |      | 3.0   | 3.0   |      | 3.0  |      |      | 3.0   |      |      | 3.0  |      |
| Lane Grp Cap (vph)                |      | 269   | 293   |      | 247  |      |      | 1014  |      |      | 1040 |      |
| v/s Ratio Prot                    |      |       |       |      |      |      |      |       |      |      |      |      |
| v/s Ratio Perm                    |      | c0.08 | 0.01  |      | 0.07 |      |      | c0.11 |      |      | 0.10 |      |
| v/c Ratio                         |      | 0.41  | 0.05  |      | 0.38 |      |      | 0.34  |      |      | 0.31 |      |
| Uniform Delay, d1                 |      | 12.5  | 11.6  |      | 12.4 |      |      | 9.0   |      |      | 8.9  |      |
| Progression Factor                |      | 1.00  | 1.00  |      | 1.00 |      |      | 1.00  |      |      | 1.00 |      |
| Incremental Delay, d2             |      | 1.0   | 0.1   |      | 1.0  |      |      | 0.2   |      |      | 0.2  |      |
| Delay (s)                         |      | 13.5  | 11.7  |      | 13.4 |      |      | 9.2   |      |      | 9.1  |      |
| Level of Service                  |      | B     | B     |      | B    |      |      | A     |      |      | A    |      |
| Approach Delay (s)                |      | 12.8  |       |      | 13.4 |      |      | 9.2   |      |      | 9.1  |      |
| Approach LOS                      |      | B     |       |      | B    |      |      | A     |      |      | A    |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |      |       |      |      |      |      |
| HCM 2000 Control Delay            |      |       | 10.3  |      |      |      |      |       |      |      |      |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.33  |      |      |      |      |       |      |      |      |      |
| Actuated Cycle Length (s)         |      |       | 35.1  |      |      |      |      |       |      |      |      |      |
| Intersection Capacity Utilization |      |       | 46.3% |      |      |      |      |       |      |      |      |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |      |       |      |      |      |      |
| c Critical Lane Group             |      |       |       |      |      |      |      |       |      |      |      |      |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 1.5    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 1      | 203   | 16   | 14     | 152   | 0    | 9      | 0     | 26    | 4      | 0     | 12    |
| Future Vol, veh/h        | 1      | 203   | 16   | 14     | 152   | 0    | 9      | 0     | 26    | 4      | 0     | 12    |
| Conflicting Peds, #/hr   | 2      | 0     | 0    | 0      | 0     | 2    | 1      | 0     | 0     | 0      | 0     | 1     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 90     | 90    | 90   | 90     | 90    | 90   | 90     | 90    | 90    | 90     | 90    | 90    |
| Heavy Vehicles, %        | 2      | 2     | 13   | 7      | 3     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 1      | 226   | 18   | 16     | 169   | 0    | 10     | 0     | 29    | 4      | 0     | 13    |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 171    | 0     | 0    | 244    | 0     | 0    | 446    | 440   | 235   | 455    | 449   | 172   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 237    | 237   | -     | 203    | 203   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 209    | 203   | -     | 252    | 246   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.17   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.263  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1406   | -     | -    | 1293   | -     | -    | 523    | 511   | 804   | 515    | 505   | 872   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 766    | 709   | -     | 799    | 733   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 793    | 733   | -     | 752    | 703   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1403   | -     | -    | 1293   | -     | -    | 508    | 502   | 804   | 490    | 496   | 870   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 508    | 502   | -     | 490    | 496   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 765    | 708   | -     | 797    | 721   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 769    | 721   | -     | 724    | 702   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0      |       |      | 0.7    |       |      | 10.5   |       |       | 10.1   |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | B      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 699    | 1403  | -    | -      | 1293  | -    | -      | 729   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.056  | 0.001 | -    | -      | 0.012 | -    | -      | 0.024 |       |        |       |       |
| HCM Control Delay (s)    | 10.5   | 7.6   | 0    | -      | 7.8   | 0    | -      | 10.1  |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | B     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0     | -    | -      | 0     | -    | -      | 0.1   |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 177  | 66   | 14   | 29   | 49   | 429  | 18   | 19   | 659  |
| v/c Ratio               | 0.47 | 0.17 | 0.08 | 0.16 | 0.13 | 0.57 | 0.03 | 0.05 | 0.53 |
| Control Delay           | 34.8 | 15.3 | 41.5 | 27.4 | 13.0 | 23.4 | 0.1  | 12.8 | 22.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 34.8 | 15.3 | 41.5 | 27.4 | 13.0 | 23.4 | 0.1  | 12.8 | 22.2 |
| Queue Length 50th (ft)  | 78   | 7    | 6    | 5    | 12   | 136  | 0    | 5    | 142  |
| Queue Length 95th (ft)  | 172  | 46   | 29   | 35   | 35   | 338  | 0    | 18   | 234  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 864  |      |      | 293  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 884  | 851  | 710  | 690  | 566  | 1501 | 1103 | 597  | 2724 |
| 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       | 0.20 | 0.08 | 0.02 | 0.04 | 0.09 | 0.29 | 0.02 | 0.03 | 0.24 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak

| Movement                          | EBL   | EBT  | EBR   | WBL   | WBT  | WBR                       | NBL   | NBT   | NBR  | SBL   | SBT  | SBR  |
|-----------------------------------|-------|------|-------|-------|------|---------------------------|-------|-------|------|-------|------|------|
| Lane Configurations               |       |      |       |       |      |                           |       |       |      |       |      |      |
| Traffic Volume (vph)              | 172   | 17   | 47    | 14    | 11   | 17                        | 48    | 416   | 17   | 18    | 532  | 108  |
| Future Volume (vph)               | 172   | 17   | 47    | 14    | 11   | 17                        | 48    | 416   | 17   | 18    | 532  | 108  |
| Ideal Flow (vphpl)                | 1900  | 1900 | 1900  | 1900  | 1900 | 1900                      | 1900  | 1900  | 1900 | 1900  | 1900 | 1900 |
| Total Lost time (s)               | 6.5   | 6.5  |       | 7.3   | 7.3  |                           | 6.9   | 6.9   | 6.9  | 6.9   | 6.9  |      |
| Lane Util. Factor                 | 1.00  | 1.00 |       | 1.00  | 1.00 |                           | 1.00  | 1.00  | 1.00 | 1.00  | 0.95 |      |
| Frpb, ped/bikes                   | 1.00  | 0.99 |       | 1.00  | 0.98 |                           | 1.00  | 1.00  | 0.93 | 1.00  | 0.99 |      |
| Flpb, ped/bikes                   | 1.00  | 1.00 |       | 1.00  | 1.00 |                           | 1.00  | 1.00  | 1.00 | 0.99  | 1.00 |      |
| Frt                               | 1.00  | 0.89 |       | 1.00  | 0.91 |                           | 1.00  | 1.00  | 0.85 | 1.00  | 0.97 |      |
| Flt Protected                     | 0.95  | 1.00 |       | 0.95  | 1.00 |                           | 0.95  | 1.00  | 1.00 | 0.95  | 1.00 |      |
| Satd. Flow (prot)                 | 1752  | 1642 |       | 1687  | 1621 |                           | 1768  | 1863  | 1419 | 1755  | 3382 |      |
| Flt Permitted                     | 0.95  | 1.00 |       | 0.95  | 1.00 |                           | 0.31  | 1.00  | 1.00 | 0.39  | 1.00 |      |
| Satd. Flow (perm)                 | 1752  | 1642 |       | 1687  | 1621 |                           | 574   | 1863  | 1419 | 716   | 3382 |      |
| Peak-hour factor, PHF             | 0.97  | 0.97 | 0.97  | 0.97  | 0.97 | 0.97                      | 0.97  | 0.97  | 0.97 | 0.97  | 0.97 | 0.97 |
| Adj. Flow (vph)                   | 177   | 18   | 48    | 14    | 11   | 18                        | 49    | 429   | 18   | 19    | 548  | 111  |
| RTOR Reduction (vph)              | 0     | 39   | 0     | 0     | 17   | 0                         | 0     | 0     | 11   | 0     | 11   | 0    |
| Lane Group Flow (vph)             | 177   | 27   | 0     | 14    | 12   | 0                         | 49    | 429   | 7    | 19    | 648  | 0    |
| Confl. Peds. (#/hr)               | 3     |      | 3     | 3     |      | 3                         | 6     |       | 26   | 26    |      | 6    |
| Heavy Vehicles (%)                | 3%    | 2%   | 2%    | 7%    | 9%   | 2%                        | 2%    | 2%    | 6%   | 2%    | 3%   | 6%   |
| Turn Type                         | Split | NA   |       | Split | NA   |                           | pm+pt | NA    | Perm | pm+pt | NA   |      |
| Protected Phases                  | 4     | 4    |       | 8     | 8    |                           | 1     | 6     |      | 5     | 2    |      |
| Permitted Phases                  |       |      |       |       |      |                           | 6     |       | 6    | 2     |      |      |
| Actuated Green, G (s)             | 15.0  | 15.0 |       | 3.4   | 3.4  |                           | 31.9  | 28.3  | 28.3 | 28.7  | 26.7 |      |
| Effective Green, g (s)            | 15.0  | 15.0 |       | 3.4   | 3.4  |                           | 31.9  | 28.3  | 28.3 | 28.7  | 26.7 |      |
| Actuated g/C Ratio                | 0.20  | 0.20 |       | 0.04  | 0.04 |                           | 0.42  | 0.37  | 0.37 | 0.38  | 0.35 |      |
| Clearance Time (s)                | 6.5   | 6.5  |       | 7.3   | 7.3  |                           | 6.9   | 6.9   | 6.9  | 6.9   | 6.9  |      |
| Vehicle Extension (s)             | 3.0   | 3.0  |       | 3.0   | 3.0  |                           | 3.0   | 3.0   | 3.0  | 3.0   | 3.0  |      |
| Lane Grp Cap (vph)                | 344   | 322  |       | 75    | 72   |                           | 296   | 690   | 526  | 296   | 1183 |      |
| v/s Ratio Prot                    | c0.10 | 0.02 |       | c0.01 | 0.01 |                           | c0.01 | c0.23 |      | 0.00  | 0.19 |      |
| v/s Ratio Perm                    |       |      |       |       |      |                           | 0.06  |       | 0.00 | 0.02  |      |      |
| v/c Ratio                         | 0.51  | 0.09 |       | 0.19  | 0.16 |                           | 0.17  | 0.62  | 0.01 | 0.06  | 0.55 |      |
| Uniform Delay, d1                 | 27.4  | 25.0 |       | 35.1  | 35.1 |                           | 13.6  | 19.6  | 15.2 | 15.3  | 19.9 |      |
| Progression Factor                | 1.00  | 1.00 |       | 1.00  | 1.00 |                           | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 |      |
| Incremental Delay, d2             | 1.3   | 0.1  |       | 1.2   | 1.1  |                           | 0.3   | 1.7   | 0.0  | 0.1   | 0.5  |      |
| Delay (s)                         | 28.7  | 25.2 |       | 36.3  | 36.2 |                           | 13.9  | 21.4  | 15.2 | 15.4  | 20.5 |      |
| Level of Service                  | C     | C    |       | D     | D    |                           | B     | C     | B    | B     | C    |      |
| Approach Delay (s)                |       | 27.7 |       |       | 36.2 |                           |       | 20.4  |      |       | 20.3 |      |
| Approach LOS                      |       | C    |       |       | D    |                           |       | C     |      |       | C    |      |
| <b>Intersection Summary</b>       |       |      |       |       |      |                           |       |       |      |       |      |      |
| HCM 2000 Control Delay            |       |      | 22.1  |       |      | HCM 2000 Level of Service |       |       | C    |       |      |      |
| HCM 2000 Volume to Capacity ratio |       |      | 0.54  |       |      |                           |       |       |      |       |      |      |
| Actuated Cycle Length (s)         |       |      | 76.3  |       |      | Sum of lost time (s)      |       |       | 27.6 |       |      |      |
| Intersection Capacity Utilization |       |      | 59.6% |       |      | ICU Level of Service      |       |       | B    |       |      |      |
| Analysis Period (min)             |       |      | 15    |       |      |                           |       |       |      |       |      |      |
| c Critical Lane Group             |       |      |       |       |      |                           |       |       |      |       |      |      |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 172                                                                               | 17                                                                                | 47                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 48                                                                                  | 416                                                                                 | 17                                                                                  | 18                                                                                  | 532                                                                                 | 108                                                                                 |
| Future Volume (veh/h)        | 172                                                                               | 17                                                                                | 47                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 48                                                                                  | 416                                                                                 | 17                                                                                  | 18                                                                                  | 532                                                                                 | 108                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 0.99                                                                                |                                                                                     | 0.96                                                                                | 0.98                                                                                |                                                                                     | 0.96                                                                                |
| 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1796                                                                              | 1767                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1811                                                                                | 1870                                                                                | 1856                                                                                | 1811                                                                                |
| Adj Flow Rate, veh/h         | 177                                                                               | 18                                                                                | 48                                                                                | 14                                                                                | 11                                                                                | 18                                                                                | 49                                                                                  | 429                                                                                 | 18                                                                                  | 19                                                                                  | 548                                                                                 | 111                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 3                                                                                 | 2                                                                                 | 2                                                                                 | 7                                                                                 | 9                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 6                                                                                   | 2                                                                                   | 3                                                                                   | 6                                                                                   |
| Cap, veh/h                   | 259                                                                               | 66                                                                                | 175                                                                               | 88                                                                                | 31                                                                                | 50                                                                                | 309                                                                                 | 615                                                                                 | 484                                                                                 | 277                                                                                 | 884                                                                                 | 178                                                                                 |
| Arrive On Green              | 0.15                                                                              | 0.15                                                                              | 0.15                                                                              | 0.05                                                                              | 0.05                                                                              | 0.05                                                                              | 0.05                                                                                | 0.33                                                                                | 0.33                                                                                | 0.02                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1767                                                                              | 448                                                                               | 1193                                                                              | 1711                                                                              | 598                                                                               | 979                                                                               | 1781                                                                                | 1870                                                                                | 1474                                                                                | 1781                                                                                | 2898                                                                                | 584                                                                                 |
| Grp Volume(v), veh/h         | 177                                                                               | 0                                                                                 | 66                                                                                | 14                                                                                | 0                                                                                 | 29                                                                                | 49                                                                                  | 429                                                                                 | 18                                                                                  | 19                                                                                  | 332                                                                                 | 327                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1767                                                                              | 0                                                                                 | 1641                                                                              | 1711                                                                              | 0                                                                                 | 1578                                                                              | 1781                                                                                | 1870                                                                                | 1474                                                                                | 1781                                                                                | 1763                                                                                | 1720                                                                                |
| Q Serve(g_s), s              | 5.8                                                                               | 0.0                                                                               | 2.2                                                                               | 0.5                                                                               | 0.0                                                                               | 1.1                                                                               | 1.1                                                                                 | 12.2                                                                                | 0.5                                                                                 | 0.4                                                                                 | 9.9                                                                                 | 10.0                                                                                |
| Cycle Q Clear(g_c), s        | 5.8                                                                               | 0.0                                                                               | 2.2                                                                               | 0.5                                                                               | 0.0                                                                               | 1.1                                                                               | 1.1                                                                                 | 12.2                                                                                | 0.5                                                                                 | 0.4                                                                                 | 9.9                                                                                 | 10.0                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.73                                                                              | 1.00                                                                              |                                                                                   | 0.62                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.34                                                                                |
| Lane Grp Cap(c), veh/h       | 259                                                                               | 0                                                                                 | 241                                                                               | 88                                                                                | 0                                                                                 | 81                                                                                | 309                                                                                 | 615                                                                                 | 484                                                                                 | 277                                                                                 | 538                                                                                 | 525                                                                                 |
| V/C Ratio(X)                 | 0.68                                                                              | 0.00                                                                              | 0.27                                                                              | 0.16                                                                              | 0.00                                                                              | 0.36                                                                              | 0.16                                                                                | 0.70                                                                                | 0.04                                                                                | 0.07                                                                                | 0.62                                                                                | 0.62                                                                                |
| Avail Cap(c_a), veh/h        | 866                                                                               | 0                                                                                 | 804                                                                               | 699                                                                               | 0                                                                                 | 644                                                                               | 663                                                                                 | 1833                                                                                | 1445                                                                                | 674                                                                                 | 1728                                                                                | 1685                                                                                |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.8                                                                              | 0.0                                                                               | 23.2                                                                              | 27.8                                                                              | 0.0                                                                               | 28.1                                                                              | 14.1                                                                                | 17.9                                                                                | 14.0                                                                                | 15.0                                                                                | 18.2                                                                                | 18.3                                                                                |
| Incr Delay (d2), s/veh       | 3.2                                                                               | 0.0                                                                               | 0.6                                                                               | 0.8                                                                               | 0.0                                                                               | 2.7                                                                               | 0.2                                                                                 | 1.4                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 1.2                                                                                 | 1.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.6                                                                               | 0.0                                                                               | 0.9                                                                               | 0.2                                                                               | 0.0                                                                               | 0.5                                                                               | 0.4                                                                                 | 5.0                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 3.8                                                                                 | 3.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 27.9                                                                              | 0.0                                                                               | 23.8                                                                              | 28.6                                                                              | 0.0                                                                               | 30.7                                                                              | 14.4                                                                                | 19.3                                                                                | 14.0                                                                                | 15.1                                                                                | 19.4                                                                                | 19.5                                                                                |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | B                                                                                   | B                                                                                   | B                                                                                   | B                                                                                   | B                                                                                   | B                                                                                   |
| Approach Vol, veh/h          | 243                                                                               |                                                                                   |                                                                                   | 43                                                                                |                                                                                   |                                                                                   | 496                                                                                 |                                                                                     |                                                                                     | 678                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 26.8                                                                              |                                                                                   |                                                                                   | 30.0                                                                              |                                                                                   |                                                                                   | 18.7                                                                                |                                                                                     |                                                                                     | 19.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.7                                                                               | 25.6                                                                              |                                                                                   | 15.5                                                                              | 8.3                                                                               | 27.0                                                                              |                                                                                     | 10.4                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                             | * 6.9                                                                             |                                                                                   | 6.5                                                                               | * 6.9                                                                             | * 6.9                                                                             |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                              | * 60                                                                              |                                                                                   | 30.0                                                                              | * 15                                                                              | * 60                                                                              |                                                                                     | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+l1), s | 3.1                                                                               | 12.0                                                                              |                                                                                   | 7.8                                                                               | 2.4                                                                               | 14.2                                                                              |                                                                                     | 3.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 4.8                                                                               |                                                                                   | 0.9                                                                               | 0.0                                                                               | 3.1                                                                               |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 20.7 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## **Appendix G – Intersection Analysis Worksheets – 2028 Future without Development**

HCM 6th TWSC  
1: Old Lee Highway & Plaza Drive

Timing Plan: AM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0.1       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗      | ↗    | ↗    |
| Traffic Vol, veh/h       | 0         | 7      | 0    | 574    | 433  | 4    |
| Future Vol, veh/h        | 0         | 7      | 0    | 574    | 433  | 4    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 120  |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 92        | 92     | 92   | 92     | 92   | 92   |
| Heavy Vehicles, %        | 2         | 14     | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 8      | 0    | 624    | 471  | 4    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 236    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.18   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.44   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 730    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 730    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 10        | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 730     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.01    |        | -    | -      |      |      |
| HCM Control Delay (s)    | - 10      |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0       |        | -    | -      |      |      |

## Queues

### 2: Old Lee Highway & FFX Commons

Timing Plan: AM Peak

|                         | →    | ↘    | ←    | ↙    | ↑    | ↗    | ↘    | ↓    | ↙    |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group              | EBT  | EBR  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Group Flow (vph)   | 15   | 12   | 1    | 35   | 609  | 13   | 15   | 450  | 12   |
| v/c Ratio               | 0.03 | 0.02 | 0.00 | 0.04 | 0.20 | 0.01 | 0.02 | 0.18 | 0.01 |
| Control Delay           | 15.4 | 0.1  | 0.0  | 2.8  | 4.2  | 0.0  | 3.3  | 6.2  | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 15.4 | 0.1  | 0.0  | 2.8  | 4.2  | 0.0  | 3.3  | 6.2  | 0.0  |
| Queue Length 50th (ft)  | 1    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0    |
| Queue Length 95th (ft)  | 17   | 0    | 0    | 11   | 113  | 0    | 7    | 86   | 0    |
| Internal Link Dist (ft) | 124  |      | 135  |      | 259  |      |      | 157  |      |
| Turn Bay Length (ft)    |      |      |      | 120  |      |      | 120  |      |      |
| Base Capacity (vph)     | 1663 | 1425 | 1489 | 1389 | 3095 | 1411 | 1382 | 3008 | 1411 |
| 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       | 0.01 | 0.01 | 0.00 | 0.03 | 0.20 | 0.01 | 0.01 | 0.15 | 0.01 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway & FFX Commons

Timing Plan: AM Peak

|                                   |  |       |       |      |      |      |       |       |      |       |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|-------|-------|------|------|------|-------|-------|------|-------|------|------|
| Movement                          | EBL                                                                                | EBT   | EBR   | WBL  | WBT  | WBR  | NBL   | NBT   | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↖     | ↗     |      | ↔    |      | ↖     | ↗     | ↗    | ↖     | ↗    | ↗    |
| Traffic Volume (vph)              | 13                                                                                 | 1     | 11    | 0    | 0    | 1    | 32    | 560   | 12   | 14    | 414  | 11   |
| Future Volume (vph)               | 13                                                                                 | 1     | 11    | 0    | 0    | 1    | 32    | 560   | 12   | 14    | 414  | 11   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  | 1900  | 1900 | 1900  | 1900 | 1900 |
| Total Lost time (s)               |                                                                                    | 6.8   | 6.8   |      | 6.8  |      | 6.8   | 6.8   | 6.8  | 6.8   | 6.8  | 6.8  |
| Lane Util. Factor                 |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 0.95  | 1.00 | 1.00  | 0.95 | 1.00 |
| Frt                               |                                                                                    | 1.00  | 0.85  |      | 0.86 |      | 1.00  | 1.00  | 0.85 | 1.00  | 1.00 | 0.85 |
| Flt Protected                     |                                                                                    | 0.96  | 1.00  |      | 1.00 |      | 0.95  | 1.00  | 1.00 | 0.95  | 1.00 | 1.00 |
| Satd. Flow (prot)                 |                                                                                    | 1780  | 1583  |      | 1611 |      | 1770  | 3505  | 1583 | 1770  | 3406 | 1583 |
| Flt Permitted                     |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 0.46  | 1.00  | 1.00 | 0.42  | 1.00 | 1.00 |
| Satd. Flow (perm)                 |                                                                                    | 1863  | 1583  |      | 1611 |      | 857   | 3505  | 1583 | 785   | 3406 | 1583 |
| Peak-hour factor, PHF             | 0.92                                                                               | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 |
| Adj. Flow (vph)                   | 14                                                                                 | 1     | 12    | 0    | 0    | 1    | 35    | 609   | 13   | 15    | 450  | 12   |
| RTOR Reduction (vph)              | 0                                                                                  | 0     | 12    | 0    | 1    | 0    | 0     | 0     | 7    | 0     | 0    | 7    |
| Lane Group Flow (vph)             | 0                                                                                  | 15    | 0     | 0    | 0    | 0    | 35    | 609   | 6    | 15    | 450  | 5    |
| Heavy Vehicles (%)                | 2%                                                                                 | 2%    | 2%    | 2%   | 2%   | 2%   | 2%    | 3%    | 2%   | 2%    | 6%   | 2%   |
| Turn Type                         | Perm                                                                               | NA    | Perm  |      | NA   |      | pm+pt | NA    | Perm | pm+pt | NA   | Perm |
| Protected Phases                  |                                                                                    | 8     |       |      | 4    |      | 5     | 2     |      | 1     | 6    |      |
| Permitted Phases                  | 8                                                                                  |       | 8     | 4    |      |      | 2     |       | 2    | 6     |      | 6    |
| Actuated Green, G (s)             |                                                                                    | 0.8   | 0.8   |      | 0.8  |      | 21.9  | 19.9  | 19.9 | 19.3  | 18.6 | 18.6 |
| Effective Green, g (s)            |                                                                                    | 0.8   | 0.8   |      | 0.8  |      | 21.9  | 19.9  | 19.9 | 19.3  | 18.6 | 18.6 |
| Actuated g/C Ratio                |                                                                                    | 0.02  | 0.02  |      | 0.02 |      | 0.52  | 0.48  | 0.48 | 0.46  | 0.44 | 0.44 |
| Clearance Time (s)                |                                                                                    | 6.8   | 6.8   |      | 6.8  |      | 6.8   | 6.8   | 6.8  | 6.8   | 6.8  | 6.8  |
| Vehicle Extension (s)             |                                                                                    | 3.0   | 3.0   |      | 3.0  |      | 3.0   | 3.0   | 3.0  | 3.0   | 3.0  | 3.0  |
| Lane Grp Cap (vph)                |                                                                                    | 35    | 30    |      | 30   |      | 492   | 1668  | 753  | 378   | 1515 | 704  |
| v/s Ratio Prot                    |                                                                                    |       |       |      | 0.00 |      | c0.00 | c0.17 |      | 0.00  | 0.13 |      |
| v/s Ratio Perm                    |                                                                                    | c0.01 | 0.00  |      |      |      | 0.03  |       | 0.00 | 0.02  |      | 0.00 |
| v/c Ratio                         |                                                                                    | 0.43  | 0.01  |      | 0.00 |      | 0.07  | 0.37  | 0.01 | 0.04  | 0.30 | 0.01 |
| Uniform Delay, d1                 |                                                                                    | 20.3  | 20.1  |      | 20.1 |      | 4.9   | 6.9   | 5.8  | 6.1   | 7.4  | 6.5  |
| Progression Factor                |                                                                                    | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Incremental Delay, d2             |                                                                                    | 8.2   | 0.1   |      | 0.0  |      | 0.1   | 0.1   | 0.0  | 0.0   | 0.1  | 0.0  |
| Delay (s)                         |                                                                                    | 28.5  | 20.2  |      | 20.1 |      | 4.9   | 7.1   | 5.8  | 6.2   | 7.5  | 6.5  |
| Level of Service                  |                                                                                    | C     | C     |      | C    |      | A     | A     | A    | A     | A    | A    |
| Approach Delay (s)                |                                                                                    | 24.8  |       |      | 20.1 |      |       | 6.9   |      |       | 7.5  |      |
| Approach LOS                      |                                                                                    | C     |       |      | C    |      |       | A     |      |       | A    |      |
| <b>Intersection Summary</b>       |                                                                                    |       |       |      |      |      |       |       |      |       |      |      |
| HCM 2000 Control Delay            |                                                                                    |       | 7.6   |      |      |      |       |       |      |       |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |       | 0.36  |      |      |      |       |       |      |       |      |      |
| Actuated Cycle Length (s)         |                                                                                    |       | 41.8  |      |      |      |       |       |      | 20.4  |      |      |
| Intersection Capacity Utilization |                                                                                    |       | 44.1% |      |      |      |       |       |      |       |      |      |
| Analysis Period (min)             |                                                                                    |       | 15    |      |      |      |       |       |      |       |      |      |
| <b>c Critical Lane Group</b>      |                                                                                    |       |       |      |      |      |       |       |      |       |      |      |

# HCM 6th Signalized Intersection Summary

## 2: Old Lee Highway & FFX Commons

Timing Plan: AM Peak

|                              |  |       |      |       |       |       |      |       |      |      |      |      |
|------------------------------|------------------------------------------------------------------------------------|-------|------|-------|-------|-------|------|-------|------|------|------|------|
| Movement                     | EBL                                                                                | EBT   | EBR  | WBL   | WBT   | WBR   | NBL  | NBT   | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations          |                                                                                    | ↩     | ↩    |       | ↩     |       | ↩    | ↩     | ↩    | ↩    | ↩    | ↩    |
| Traffic Volume (veh/h)       | 13                                                                                 | 1     | 11   | 0     | 0     | 1     | 32   | 560   | 12   | 14   | 414  | 11   |
| Future Volume (veh/h)        | 13                                                                                 | 1     | 11   | 0     | 0     | 1     | 32   | 560   | 12   | 14   | 414  | 11   |
| Initial Q (Qb), veh          | 0                                                                                  | 0     | 0    | 0     | 0     | 0     | 0    | 0     | 0    | 0    | 0    | 0    |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                               |       | 1.00 | 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   |      |
| Adj Sat Flow, veh/h/ln       | 1870                                                                               | 1870  | 1870 | 1870  | 1870  | 1870  | 1870 | 1856  | 1870 | 1870 | 1811 | 1870 |
| Adj Flow Rate, veh/h         | 14                                                                                 | 1     | 12   | 0     | 0     | 1     | 35   | 609   | 13   | 15   | 450  | 12   |
| Peak Hour Factor             | 0.92                                                                               | 0.92  | 0.92 | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, %         | 2                                                                                  | 2     | 2    | 2     | 2     | 2     | 2    | 3     | 2    | 2    | 6    | 2    |
| Cap, veh/h                   | 242                                                                                | 4     | 74   | 0     | 0     | 74    | 532  | 1438  | 647  | 448  | 1330 | 613  |
| Arrive On Green              | 0.05                                                                               | 0.05  | 0.05 | 0.00  | 0.00  | 0.05  | 0.04 | 0.41  | 0.41 | 0.02 | 0.39 | 0.39 |
| Sat Flow, veh/h              | 1326                                                                               | 95    | 1585 | 0     | 0     | 1585  | 1781 | 3526  | 1585 | 1781 | 3441 | 1585 |
| Grp Volume(v), veh/h         | 15                                                                                 | 0     | 12   | 0     | 0     | 1     | 35   | 609   | 13   | 15   | 450  | 12   |
| Grp Sat Flow(s),veh/h/ln     | 1421                                                                               | 0     | 1585 | 0     | 0     | 1585  | 1781 | 1763  | 1585 | 1781 | 1721 | 1585 |
| Q Serve(g_s), s              | 0.4                                                                                | 0.0   | 0.3  | 0.0   | 0.0   | 0.0   | 0.4  | 4.8   | 0.2  | 0.2  | 3.6  | 0.2  |
| Cycle Q Clear(g_c), s        | 0.4                                                                                | 0.0   | 0.3  | 0.0   | 0.0   | 0.0   | 0.4  | 4.8   | 0.2  | 0.2  | 3.6  | 0.2  |
| Prop In Lane                 | 0.93                                                                               |       | 1.00 | 0.00  |       | 1.00  | 1.00 |       | 1.00 | 1.00 |      | 1.00 |
| Lane Grp Cap(c), veh/h       | 246                                                                                | 0     | 74   | 0     | 0     | 74    | 532  | 1438  | 647  | 448  | 1330 | 613  |
| V/C Ratio(X)                 | 0.06                                                                               | 0.00  | 0.16 | 0.00  | 0.00  | 0.01  | 0.07 | 0.42  | 0.02 | 0.03 | 0.34 | 0.02 |
| Avail Cap(c_a), veh/h        | 1329                                                                               | 0     | 1267 | 0     | 0     | 1267  | 1378 | 2726  | 1226 | 1332 | 2661 | 1226 |
| 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 |
| Upstream Filter(l)           | 1.00                                                                               | 0.00  | 1.00 | 0.00  | 0.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh     | 17.8                                                                               | 0.0   | 17.8 | 0.0   | 0.0   | 17.6  | 6.7  | 8.2   | 6.9  | 7.1  | 8.4  | 7.4  |
| Incr Delay (d2), s/veh       | 0.1                                                                                | 0.0   | 1.0  | 0.0   | 0.0   | 0.1   | 0.1  | 0.2   | 0.0  | 0.0  | 0.1  | 0.0  |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                | 0.0   | 0.0  | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  |
| %ile BackOfQ(50%),veh/ln     | 0.1                                                                                | 0.0   | 0.1  | 0.0   | 0.0   | 0.0   | 0.1  | 1.3   | 0.0  | 0.1  | 1.0  | 0.0  |
| Unsig. Movement Delay, s/veh |                                                                                    |       |      |       |       |       |      |       |      |      |      |      |
| LnGrp Delay(d),s/veh         | 17.9                                                                               | 0.0   | 18.8 | 0.0   | 0.0   | 17.7  | 6.7  | 8.4   | 6.9  | 7.1  | 8.5  | 7.4  |
| LnGrp LOS                    | B                                                                                  | A     | B    | A     | A     | B     | A    | A     | A    | A    | A    | A    |
| Approach Vol, veh/h          | 27                                                                                 |       |      |       | 1     |       |      |       | 657  |      |      |      |
| Approach Delay, s/veh        | 18.3                                                                               |       |      |       | 17.7  |       |      |       | 8.3  |      |      |      |
| Approach LOS                 | B                                                                                  |       |      |       | B     |       |      |       | A    |      |      |      |
| Timer - Assigned Phs         | 1                                                                                  | 2     |      | 4     | 5     | 6     |      | 8     |      |      |      |      |
| Phs Duration (G+Y+Rc), s     | 7.5                                                                                | 22.6  |      | 8.6   | 8.4   | 21.8  |      | 8.6   |      |      |      |      |
| Change Period (Y+Rc), s      | * 6.8                                                                              | * 6.8 |      | * 6.8 | * 6.8 | * 6.8 |      | * 6.8 |      |      |      |      |
| Max Green Setting (Gmax), s  | * 20                                                                               | * 30  |      | * 31  | * 20  | * 30  |      | * 31  |      |      |      |      |
| Max Q Clear Time (g_c+I1), s | 2.2                                                                                | 6.8   |      | 2.0   | 2.4   | 5.6   |      | 2.4   |      |      |      |      |
| Green Ext Time (p_c), s      | 0.0                                                                                | 4.4   |      | 0.0   | 0.0   | 3.1   |      | 0.1   |      |      |      |      |

### Intersection Summary

HCM 6th Ctrl Delay 8.6

HCM 6th LOS A

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: Old Lee Highway

Timing Plan: AM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗↗     | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 604    | 425  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 604    | 425  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 0    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 92        | 92     | 92   | 92     | 92   | 92   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 657    | 462  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 231    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.94   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.32   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 771    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 771    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         | -      | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         | -      | -    | -      |      |      |
| HCM Control Delay (s)    | -         | 0      | -    | -      |      |      |
| HCM Lane LOS             | -         | A      | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         | -      | -    | -      |      |      |

HCM 6th TWSC  
5: University Drive & Driveway

Timing Plan: AM Peak

| Intersection             |                                                                                   |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 0.2                                                                               |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBR    | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations      |  |        |  |  |  |  |
| Traffic Vol, veh/h       | 0                                                                                 | 1      | 13                                                                                | 324                                                                               | 206                                                                               | 5                                                                                 |
| Future Vol, veh/h        | 0                                                                                 | 1      | 13                                                                                | 324                                                                               | 206                                                                               | 5                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0      | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop   | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None   | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -      | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -      | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92     | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2      | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 0                                                                                 | 1      | 14                                                                                | 352                                                                               | 224                                                                               | 5                                                                                 |
| Major/Minor              | Minor2                                                                            | Major1 |                                                                                   | Major2                                                                            |                                                                                   |                                                                                   |
| Conflicting Flow All     | 607                                                                               | 227    | 229                                                                               | 0                                                                                 | -                                                                                 | 0                                                                                 |
| Stage 1                  | 227                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                  | 380                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy            | 6.42                                                                              | 6.22   | 4.12                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 1      | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Critical Hdwy Stg 2      | 5.42                                                                              | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Follow-up Hdwy           | 3.518                                                                             | 3.318  | 2.218                                                                             | -                                                                                 | -                                                                                 | -                                                                                 |
| Pot Cap-1 Maneuver       | 460                                                                               | 812    | 1339                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                  | 811                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                  | 691                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Platoon blocked, %       |                                                                                   |        |                                                                                   | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-1 Maneuver       | 455                                                                               | 812    | 1339                                                                              | -                                                                                 | -                                                                                 | -                                                                                 |
| Mov Cap-2 Maneuver       | 544                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 1                  | 803                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Stage 2                  | 691                                                                               | -      | -                                                                                 | -                                                                                 | -                                                                                 | -                                                                                 |
| Approach                 | EB                                                                                | NB     |                                                                                   | SB                                                                                |                                                                                   |                                                                                   |
| HCM Control Delay, s     | 9.4                                                                               | 0.3    |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| HCM LOS                  | A                                                                                 |        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Minor Lane/Major Mvmt    | NBL                                                                               | NBT    | EBLn1                                                                             | SBT                                                                               | SBR                                                                               |                                                                                   |
| Capacity (veh/h)         | 1339                                                                              | -      | 812                                                                               | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane V/C Ratio       | 0.011                                                                             | -      | 0.001                                                                             | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Control Delay (s)    | 7.7                                                                               | -      | 9.4                                                                               | -                                                                                 | -                                                                                 |                                                                                   |
| HCM Lane LOS             | A                                                                                 | -      | A                                                                                 | -                                                                                 | -                                                                                 |                                                                                   |
| HCM 95th %tile Q(veh)    | 0                                                                                 | -      | 0                                                                                 | -                                                                                 | -                                                                                 |                                                                                   |

HCM 6th TWSC  
6: University Drive & 7-11 Entrance

Timing Plan: AM Peak

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1.2  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 5    | 0    | 15   | 16   | 0    | 6    | 10   | 284  | 30   | 12   | 180  | 12   |
| Future Vol, veh/h        | 5    | 0    | 15   | 16   | 0    | 6    | 10   | 284  | 30   | 12   | 180  | 12   |
| 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           | -    | -    | -    | 0    | -    | -    | 50   | -    | -    | 50   | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 10   | 2    | 3    | 2    | 4    | 2    |
| Mvmt Flow                | 5    | 0    | 16   | 17   | 0    | 7    | 11   | 309  | 33   | 13   | 196  | 13   |

| Major/Minor          | Minor2 |       | Minor1 |       | Major1 |       | Major2 |   |   |       |   |   |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 580    | 593   | 203    | 585   | 583    | 326   | 209    | 0 | 0 | 342   | 0 | 0 |
| Stage 1              | 229    | 229   | -      | 348   | 348    | -     | -      | - | - | -     | - | - |
| Stage 2              | 351    | 364   | -      | 237   | 235    | -     | -      | - | - | -     | - | - |
| Critical Hdwy        | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.2    | - | - | 4.12  | - | - |
| Critical Hdwy Stg 1  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Critical Hdwy Stg 2  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.29   | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver   | 426    | 418   | 838    | 422   | 424    | 715   | 1316   | - | - | 1217  | - | - |
| Stage 1              | 774    | 715   | -      | 668   | 634    | -     | -      | - | - | -     | - | - |
| Stage 2              | 666    | 624   | -      | 766   | 710    | -     | -      | - | - | -     | - | - |
| Platoon blocked, %   |        |       |        |       |        |       |        | - | - | -     | - | - |
| Mov Cap-1 Maneuver   | 416    | 410   | 838    | 408   | 416    | 715   | 1316   | - | - | 1217  | - | - |
| Mov Cap-2 Maneuver   | 416    | 410   | -      | 408   | 416    | -     | -      | - | - | -     | - | - |
| Stage 1              | 768    | 707   | -      | 663   | 629    | -     | -      | - | - | -     | - | - |
| Stage 2              | 654    | 619   | -      | 743   | 702    | -     | -      | - | - | -     | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 10.6 |  | 13.1 |  | 0.2 |  | 0.5 |  |
| HCM LOS              | B    |  | B    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1WBLn2         | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------------------------|-----|-----|-----|
| Capacity (veh/h)      | 1316  | -   | -   | 668 408 715 1217        | -   | -   | -   |
| HCM Lane V/C Ratio    | 0.008 | -   | -   | 0.033 0.043 0.009 0.011 | -   | -   | -   |
| HCM Control Delay (s) | 7.8   | -   | -   | 10.6 14.2 10.1 8        | -   | -   | -   |
| HCM Lane LOS          | A     | -   | -   | B B B A                 | -   | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0.1 0.1 0 0             | -   | -   | -   |

## Queues

### 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: AM Peak

|                         |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | NBL                                                                               | NBT                                                                               | SBL                                                                               | SBT                                                                                 |
| Lane Group Flow (vph)   | 127                                                                               | 32                                                                                | 38                                                                                | 8                                                                                 | 315                                                                               | 5                                                                                 | 179                                                                                 |
| v/c Ratio               | 0.31                                                                              | 0.06                                                                              | 0.09                                                                              | 0.02                                                                              | 0.43                                                                              | 0.01                                                                              | 0.30                                                                                |
| Control Delay           | 18.3                                                                              | 3.0                                                                               | 15.4                                                                              | 12.9                                                                              | 14.1                                                                              | 13.0                                                                              | 13.5                                                                                |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 |
| Total Delay             | 18.3                                                                              | 3.0                                                                               | 15.4                                                                              | 12.9                                                                              | 14.1                                                                              | 13.0                                                                              | 13.5                                                                                |
| Queue Length 50th (ft)  | 16                                                                                | 0                                                                                 | 4                                                                                 | 1                                                                                 | 36                                                                                | 1                                                                                 | 19                                                                                  |
| Queue Length 95th (ft)  | 105                                                                               | 10                                                                                | 38                                                                                | 12                                                                                | 200                                                                               | 9                                                                                 | 118                                                                                 |
| Internal Link Dist (ft) | 232                                                                               |                                                                                   | 226                                                                               |                                                                                   | 127                                                                               |                                                                                   | 218                                                                                 |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 50                                                                                |                                                                                   | 150                                                                               |                                                                                     |
| Base Capacity (vph)     | 947                                                                               | 1138                                                                              | 952                                                                               | 1104                                                                              | 1706                                                                              | 944                                                                               | 1389                                                                                |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   |
| Reduced v/c Ratio       | 0.13                                                                              | 0.03                                                                              | 0.04                                                                              | 0.01                                                                              | 0.18                                                                              | 0.01                                                                              | 0.13                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: AM Peak

| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL   | NBT  | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|------|-------|-------|------|------|------|-------|------|------|------|------|------|
| Lane Configurations               |      | ↰     | ↱     |      | ↰    | ↱    | ↰     | ↱    |      | ↰    | ↱    |      |
| Traffic Volume (vph)              | 100  | 17    | 29    | 22   | 9    | 4    | 7     | 271  | 18   | 5    | 154  | 11   |
| Future Volume (vph)               | 100  | 17    | 29    | 22   | 9    | 4    | 7     | 271  | 18   | 5    | 154  | 11   |
| Ideal Flow (vphpl)                | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s)               |      | 6.0   | 6.0   |      | 6.0  |      | 5.0   | 5.0  |      | 5.0  | 5.0  |      |
| Lane Util. Factor                 |      | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      |
| Frpb, ped/bikes                   |      | 1.00  | 0.96  |      | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      |
| Flpb, ped/bikes                   |      | 1.00  | 1.00  |      | 0.99 |      | 1.00  | 1.00 |      | 0.99 | 1.00 |      |
| Frt                               |      | 1.00  | 0.85  |      | 0.99 |      | 1.00  | 0.99 |      | 1.00 | 0.99 |      |
| Flt Protected                     |      | 0.96  | 1.00  |      | 0.97 |      | 0.95  | 1.00 |      | 0.95 | 1.00 |      |
| Satd. Flow (prot)                 |      | 1675  | 1506  |      | 1687 |      | 1765  | 1842 |      | 1743 | 1498 |      |
| Flt Permitted                     |      | 0.73  | 1.00  |      | 0.73 |      | 0.64  | 1.00 |      | 0.56 | 1.00 |      |
| Satd. Flow (perm)                 |      | 1274  | 1506  |      | 1277 |      | 1197  | 1842 |      | 1023 | 1498 |      |
| Peak-hour factor, PHF             | 0.92 | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph)                   | 109  | 18    | 32    | 24   | 10   | 4    | 8     | 295  | 20   | 5    | 167  | 12   |
| RTOR Reduction (vph)              | 0    | 0     | 25    | 0    | 3    | 0    | 0     | 3    | 0    | 0    | 3    | 0    |
| Lane Group Flow (vph)             | 0    | 127   | 7     | 0    | 35   | 0    | 8     | 312  | 0    | 5    | 176  | 0    |
| Confl. Peds. (#/hr)               | 1    |       | 8     | 8    |      | 1    | 3     |      | 7    | 7    |      | 3    |
| Heavy Vehicles (%)                | 7%   | 18%   | 3%    | 5%   | 11%  | 2%   | 2%    | 2%   | 2%   | 3%   | 27%  | 2%   |
| Turn Type                         | Perm | NA    | Perm  | Perm | NA   |      | Perm  | NA   |      | Perm | NA   |      |
| Protected Phases                  |      | 8     |       |      | 4    |      |       | 2    |      |      | 6    |      |
| Permitted Phases                  | 8    |       | 8     | 4    |      |      | 2     |      |      | 6    |      |      |
| Actuated Green, G (s)             |      | 8.1   | 8.1   |      | 8.1  |      | 14.8  | 14.8 |      | 14.8 | 14.8 |      |
| Effective Green, g (s)            |      | 8.1   | 8.1   |      | 8.1  |      | 14.8  | 14.8 |      | 14.8 | 14.8 |      |
| Actuated g/C Ratio                |      | 0.20  | 0.20  |      | 0.20 |      | 0.37  | 0.37 |      | 0.37 | 0.37 |      |
| Clearance Time (s)                |      | 6.0   | 6.0   |      | 6.0  |      | 5.0   | 5.0  |      | 5.0  | 5.0  |      |
| Vehicle Extension (s)             |      | 3.0   | 3.0   |      | 3.0  |      | 3.0   | 3.0  |      | 3.0  | 3.0  |      |
| Lane Grp Cap (vph)                |      | 259   | 306   |      | 259  |      | 445   | 684  |      | 380  | 557  |      |
| v/s Ratio Prot                    |      |       |       |      |      |      | c0.17 |      |      |      | 0.12 |      |
| v/s Ratio Perm                    |      | c0.10 | 0.00  |      | 0.03 |      | 0.01  |      |      | 0.00 |      |      |
| v/c Ratio                         |      | 0.49  | 0.02  |      | 0.13 |      | 0.02  | 0.46 |      | 0.01 | 0.32 |      |
| Uniform Delay, d1                 |      | 14.0  | 12.7  |      | 13.0 |      | 7.9   | 9.5  |      | 7.9  | 8.9  |      |
| Progression Factor                |      | 1.00  | 1.00  |      | 1.00 |      | 1.00  | 1.00 |      | 1.00 | 1.00 |      |
| Incremental Delay, d2             |      | 1.5   | 0.0   |      | 0.2  |      | 0.0   | 0.5  |      | 0.0  | 0.3  |      |
| Delay (s)                         |      | 15.5  | 12.7  |      | 13.2 |      | 7.9   | 9.9  |      | 7.9  | 9.2  |      |
| Level of Service                  |      | B     | B     |      | B    |      | A     | A    |      | A    | A    |      |
| Approach Delay (s)                |      | 14.9  |       |      | 13.2 |      |       | 9.9  |      |      | 9.2  |      |
| Approach LOS                      |      | B     |       |      | B    |      |       | A    |      |      | A    |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |       |      |      |      |      |      |
| HCM 2000 Control Delay            |      |       | 11.0  |      |      |      |       |      |      |      |      |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.43  |      |      |      |       |      |      |      |      |      |
| Actuated Cycle Length (s)         |      |       | 39.8  |      |      |      |       |      |      |      |      |      |
| Intersection Capacity Utilization |      |       | 35.1% |      |      |      |       |      |      |      |      |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |       |      |      |      |      |      |
| c Critical Lane Group             |      |       |       |      |      |      |       |      |      |      |      |      |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 0.8    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 22     | 267   | 6    | 10     | 175   | 10   | 2      | 1     | 6     | 0      | 0     | 4     |
| Future Vol, veh/h        | 22     | 267   | 6    | 10     | 175   | 10   | 2      | 1     | 6     | 0      | 0     | 4     |
| Conflicting Peds, #/hr   | 9      | 0     | 0    | 0      | 0     | 9    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92     | 92    | 92   | 92     | 92    | 92   | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2      | 5     | 2    | 2      | 3     | 2    | 2      | 2     | 17    | 2      | 2     | 2     |
| Mvmt Flow                | 24     | 290   | 7    | 11     | 190   | 11   | 2      | 1     | 7     | 0      | 0     | 4     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 210    | 0     | 0    | 297    | 0     | 0    | 562    | 574   | 294   | 573    | 572   | 205   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 342    | 342   | -     | 227    | 227   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 220    | 232   | -     | 346    | 345   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.37  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.453 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1361   | -     | -    | 1264   | -     | -    | 438    | 429   | 711   | 430    | 430   | 836   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 673    | 638   | -     | 776    | 716   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 782    | 713   | -     | 670    | 636   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1349   | -     | -    | 1264   | -     | -    | 425    | 412   | 711   | 412    | 413   | 829   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 425    | 412   | -     | 412    | 413   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 659    | 625   | -     | 753    | 702   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 770    | 699   | -     | 649    | 623   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.6    |       |      | 0.4    |       |      | 11.3   |       |       | 9.4    |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | A      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 578    | 1349  | -    | -      | 1264  | -    | -      | 829   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.017  | 0.018 | -    | -      | 0.009 | -    | -      | 0.005 |       |        |       |       |
| HCM Control Delay (s)    | 11.3   | 7.7   | 0    | -      | 7.9   | 0    | -      | 9.4   |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0.1   | -    | -      | 0     | -    | -      | 0     |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 249  | 44   | 14   | 54   | 67   | 546  | 5    | 17   | 584  |
| v/c Ratio               | 0.61 | 0.11 | 0.10 | 0.30 | 0.18 | 0.73 | 0.01 | 0.06 | 0.52 |
| Control Delay           | 42.9 | 20.1 | 51.7 | 25.4 | 15.3 | 30.9 | 0.0  | 14.8 | 25.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 42.9 | 20.1 | 51.7 | 25.4 | 15.3 | 30.9 | 0.0  | 14.8 | 25.6 |
| Queue Length 50th (ft)  | 115  | 7    | 7    | 5    | 20   | 218  | 0    | 5    | 133  |
| Queue Length 95th (ft)  | 284  | 44   | 33   | 52   | 51   | 515  | 0    | 19   | 226  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 842  |      |      | 355  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 698  | 680  | 565  | 570  | 512  | 1290 | 1110 | 466  | 2327 |
| 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       | 0.36 | 0.06 | 0.02 | 0.09 | 0.13 | 0.42 | 0.00 | 0.04 | 0.25 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak

|                                   |  |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                                | EBT                                                                               | EBR   | WBL                                                                               | WBT                                                                               | WBR                       | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |   |  |       |  |  |                           |  |  |  |  |  |  |
| Traffic Volume (vph)              | 229                                                                                | 17                                                                                | 24    | 13                                                                                | 10                                                                                | 40                        | 62                                                                                 | 502                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 136                                                                                 |
| Future Volume (vph)               | 229                                                                                | 17                                                                                | 24    | 13                                                                                | 10                                                                                | 40                        | 62                                                                                 | 502                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 136                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900                                                                              | 1900  | 1900                                                                              | 1900                                                                              | 1900                      | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                                | 6.5                                                                               |       | 7.3                                                                               | 7.3                                                                               |                           | 6.9                                                                                | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   | 1.00                                                                               | 0.99                                                                              |       | 1.00                                                                              | 0.98                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 0.97                                                                                | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flpb, ped/bikes                   | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                               | 0.91                                                                              |       | 1.00                                                                              | 0.88                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 0.96                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                               | 1.00                                                                              |       | 0.95                                                                              | 1.00                                                                              |                           | 0.95                                                                               | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1719                                                                               | 1639                                                                              |       | 1671                                                                              | 1607                                                                              |                           | 1769                                                                               | 1827                                                                                | 1534                                                                                | 1701                                                                                | 3281                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                               | 1.00                                                                              |       | 0.95                                                                              | 1.00                                                                              |                           | 0.32                                                                               | 1.00                                                                                | 1.00                                                                                | 0.27                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1719                                                                               | 1639                                                                              |       | 1671                                                                              | 1607                                                                              |                           | 600                                                                                | 1827                                                                                | 1534                                                                                | 478                                                                                 | 3281                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                               | 0.92                                                                              | 0.92  | 0.92                                                                              | 0.92                                                                              | 0.92                      | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 249                                                                                | 18                                                                                | 26    | 14                                                                                | 11                                                                                | 43                        | 67                                                                                 | 546                                                                                 | 5                                                                                   | 17                                                                                  | 436                                                                                 | 148                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                  | 20                                                                                | 0     | 0                                                                                 | 41                                                                                | 0                         | 0                                                                                  | 0                                                                                   | 3                                                                                   | 0                                                                                   | 22                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 249                                                                                | 24                                                                                | 0     | 14                                                                                | 13                                                                                | 0                         | 67                                                                                 | 546                                                                                 | 2                                                                                   | 17                                                                                  | 562                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                  |                                                                                   | 1     | 1                                                                                 |                                                                                   | 3                         | 1                                                                                  |                                                                                     | 5                                                                                   | 5                                                                                   |                                                                                     | 1                                                                                   |
| Heavy Vehicles (%)                | 5%                                                                                 | 6%                                                                                | 4%    | 8%                                                                                | 2%                                                                                | 2%                        | 2%                                                                                 | 4%                                                                                  | 2%                                                                                  | 6%                                                                                  | 6%                                                                                  | 3%                                                                                  |
| Turn Type                         | Split                                                                              | NA                                                                                |       | Split                                                                             | NA                                                                                |                           | pm+pt                                                                              | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                  | 4                                                                                 |       | 8                                                                                 | 8                                                                                 |                           | 1                                                                                  | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           | 6                                                                                  |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 20.8                                                                               | 20.8                                                                              |       | 5.3                                                                               | 5.3                                                                               |                           | 42.1                                                                               | 36.2                                                                                | 36.2                                                                                | 34.5                                                                                | 32.4                                                                                |                                                                                     |
| Effective Green, g (s)            | 20.8                                                                               | 20.8                                                                              |       | 5.3                                                                               | 5.3                                                                               |                           | 42.1                                                                               | 36.2                                                                                | 36.2                                                                                | 34.5                                                                                | 32.4                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.23                                                                               | 0.23                                                                              |       | 0.06                                                                              | 0.06                                                                              |                           | 0.46                                                                               | 0.39                                                                                | 0.39                                                                                | 0.38                                                                                | 0.35                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                                | 6.5                                                                               |       | 7.3                                                                               | 7.3                                                                               |                           | 6.9                                                                                | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 3.0                                                                                | 3.0                                                                               |       | 3.0                                                                               | 3.0                                                                               |                           | 3.0                                                                                | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 388                                                                                | 370                                                                               |       | 96                                                                                | 92                                                                                |                           | 349                                                                                | 718                                                                                 | 603                                                                                 | 207                                                                                 | 1155                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.14                                                                              | 0.01                                                                              |       | 0.01                                                                              | c0.01                                                                             |                           | c0.01                                                                              | c0.30                                                                               |                                                                                     | 0.00                                                                                | 0.17                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           | 0.08                                                                               |                                                                                     | 0.00                                                                                | 0.03                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.64                                                                               | 0.06                                                                              |       | 0.15                                                                              | 0.15                                                                              |                           | 0.19                                                                               | 0.76                                                                                | 0.00                                                                                | 0.08                                                                                | 0.49                                                                                |                                                                                     |
| Uniform Delay, d1                 | 32.2                                                                               | 28.0                                                                              |       | 41.2                                                                              | 41.2                                                                              |                           | 14.6                                                                               | 24.1                                                                                | 16.9                                                                                | 19.2                                                                                | 23.3                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                               | 1.00                                                                              |       | 1.00                                                                              | 1.00                                                                              |                           | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 3.6                                                                                | 0.1                                                                               |       | 0.7                                                                               | 0.7                                                                               |                           | 0.3                                                                                | 4.8                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         | 35.8                                                                               | 28.0                                                                              |       | 41.9                                                                              | 41.9                                                                              |                           | 14.8                                                                               | 28.9                                                                                | 16.9                                                                                | 19.3                                                                                | 23.6                                                                                |                                                                                     |
| Level of Service                  | D                                                                                  | C                                                                                 |       | D                                                                                 | D                                                                                 |                           | B                                                                                  | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                    | 34.7                                                                              |       |                                                                                   | 41.9                                                                              |                           |                                                                                    | 27.3                                                                                |                                                                                     |                                                                                     | 23.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                    | C                                                                                 |       |                                                                                   | D                                                                                 |                           |                                                                                    | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                    |                                                                                   | 27.8  |                                                                                   |                                                                                   | HCM 2000 Level of Service |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                    |                                                                                   | 0.66  |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                    |                                                                                   | 92.0  |                                                                                   |                                                                                   | Sum of lost time (s)      |                                                                                    |                                                                                     | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                    |                                                                                   | 66.9% |                                                                                   |                                                                                   | ICU Level of Service      |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                    |                                                                                   | 15    |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                    |                                                                                   |       |                                                                                   |                                                                                   |                           |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: AM Peak

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 229                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 502                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 136                                                                                 |
| Future Volume (veh/h)        | 229                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 502                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 136                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                                |                                                                                     | 0.99                                                                                | 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1826                                                                              | 1811                                                                              | 1841                                                                              | 1781                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1841                                                                                | 1870                                                                                | 1811                                                                                | 1811                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 249                                                                               | 18                                                                                | 26                                                                                | 14                                                                                | 11                                                                                | 43                                                                                | 67                                                                                  | 546                                                                                 | 5                                                                                   | 17                                                                                  | 436                                                                                 | 148                                                                                 |
| Peak Hour Factor             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Percent Heavy Veh, %         | 5                                                                                 | 6                                                                                 | 4                                                                                 | 8                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 4                                                                                   | 2                                                                                   | 6                                                                                   | 6                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 316                                                                               | 121                                                                               | 175                                                                               | 102                                                                               | 20                                                                                | 77                                                                                | 342                                                                                 | 655                                                                                 | 560                                                                                 | 204                                                                                 | 820                                                                                 | 276                                                                                 |
| Arrive On Green              | 0.18                                                                              | 0.18                                                                              | 0.18                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.05                                                                                | 0.36                                                                                | 0.36                                                                                | 0.02                                                                                | 0.32                                                                                | 0.32                                                                                |
| Sat Flow, veh/h              | 1739                                                                              | 666                                                                               | 962                                                                               | 1697                                                                              | 330                                                                               | 1289                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 2523                                                                                | 848                                                                                 |
| Grp Volume(v), veh/h         | 249                                                                               | 0                                                                                 | 44                                                                                | 14                                                                                | 0                                                                                 | 54                                                                                | 67                                                                                  | 546                                                                                 | 5                                                                                   | 17                                                                                  | 296                                                                                 | 288                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1739                                                                              | 0                                                                                 | 1628                                                                              | 1697                                                                              | 0                                                                                 | 1618                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 1721                                                                                | 1651                                                                                |
| Q Serve(g_s), s              | 9.9                                                                               | 0.0                                                                               | 1.6                                                                               | 0.6                                                                               | 0.0                                                                               | 2.3                                                                               | 1.8                                                                                 | 19.6                                                                                | 0.1                                                                                 | 0.5                                                                                 | 10.1                                                                                | 10.3                                                                                |
| Cycle Q Clear(g_c), s        | 9.9                                                                               | 0.0                                                                               | 1.6                                                                               | 0.6                                                                               | 0.0                                                                               | 2.3                                                                               | 1.8                                                                                 | 19.6                                                                                | 0.1                                                                                 | 0.5                                                                                 | 10.1                                                                                | 10.3                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.59                                                                              | 1.00                                                                              |                                                                                   | 0.80                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.51                                                                                |
| Lane Grp Cap(c), veh/h       | 316                                                                               | 0                                                                                 | 296                                                                               | 102                                                                               | 0                                                                                 | 97                                                                                | 342                                                                                 | 655                                                                                 | 560                                                                                 | 204                                                                                 | 559                                                                                 | 536                                                                                 |
| V/C Ratio(X)                 | 0.79                                                                              | 0.00                                                                              | 0.15                                                                              | 0.14                                                                              | 0.00                                                                              | 0.56                                                                              | 0.20                                                                                | 0.83                                                                                | 0.01                                                                                | 0.08                                                                                | 0.53                                                                                | 0.54                                                                                |
| Avail Cap(c_a), veh/h        | 722                                                                               | 0                                                                                 | 676                                                                               | 587                                                                               | 0                                                                                 | 560                                                                               | 620                                                                                 | 1529                                                                                | 1307                                                                                | 528                                                                                 | 1429                                                                                | 1371                                                                                |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 28.2                                                                              | 0.0                                                                               | 24.8                                                                              | 32.2                                                                              | 0.0                                                                               | 33.0                                                                              | 15.4                                                                                | 21.3                                                                                | 15.0                                                                                | 17.8                                                                                | 19.9                                                                                | 19.9                                                                                |
| Incr Delay (d2), s/veh       | 4.3                                                                               | 0.0                                                                               | 0.2                                                                               | 0.6                                                                               | 0.0                                                                               | 4.9                                                                               | 0.3                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.8                                                                                 | 0.8                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 4.4                                                                               | 0.0                                                                               | 0.6                                                                               | 0.2                                                                               | 0.0                                                                               | 1.0                                                                               | 0.7                                                                                 | 8.3                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 3.9                                                                                 | 3.8                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 32.6                                                                              | 0.0                                                                               | 25.1                                                                              | 32.8                                                                              | 0.0                                                                               | 37.9                                                                              | 15.7                                                                                | 24.2                                                                                | 15.0                                                                                | 18.0                                                                                | 20.7                                                                                | 20.8                                                                                |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | D                                                                                 | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 293                                                                               |                                                                                   |                                                                                   | 68                                                                                |                                                                                   |                                                                                   | 618                                                                                 |                                                                                     |                                                                                     | 601                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 31.4                                                                              |                                                                                   |                                                                                   | 36.9                                                                              |                                                                                   |                                                                                   | 23.2                                                                                |                                                                                     |                                                                                     | 20.6                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 10.6                                                                              | 30.4                                                                              |                                                                                   | 19.6                                                                              | 8.3                                                                               | 32.6                                                                              |                                                                                     | 11.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                             | * 6.9                                                                             |                                                                                   | 6.5                                                                               | * 6.9                                                                             | * 6.9                                                                             |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                              | * 60                                                                              |                                                                                   | 30.0                                                                              | * 15                                                                              | * 60                                                                              |                                                                                     | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.8                                                                               | 12.3                                                                              |                                                                                   | 11.9                                                                              | 2.5                                                                               | 21.6                                                                              |                                                                                     | 4.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 4.2                                                                               |                                                                                   | 0.9                                                                               | 0.0                                                                               | 4.1                                                                               |                                                                                     | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 24.3 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
1: Old Lee Highway

Timing Plan: PM Peak

Intersection

Int Delay, s/veh 0.3

| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↗    |      | ↗↗   | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0    | 31   | 0    | 503  | 612  | 7    |
| Future Vol, veh/h        | 0    | 31   | 0    | 503  | 612  | 7    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 0    | -    | -    | -    | 120  |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 3    | 2    |
| Mvmt Flow                | 0    | 34   | 0    | 547  | 665  | 8    |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - 333  | - 0    | - 0    |
| Stage 1              | - -    | - -    | - -    |
| Stage 2              | - -    | - -    | - -    |
| Critical Hdwy        | - 6.94 | - -    | - -    |
| Critical Hdwy Stg 1  | - -    | - -    | - -    |
| Critical Hdwy Stg 2  | - -    | - -    | - -    |
| Follow-up Hdwy       | - 3.32 | - -    | - -    |
| Pot Cap-1 Maneuver   | 0 663  | 0 -    | - -    |
| Stage 1              | 0 -    | 0 -    | - -    |
| Stage 2              | 0 -    | 0 -    | - -    |
| Platoon blocked, %   |        | - -    | - -    |
| Mov Cap-1 Maneuver   | - 663  | - -    | - -    |
| Mov Cap-2 Maneuver   | - -    | - -    | - -    |
| Stage 1              | - -    | - -    | - -    |
| Stage 2              | - -    | - -    | - -    |

| Approach             | EB   | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 10.7 | 0  | 0  |
| HCM LOS              | B    |    |    |

| Minor Lane/Major Mvmt | NBT EBLn1 | SBT | SBR |
|-----------------------|-----------|-----|-----|
| Capacity (veh/h)      | - 663     | - - | - - |
| HCM Lane V/C Ratio    | - 0.051   | - - | - - |
| HCM Control Delay (s) | - 10.7    | - - | - - |
| HCM Lane LOS          | - B       | - - | - - |
| HCM 95th %tile Q(veh) | - 0.2     | - - | - - |

## Queues

## 2: Old Lee Highway

Timing Plan: PM Peak

|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Group Flow (vph)   | 45                                                                                | 76                                                                                | 80                                                                                | 67                                                                                | 490                                                                               | 12                                                                                | 16                                                                                  | 625                                                                                 | 47                                                                                  |
| v/c Ratio               | 0.25                                                                              | 0.23                                                                              | 0.38                                                                              | 0.11                                                                              | 0.21                                                                              | 0.01                                                                              | 0.03                                                                                | 0.31                                                                                | 0.05                                                                                |
| Control Delay           | 29.3                                                                              | 4.4                                                                               | 29.7                                                                              | 5.0                                                                               | 6.8                                                                               | 0.0                                                                               | 5.1                                                                                 | 11.4                                                                                | 0.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 29.3                                                                              | 4.4                                                                               | 29.7                                                                              | 5.0                                                                               | 6.8                                                                               | 0.0                                                                               | 5.1                                                                                 | 11.4                                                                                | 0.1                                                                                 |
| Queue Length 50th (ft)  | 17                                                                                | 0                                                                                 | 27                                                                                | 8                                                                                 | 34                                                                                | 0                                                                                 | 2                                                                                   | 85                                                                                  | 0                                                                                   |
| Queue Length 95th (ft)  | 45                                                                                | 18                                                                                | 66                                                                                | 22                                                                                | 100                                                                               | 0                                                                                 | 8                                                                                   | 140                                                                                 | 0                                                                                   |
| Internal Link Dist (ft) | 173                                                                               |                                                                                   | 199                                                                               |                                                                                   | 207                                                                               |                                                                                   |                                                                                     | 142                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 120                                                                               |                                                                                   |                                                                                   | 120                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 641                                                                               | 857                                                                               | 710                                                                               | 831                                                                               | 2382                                                                              | 1103                                                                              | 895                                                                                 | 2028                                                                                | 938                                                                                 |
| 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       | 0.07                                                                              | 0.09                                                                              | 0.11                                                                              | 0.08                                                                              | 0.21                                                                              | 0.01                                                                              | 0.02                                                                                | 0.31                                                                                | 0.05                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway

Timing Plan: PM Peak

|                                   |  |      |       |      |       |      |                           |       |      |       |       |      |
|-----------------------------------|------------------------------------------------------------------------------------|------|-------|------|-------|------|---------------------------|-------|------|-------|-------|------|
| Movement                          | EBL                                                                                | EBT  | EBR   | WBL  | WBT   | WBR  | NBL                       | NBT   | NBR  | SBL   | SBT   | SBR  |
| Lane Configurations               |                                                                                    | ↩    | ↩     |      | ↔     |      | ↩                         | ↕     | ↕    | ↩     | ↕     | ↩    |
| Traffic Volume (vph)              | 37                                                                                 | 5    | 71    | 54   | 10    | 10   | 62                        | 456   | 11   | 15    | 581   | 44   |
| Future Volume (vph)               | 37                                                                                 | 5    | 71    | 54   | 10    | 10   | 62                        | 456   | 11   | 15    | 581   | 44   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900 | 1900  | 1900 | 1900  | 1900 | 1900                      | 1900  | 1900 | 1900  | 1900  | 1900 |
| Total Lost time (s)               |                                                                                    | 6.8  | 6.8   |      | 6.8   |      | 6.8                       | 6.8   | 6.8  | 6.8   | 6.8   | 6.8  |
| Lane Util. Factor                 |                                                                                    | 1.00 | 1.00  |      | 1.00  |      | 1.00                      | 0.95  | 1.00 | 1.00  | 0.95  | 1.00 |
| Frt                               |                                                                                    | 1.00 | 0.85  |      | 0.98  |      | 1.00                      | 1.00  | 0.85 | 1.00  | 1.00  | 0.85 |
| Flt Protected                     |                                                                                    | 0.96 | 1.00  |      | 0.97  |      | 0.95                      | 1.00  | 1.00 | 0.95  | 1.00  | 1.00 |
| Satd. Flow (prot)                 |                                                                                    | 1734 | 1568  |      | 1764  |      | 1770                      | 3539  | 1583 | 1770  | 3505  | 1538 |
| Flt Permitted                     |                                                                                    | 0.69 | 1.00  |      | 0.76  |      | 0.38                      | 1.00  | 1.00 | 0.47  | 1.00  | 1.00 |
| Satd. Flow (perm)                 |                                                                                    | 1256 | 1568  |      | 1384  |      | 702                       | 3539  | 1583 | 881   | 3505  | 1538 |
| Peak-hour factor, PHF             | 0.93                                                                               | 0.93 | 0.93  | 0.93 | 0.93  | 0.93 | 0.93                      | 0.93  | 0.93 | 0.93  | 0.93  | 0.93 |
| Adj. Flow (vph)                   | 40                                                                                 | 5    | 76    | 58   | 11    | 11   | 67                        | 490   | 12   | 16    | 625   | 47   |
| RTOR Reduction (vph)              | 0                                                                                  | 0    | 68    | 0    | 7     | 0    | 0                         | 0     | 5    | 0     | 0     | 22   |
| Lane Group Flow (vph)             | 0                                                                                  | 45   | 8     | 0    | 73    | 0    | 67                        | 490   | 7    | 16    | 625   | 25   |
| Heavy Vehicles (%)                | 3%                                                                                 | 20%  | 3%    | 2%   | 2%    | 2%   | 2%                        | 2%    | 2%   | 2%    | 3%    | 5%   |
| Turn Type                         | Perm                                                                               | NA   | Perm  | Perm | NA    |      | pm+pt                     | NA    | Perm | pm+pt | NA    | Perm |
| Protected Phases                  |                                                                                    | 8    |       |      | 4     |      | 5                         | 2     |      | 1     | 6     |      |
| Permitted Phases                  | 8                                                                                  |      | 8     | 4    |       |      | 2                         |       | 2    | 6     |       | 6    |
| Actuated Green, G (s)             |                                                                                    | 7.3  | 7.3   |      | 7.3   |      | 44.5                      | 40.1  | 40.1 | 37.9  | 36.8  | 36.8 |
| Effective Green, g (s)            |                                                                                    | 7.3  | 7.3   |      | 7.3   |      | 44.5                      | 40.1  | 40.1 | 37.9  | 36.8  | 36.8 |
| Actuated g/C Ratio                |                                                                                    | 0.11 | 0.11  |      | 0.11  |      | 0.65                      | 0.58  | 0.58 | 0.55  | 0.53  | 0.53 |
| Clearance Time (s)                |                                                                                    | 6.8  | 6.8   |      | 6.8   |      | 6.8                       | 6.8   | 6.8  | 6.8   | 6.8   | 6.8  |
| Vehicle Extension (s)             |                                                                                    | 3.0  | 3.0   |      | 3.0   |      | 3.0                       | 3.0   | 3.0  | 3.0   | 3.0   | 3.0  |
| Lane Grp Cap (vph)                |                                                                                    | 133  | 166   |      | 146   |      | 521                       | 2059  | 921  | 498   | 1872  | 821  |
| v/s Ratio Prot                    |                                                                                    |      |       |      |       |      | c0.01                     | c0.14 |      | 0.00  | c0.18 |      |
| v/s Ratio Perm                    |                                                                                    | 0.04 | 0.01  |      | c0.05 |      | 0.07                      |       | 0.00 | 0.02  |       | 0.02 |
| v/c Ratio                         |                                                                                    | 0.34 | 0.05  |      | 0.50  |      | 0.13                      | 0.24  | 0.01 | 0.03  | 0.33  | 0.03 |
| Uniform Delay, d1                 |                                                                                    | 28.6 | 27.7  |      | 29.1  |      | 4.6                       | 7.0   | 6.0  | 7.0   | 9.1   | 7.6  |
| Progression Factor                |                                                                                    | 1.00 | 1.00  |      | 1.00  |      | 1.00                      | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 |
| Incremental Delay, d2             |                                                                                    | 1.5  | 0.1   |      | 2.7   |      | 0.1                       | 0.1   | 0.0  | 0.0   | 0.5   | 0.1  |
| Delay (s)                         |                                                                                    | 30.1 | 27.8  |      | 31.7  |      | 4.7                       | 7.0   | 6.0  | 7.1   | 9.6   | 7.7  |
| Level of Service                  |                                                                                    | C    | C     |      | C     |      | A                         | A     | A    | A     | A     | A    |
| Approach Delay (s)                |                                                                                    | 28.6 |       |      | 31.7  |      |                           | 6.8   |      |       | 9.4   |      |
| Approach LOS                      |                                                                                    | C    |       |      | C     |      |                           | A     |      |       | A     |      |
| <b>Intersection Summary</b>       |                                                                                    |      |       |      |       |      |                           |       |      |       |       |      |
| HCM 2000 Control Delay            |                                                                                    |      | 11.2  |      |       |      | HCM 2000 Level of Service |       |      |       | B     |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |      | 0.34  |      |       |      |                           |       |      |       |       |      |
| Actuated Cycle Length (s)         |                                                                                    |      | 68.9  |      |       |      | Sum of lost time (s)      |       |      | 20.4  |       |      |
| Intersection Capacity Utilization |                                                                                    |      | 48.0% |      |       |      | ICU Level of Service      |       |      | A     |       |      |
| Analysis Period (min)             |                                                                                    |      | 15    |      |       |      |                           |       |      |       |       |      |
| c Critical Lane Group             |                                                                                    |      |       |      |       |      |                           |       |      |       |       |      |

# HCM 6th Signalized Intersection Summary

## 2: Old Lee Highway

Timing Plan: PM Peak

|                              |  |  |  |  |  |  |   |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 37                                                                                | 5                                                                                 | 71                                                                                | 54                                                                                | 10                                                                                | 10                                                                                | 62                                                                                  | 456                                                                                 | 11                                                                                  | 15                                                                                  | 581                                                                                 | 44                                                                                  |
| Future Volume (veh/h)        | 37                                                                                | 5                                                                                 | 71                                                                                | 54                                                                                | 10                                                                                | 10                                                                                | 62                                                                                  | 456                                                                                 | 11                                                                                  | 15                                                                                  | 581                                                                                 | 44                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 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                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1604                                                                              | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h         | 40                                                                                | 5                                                                                 | 76                                                                                | 58                                                                                | 11                                                                                | 11                                                                                | 67                                                                                  | 490                                                                                 | 12                                                                                  | 16                                                                                  | 625                                                                                 | 47                                                                                  |
| Peak Hour Factor             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %         | 3                                                                                 | 20                                                                                | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 5                                                                                   |
| Cap, veh/h                   | 246                                                                               | 23                                                                                | 176                                                                               | 189                                                                               | 36                                                                                | 20                                                                                | 515                                                                                 | 1890                                                                                | 843                                                                                 | 563                                                                                 | 1747                                                                                | 767                                                                                 |
| Arrive On Green              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.06                                                                                | 0.53                                                                                | 0.53                                                                                | 0.02                                                                                | 0.50                                                                                | 0.50                                                                                |
| Sat Flow, veh/h              | 1199                                                                              | 209                                                                               | 1572                                                                              | 777                                                                               | 322                                                                               | 175                                                                               | 1781                                                                                | 3554                                                                                | 1585                                                                                | 1781                                                                                | 3526                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h         | 45                                                                                | 0                                                                                 | 76                                                                                | 80                                                                                | 0                                                                                 | 0                                                                                 | 67                                                                                  | 490                                                                                 | 12                                                                                  | 16                                                                                  | 625                                                                                 | 47                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1408                                                                              | 0                                                                                 | 1572                                                                              | 1274                                                                              | 0                                                                                 | 0                                                                                 | 1781                                                                                | 1777                                                                                | 1585                                                                                | 1781                                                                                | 1763                                                                                | 1547                                                                                |
| Q Serve(g_s), s              | 0.0                                                                               | 0.0                                                                               | 2.7                                                                               | 2.3                                                                               | 0.0                                                                               | 0.0                                                                               | 1.1                                                                                 | 4.5                                                                                 | 0.2                                                                                 | 0.3                                                                                 | 6.6                                                                                 | 1.0                                                                                 |
| Cycle Q Clear(g_c), s        | 1.6                                                                               | 0.0                                                                               | 2.7                                                                               | 3.9                                                                               | 0.0                                                                               | 0.0                                                                               | 1.1                                                                                 | 4.5                                                                                 | 0.2                                                                                 | 0.3                                                                                 | 6.6                                                                                 | 1.0                                                                                 |
| Prop In Lane                 | 0.89                                                                              |                                                                                   | 1.00                                                                              | 0.72                                                                              |                                                                                   | 0.14                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 270                                                                               | 0                                                                                 | 176                                                                               | 245                                                                               | 0                                                                                 | 0                                                                                 | 515                                                                                 | 1890                                                                                | 843                                                                                 | 563                                                                                 | 1747                                                                                | 767                                                                                 |
| V/C Ratio(X)                 | 0.17                                                                              | 0.00                                                                              | 0.43                                                                              | 0.33                                                                              | 0.00                                                                              | 0.00                                                                              | 0.13                                                                                | 0.26                                                                                | 0.01                                                                                | 0.03                                                                                | 0.36                                                                                | 0.06                                                                                |
| Avail Cap(c_a), veh/h        | 761                                                                               | 0                                                                                 | 805                                                                               | 808                                                                               | 0                                                                                 | 0                                                                                 | 1004                                                                                | 1890                                                                                | 843                                                                                 | 1117                                                                                | 1747                                                                                | 767                                                                                 |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 24.6                                                                              | 0.0                                                                               | 25.1                                                                              | 25.7                                                                              | 0.0                                                                               | 0.0                                                                               | 6.7                                                                                 | 7.7                                                                                 | 6.7                                                                                 | 7.2                                                                                 | 9.4                                                                                 | 7.9                                                                                 |
| Incr Delay (d2), s/veh       | 0.3                                                                               | 0.0                                                                               | 1.7                                                                               | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.6                                                                               | 0.0                                                                               | 1.1                                                                               | 1.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.3                                                                                 | 1.4                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 2.3                                                                                 | 0.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 24.9                                                                              | 0.0                                                                               | 26.8                                                                              | 26.5                                                                              | 0.0                                                                               | 0.0                                                                               | 6.8                                                                                 | 7.8                                                                                 | 6.7                                                                                 | 7.3                                                                                 | 9.9                                                                                 | 8.1                                                                                 |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | A                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          |                                                                                   | 121                                                                               |                                                                                   |                                                                                   | 80                                                                                |                                                                                   |                                                                                     | 569                                                                                 |                                                                                     |                                                                                     | 688                                                                                 |                                                                                     |
| Approach Delay, s/veh        |                                                                                   | 26.1                                                                              |                                                                                   |                                                                                   | 26.5                                                                              |                                                                                   |                                                                                     | 7.6                                                                                 |                                                                                     |                                                                                     | 9.7                                                                                 |                                                                                     |
| Approach LOS                 |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 8.0                                                                               | 39.0                                                                              |                                                                                   | 13.6                                                                              | 10.2                                                                              | 36.8                                                                              |                                                                                     | 13.6                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.8                                                                             | * 6.8                                                                             |                                                                                   | * 6.8                                                                             | * 6.8                                                                             | * 6.8                                                                             |                                                                                     | * 6.8                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 20                                                                              | * 30                                                                              |                                                                                   | * 31                                                                              | * 20                                                                              | * 30                                                                              |                                                                                     | * 31                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.3                                                                               | 6.5                                                                               |                                                                                   | 5.9                                                                               | 3.1                                                                               | 8.6                                                                               |                                                                                     | 4.7                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 3.4                                                                               |                                                                                   | 0.4                                                                               | 0.1                                                                               | 4.5                                                                               |                                                                                     | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

HCM 6th Ctrl Delay 11.2

HCM 6th LOS B

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th TWSC  
4: Old Lee Highway

Timing Plan: PM Peak

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗      | ↗    | ↗    |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 529    | 709  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 529    | 709  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 0    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 95        | 95     | 95   | 95     | 95   | 95   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 3      | 3    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 557    | 746  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 373    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.94   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.32   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 624    | 0    | -      | -    | -    |
| 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        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         |        | -    | -      |      |      |
| HCM Control Delay (s)    | -         |        | 0    | -      |      |      |
| HCM Lane LOS             | -         |        | A    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         |        | -    | -      |      |      |

HCM 6th TWSC  
5: University Drive & Driveway

Timing Plan: PM Peak

| Intersection             |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 0.3                                                                               |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations      |  |      |  |  |  |  |
| Traffic Vol, veh/h       | 3                                                                                 | 18   | 1                                                                                 | 358                                                                               | 410                                                                               | 1                                                                                 |
| Future Vol, veh/h        | 3                                                                                 | 18   | 1                                                                                 | 358                                                                               | 410                                                                               | 1                                                                                 |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 3                                                                                 | 20   | 1                                                                                 | 389                                                                               | 446                                                                               | 1                                                                                 |

| Major/Minor          | Minor2 | Major1 | Major2 |   |   |   |
|----------------------|--------|--------|--------|---|---|---|
| Conflicting Flow All | 838    | 447    | 447    | 0 | - | 0 |
| Stage 1              | 447    | -      | -      | - | - | - |
| Stage 2              | 391    | -      | -      | - | - | - |
| Critical Hdwy        | 6.42   | 6.22   | 4.12   | - | - | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | - | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | - | - |
| Follow-up Hdwy       | 3.518  | 3.318  | 2.218  | - | - | - |
| Pot Cap-1 Maneuver   | 336    | 612    | 1113   | - | - | - |
| Stage 1              | 644    | -      | -      | - | - | - |
| Stage 2              | 683    | -      | -      | - | - | - |
| Platoon blocked, %   |        |        |        | - | - | - |
| Mov Cap-1 Maneuver   | 336    | 612    | 1113   | - | - | - |
| Mov Cap-2 Maneuver   | 455    | -      | -      | - | - | - |
| Stage 1              | 643    | -      | -      | - | - | - |
| Stage 2              | 683    | -      | -      | - | - | - |

| Approach             | EB   | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 11.4 | 0  | 0  |
| HCM LOS              | B    |    |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1113  | -   | 583   | -   | -   |
| HCM Lane V/C Ratio    | 0.001 | -   | 0.039 | -   | -   |
| HCM Control Delay (s) | 8.2   | -   | 11.4  | -   | -   |
| HCM Lane LOS          | A     | -   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.1   | -   | -   |

HCM 6th TWSC  
6: University Drive

Timing Plan: PM Peak

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 2.6  |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↔    |      | ↔    | ↔    |      | ↔    | ↔    |      | ↔    | ↔    |      |
| Traffic Vol, veh/h       | 16   | 3    | 21   | 41   | 6    | 36   | 12   | 275  | 74   | 30   | 348  | 21   |
| Future Vol, veh/h        | 16   | 3    | 21   | 41   | 6    | 36   | 12   | 275  | 74   | 30   | 348  | 21   |
| 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           | -    | -    | -    | 0    | -    | -    | 50   | -    | -    | 50   | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 3    | 2    | 2    |
| Mvmt Flow                | 17   | 3    | 23   | 45   | 7    | 39   | 13   | 299  | 80   | 33   | 378  | 23   |

| Major/Minor          | Minor2 |       | Minor1 |       | Major1 |       | Major2 |   |   |       |   |   |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 844    | 861   | 390    | 834   | 832    | 339   | 401    | 0 | 0 | 379   | 0 | 0 |
| Stage 1              | 456    | 456   | -      | 365   | 365    | -     | -      | - | - | -     | - | - |
| Stage 2              | 388    | 405   | -      | 469   | 467    | -     | -      | - | - | -     | - | - |
| Critical Hdwy        | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | - | - | 4.13  | - | - |
| Critical Hdwy Stg 1  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Critical Hdwy Stg 2  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | - | - | 2.227 | - | - |
| Pot Cap-1 Maneuver   | 283    | 293   | 658    | 288   | 305    | 703   | 1158   | - | - | 1174  | - | - |
| Stage 1              | 584    | 568   | -      | 654   | 623    | -     | -      | - | - | -     | - | - |
| Stage 2              | 636    | 598   | -      | 575   | 562    | -     | -      | - | - | -     | - | - |
| Platoon blocked, %   |        |       |        |       |        |       |        | - | - | -     | - | - |
| Mov Cap-1 Maneuver   | 255    | 282   | 658    | 267   | 293    | 703   | 1158   | - | - | 1174  | - | - |
| Mov Cap-2 Maneuver   | 255    | 282   | -      | 267   | 293    | -     | -      | - | - | -     | - | - |
| Stage 1              | 578    | 552   | -      | 647   | 616    | -     | -      | - | - | -     | - | - |
| Stage 2              | 588    | 591   | -      | 536   | 546    | -     | -      | - | - | -     | - | - |

| Approach             | EB   |  | WB   |  | NB  |  | SB  |  |
|----------------------|------|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 15.7 |  | 16.4 |  | 0.3 |  | 0.6 |  |
| HCM LOS              | C    |  | C    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL   | NBT | NBR | EBLn1WBLn1WBLn2   | SBL   | SBT | SBR |
|-----------------------|-------|-----|-----|-------------------|-------|-----|-----|
| Capacity (veh/h)      | 1158  | -   | -   | 380 267 586       | 1174  | -   | -   |
| HCM Lane V/C Ratio    | 0.011 | -   | -   | 0.114 0.167 0.078 | 0.028 | -   | -   |
| HCM Control Delay (s) | 8.1   | -   | -   | 15.7 21.2 11.7    | 8.2   | -   | -   |
| HCM Lane LOS          | A     | -   | -   | C C B             | A     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | -   | 0.4 0.6 0.3       | 0.1   | -   | -   |

## Queues

## 7: University Drive &amp; Whitehead Street/Democracy Lane

Timing Plan: PM Peak

|                         |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | NBL                                                                               | NBT                                                                               | SBL                                                                               | SBT                                                                                |
| Lane Group Flow (vph)   | 106                                                                               | 71                                                                                | 95                                                                                | 29                                                                                | 325                                                                               | 14                                                                                | 318                                                                                |
| v/c Ratio               | 0.24                                                                              | 0.14                                                                              | 0.24                                                                              | 0.06                                                                              | 0.37                                                                              | 0.03                                                                              | 0.36                                                                               |
| Control Delay           | 17.6                                                                              | 6.9                                                                               | 17.1                                                                              | 12.0                                                                              | 12.5                                                                              | 11.9                                                                              | 12.5                                                                               |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                |
| Total Delay             | 17.6                                                                              | 6.9                                                                               | 17.1                                                                              | 12.0                                                                              | 12.5                                                                              | 11.9                                                                              | 12.5                                                                               |
| Queue Length 50th (ft)  | 13                                                                                | 0                                                                                 | 11                                                                                | 3                                                                                 | 35                                                                                | 1                                                                                 | 34                                                                                 |
| Queue Length 95th (ft)  | 88                                                                                | 32                                                                                | 79                                                                                | 27                                                                                | 193                                                                               | 16                                                                                | 189                                                                                |
| Internal Link Dist (ft) | 245                                                                               |                                                                                   | 249                                                                               |                                                                                   | 117                                                                               |                                                                                   | 232                                                                                |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 50                                                                                |                                                                                   | 150                                                                               |                                                                                    |
| Base Capacity (vph)     | 1092                                                                              | 1179                                                                              | 999                                                                               | 962                                                                               | 1700                                                                              | 937                                                                               | 1695                                                                               |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                  |
| Reduced v/c Ratio       | 0.10                                                                              | 0.06                                                                              | 0.10                                                                              | 0.03                                                                              | 0.19                                                                              | 0.01                                                                              | 0.19                                                                               |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

Timing Plan: PM Peak

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |                                                                                     |  |  |                                                                                     |
| Traffic Volume (vph)              | 51                                                                                | 47                                                                                | 65                                                                                | 57                                                                                | 21                                                                                | 9                                                                                 | 27                                                                                  | 268                                                                                 | 31                                                                                  | 13                                                                                  | 271                                                                                 | 21                                                                                  |
| Future Volume (vph)               | 51                                                                                | 47                                                                                | 65                                                                                | 57                                                                                | 21                                                                                | 9                                                                                 | 27                                                                                  | 268                                                                                 | 31                                                                                  | 13                                                                                  | 271                                                                                 | 21                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 6.0                                                                               | 6.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frpb, ped/bikes                   |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Flpb, ped/bikes                   |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   | 0.99                                                                                | 1.00                                                                                |                                                                                     | 0.99                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 0.99                                                                              |                                                                                   | 1.00                                                                                | 0.98                                                                                |                                                                                     | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected                     |                                                                                   | 0.97                                                                              | 1.00                                                                              |                                                                                   | 0.97                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 |                                                                                   | 1757                                                                              | 1501                                                                              |                                                                                   | 1692                                                                              |                                                                                   | 1754                                                                                | 1826                                                                                |                                                                                     | 1747                                                                                | 1816                                                                                |                                                                                     |
| Flt Permitted                     |                                                                                   | 0.79                                                                              | 1.00                                                                              |                                                                                   | 0.74                                                                              |                                                                                   | 0.56                                                                                | 1.00                                                                                |                                                                                     | 0.55                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 |                                                                                   | 1418                                                                              | 1501                                                                              |                                                                                   | 1292                                                                              |                                                                                   | 1039                                                                                | 1826                                                                                |                                                                                     | 1018                                                                                | 1816                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 55                                                                                | 51                                                                                | 71                                                                                | 62                                                                                | 23                                                                                | 10                                                                                | 29                                                                                  | 291                                                                                 | 34                                                                                  | 14                                                                                  | 295                                                                                 | 23                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 58                                                                                | 0                                                                                 | 4                                                                                 | 0                                                                                 | 0                                                                                   | 4                                                                                   | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 106                                                                               | 13                                                                                | 0                                                                                 | 91                                                                                | 0                                                                                 | 29                                                                                  | 321                                                                                 | 0                                                                                   | 14                                                                                  | 315                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                 |                                                                                   | 12                                                                                | 12                                                                                |                                                                                   | 3                                                                                 | 12                                                                                  |                                                                                     | 18                                                                                  | 18                                                                                  |                                                                                     | 12                                                                                  |
| Heavy Vehicles (%)                | 6%                                                                                | 4%                                                                                | 2%                                                                                | 2%                                                                                | 14%                                                                               | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 19%                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     | 6                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   | 8                                                                                 | 4                                                                                 |                                                                                   |                                                                                   | 2                                                                                   |                                                                                     |                                                                                     | 6                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             |                                                                                   | 7.0                                                                               | 7.0                                                                               |                                                                                   | 7.0                                                                               |                                                                                   | 14.5                                                                                | 14.5                                                                                |                                                                                     | 14.5                                                                                | 14.5                                                                                |                                                                                     |
| Effective Green, g (s)            |                                                                                   | 7.0                                                                               | 7.0                                                                               |                                                                                   | 7.0                                                                               |                                                                                   | 14.5                                                                                | 14.5                                                                                |                                                                                     | 14.5                                                                                | 14.5                                                                                |                                                                                     |
| Actuated g/C Ratio                |                                                                                   | 0.18                                                                              | 0.18                                                                              |                                                                                   | 0.18                                                                              |                                                                                   | 0.38                                                                                | 0.38                                                                                |                                                                                     | 0.38                                                                                | 0.38                                                                                |                                                                                     |
| Clearance Time (s)                |                                                                                   | 6.0                                                                               | 6.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   | 5.0                                                                                 | 5.0                                                                                 |                                                                                     | 5.0                                                                                 | 5.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 |                                                                                     | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                |                                                                                   | 258                                                                               | 273                                                                               |                                                                                   | 235                                                                               |                                                                                   | 392                                                                                 | 689                                                                                 |                                                                                     | 384                                                                                 | 685                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.18                                                                               |                                                                                     |                                                                                     |                                                                                     | 0.17                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | c0.07                                                                             | 0.01                                                                              |                                                                                   | 0.07                                                                              |                                                                                   | 0.03                                                                                |                                                                                     |                                                                                     | 0.01                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         |                                                                                   | 0.41                                                                              | 0.05                                                                              |                                                                                   | 0.39                                                                              |                                                                                   | 0.07                                                                                | 0.47                                                                                |                                                                                     | 0.04                                                                                | 0.46                                                                                |                                                                                     |
| Uniform Delay, d1                 |                                                                                   | 13.9                                                                              | 12.9                                                                              |                                                                                   | 13.8                                                                              |                                                                                   | 7.7                                                                                 | 9.0                                                                                 |                                                                                     | 7.5                                                                                 | 9.0                                                                                 |                                                                                     |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             |                                                                                   | 1.1                                                                               | 0.1                                                                               |                                                                                   | 1.1                                                                               |                                                                                   | 0.1                                                                                 | 0.5                                                                                 |                                                                                     | 0.0                                                                                 | 0.5                                                                                 |                                                                                     |
| Delay (s)                         |                                                                                   | 14.9                                                                              | 13.0                                                                              |                                                                                   | 14.9                                                                              |                                                                                   | 7.7                                                                                 | 9.5                                                                                 |                                                                                     | 7.6                                                                                 | 9.5                                                                                 |                                                                                     |
| Level of Service                  |                                                                                   | B                                                                                 | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   | A                                                                                   | A                                                                                   |                                                                                     | A                                                                                   | A                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 14.2                                                                              |                                                                                   |                                                                                   | 14.9                                                                              |                                                                                   |                                                                                     | 9.4                                                                                 |                                                                                     |                                                                                     | 9.4                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 10.8                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.41                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 38.4                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 15.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 43.1%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 1.4    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 1      | 214   | 16   | 14     | 160   | 0    | 9      | 0     | 26    | 4      | 0     | 12    |
| Future Vol, veh/h        | 1      | 214   | 16   | 14     | 160   | 0    | 9      | 0     | 26    | 4      | 0     | 12    |
| Conflicting Peds, #/hr   | 2      | 0     | 0    | 0      | 0     | 2    | 1      | 0     | 0     | 0      | 0     | 1     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92     | 92    | 92   | 92     | 92    | 92   | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2      | 2     | 13   | 7      | 3     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 1      | 233   | 17   | 15     | 174   | 0    | 10     | 0     | 28    | 4      | 0     | 13    |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 176    | 0     | 0    | 250    | 0     | 0    | 456    | 450   | 242   | 464    | 458   | 177   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 244    | 244   | -     | 206    | 206   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 212    | 206   | -     | 258    | 252   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.17   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.263  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1400   | -     | -    | 1287   | -     | -    | 515    | 504   | 797   | 508    | 499   | 866   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 760    | 704   | -     | 796    | 731   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 790    | 731   | -     | 747    | 698   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1397   | -     | -    | 1287   | -     | -    | 501    | 496   | 797   | 484    | 491   | 864   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 501    | 496   | -     | 484    | 491   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 759    | 703   | -     | 794    | 720   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 767    | 720   | -     | 720    | 697   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0      |       |      | 0.6    |       |      | 10.5   |       |       | 10.1   |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | B      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 692    | 1397  | -    | -      | 1287  | -    | -      | 722   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.055  | 0.001 | -    | -      | 0.012 | -    | -      | 0.024 |       |        |       |       |
| HCM Control Delay (s)    | 10.5   | 7.6   | 0    | -      | 7.8   | 0    | -      | 10.1  |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | B     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0     | -    | -      | 0     | -    | -      | 0.1   |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 187  | 69   | 14   | 29   | 52   | 451  | 18   | 19   | 694  |
| v/c Ratio               | 0.52 | 0.18 | 0.09 | 0.17 | 0.14 | 0.56 | 0.03 | 0.05 | 0.58 |
| Control Delay           | 37.3 | 15.0 | 43.4 | 28.0 | 13.0 | 23.1 | 0.1  | 12.9 | 24.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 37.3 | 15.0 | 43.4 | 28.0 | 13.0 | 23.1 | 0.1  | 12.9 | 24.1 |
| Queue Length 50th (ft)  | 86   | 7    | 7    | 5    | 14   | 150  | 0    | 5    | 155  |
| Queue Length 95th (ft)  | 187  | 47   | 29   | 36   | 38   | 366  | 0    | 18   | 254  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 864  |      |      | 293  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 872  | 839  | 650  | 633  | 540  | 1475 | 1086 | 600  | 2675 |
| 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       | 0.21 | 0.08 | 0.02 | 0.05 | 0.10 | 0.31 | 0.02 | 0.03 | 0.26 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 181                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 437                                                                                 | 17                                                                                  | 18                                                                                  | 559                                                                                 | 114                                                                                 |
| Future Volume (vph)               | 181                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 437                                                                                 | 17                                                                                  | 18                                                                                  | 559                                                                                 | 114                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   | 1.00                                                                              | 0.99                                                                              |                                                                                   | 1.00                                                                              | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.93                                                                                | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flpb, ped/bikes                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.99                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.89                                                                              |                                                                                   | 1.00                                                                              | 0.91                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 0.97                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1752                                                                              | 1638                                                                              |                                                                                   | 1687                                                                              | 1621                                                                              |                                                                                   | 1768                                                                                | 1863                                                                                | 1414                                                                                | 1754                                                                                | 3381                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.27                                                                                | 1.00                                                                                | 1.00                                                                                | 0.40                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1752                                                                              | 1638                                                                              |                                                                                   | 1687                                                                              | 1621                                                                              |                                                                                   | 507                                                                                 | 1863                                                                                | 1414                                                                                | 733                                                                                 | 3381                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Adj. Flow (vph)                   | 187                                                                               | 18                                                                                | 51                                                                                | 14                                                                                | 11                                                                                | 18                                                                                | 52                                                                                  | 451                                                                                 | 18                                                                                  | 19                                                                                  | 576                                                                                 | 118                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 41                                                                                | 0                                                                                 | 0                                                                                 | 17                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 11                                                                                  | 0                                                                                   | 12                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 187                                                                               | 28                                                                                | 0                                                                                 | 14                                                                                | 12                                                                                | 0                                                                                 | 52                                                                                  | 451                                                                                 | 7                                                                                   | 19                                                                                  | 682                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 3                                                                                 | 6                                                                                   |                                                                                     | 26                                                                                  | 26                                                                                  |                                                                                     | 6                                                                                   |
| Heavy Vehicles (%)                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 7%                                                                                | 9%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 6%                                                                                  | 2%                                                                                  | 3%                                                                                  | 6%                                                                                  |
| Turn Type                         | Split                                                                             | NA                                                                                |                                                                                   | Split                                                                             | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 1                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 15.6                                                                              | 15.6                                                                              |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 38.0                                                                                | 32.6                                                                                | 32.6                                                                                | 31.4                                                                                | 29.3                                                                                |                                                                                     |
| Effective Green, g (s)            | 15.6                                                                              | 15.6                                                                              |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 38.0                                                                                | 32.6                                                                                | 32.6                                                                                | 31.4                                                                                | 29.3                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.19                                                                              | 0.19                                                                              |                                                                                   | 0.04                                                                              | 0.04                                                                              |                                                                                   | 0.47                                                                                | 0.40                                                                                | 0.40                                                                                | 0.39                                                                                | 0.36                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 335                                                                               | 313                                                                               |                                                                                   | 74                                                                                | 71                                                                                |                                                                                   | 319                                                                                 | 745                                                                                 | 565                                                                                 | 308                                                                                 | 1215                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.11                                                                             | 0.02                                                                              |                                                                                   | c0.01                                                                             | 0.01                                                                              |                                                                                   | c0.01                                                                               | c0.24                                                                               |                                                                                     | 0.00                                                                                | 0.20                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.06                                                                                |                                                                                     | 0.01                                                                                | 0.02                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.56                                                                              | 0.09                                                                              |                                                                                   | 0.19                                                                              | 0.17                                                                              |                                                                                   | 0.16                                                                                | 0.61                                                                                | 0.01                                                                                | 0.06                                                                                | 0.56                                                                                |                                                                                     |
| Uniform Delay, d1                 | 29.8                                                                              | 27.1                                                                              |                                                                                   | 37.5                                                                              | 37.5                                                                              |                                                                                   | 12.6                                                                                | 19.4                                                                                | 14.7                                                                                | 15.8                                                                                | 20.9                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 2.0                                                                               | 0.1                                                                               |                                                                                   | 1.2                                                                               | 1.1                                                                               |                                                                                   | 0.2                                                                                 | 1.4                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 0.6                                                                                 |                                                                                     |
| Delay (s)                         | 31.8                                                                              | 27.2                                                                              |                                                                                   | 38.8                                                                              | 38.6                                                                              |                                                                                   | 12.8                                                                                | 20.8                                                                                | 14.8                                                                                | 15.9                                                                                | 21.5                                                                                |                                                                                     |
| Level of Service                  | C                                                                                 | C                                                                                 |                                                                                   | D                                                                                 | D                                                                                 |                                                                                   | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 30.6                                                                              |                                                                                   |                                                                                   | 38.7                                                                              |                                                                                   |                                                                                     | 19.8                                                                                |                                                                                     |                                                                                     | 21.4                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 22.9                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.56                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 81.5                                                                              |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                     |                                                                                     | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 61.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

Timing Plan: PM Peak

|                              |  |                                                                                   |      |                                                                                   |                                                                                   |       |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                                | EBT                                                                               | EBR  | WBL                                                                               | WBT                                                                               | WBR   | NBL                                                                                | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |   |  |      |  |  |       |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 181                                                                                | 17                                                                                | 49   | 14                                                                                | 11                                                                                | 17    | 50                                                                                 | 437                                                                                 | 17                                                                                  | 18                                                                                  | 559                                                                                 | 114                                                                                 |
| Future Volume (veh/h)        | 181                                                                                | 17                                                                                | 49   | 14                                                                                | 11                                                                                | 17    | 50                                                                                 | 437                                                                                 | 17                                                                                  | 18                                                                                  | 559                                                                                 | 114                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                  | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0     | 0                                                                                  | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                               |                                                                                   | 0.99 | 1.00                                                                              |                                                                                   | 0.99  | 0.99                                                                               |                                                                                     | 0.96                                                                                | 0.98                                                                                |                                                                                     | 0.96                                                                                |
| 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                               | 1870                                                                              | 1870 | 1796                                                                              | 1767                                                                              | 1870  | 1870                                                                               | 1870                                                                                | 1811                                                                                | 1870                                                                                | 1856                                                                                | 1811                                                                                |
| Adj Flow Rate, veh/h         | 187                                                                                | 18                                                                                | 51   | 14                                                                                | 11                                                                                | 18    | 52                                                                                 | 451                                                                                 | 18                                                                                  | 19                                                                                  | 576                                                                                 | 118                                                                                 |
| Peak Hour Factor             | 0.97                                                                               | 0.97                                                                              | 0.97 | 0.97                                                                              | 0.97                                                                              | 0.97  | 0.97                                                                               | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 3                                                                                  | 2                                                                                 | 2    | 7                                                                                 | 9                                                                                 | 2     | 2                                                                                  | 2                                                                                   | 6                                                                                   | 2                                                                                   | 3                                                                                   | 6                                                                                   |
| Cap, veh/h                   | 269                                                                                | 65                                                                                | 184  | 87                                                                                | 30                                                                                | 50    | 301                                                                                | 626                                                                                 | 494                                                                                 | 267                                                                                 | 896                                                                                 | 183                                                                                 |
| Arrive On Green              | 0.15                                                                               | 0.15                                                                              | 0.15 | 0.05                                                                              | 0.05                                                                              | 0.05  | 0.05                                                                               | 0.33                                                                                | 0.33                                                                                | 0.02                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1767                                                                               | 427                                                                               | 1211 | 1711                                                                              | 598                                                                               | 979   | 1781                                                                               | 1870                                                                                | 1475                                                                                | 1781                                                                                | 2891                                                                                | 590                                                                                 |
| Grp Volume(v), veh/h         | 187                                                                                | 0                                                                                 | 69   | 14                                                                                | 0                                                                                 | 29    | 52                                                                                 | 451                                                                                 | 18                                                                                  | 19                                                                                  | 350                                                                                 | 344                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1767                                                                               | 0                                                                                 | 1638 | 1711                                                                              | 0                                                                                 | 1577  | 1781                                                                               | 1870                                                                                | 1475                                                                                | 1781                                                                                | 1763                                                                                | 1719                                                                                |
| Q Serve(g_s), s              | 6.3                                                                                | 0.0                                                                               | 2.3  | 0.5                                                                               | 0.0                                                                               | 1.1   | 1.2                                                                                | 13.3                                                                                | 0.5                                                                                 | 0.5                                                                                 | 10.7                                                                                | 10.8                                                                                |
| Cycle Q Clear(g_c), s        | 6.3                                                                                | 0.0                                                                               | 2.3  | 0.5                                                                               | 0.0                                                                               | 1.1   | 1.2                                                                                | 13.3                                                                                | 0.5                                                                                 | 0.5                                                                                 | 10.7                                                                                | 10.8                                                                                |
| Prop In Lane                 | 1.00                                                                               |                                                                                   | 0.74 | 1.00                                                                              |                                                                                   | 0.62  | 1.00                                                                               |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.34                                                                                |
| Lane Grp Cap(c), veh/h       | 269                                                                                | 0                                                                                 | 249  | 87                                                                                | 0                                                                                 | 80    | 301                                                                                | 626                                                                                 | 494                                                                                 | 267                                                                                 | 546                                                                                 | 533                                                                                 |
| V/C Ratio(X)                 | 0.70                                                                               | 0.00                                                                              | 0.28 | 0.16                                                                              | 0.00                                                                              | 0.36  | 0.17                                                                               | 0.72                                                                                | 0.04                                                                                | 0.07                                                                                | 0.64                                                                                | 0.65                                                                                |
| Avail Cap(c_a), veh/h        | 845                                                                                | 0                                                                                 | 783  | 681                                                                               | 0                                                                                 | 628   | 642                                                                                | 1788                                                                                | 1410                                                                                | 653                                                                                 | 1685                                                                                | 1643                                                                                |
| 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                                                                                |
| Upstream Filter(I)           | 1.00                                                                               | 0.00                                                                              | 1.00 | 1.00                                                                              | 0.00                                                                              | 1.00  | 1.00                                                                               | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.2                                                                               | 0.0                                                                               | 23.6 | 28.5                                                                              | 0.0                                                                               | 28.8  | 14.4                                                                               | 18.3                                                                                | 14.1                                                                                | 15.3                                                                                | 18.7                                                                                | 18.7                                                                                |
| Incr Delay (d2), s/veh       | 3.2                                                                                | 0.0                                                                               | 0.6  | 0.9                                                                               | 0.0                                                                               | 2.7   | 0.3                                                                                | 1.6                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 1.3                                                                                 | 1.3                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                                | 0.0                                                                               | 0.0  | 0.0                                                                               | 0.0                                                                               | 0.0   | 0.0                                                                                | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 2.8                                                                                | 0.0                                                                               | 0.9  | 0.2                                                                               | 0.0                                                                               | 0.5   | 0.5                                                                                | 5.4                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 4.2                                                                                 | 4.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                    |                                                                                   |      |                                                                                   |                                                                                   |       |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 28.5                                                                               | 0.0                                                                               | 24.2 | 29.4                                                                              | 0.0                                                                               | 31.5  | 14.6                                                                               | 19.9                                                                                | 14.1                                                                                | 15.4                                                                                | 19.9                                                                                | 20.0                                                                                |
| LnGrp LOS                    | C                                                                                  | A                                                                                 | C    | C                                                                                 | A                                                                                 | C     | B                                                                                  | B                                                                                   | B                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 256                                                                                |                                                                                   |      | 43                                                                                |                                                                                   |       | 521                                                                                |                                                                                     |                                                                                     | 713                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 27.3                                                                               |                                                                                   |      | 30.8                                                                              |                                                                                   |       | 19.1                                                                               |                                                                                     |                                                                                     | 19.8                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                  |                                                                                   |      | C                                                                                 |                                                                                   |       | B                                                                                  |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                  | 2                                                                                 |      | 4                                                                                 | 5                                                                                 | 6     |                                                                                    | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.9                                                                                | 26.3                                                                              |      | 16.0                                                                              | 8.3                                                                               | 27.9  |                                                                                    | 10.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                              | * 6.9                                                                             |      | 6.5                                                                               | * 6.9                                                                             | * 6.9 |                                                                                    | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                               | * 60                                                                              |      | 30.0                                                                              | * 15                                                                              | * 60  |                                                                                    | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.2                                                                                | 12.8                                                                              |      | 8.3                                                                               | 2.5                                                                               | 15.3  |                                                                                    | 3.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                                | 5.1                                                                               |      | 0.9                                                                               | 0.0                                                                               | 3.3   |                                                                                    | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 21.2 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

## **Appendix H – Intersection Analysis Worksheets – 2028 Future with Development (Full-Build)**

HCM 6th TWSC  
1: Old Lee Highway & Plaza Drive

06/20/2025

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0.2       |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗↗     | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0         | 18     | 0    | 576    | 434  | 4    |
| Future Vol, veh/h        | 0         | 18     | 0    | 576    | 434  | 4    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 120  |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 92        | 92     | 92   | 92     | 92   | 92   |
| Heavy Vehicles, %        | 2         | 14     | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 20     | 0    | 626    | 472  | 4    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 236    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 7.18   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.44   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 730    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 730    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 10.1      | 0      |      | 0      |      |      |
| HCM LOS                  | B         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | - 730     |        | -    | -      |      |      |
| HCM Lane V/C Ratio       | - 0.027   |        | -    | -      |      |      |
| HCM Control Delay (s)    | - 10.1    |        | -    | -      |      |      |
| HCM Lane LOS             | - B       |        | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | - 0.1     |        | -    | -      |      |      |

## Queues

## 2: Old Lee Highway &amp; FFX Commons

06/20/2025



| Lane Group              | EBT  | EBR  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 17   | 16   | 1    | 37   | 608  | 13   | 15   | 461  | 14   |
| v/c Ratio               | 0.04 | 0.03 | 0.00 | 0.05 | 0.22 | 0.01 | 0.02 | 0.19 | 0.01 |
| Control Delay           | 17.6 | 0.1  | 0.0  | 4.0  | 5.6  | 0.0  | 4.4  | 8.0  | 0.0  |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 17.6 | 0.1  | 0.0  | 4.0  | 5.6  | 0.0  | 4.4  | 8.0  | 0.0  |
| Queue Length 50th (ft)  | 1    | 0    | 0    | 0    | 0    | 0    | 1    | 0    | 0    |
| Queue Length 95th (ft)  | 19   | 0    | 0    | 12   | 114  | 0    | 7    | 89   | 0    |
| Internal Link Dist (ft) | 124  |      | 135  |      | 259  |      |      | 157  |      |
| Turn Bay Length (ft)    |      |      |      | 120  |      |      | 120  |      |      |
| Base Capacity (vph)     | 1569 | 1351 | 1432 | 1320 | 2925 | 1340 | 1314 | 2842 | 1340 |
| 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       | 0.01 | 0.01 | 0.00 | 0.03 | 0.21 | 0.01 | 0.01 | 0.16 | 0.01 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway & FFX Commons

06/20/2025

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 16                                                                                | 0                                                                                 | 15                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 34                                                                                  | 559                                                                                 | 12                                                                                  | 14                                                                                  | 424                                                                                 | 13                                                                                  |
| Future Volume (vph)               | 16                                                                                | 0                                                                                 | 15                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 34                                                                                  | 559                                                                                 | 12                                                                                  | 14                                                                                  | 424                                                                                 | 13                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 0.86                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   | 1770                                                                              | 1583                                                                              |                                                                                   | 1611                                                                              |                                                                                   | 1770                                                                                | 3505                                                                                | 1583                                                                                | 1770                                                                                | 3406                                                                                | 1583                                                                                |
| Flt Permitted                     |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 0.46                                                                                | 1.00                                                                                | 1.00                                                                                | 0.42                                                                                | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   | 1863                                                                              | 1583                                                                              |                                                                                   | 1611                                                                              |                                                                                   | 862                                                                                 | 3505                                                                                | 1583                                                                                | 786                                                                                 | 3406                                                                                | 1583                                                                                |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 17                                                                                | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 37                                                                                  | 608                                                                                 | 13                                                                                  | 15                                                                                  | 461                                                                                 | 14                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 7                                                                                   | 0                                                                                   | 0                                                                                   | 8                                                                                   |
| Lane Group Flow (vph)             | 0                                                                                 | 17                                                                                | 1                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 37                                                                                  | 608                                                                                 | 6                                                                                   | 15                                                                                  | 461                                                                                 | 6                                                                                   |
| Heavy Vehicles (%)                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 3%                                                                                  | 2%                                                                                  | 2%                                                                                  | 6%                                                                                  | 2%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                | Perm                                                                              |                                                                                   | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   | 5                                                                                   | 2                                                                                   |                                                                                     | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   | 8                                                                                 | 4                                                                                 |                                                                                   |                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   | 6                                                                                   |                                                                                     | 6                                                                                   |
| Actuated Green, G (s)             |                                                                                   | 1.9                                                                               | 1.9                                                                               |                                                                                   | 1.9                                                                               |                                                                                   | 22.0                                                                                | 20.2                                                                                | 20.2                                                                                | 20.0                                                                                | 19.2                                                                                | 19.2                                                                                |
| Effective Green, g (s)            |                                                                                   | 1.9                                                                               | 1.9                                                                               |                                                                                   | 1.9                                                                               |                                                                                   | 22.0                                                                                | 20.2                                                                                | 20.2                                                                                | 20.0                                                                                | 19.2                                                                                | 19.2                                                                                |
| Actuated g/C Ratio                |                                                                                   | 0.04                                                                              | 0.04                                                                              |                                                                                   | 0.04                                                                              |                                                                                   | 0.51                                                                                | 0.47                                                                                | 0.47                                                                                | 0.46                                                                                | 0.44                                                                                | 0.44                                                                                |
| Clearance Time (s)                |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   | 81                                                                                | 69                                                                                |                                                                                   | 70                                                                                |                                                                                   | 475                                                                                 | 1635                                                                                | 738                                                                                 | 381                                                                                 | 1510                                                                                | 701                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.00                                                                              |                                                                                   | c0.00                                                                               | c0.17                                                                               |                                                                                     | 0.00                                                                                | 0.14                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | c0.01                                                                             | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   | 0.04                                                                                |                                                                                     | 0.00                                                                                | 0.02                                                                                |                                                                                     | 0.00                                                                                |
| v/c Ratio                         |                                                                                   | 0.21                                                                              | 0.01                                                                              |                                                                                   | 0.00                                                                              |                                                                                   | 0.08                                                                                | 0.37                                                                                | 0.01                                                                                | 0.04                                                                                | 0.31                                                                                | 0.01                                                                                |
| Uniform Delay, d1                 |                                                                                   | 20.0                                                                              | 19.8                                                                              |                                                                                   | 19.8                                                                              |                                                                                   | 5.4                                                                                 | 7.5                                                                                 | 6.2                                                                                 | 6.3                                                                                 | 7.8                                                                                 | 6.7                                                                                 |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   | 1.3                                                                               | 0.1                                                                               |                                                                                   | 0.0                                                                               |                                                                                   | 0.1                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 0.0                                                                                 |
| Delay (s)                         |                                                                                   | 21.3                                                                              | 19.9                                                                              |                                                                                   | 19.8                                                                              |                                                                                   | 5.4                                                                                 | 7.6                                                                                 | 6.2                                                                                 | 6.4                                                                                 | 7.9                                                                                 | 6.7                                                                                 |
| Level of Service                  |                                                                                   | C                                                                                 | B                                                                                 |                                                                                   | B                                                                                 |                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 20.6                                                                              |                                                                                   |                                                                                   | 19.8                                                                              |                                                                                   |                                                                                     | 7.4                                                                                 |                                                                                     |                                                                                     | 7.8                                                                                 |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 8.0                                                                               |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 43.3                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 20.4                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 44.2%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 2: Old Lee Highway & FFX Commons

06/20/2025

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 16                                                                                | 0                                                                                 | 15                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 34                                                                                  | 559                                                                                 | 12                                                                                  | 14                                                                                  | 424                                                                                 | 13                                                                                  |
| Future Volume (veh/h)        | 16                                                                                | 0                                                                                 | 15                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 34                                                                                  | 559                                                                                 | 12                                                                                  | 14                                                                                  | 424                                                                                 | 13                                                                                  |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 1.00                                                                              | 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1856                                                                                | 1870                                                                                | 1870                                                                                | 1811                                                                                | 1870                                                                                |
| Adj Flow Rate, veh/h         | 17                                                                                | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 37                                                                                  | 608                                                                                 | 13                                                                                  | 15                                                                                  | 461                                                                                 | 14                                                                                  |
| Peak Hour Factor             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Percent Heavy Veh, %         | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 3                                                                                   | 2                                                                                   | 2                                                                                   | 6                                                                                   | 2                                                                                   |
| Cap, veh/h                   | 261                                                                               | 0                                                                                 | 88                                                                                | 0                                                                                 | 0                                                                                 | 88                                                                                | 523                                                                                 | 1429                                                                                | 643                                                                                 | 444                                                                                 | 1316                                                                                | 606                                                                                 |
| Arrive On Green              | 0.06                                                                              | 0.00                                                                              | 0.06                                                                              | 0.00                                                                              | 0.00                                                                              | 0.06                                                                              | 0.04                                                                                | 0.41                                                                                | 0.41                                                                                | 0.02                                                                                | 0.38                                                                                | 0.38                                                                                |
| Sat Flow, veh/h              | 1401                                                                              | 0                                                                                 | 1585                                                                              | 0                                                                                 | 0                                                                                 | 1585                                                                              | 1781                                                                                | 3526                                                                                | 1585                                                                                | 1781                                                                                | 3441                                                                                | 1585                                                                                |
| Grp Volume(v), veh/h         | 17                                                                                | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 37                                                                                  | 608                                                                                 | 13                                                                                  | 15                                                                                  | 461                                                                                 | 14                                                                                  |
| Grp Sat Flow(s),veh/h/ln     | 1401                                                                              | 0                                                                                 | 1585                                                                              | 0                                                                                 | 0                                                                                 | 1585                                                                              | 1781                                                                                | 1763                                                                                | 1585                                                                                | 1781                                                                                | 1721                                                                                | 1585                                                                                |
| Q Serve(g_s), s              | 0.5                                                                               | 0.0                                                                               | 0.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 4.9                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 3.7                                                                                 | 0.2                                                                                 |
| Cycle Q Clear(g_c), s        | 0.5                                                                               | 0.0                                                                               | 0.4                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.5                                                                                 | 4.9                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 3.7                                                                                 | 0.2                                                                                 |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 1.00                                                                              | 0.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h       | 261                                                                               | 0                                                                                 | 88                                                                                | 0                                                                                 | 0                                                                                 | 88                                                                                | 523                                                                                 | 1429                                                                                | 643                                                                                 | 444                                                                                 | 1316                                                                                | 606                                                                                 |
| V/C Ratio(X)                 | 0.07                                                                              | 0.00                                                                              | 0.18                                                                              | 0.00                                                                              | 0.00                                                                              | 0.01                                                                              | 0.07                                                                                | 0.43                                                                                | 0.02                                                                                | 0.03                                                                                | 0.35                                                                                | 0.02                                                                                |
| Avail Cap(c_a), veh/h        | 1302                                                                              | 0                                                                                 | 1253                                                                              | 0                                                                                 | 0                                                                                 | 1253                                                                              | 1355                                                                                | 2696                                                                                | 1212                                                                                | 1318                                                                                | 2632                                                                                | 1212                                                                                |
| 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                                                                                |
| Upstream Filter(I)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 17.7                                                                              | 0.0                                                                               | 17.7                                                                              | 0.0                                                                               | 0.0                                                                               | 17.5                                                                              | 6.8                                                                                 | 8.4                                                                                 | 7.0                                                                                 | 7.3                                                                                 | 8.6                                                                                 | 7.5                                                                                 |
| Incr Delay (d2), s/veh       | 0.1                                                                               | 0.0                                                                               | 1.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               | 0.1                                                                                 | 0.2                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.0                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 0.1                                                                               | 0.0                                                                               | 0.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 1.4                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 1.1                                                                                 | 0.1                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 17.8                                                                              | 0.0                                                                               | 18.7                                                                              | 0.0                                                                               | 0.0                                                                               | 17.6                                                                              | 6.9                                                                                 | 8.6                                                                                 | 7.0                                                                                 | 7.3                                                                                 | 8.8                                                                                 | 7.6                                                                                 |
| LnGrp LOS                    | B                                                                                 | A                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 | B                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   |
| Approach Vol, veh/h          | 33                                                                                |                                                                                   |                                                                                   | 1                                                                                 |                                                                                   |                                                                                   | 658                                                                                 |                                                                                     |                                                                                     | 490                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 18.2                                                                              |                                                                                   |                                                                                   | 17.6                                                                              |                                                                                   |                                                                                   | 8.5                                                                                 |                                                                                     |                                                                                     | 8.7                                                                                 |                                                                                     |                                                                                     |
| Approach LOS                 | B                                                                                 |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 7.6                                                                               | 22.7                                                                              |                                                                                   | 9.0                                                                               | 8.5                                                                               | 21.8                                                                              |                                                                                     | 9.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.8                                                                             | * 6.8                                                                             |                                                                                   | * 6.8                                                                             | * 6.8                                                                             | * 6.8                                                                             |                                                                                     | * 6.8                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 20                                                                              | * 30                                                                              |                                                                                   | * 31                                                                              | * 20                                                                              | * 30                                                                              |                                                                                     | * 31                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 2.2                                                                               | 6.9                                                                               |                                                                                   | 2.0                                                                               | 2.5                                                                               | 5.7                                                                               |                                                                                     | 2.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.0                                                                               | 4.3                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               | 3.2                                                                               |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay           | 8.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                  | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 6th TWSC  
4: Old Lee Highway

06/20/2025

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗↗     | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 605    | 438  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 605    | 438  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 0    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 92        | 92     | 92   | 92     | 92   | 92   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 2      | 6    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 658    | 476  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 238    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.94   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.32   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 763    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 763    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         | -      | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         | -      | -    | -      |      |      |
| HCM Control Delay (s)    | -         | 0      | -    | -      |      |      |
| HCM Lane LOS             | -         | A      | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         | -      | -    | -      |      |      |

HCM 6th TWSC  
5: University Drive & Street 1

06/20/2025

| Intersection             |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh         | 1    |      |      |      |      |      |      |      |      |      |      |      |
| Movement                 | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations      |      | ↕    |      |      | ↕    |      | ↕    | ↕    |      | ↕    | ↕    |      |
| Traffic Vol, veh/h       | 0    | 0    | 1    | 17   | 0    | 8    | 13   | 297  | 29   | 14   | 201  | 5    |
| Future Vol, veh/h        | 0    | 0    | 1    | 17   | 0    | 8    | 13   | 297  | 29   | 14   | 201  | 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           | -    | -    | -    | -    | -    | -    | 50   | -    | -    | 50   | -    | -    |
| Veh in Median Storage, # | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Grade, %                 | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    | -    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow                | 0    | 0    | 1    | 18   | 0    | 9    | 14   | 323  | 32   | 15   | 218  | 5    |

| Major/Minor          | Minor2 |       | Minor1 |       | Major1 |       | Major2 |   |   |       |   |   |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 623    | 634   | 221    | 618   | 620    | 339   | 223    | 0 | 0 | 355   | 0 | 0 |
| Stage 1              | 251    | 251   | -      | 367   | 367    | -     | -      | - | - | -     | - | - |
| Stage 2              | 372    | 383   | -      | 251   | 253    | -     | -      | - | - | -     | - | - |
| Critical Hdwy        | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | - | - | 4.12  | - | - |
| Critical Hdwy Stg 1  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Critical Hdwy Stg 2  | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | - | - | -     | - | - |
| Follow-up Hdwy       | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver   | 398    | 397   | 819    | 402   | 404    | 703   | 1346   | - | - | 1204  | - | - |
| Stage 1              | 753    | 699   | -      | 653   | 622    | -     | -      | - | - | -     | - | - |
| Stage 2              | 648    | 612   | -      | 753   | 698    | -     | -      | - | - | -     | - | - |
| Platoon blocked, %   |        |       |        |       |        |       |        | - | - | -     | - | - |
| Mov Cap-1 Maneuver   | 386    | 388   | 819    | 394   | 395    | 703   | 1346   | - | - | 1204  | - | - |
| Mov Cap-2 Maneuver   | 386    | 388   | -      | 394   | 395    | -     | -      | - | - | -     | - | - |
| Stage 1              | 745    | 691   | -      | 646   | 616    | -     | -      | - | - | -     | - | - |
| Stage 2              | 633    | 606   | -      | 743   | 690    | -     | -      | - | - | -     | - | - |

| Approach             | EB  |  | WB   |  | NB  |  | SB  |  |
|----------------------|-----|--|------|--|-----|--|-----|--|
| HCM Control Delay, s | 9.4 |  | 13.4 |  | 0.3 |  | 0.5 |  |
| HCM LOS              | A   |  | B    |  |     |  |     |  |

| Minor Lane/Major Mvmt | NBL  | NBT | NBR | EBLn1WBLn1 | SBL   | SBT   | SBR |
|-----------------------|------|-----|-----|------------|-------|-------|-----|
| Capacity (veh/h)      | 1346 | -   | -   | 819        | 458   | 1204  | -   |
| HCM Lane V/C Ratio    | 0.01 | -   | -   | 0.001      | 0.059 | 0.013 | -   |
| HCM Control Delay (s) | 7.7  | -   | -   | 9.4        | 13.4  | 8     | -   |
| HCM Lane LOS          | A    | -   | -   | A          | B     | A     | -   |
| HCM 95th %tile Q(veh) | 0    | -   | -   | 0          | 0.2   | 0     | -   |

HCM 6th TWSC  
6: University Drive & 7-11 Entrance

06/20/2025

| Intersection             |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |      |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 0.5                                                                               |      |                                                                                   |                                                                                   |                                                                                   |      |
| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR  |
| Lane Configurations      |  |      |  |  |  |      |
| Traffic Vol, veh/h       | 5                                                                                 | 15   | 10                                                                                | 295                                                                               | 205                                                                               | 12   |
| Future Vol, veh/h        | 5                                                                                 | 15   | 10                                                                                | 295                                                                               | 205                                                                               | 12   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None |
| Storage Length           | 0                                                                                 | -    | 50                                                                                | -                                                                                 | -                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 10                                                                                | 2                                                                                 | 4                                                                                 | 2    |
| Mvmt Flow                | 5                                                                                 | 16   | 11                                                                                | 321                                                                               | 223                                                                               | 13   |

| Major/Minor          | Minor2 | Major1 | Major2 |   |   |   |
|----------------------|--------|--------|--------|---|---|---|
| Conflicting Flow All | 573    | 230    | 236    | 0 | - | 0 |
| Stage 1              | 230    | -      | -      | - | - | - |
| Stage 2              | 343    | -      | -      | - | - | - |
| Critical Hdwy        | 6.42   | 6.22   | 4.2    | - | - | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | - | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | - | - |
| Follow-up Hdwy       | 3.518  | 3.318  | 2.29   | - | - | - |
| Pot Cap-1 Maneuver   | 481    | 809    | 1286   | - | - | - |
| Stage 1              | 808    | -      | -      | - | - | - |
| Stage 2              | 719    | -      | -      | - | - | - |
| Platoon blocked, %   |        |        |        | - | - | - |
| Mov Cap-1 Maneuver   | 477    | 809    | 1286   | - | - | - |
| Mov Cap-2 Maneuver   | 562    | -      | -      | - | - | - |
| Stage 1              | 801    | -      | -      | - | - | - |
| Stage 2              | 719    | -      | -      | - | - | - |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 10.1 | 0.3 | 0  |
| HCM LOS              | B    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1286  | -   | 729   | -   | -   |
| HCM Lane V/C Ratio    | 0.008 | -   | 0.03  | -   | -   |
| HCM Control Delay (s) | 7.8   | -   | 10.1  | -   | -   |
| HCM Lane LOS          | A     | -   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.1   | -   | -   |

## Queues

## 7: University Drive &amp; Whitehead Street/Democracy Lane

06/20/2025



| Lane Group              | EBT  | EBR  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 129  | 32   | 85   | 8    | 320  | 14   | 180  |
| v/c Ratio               | 0.32 | 0.06 | 0.19 | 0.02 | 0.42 | 0.03 | 0.29 |
| Control Delay           | 19.4 | 3.1  | 13.6 | 13.0 | 14.2 | 13.1 | 13.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 19.4 | 3.1  | 13.6 | 13.0 | 14.2 | 13.1 | 13.6 |
| Queue Length 50th (ft)  | 17   | 0    | 7    | 1    | 37   | 1    | 20   |
| Queue Length 95th (ft)  | 108  | 10   | 60   | 12   | 203  | 17   | 119  |
| Internal Link Dist (ft) | 232  |      | 266  |      | 127  |      | 218  |
| Turn Bay Length (ft)    |      |      |      | 50   |      | 150  |      |
| Base Capacity (vph)     | 866  | 1062 | 956  | 1103 | 1697 | 907  | 1387 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.15 | 0.03 | 0.09 | 0.01 | 0.19 | 0.02 | 0.13 |
| Intersection Summary    |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

06/20/2025

| Movement                          | EBL  | EBT   | EBR   | WBL  | WBT  | WBR  | NBL                       | NBT  | NBR  | SBL  | SBT  | SBR  |
|-----------------------------------|------|-------|-------|------|------|------|---------------------------|------|------|------|------|------|
| Lane Configurations               |      | ↰     | ↱     |      | ↰    | ↱    | ↰                         | ↱    |      | ↰    | ↱    |      |
| Traffic Volume (vph)              | 100  | 18    | 29    | 34   | 13   | 31   | 7                         | 272  | 22   | 13   | 155  | 11   |
| Future Volume (vph)               | 100  | 18    | 29    | 34   | 13   | 31   | 7                         | 272  | 22   | 13   | 155  | 11   |
| Ideal Flow (vphpl)                | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900                      | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s)               |      | 6.0   | 6.0   |      | 6.0  |      | 5.0                       | 5.0  |      | 5.0  | 5.0  |      |
| Lane Util. Factor                 |      | 1.00  | 1.00  |      | 1.00 |      | 1.00                      | 1.00 |      | 1.00 | 1.00 |      |
| Frpb, ped/bikes                   |      | 1.00  | 0.94  |      | 0.99 |      | 1.00                      | 1.00 |      | 1.00 | 1.00 |      |
| Flpb, ped/bikes                   |      | 1.00  | 1.00  |      | 0.98 |      | 1.00                      | 1.00 |      | 0.99 | 1.00 |      |
| Frt                               |      | 1.00  | 0.85  |      | 0.95 |      | 1.00                      | 0.99 |      | 1.00 | 0.99 |      |
| Flt Protected                     |      | 0.96  | 1.00  |      | 0.98 |      | 0.95                      | 1.00 |      | 0.95 | 1.00 |      |
| Satd. Flow (prot)                 |      | 1674  | 1470  |      | 1638 |      | 1764                      | 1836 |      | 1729 | 1498 |      |
| Flt Permitted                     |      | 0.70  | 1.00  |      | 0.80 |      | 0.64                      | 1.00 |      | 0.55 | 1.00 |      |
| Satd. Flow (perm)                 |      | 1222  | 1470  |      | 1337 |      | 1196                      | 1836 |      | 995  | 1498 |      |
| Peak-hour factor, PHF             | 0.92 | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92                      | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph)                   | 109  | 20    | 32    | 37   | 14   | 34   | 8                         | 296  | 24   | 14   | 168  | 12   |
| RTOR Reduction (vph)              | 0    | 0     | 25    | 0    | 22   | 0    | 0                         | 3    | 0    | 0    | 2    | 0    |
| Lane Group Flow (vph)             | 0    | 129   | 7     | 0    | 63   | 0    | 8                         | 317  | 0    | 14   | 178  | 0    |
| Confl. Peds. (#/hr)               | 1    |       | 18    | 18   |      | 1    | 3                         |      | 17   | 17   |      | 3    |
| Heavy Vehicles (%)                | 7%   | 18%   | 3%    | 5%   | 11%  | 2%   | 2%                        | 2%   | 2%   | 3%   | 27%  | 2%   |
| Turn Type                         | Perm | NA    | Perm  | Perm | NA   |      | Perm                      | NA   |      | Perm | NA   |      |
| Protected Phases                  |      | 8     |       |      | 4    |      |                           | 2    |      |      | 6    |      |
| Permitted Phases                  | 8    |       | 8     | 4    |      |      | 2                         |      |      | 6    |      |      |
| Actuated Green, G (s)             |      | 8.8   | 8.8   |      | 8.8  |      | 16.3                      | 16.3 |      | 16.3 | 16.3 |      |
| Effective Green, g (s)            |      | 8.8   | 8.8   |      | 8.8  |      | 16.3                      | 16.3 |      | 16.3 | 16.3 |      |
| Actuated g/C Ratio                |      | 0.21  | 0.21  |      | 0.21 |      | 0.39                      | 0.39 |      | 0.39 | 0.39 |      |
| Clearance Time (s)                |      | 6.0   | 6.0   |      | 6.0  |      | 5.0                       | 5.0  |      | 5.0  | 5.0  |      |
| Vehicle Extension (s)             |      | 3.0   | 3.0   |      | 3.0  |      | 3.0                       | 3.0  |      | 3.0  | 3.0  |      |
| Lane Grp Cap (vph)                |      | 255   | 307   |      | 279  |      | 463                       | 710  |      | 385  | 579  |      |
| v/s Ratio Prot                    |      |       |       |      |      |      | c0.17                     |      |      |      | 0.12 |      |
| v/s Ratio Perm                    |      | c0.11 | 0.00  |      | 0.05 |      | 0.01                      |      |      | 0.01 |      |      |
| v/c Ratio                         |      | 0.51  | 0.02  |      | 0.23 |      | 0.02                      | 0.45 |      | 0.04 | 0.31 |      |
| Uniform Delay, d1                 |      | 14.7  | 13.2  |      | 13.8 |      | 8.0                       | 9.6  |      | 8.0  | 9.0  |      |
| Progression Factor                |      | 1.00  | 1.00  |      | 1.00 |      | 1.00                      | 1.00 |      | 1.00 | 1.00 |      |
| Incremental Delay, d2             |      | 1.6   | 0.0   |      | 0.4  |      | 0.0                       | 0.4  |      | 0.0  | 0.3  |      |
| Delay (s)                         |      | 16.3  | 13.3  |      | 14.2 |      | 8.0                       | 10.0 |      | 8.1  | 9.3  |      |
| Level of Service                  |      | B     | B     |      | B    |      | A                         | B    |      | A    | A    |      |
| Approach Delay (s)                |      | 15.7  |       |      | 14.2 |      |                           | 10.0 |      |      | 9.2  |      |
| Approach LOS                      |      | B     |       |      | B    |      |                           | A    |      |      | A    |      |
| <b>Intersection Summary</b>       |      |       |       |      |      |      |                           |      |      |      |      |      |
| HCM 2000 Control Delay            |      |       | 11.4  |      |      |      | HCM 2000 Level of Service |      |      | B    |      |      |
| HCM 2000 Volume to Capacity ratio |      |       | 0.43  |      |      |      |                           |      |      |      |      |      |
| Actuated Cycle Length (s)         |      |       | 42.1  |      |      |      | Sum of lost time (s)      |      |      | 15.0 |      |      |
| Intersection Capacity Utilization |      |       | 36.6% |      |      |      | ICU Level of Service      |      |      | A    |      |      |
| Analysis Period (min)             |      |       | 15    |      |      |      |                           |      |      |      |      |      |
| c Critical Lane Group             |      |       |       |      |      |      |                           |      |      |      |      |      |

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HCM 6th Edition methodology does not support exclusive ped or hold phases.

# HCM 6th TWSC

## 8: Garage Access & Democracy Lane

06/20/2025

### Intersection

Int Delay, s/veh 4.6

| Movement                 | EBT                                                                               | EBR  | WBL  | WBT                                                                               | NBL                                                                               | NBR  |
|--------------------------|-----------------------------------------------------------------------------------|------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |  |      |      |  |  |      |
| Traffic Vol, veh/h       | 41                                                                                | 12   | 12   | 35                                                                                | 42                                                                                | 40   |
| Future Vol, veh/h        | 41                                                                                | 12   | 12   | 35                                                                                | 42                                                                                | 40   |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0    | 0                                                                                 | 0                                                                                 | 0    |
| Sign Control             | Free                                                                              | Free | Free | Free                                                                              | Stop                                                                              | Stop |
| RT Channelized           | -                                                                                 | None | -    | None                                                                              | -                                                                                 | None |
| Storage Length           | -                                                                                 | -    | -    | -                                                                                 | 0                                                                                 | -    |
| Veh in Median Storage, # | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -    |
| Grade, %                 | 0                                                                                 | -    | -    | 0                                                                                 | 0                                                                                 | -    |
| Peak Hour Factor         | 92                                                                                | 92   | 92   | 92                                                                                | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2    | 2                                                                                 | 2                                                                                 | 2    |
| Mvmt Flow                | 45                                                                                | 13   | 13   | 38                                                                                | 46                                                                                | 43   |

| Major/Minor          | Major1 | Major2 | Minor1 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 0      | 0      | 58     |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Critical Hdwy        | -      | -      | 4.12   |
| Critical Hdwy Stg 1  | -      | -      | -      |
| Critical Hdwy Stg 2  | -      | -      | -      |
| Follow-up Hdwy       | -      | -      | 2.218  |
| Pot Cap-1 Maneuver   | -      | -      | 1546   |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |
| Platoon blocked, %   | -      | -      | -      |
| Mov Cap-1 Maneuver   | -      | -      | 1546   |
| Mov Cap-2 Maneuver   | -      | -      | -      |
| Stage 1              | -      | -      | -      |
| Stage 2              | -      | -      | -      |

| Approach             | EB | WB  | NB  |
|----------------------|----|-----|-----|
| HCM Control Delay, s | 0  | 1.9 | 9.2 |
| HCM LOS              |    |     | A   |

| Minor Lane/Major Mvmt | NBLn1 | EBT | EBR | WBL   | WBT |
|-----------------------|-------|-----|-----|-------|-----|
| Capacity (veh/h)      | 937   | -   | -   | 1546  | -   |
| HCM Lane V/C Ratio    | 0.095 | -   | -   | 0.008 | -   |
| HCM Control Delay (s) | 9.2   | -   | -   | 7.3   | 0   |
| HCM Lane LOS          | A     | -   | -   | A     | A   |
| HCM 95th %tile Q(veh) | 0.3   | -   | -   | 0     | -   |

HCM 6th TWSC  
9: Democracy Lane & Layton Hall Drive

06/20/2025

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 1.2    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 22     | 271   | 6    | 15     | 176   | 10   | 2      | 1     | 24    | 0      | 0     | 4     |
| Future Vol, veh/h        | 22     | 271   | 6    | 15     | 176   | 10   | 2      | 1     | 24    | 0      | 0     | 4     |
| Conflicting Peds, #/hr   | 9      | 0     | 0    | 0      | 0     | 9    | 0      | 0     | 0     | 0      | 0     | 0     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92     | 92    | 92   | 92     | 92    | 92   | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2      | 5     | 2    | 2      | 3     | 2    | 2      | 2     | 17    | 2      | 2     | 2     |
| Mvmt Flow                | 24     | 295   | 7    | 16     | 191   | 11   | 2      | 1     | 26    | 0      | 0     | 4     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 211    | 0     | 0    | 302    | 0     | 0    | 578    | 590   | 299   | 598    | 588   | 206   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 347    | 347   | -     | 238    | 238   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 231    | 243   | -     | 360    | 350   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.12   | -     | -    | 7.12   | 6.52  | 6.37  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.218  | -     | -    | 3.518  | 4.018 | 3.453 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1360   | -     | -    | 1259   | -     | -    | 427    | 420   | 707   | 414    | 421   | 835   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 669    | 635   | -     | 765    | 708   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 772    | 705   | -     | 658    | 633   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1348   | -     | -    | 1259   | -     | -    | 413    | 402   | 707   | 384    | 403   | 828   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 413    | 402   | -     | 384    | 403   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 655    | 622   | -     | 743    | 692   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 757    | 689   | -     | 619    | 620   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0.6    |       |      | 0.6    |       |      | 10.8   |       |       | 9.4    |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | A      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 654    | 1348  | -    | -      | 1259  | -    | -      | 828   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.045  | 0.018 | -    | -      | 0.013 | -    | -      | 0.005 |       |        |       |       |
| HCM Control Delay (s)    | 10.8   | 7.7   | 0    | -      | 7.9   | 0    | -      | 9.4   |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | A     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.1    | 0.1   | -    | -      | 0     | -    | -      | 0     |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

06/20/2025



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 273  | 44   | 14   | 54   | 67   | 548  | 5    | 17   | 591  |
| v/c Ratio               | 0.63 | 0.10 | 0.10 | 0.31 | 0.18 | 0.74 | 0.01 | 0.06 | 0.53 |
| Control Delay           | 42.9 | 19.8 | 52.5 | 25.8 | 16.0 | 32.2 | 0.0  | 15.3 | 26.4 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 42.9 | 19.8 | 52.5 | 25.8 | 16.0 | 32.2 | 0.0  | 15.3 | 26.4 |
| Queue Length 50th (ft)  | 130  | 7    | 7    | 6    | 21   | 232  | 0    | 5    | 140  |
| Queue Length 95th (ft)  | 313  | 44   | 33   | 52   | 51   | 517  | 0    | 19   | 228  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 842  |      |      | 355  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 671  | 655  | 543  | 549  | 497  | 1264 | 1090 | 449  | 2280 |
| 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       | 0.41 | 0.07 | 0.03 | 0.10 | 0.13 | 0.43 | 0.00 | 0.04 | 0.26 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

06/20/2025

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 251                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 504                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 143                                                                                 |
| Future Volume (vph)               | 251                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 504                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 143                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   | 1.00                                                                              | 0.99                                                                              |                                                                                   | 1.00                                                                              | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.97                                                                                | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flpb, ped/bikes                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.91                                                                              |                                                                                   | 1.00                                                                              | 0.88                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 0.96                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1719                                                                              | 1639                                                                              |                                                                                   | 1671                                                                              | 1607                                                                              |                                                                                   | 1769                                                                                | 1827                                                                                | 1533                                                                                | 1702                                                                                | 3277                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.31                                                                                | 1.00                                                                                | 1.00                                                                                | 0.26                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1719                                                                              | 1639                                                                              |                                                                                   | 1671                                                                              | 1607                                                                              |                                                                                   | 586                                                                                 | 1827                                                                                | 1533                                                                                | 458                                                                                 | 3277                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 273                                                                               | 18                                                                                | 26                                                                                | 14                                                                                | 11                                                                                | 43                                                                                | 67                                                                                  | 548                                                                                 | 5                                                                                   | 17                                                                                  | 436                                                                                 | 155                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 20                                                                                | 0                                                                                 | 0                                                                                 | 41                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 3                                                                                   | 0                                                                                   | 24                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 273                                                                               | 24                                                                                | 0                                                                                 | 14                                                                                | 13                                                                                | 0                                                                                 | 67                                                                                  | 548                                                                                 | 2                                                                                   | 17                                                                                  | 567                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                 |                                                                                   | 1                                                                                 | 1                                                                                 |                                                                                   | 3                                                                                 | 1                                                                                   |                                                                                     | 5                                                                                   | 5                                                                                   |                                                                                     | 1                                                                                   |
| Heavy Vehicles (%)                | 5%                                                                                | 6%                                                                                | 4%                                                                                | 8%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 4%                                                                                  | 2%                                                                                  | 6%                                                                                  | 6%                                                                                  | 3%                                                                                  |
| Turn Type                         | Split                                                                             | NA                                                                                |                                                                                   | Split                                                                             | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 1                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 22.8                                                                              | 22.8                                                                              |                                                                                   | 5.3                                                                               | 5.3                                                                               |                                                                                   | 42.6                                                                                | 36.7                                                                                | 36.7                                                                                | 35.0                                                                                | 32.9                                                                                |                                                                                     |
| Effective Green, g (s)            | 22.8                                                                              | 22.8                                                                              |                                                                                   | 5.3                                                                               | 5.3                                                                               |                                                                                   | 42.6                                                                                | 36.7                                                                                | 36.7                                                                                | 35.0                                                                                | 32.9                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.24                                                                              | 0.24                                                                              |                                                                                   | 0.06                                                                              | 0.06                                                                              |                                                                                   | 0.45                                                                                | 0.39                                                                                | 0.39                                                                                | 0.37                                                                                | 0.35                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 414                                                                               | 395                                                                               |                                                                                   | 93                                                                                | 90                                                                                |                                                                                   | 338                                                                                 | 709                                                                                 | 595                                                                                 | 197                                                                                 | 1140                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.16                                                                             | 0.01                                                                              |                                                                                   | c0.01                                                                             | 0.01                                                                              |                                                                                   | c0.01                                                                               | c0.30                                                                               |                                                                                     | 0.00                                                                                | 0.17                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.08                                                                                |                                                                                     | 0.00                                                                                | 0.03                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.66                                                                              | 0.06                                                                              |                                                                                   | 0.15                                                                              | 0.15                                                                              |                                                                                   | 0.20                                                                                | 0.77                                                                                | 0.00                                                                                | 0.09                                                                                | 0.50                                                                                |                                                                                     |
| Uniform Delay, d1                 | 32.3                                                                              | 27.6                                                                              |                                                                                   | 42.5                                                                              | 42.5                                                                              |                                                                                   | 15.4                                                                                | 25.3                                                                                | 17.7                                                                                | 20.1                                                                                | 24.3                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 3.8                                                                               | 0.1                                                                               |                                                                                   | 0.8                                                                               | 0.8                                                                               |                                                                                   | 0.3                                                                                 | 5.2                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.3                                                                                 |                                                                                     |
| Delay (s)                         | 36.1                                                                              | 27.7                                                                              |                                                                                   | 43.2                                                                              | 43.2                                                                              |                                                                                   | 15.7                                                                                | 30.5                                                                                | 17.7                                                                                | 20.3                                                                                | 24.6                                                                                |                                                                                     |
| Level of Service                  | D                                                                                 | C                                                                                 |                                                                                   | D                                                                                 | D                                                                                 |                                                                                   | B                                                                                   | C                                                                                   | B                                                                                   | C                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 35.0                                                                              |                                                                                   |                                                                                   | 43.2                                                                              |                                                                                   |                                                                                     | 28.8                                                                                |                                                                                     |                                                                                     | 24.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 29.0                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.68                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 94.5                                                                              |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                     |                                                                                     | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 68.2%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

06/20/2025

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 251                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 504                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 143                                                                                 |
| Future Volume (veh/h)        | 251                                                                               | 17                                                                                | 24                                                                                | 13                                                                                | 10                                                                                | 40                                                                                | 62                                                                                  | 504                                                                                 | 5                                                                                   | 16                                                                                  | 401                                                                                 | 143                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                                |                                                                                     | 0.99                                                                                | 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1826                                                                              | 1811                                                                              | 1841                                                                              | 1781                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1841                                                                                | 1870                                                                                | 1811                                                                                | 1811                                                                                | 1856                                                                                |
| Adj Flow Rate, veh/h         | 273                                                                               | 18                                                                                | 26                                                                                | 14                                                                                | 11                                                                                | 43                                                                                | 67                                                                                  | 548                                                                                 | 5                                                                                   | 17                                                                                  | 436                                                                                 | 155                                                                                 |
| Peak Hour Factor             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Percent Heavy Veh, %         | 5                                                                                 | 6                                                                                 | 4                                                                                 | 8                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 4                                                                                   | 2                                                                                   | 6                                                                                   | 6                                                                                   | 3                                                                                   |
| Cap, veh/h                   | 338                                                                               | 130                                                                               | 187                                                                               | 100                                                                               | 20                                                                                | 76                                                                                | 335                                                                                 | 654                                                                                 | 559                                                                                 | 199                                                                                 | 809                                                                                 | 285                                                                                 |
| Arrive On Green              | 0.19                                                                              | 0.19                                                                              | 0.19                                                                              | 0.06                                                                              | 0.06                                                                              | 0.06                                                                              | 0.05                                                                                | 0.36                                                                                | 0.36                                                                                | 0.02                                                                                | 0.32                                                                                | 0.32                                                                                |
| Sat Flow, veh/h              | 1739                                                                              | 666                                                                               | 963                                                                               | 1697                                                                              | 330                                                                               | 1288                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 2489                                                                                | 876                                                                                 |
| Grp Volume(v), veh/h         | 273                                                                               | 0                                                                                 | 44                                                                                | 14                                                                                | 0                                                                                 | 54                                                                                | 67                                                                                  | 548                                                                                 | 5                                                                                   | 17                                                                                  | 300                                                                                 | 291                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1739                                                                              | 0                                                                                 | 1629                                                                              | 1697                                                                              | 0                                                                                 | 1618                                                                              | 1781                                                                                | 1841                                                                                | 1574                                                                                | 1725                                                                                | 1721                                                                                | 1645                                                                                |
| Q Serve(g_s), s              | 11.2                                                                              | 0.0                                                                               | 1.7                                                                               | 0.6                                                                               | 0.0                                                                               | 2.4                                                                               | 1.8                                                                                 | 20.3                                                                                | 0.2                                                                                 | 0.5                                                                                 | 10.6                                                                                | 10.8                                                                                |
| Cycle Q Clear(g_c), s        | 11.2                                                                              | 0.0                                                                               | 1.7                                                                               | 0.6                                                                               | 0.0                                                                               | 2.4                                                                               | 1.8                                                                                 | 20.3                                                                                | 0.2                                                                                 | 0.5                                                                                 | 10.6                                                                                | 10.8                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.59                                                                              | 1.00                                                                              |                                                                                   | 0.80                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.53                                                                                |
| Lane Grp Cap(c), veh/h       | 338                                                                               | 0                                                                                 | 317                                                                               | 100                                                                               | 0                                                                                 | 96                                                                                | 335                                                                                 | 654                                                                                 | 559                                                                                 | 199                                                                                 | 559                                                                                 | 535                                                                                 |
| V/C Ratio(X)                 | 0.81                                                                              | 0.00                                                                              | 0.14                                                                              | 0.14                                                                              | 0.00                                                                              | 0.56                                                                              | 0.20                                                                                | 0.84                                                                                | 0.01                                                                                | 0.09                                                                                | 0.54                                                                                | 0.54                                                                                |
| Avail Cap(c_a), veh/h        | 701                                                                               | 0                                                                                 | 657                                                                               | 570                                                                               | 0                                                                                 | 544                                                                               | 604                                                                                 | 1484                                                                                | 1269                                                                                | 513                                                                                 | 1388                                                                                | 1327                                                                                |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 28.6                                                                              | 0.0                                                                               | 24.8                                                                              | 33.2                                                                              | 0.0                                                                               | 34.1                                                                              | 15.9                                                                                | 22.0                                                                                | 15.5                                                                                | 18.4                                                                                | 20.5                                                                                | 20.6                                                                                |
| Incr Delay (d2), s/veh       | 4.6                                                                               | 0.0                                                                               | 0.2                                                                               | 0.6                                                                               | 0.0                                                                               | 5.1                                                                               | 0.3                                                                                 | 2.9                                                                                 | 0.0                                                                                 | 0.2                                                                                 | 0.8                                                                                 | 0.9                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 5.0                                                                               | 0.0                                                                               | 0.6                                                                               | 0.3                                                                               | 0.0                                                                               | 1.1                                                                               | 0.7                                                                                 | 8.7                                                                                 | 0.1                                                                                 | 0.2                                                                                 | 4.1                                                                                 | 4.0                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 33.2                                                                              | 0.0                                                                               | 25.0                                                                              | 33.8                                                                              | 0.0                                                                               | 39.2                                                                              | 16.2                                                                                | 25.0                                                                                | 15.5                                                                                | 18.5                                                                                | 21.3                                                                                | 21.5                                                                                |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | D                                                                                 | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 317                                                                               |                                                                                   |                                                                                   | 68                                                                                |                                                                                   |                                                                                   | 620                                                                                 |                                                                                     |                                                                                     | 608                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 32.1                                                                              |                                                                                   |                                                                                   | 38.1                                                                              |                                                                                   |                                                                                   | 23.9                                                                                |                                                                                     |                                                                                     | 21.3                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | C                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 10.6                                                                              | 31.1                                                                              |                                                                                   | 21.0                                                                              | 8.4                                                                               | 33.3                                                                              |                                                                                     | 11.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                             | * 6.9                                                                             |                                                                                   | 6.5                                                                               | * 6.9                                                                             | * 6.9                                                                             |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                              | * 60                                                                              |                                                                                   | 30.0                                                                              | * 15                                                                              | * 60                                                                              |                                                                                     | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.8                                                                               | 12.8                                                                              |                                                                                   | 13.2                                                                              | 2.5                                                                               | 22.3                                                                              |                                                                                     | 4.4                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 4.3                                                                               |                                                                                   | 1.0                                                                               | 0.0                                                                               | 4.1                                                                               |                                                                                     | 0.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 25.1 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 7.3

Intersection LOS A

| Movement            | EBL  | EBT  | EBR  | WBL  | WBT  | WBR  | NBL  | NBT  | NBR  | SBL  | SBT  | SBR  |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations |      | ↕    |      |      | ↕    |      |      | ↕    |      |      | ↕    |      |
| Traffic Vol, veh/h  | 63   | 7    | 11   | 1    | 9    | 1    | 6    | 11   | 1    | 1    | 1    | 32   |
| Future Vol, veh/h   | 63   | 7    | 11   | 1    | 9    | 1    | 6    | 11   | 1    | 1    | 1    | 32   |
| Peak Hour Factor    | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, %   | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    | 2    |
| Mvmt Flow           | 68   | 8    | 12   | 1    | 10   | 1    | 7    | 12   | 1    | 1    | 1    | 35   |
| Number of Lanes     | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    | 0    | 1    | 0    |

| Approach                      | EB  | WB  | NB  | SB  |
|-------------------------------|-----|-----|-----|-----|
| Opposing Approach             | WB  | EB  | SB  | NB  |
| Opposing Lanes                | 1   | 1   | 1   | 1   |
| Conflicting Approach Left SB  |     | NB  | EB  | WB  |
| Conflicting Lanes Left        | 1   | 1   | 1   | 1   |
| Conflicting Approach Right NB |     | SB  | WB  | EB  |
| Conflicting Lanes Right       | 1   | 1   | 1   | 1   |
| HCM Control Delay             | 7.6 | 7.2 | 7.3 | 6.8 |
| HCM LOS                       | A   | A   | A   | A   |

| Lane                   | NBLn1 | EBLn1 | WBLn1 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, %            | 33%   | 78%   | 9%    | 3%    |
| Vol Thru, %            | 61%   | 9%    | 82%   | 3%    |
| Vol Right, %           | 6%    | 14%   | 9%    | 94%   |
| Sign Control           | Stop  | Stop  | Stop  | Stop  |
| Traffic Vol by Lane    | 18    | 81    | 11    | 34    |
| LT Vol                 | 6     | 63    | 1     | 1     |
| Through Vol            | 11    | 7     | 9     | 1     |
| RT Vol                 | 1     | 11    | 1     | 32    |
| Lane Flow Rate         | 20    | 88    | 12    | 37    |
| Geometry Grp           | 1     | 1     | 1     | 1     |
| Degree of Util (X)     | 0.023 | 0.101 | 0.013 | 0.037 |
| Departure Headway (Hd) | 4.17  | 4.115 | 4.062 | 3.563 |
| Convergence, Y/N       | Yes   | Yes   | Yes   | Yes   |
| Cap                    | 853   | 872   | 878   | 996   |
| Service Time           | 2.223 | 2.136 | 2.101 | 1.617 |
| HCM Lane V/C Ratio     | 0.023 | 0.101 | 0.014 | 0.037 |
| HCM Control Delay      | 7.3   | 7.6   | 7.2   | 6.8   |
| HCM Lane LOS           | A     | A     | A     | A     |
| HCM 95th-tile Q        | 0.1   | 0.3   | 0     | 0.1   |

**Intersection**

Int Delay, s/veh 4

**Movement** EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 22 21 12 1 1 13

Future Vol, veh/h 22 21 12 1 1 13

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 24 23 13 1 1 14

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All 14 0 - 0 85 14

Stage 1 - - - - 14 -

Stage 2 - - - - 71 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1604 - - - 916 1066

Stage 1 - - - - 1009 -

Stage 2 - - - - 952 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1604 - - - 902 1066

Mov Cap-2 Maneuver - - - - 902 -

Stage 1 - - - - 994 -

Stage 2 - - - - 952 -

**Approach** EB WB SB

HCM Control Delay, s 3.7 0 8.5

HCM LOS A

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1604 - - - 1052

HCM Lane V/C Ratio 0.015 - - - 0.014

HCM Control Delay (s) 7.3 0 - - 8.5

HCM Lane LOS A A - - A

HCM 95th %tile Q(veh) 0 - - - 0

Intersection

Int Delay, s/veh 0.3

| Movement                 | EBL  | EBR  | NBL  | NBT  | SBT  | SBR  |
|--------------------------|------|------|------|------|------|------|
| Lane Configurations      |      | ↗    |      | ↗↗   | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0    | 32   | 0    | 502  | 609  | 6    |
| Future Vol, veh/h        | 0    | 32   | 0    | 502  | 609  | 6    |
| Conflicting Peds, #/hr   | 0    | 0    | 0    | 0    | 0    | 0    |
| Sign Control             | Stop | Stop | Free | Free | Free | Free |
| RT Channelized           | -    | None | -    | None | -    | None |
| Storage Length           | -    | 0    | -    | -    | -    | 120  |
| Veh in Median Storage, # | 0    | -    | -    | 0    | 0    | -    |
| Grade, %                 | 0    | -    | -    | 0    | 0    | -    |
| Peak Hour Factor         | 92   | 92   | 92   | 92   | 92   | 92   |
| Heavy Vehicles, %        | 2    | 2    | 2    | 2    | 3    | 2    |
| Mvmt Flow                | 0    | 35   | 0    | 546  | 662  | 7    |

| Major/Minor          | Minor2 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | - 331  | - 0    | - 0    |
| Stage 1              | - -    | - -    | - -    |
| Stage 2              | - -    | - -    | - -    |
| Critical Hdwy        | - 6.94 | - -    | - -    |
| Critical Hdwy Stg 1  | - -    | - -    | - -    |
| Critical Hdwy Stg 2  | - -    | - -    | - -    |
| Follow-up Hdwy       | - 3.32 | - -    | - -    |
| Pot Cap-1 Maneuver   | 0 665  | 0 -    | - -    |
| Stage 1              | 0 -    | 0 -    | - -    |
| Stage 2              | 0 -    | 0 -    | - -    |
| Platoon blocked, %   |        | - -    | - -    |
| Mov Cap-1 Maneuver   | - 665  | - -    | - -    |
| Mov Cap-2 Maneuver   | - -    | - -    | - -    |
| Stage 1              | - -    | - -    | - -    |
| Stage 2              | - -    | - -    | - -    |

| Approach             | EB   | NB | SB |
|----------------------|------|----|----|
| HCM Control Delay, s | 10.7 | 0  | 0  |
| HCM LOS              | B    |    |    |

| Minor Lane/Major Mvmt | NBT EBLn1 | SBT | SBR |
|-----------------------|-----------|-----|-----|
| Capacity (veh/h)      | - 665     | - - | - - |
| HCM Lane V/C Ratio    | - 0.052   | - - | - - |
| HCM Control Delay (s) | - 10.7    | - - | - - |
| HCM Lane LOS          | - B       | - - | - - |
| HCM 95th %tile Q(veh) | - 0.2     | - - | - - |

## Queues

## 2: Old Lee Highway

06/20/2025

|                         |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBT                                                                               | EBR                                                                               | WBT                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Group Flow (vph)   | 47                                                                                | 72                                                                                | 78                                                                                | 80                                                                                | 486                                                                               | 12                                                                                | 16                                                                                  | 622                                                                                 | 48                                                                                  |
| v/c Ratio               | 0.27                                                                              | 0.23                                                                              | 0.40                                                                              | 0.13                                                                              | 0.20                                                                              | 0.01                                                                              | 0.03                                                                                | 0.32                                                                                | 0.05                                                                                |
| Control Delay           | 30.7                                                                              | 4.1                                                                               | 31.1                                                                              | 4.9                                                                               | 6.5                                                                               | 0.0                                                                               | 5.1                                                                                 | 12.6                                                                                | 0.1                                                                                 |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| Total Delay             | 30.7                                                                              | 4.1                                                                               | 31.1                                                                              | 4.9                                                                               | 6.5                                                                               | 0.0                                                                               | 5.1                                                                                 | 12.6                                                                                | 0.1                                                                                 |
| Queue Length 50th (ft)  | 18                                                                                | 0                                                                                 | 27                                                                                | 9                                                                                 | 33                                                                                | 0                                                                                 | 2                                                                                   | 85                                                                                  | 0                                                                                   |
| Queue Length 95th (ft)  | 47                                                                                | 15                                                                                | 65                                                                                | 25                                                                                | 98                                                                                | 0                                                                                 | 8                                                                                   | 141                                                                                 | 1                                                                                   |
| Internal Link Dist (ft) | 173                                                                               |                                                                                   | 199                                                                               |                                                                                   | 207                                                                               |                                                                                   |                                                                                     | 142                                                                                 |                                                                                     |
| Turn Bay Length (ft)    |                                                                                   |                                                                                   |                                                                                   | 120                                                                               |                                                                                   |                                                                                   | 120                                                                                 |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 605                                                                               | 817                                                                               | 667                                                                               | 814                                                                               | 2453                                                                              | 1132                                                                              | 898                                                                                 | 1935                                                                                | 900                                                                                 |
| 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       | 0.08                                                                              | 0.09                                                                              | 0.12                                                                              | 0.10                                                                              | 0.20                                                                              | 0.01                                                                              | 0.02                                                                                | 0.32                                                                                | 0.05                                                                                |
| Intersection Summary    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

# HCM Signalized Intersection Capacity Analysis

## 2: Old Lee Highway

06/20/2025

|                                   |  |  |  |  |  |  |   |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 40                                                                                | 4                                                                                 | 67                                                                                | 54                                                                                | 8                                                                                 | 10                                                                                | 74                                                                                  | 452                                                                                 | 11                                                                                  | 15                                                                                  | 578                                                                                 | 45                                                                                  |
| Future Volume (vph)               | 40                                                                                | 4                                                                                 | 67                                                                                | 54                                                                                | 8                                                                                 | 10                                                                                | 74                                                                                  | 452                                                                                 | 11                                                                                  | 15                                                                                  | 578                                                                                 | 45                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 |
| Lane Util. Factor                 |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |
| Frt                               |                                                                                   | 1.00                                                                              | 0.85                                                                              |                                                                                   | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                |
| Flt Protected                     |                                                                                   | 0.96                                                                              | 1.00                                                                              |                                                                                   | 0.96                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (prot)                 |                                                                                   | 1740                                                                              | 1568                                                                              |                                                                                   | 1762                                                                              |                                                                                   | 1770                                                                                | 3539                                                                                | 1583                                                                                | 1770                                                                                | 3505                                                                                | 1538                                                                                |
| Flt Permitted                     |                                                                                   | 0.69                                                                              | 1.00                                                                              |                                                                                   | 0.75                                                                              |                                                                                   | 0.36                                                                                | 1.00                                                                                | 1.00                                                                                | 0.48                                                                                | 1.00                                                                                | 1.00                                                                                |
| Satd. Flow (perm)                 |                                                                                   | 1252                                                                              | 1568                                                                              |                                                                                   | 1372                                                                              |                                                                                   | 669                                                                                 | 3539                                                                                | 1583                                                                                | 885                                                                                 | 3505                                                                                | 1538                                                                                |
| Peak-hour factor, PHF             | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Adj. Flow (vph)                   | 43                                                                                | 4                                                                                 | 72                                                                                | 58                                                                                | 9                                                                                 | 11                                                                                | 80                                                                                  | 486                                                                                 | 12                                                                                  | 16                                                                                  | 622                                                                                 | 48                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 65                                                                                | 0                                                                                 | 7                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 5                                                                                   | 0                                                                                   | 0                                                                                   | 23                                                                                  |
| Lane Group Flow (vph)             | 0                                                                                 | 47                                                                                | 7                                                                                 | 0                                                                                 | 71                                                                                | 0                                                                                 | 80                                                                                  | 486                                                                                 | 7                                                                                   | 16                                                                                  | 622                                                                                 | 25                                                                                  |
| Heavy Vehicles (%)                | 3%                                                                                | 20%                                                                               | 3%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 2%                                                                                  | 3%                                                                                  | 5%                                                                                  |
| Turn Type                         | Perm                                                                              | NA                                                                                | Perm                                                                              | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  | Perm                                                                                |
| Protected Phases                  |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   | 5                                                                                   | 2                                                                                   |                                                                                     | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                  | 8                                                                                 |                                                                                   | 8                                                                                 | 4                                                                                 |                                                                                   |                                                                                   | 2                                                                                   |                                                                                     | 2                                                                                   | 6                                                                                   |                                                                                     | 6                                                                                   |
| Actuated Green, G (s)             |                                                                                   | 7.2                                                                               | 7.2                                                                               |                                                                                   | 7.2                                                                               |                                                                                   | 49.6                                                                                | 43.3                                                                                | 43.3                                                                                | 39.2                                                                                | 38.1                                                                                | 38.1                                                                                |
| Effective Green, g (s)            |                                                                                   | 7.2                                                                               | 7.2                                                                               |                                                                                   | 7.2                                                                               |                                                                                   | 49.6                                                                                | 43.3                                                                                | 43.3                                                                                | 39.2                                                                                | 38.1                                                                                | 38.1                                                                                |
| Actuated g/C Ratio                |                                                                                   | 0.10                                                                              | 0.10                                                                              |                                                                                   | 0.10                                                                              |                                                                                   | 0.69                                                                                | 0.60                                                                                | 0.60                                                                                | 0.54                                                                                | 0.53                                                                                | 0.53                                                                                |
| Clearance Time (s)                |                                                                                   | 6.8                                                                               | 6.8                                                                               |                                                                                   | 6.8                                                                               |                                                                                   | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 | 6.8                                                                                 |
| Vehicle Extension (s)             |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |
| Lane Grp Cap (vph)                |                                                                                   | 125                                                                               | 156                                                                               |                                                                                   | 137                                                                               |                                                                                   | 557                                                                                 | 2128                                                                                | 951                                                                                 | 495                                                                                 | 1854                                                                                | 813                                                                                 |
| v/s Ratio Prot                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | c0.01                                                                               | c0.14                                                                               |                                                                                     | 0.00                                                                                | c0.18                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   | 0.04                                                                              | 0.00                                                                              |                                                                                   | c0.05                                                                             |                                                                                   | 0.09                                                                                |                                                                                     | 0.00                                                                                | 0.02                                                                                |                                                                                     | 0.02                                                                                |
| v/c Ratio                         |                                                                                   | 0.38                                                                              | 0.05                                                                              |                                                                                   | 0.52                                                                              |                                                                                   | 0.14                                                                                | 0.23                                                                                | 0.01                                                                                | 0.03                                                                                | 0.34                                                                                | 0.03                                                                                |
| Uniform Delay, d1                 |                                                                                   | 30.3                                                                              | 29.3                                                                              |                                                                                   | 30.7                                                                              |                                                                                   | 3.9                                                                                 | 6.6                                                                                 | 5.7                                                                                 | 7.5                                                                                 | 9.7                                                                                 | 8.1                                                                                 |
| Progression Factor                |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Incremental Delay, d2             |                                                                                   | 1.9                                                                               | 0.1                                                                               |                                                                                   | 3.3                                                                               |                                                                                   | 0.1                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.5                                                                                 | 0.1                                                                                 |
| Delay (s)                         |                                                                                   | 32.2                                                                              | 29.4                                                                              |                                                                                   | 34.0                                                                              |                                                                                   | 4.0                                                                                 | 6.7                                                                                 | 5.7                                                                                 | 7.6                                                                                 | 10.2                                                                                | 8.2                                                                                 |
| Level of Service                  |                                                                                   | C                                                                                 | C                                                                                 |                                                                                   | C                                                                                 |                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | B                                                                                   | A                                                                                   |
| Approach Delay (s)                |                                                                                   | 30.5                                                                              |                                                                                   |                                                                                   | 34.0                                                                              |                                                                                   |                                                                                     | 6.3                                                                                 |                                                                                     |                                                                                     | 10.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 11.5                                                                              |                                                                                   |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                           |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 72.0                                                                              |                                                                                   |                                                                                   |                                                                                   | Sum of lost time (s)                                                                |                                                                                     |                                                                                     | 20.4                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 47.8%                                                                             |                                                                                   |                                                                                   |                                                                                   | ICU Level of Service                                                                |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 2: Old Lee Highway

06/20/2025

|                                                                                                    |  |  |  |  |  |  |   |  |  |  |  |  |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                           | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                |                                                                                   |  |  |                                                                                   |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)                                                                             | 40                                                                                | 4                                                                                 | 67                                                                                | 54                                                                                | 8                                                                                 | 10                                                                                | 74                                                                                  | 452                                                                                 | 11                                                                                  | 15                                                                                  | 578                                                                                 | 45                                                                                  |
| Future Volume (veh/h)                                                                              | 40                                                                                | 4                                                                                 | 67                                                                                | 54                                                                                | 8                                                                                 | 10                                                                                | 74                                                                                  | 452                                                                                 | 11                                                                                  | 15                                                                                  | 578                                                                                 | 45                                                                                  |
| Initial Q (Qb), veh                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)                                                                                | 1.00                                                                              |                                                                                   | 1.00                                                                              | 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                                                                                  |                                                                                     |
| Adj Sat Flow, veh/h/ln                                                                             | 1856                                                                              | 1604                                                                              | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1870                                                                                | 1856                                                                                | 1826                                                                                |
| Adj Flow Rate, veh/h                                                                               | 43                                                                                | 4                                                                                 | 72                                                                                | 58                                                                                | 9                                                                                 | 11                                                                                | 80                                                                                  | 486                                                                                 | 12                                                                                  | 16                                                                                  | 622                                                                                 | 48                                                                                  |
| Peak Hour Factor                                                                                   | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Percent Heavy Veh, %                                                                               | 3                                                                                 | 20                                                                                | 3                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 2                                                                                   | 2                                                                                   | 3                                                                                   | 5                                                                                   |
| Cap, veh/h                                                                                         | 252                                                                               | 18                                                                                | 174                                                                               | 190                                                                               | 31                                                                                | 19                                                                                | 522                                                                                 | 1899                                                                                | 847                                                                                 | 567                                                                                 | 1738                                                                                | 763                                                                                 |
| Arrive On Green                                                                                    | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.11                                                                              | 0.06                                                                                | 0.53                                                                                | 0.53                                                                                | 0.02                                                                                | 0.49                                                                                | 0.49                                                                                |
| Sat Flow, veh/h                                                                                    | 1250                                                                              | 160                                                                               | 1572                                                                              | 780                                                                               | 280                                                                               | 174                                                                               | 1781                                                                                | 3554                                                                                | 1585                                                                                | 1781                                                                                | 3526                                                                                | 1547                                                                                |
| Grp Volume(v), veh/h                                                                               | 47                                                                                | 0                                                                                 | 72                                                                                | 78                                                                                | 0                                                                                 | 0                                                                                 | 80                                                                                  | 486                                                                                 | 12                                                                                  | 16                                                                                  | 622                                                                                 | 48                                                                                  |
| Grp Sat Flow(s),veh/h/ln                                                                           | 1410                                                                              | 0                                                                                 | 1572                                                                              | 1234                                                                              | 0                                                                                 | 0                                                                                 | 1781                                                                                | 1777                                                                                | 1585                                                                                | 1781                                                                                | 1763                                                                                | 1547                                                                                |
| Q Serve(g_s), s                                                                                    | 0.0                                                                               | 0.0                                                                               | 2.6                                                                               | 2.3                                                                               | 0.0                                                                               | 0.0                                                                               | 1.3                                                                                 | 4.5                                                                                 | 0.2                                                                                 | 0.3                                                                                 | 6.6                                                                                 | 1.0                                                                                 |
| Cycle Q Clear(g_c), s                                                                              | 1.7                                                                               | 0.0                                                                               | 2.6                                                                               | 4.0                                                                               | 0.0                                                                               | 0.0                                                                               | 1.3                                                                                 | 4.5                                                                                 | 0.2                                                                                 | 0.3                                                                                 | 6.6                                                                                 | 1.0                                                                                 |
| Prop In Lane                                                                                       | 0.91                                                                              |                                                                                   | 1.00                                                                              | 0.74                                                                              |                                                                                   | 0.14                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 1.00                                                                                |
| Lane Grp Cap(c), veh/h                                                                             | 270                                                                               | 0                                                                                 | 174                                                                               | 240                                                                               | 0                                                                                 | 0                                                                                 | 522                                                                                 | 1899                                                                                | 847                                                                                 | 567                                                                                 | 1738                                                                                | 763                                                                                 |
| V/C Ratio(X)                                                                                       | 0.17                                                                              | 0.00                                                                              | 0.41                                                                              | 0.32                                                                              | 0.00                                                                              | 0.00                                                                              | 0.15                                                                                | 0.26                                                                                | 0.01                                                                                | 0.03                                                                                | 0.36                                                                                | 0.06                                                                                |
| Avail Cap(c_a), veh/h                                                                              | 756                                                                               | 0                                                                                 | 801                                                                               | 799                                                                               | 0                                                                                 | 0                                                                                 | 999                                                                                 | 1899                                                                                | 847                                                                                 | 1118                                                                                | 1738                                                                                | 763                                                                                 |
| 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                                                                                |
| Upstream Filter(I)                                                                                 | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 0.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh                                                                           | 24.8                                                                              | 0.0                                                                               | 25.2                                                                              | 26.0                                                                              | 0.0                                                                               | 0.0                                                                               | 6.7                                                                                 | 7.6                                                                                 | 6.6                                                                                 | 7.3                                                                                 | 9.5                                                                                 | 8.1                                                                                 |
| Incr Delay (d2), s/veh                                                                             | 0.3                                                                               | 0.0                                                                               | 1.6                                                                               | 0.8                                                                               | 0.0                                                                               | 0.0                                                                               | 0.1                                                                                 | 0.1                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.6                                                                                 | 0.2                                                                                 |
| Initial Q Delay(d3),s/veh                                                                          | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln                                                                           | 0.6                                                                               | 0.0                                                                               | 1.0                                                                               | 1.1                                                                               | 0.0                                                                               | 0.0                                                                               | 0.4                                                                                 | 1.4                                                                                 | 0.1                                                                                 | 0.1                                                                                 | 2.3                                                                                 | 0.3                                                                                 |
| Unsig. Movement Delay, s/veh                                                                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh                                                                               | 25.1                                                                              | 0.0                                                                               | 26.8                                                                              | 26.8                                                                              | 0.0                                                                               | 0.0                                                                               | 6.9                                                                                 | 7.7                                                                                 | 6.7                                                                                 | 7.4                                                                                 | 10.1                                                                                | 8.2                                                                                 |
| LnGrp LOS                                                                                          | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | A                                                                                 | A                                                                                   | A                                                                                   | A                                                                                   | A                                                                                   | B                                                                                   | A                                                                                   |
| Approach Vol, veh/h                                                                                |                                                                                   | 119                                                                               |                                                                                   |                                                                                   | 78                                                                                |                                                                                   |                                                                                     | 578                                                                                 |                                                                                     |                                                                                     | 686                                                                                 |                                                                                     |
| Approach Delay, s/veh                                                                              |                                                                                   | 26.1                                                                              |                                                                                   |                                                                                   | 26.8                                                                              |                                                                                   |                                                                                     | 7.6                                                                                 |                                                                                     |                                                                                     | 9.9                                                                                 |                                                                                     |
| Approach LOS                                                                                       |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                     | A                                                                                   |                                                                                     |                                                                                     | A                                                                                   |                                                                                     |
| Timer - Assigned Phs                                                                               | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s                                                                           | 8.0                                                                               | 39.3                                                                              |                                                                                   | 13.5                                                                              | 10.5                                                                              | 36.8                                                                              |                                                                                     | 13.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s                                                                            | * 6.8                                                                             | * 6.8                                                                             |                                                                                   | * 6.8                                                                             | * 6.8                                                                             | * 6.8                                                                             |                                                                                     | * 6.8                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s                                                                        | * 20                                                                              | * 30                                                                              |                                                                                   | * 31                                                                              | * 20                                                                              | * 30                                                                              |                                                                                     | * 31                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s                                                                       | 2.3                                                                               | 6.5                                                                               |                                                                                   | 6.0                                                                               | 3.3                                                                               | 8.6                                                                               |                                                                                     | 4.6                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s                                                                            | 0.0                                                                               | 3.4                                                                               |                                                                                   | 0.4                                                                               | 0.1                                                                               | 4.5                                                                               |                                                                                     | 0.5                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th Ctrl Delay                                                                                 |                                                                                   |                                                                                   | 11.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 6th LOS                                                                                        |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Notes                                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

HCM 6th TWSC  
4: Old Lee Highway

06/20/2025

| Intersection             |           |        |      |        |      |      |
|--------------------------|-----------|--------|------|--------|------|------|
| Int Delay, s/veh         | 0         |        |      |        |      |      |
| Movement                 | EBL       | EBR    | NBL  | NBT    | SBT  | SBR  |
| Lane Configurations      |           | ↗      |      | ↗↗     | ↗↗   | ↗    |
| Traffic Vol, veh/h       | 0         | 0      | 0    | 537    | 702  | 0    |
| Future Vol, veh/h        | 0         | 0      | 0    | 537    | 702  | 0    |
| Conflicting Peds, #/hr   | 0         | 0      | 0    | 0      | 0    | 0    |
| Sign Control             | Stop      | Stop   | Free | Free   | Free | Free |
| RT Channelized           | -         | None   | -    | None   | -    | None |
| Storage Length           | -         | 0      | -    | -      | -    | 0    |
| Veh in Median Storage, # | 0         | -      | -    | 0      | 0    | -    |
| Grade, %                 | 0         | -      | -    | 0      | 0    | -    |
| Peak Hour Factor         | 95        | 95     | 95   | 95     | 95   | 95   |
| Heavy Vehicles, %        | 2         | 2      | 2    | 3      | 3    | 2    |
| Mvmt Flow                | 0         | 0      | 0    | 565    | 739  | 0    |
| Major/Minor              | Minor2    | Major1 |      | Major2 |      |      |
| Conflicting Flow All     | -         | 370    | -    | 0      | -    | 0    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Critical Hdwy            | -         | 6.94   | -    | -      | -    | -    |
| Critical Hdwy Stg 1      | -         | -      | -    | -      | -    | -    |
| Critical Hdwy Stg 2      | -         | -      | -    | -      | -    | -    |
| Follow-up Hdwy           | -         | 3.32   | -    | -      | -    | -    |
| Pot Cap-1 Maneuver       | 0         | 627    | 0    | -      | -    | -    |
| Stage 1                  | 0         | -      | 0    | -      | -    | -    |
| Stage 2                  | 0         | -      | 0    | -      | -    | -    |
| Platoon blocked, %       |           |        |      | -      | -    | -    |
| Mov Cap-1 Maneuver       | -         | 627    | -    | -      | -    | -    |
| Mov Cap-2 Maneuver       | -         | -      | -    | -      | -    | -    |
| Stage 1                  | -         | -      | -    | -      | -    | -    |
| Stage 2                  | -         | -      | -    | -      | -    | -    |
| Approach                 | EB        | NB     |      | SB     |      |      |
| HCM Control Delay, s     | 0         | 0      |      | 0      |      |      |
| HCM LOS                  | A         |        |      |        |      |      |
| Minor Lane/Major Mvmt    | NBT EBLn1 |        | SBT  | SBR    |      |      |
| Capacity (veh/h)         | -         | -      | -    | -      |      |      |
| HCM Lane V/C Ratio       | -         | -      | -    | -      |      |      |
| HCM Control Delay (s)    | -         | 0      | -    | -      |      |      |
| HCM Lane LOS             | -         | A      | -    | -      |      |      |
| HCM 95th %tile Q(veh)    | -         | -      | -    | -      |      |      |

| Intersection             |        |       |        |            |        |       |        |      |      |       |      |      |
|--------------------------|--------|-------|--------|------------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 2.3    |       |        |            |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT   | EBR    | WBL        | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕     |        |            | ↕      |       | ↗      | ↖    |      | ↗     | ↖    |      |
| Traffic Vol, veh/h       | 3      | 0     | 18     | 43         | 0      | 43    | 1      | 291  | 72   | 36    | 372  | 1    |
| Future Vol, veh/h        | 3      | 0     | 18     | 43         | 0      | 43    | 1      | 291  | 72   | 36    | 372  | 1    |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0          | 0      | 0     | 0      | 0    | 0    | 0     | 0    | 0    |
| Sign Control             | Stop   | Stop  | Stop   | Stop       | Stop   | Stop  | Free   | Free | Free | Free  | Free | Free |
| RT Channelized           | -      | -     | None   | -          | -      | None  | -      | -    | None | -     | -    | None |
| Storage Length           | -      | -     | -      | -          | -      | -     | 50     | -    | -    | 50    | -    | -    |
| Veh in Median Storage, # | -      | 0     | -      | -          | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0     | -      | -          | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 92     | 92    | 92     | 92         | 92     | 92    | 92     | 92   | 92   | 92    | 92   | 92   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2          | 2      | 2     | 2      | 2    | 2    | 2     | 2    | 2    |
| Mvmt Flow                | 3      | 0     | 20     | 47         | 0      | 47    | 1      | 316  | 78   | 39    | 404  | 1    |
|                          |        |       |        |            |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |       | Minor1 |            | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 864    | 879   | 405    | 850        | 840    | 355   | 405    | 0    | 0    | 394   | 0    | 0    |
| Stage 1                  | 483    | 483   | -      | 357        | 357    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 381    | 396   | -      | 493        | 483    | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.12   | 6.52  | 6.22   | 7.12       | 6.52   | 6.22  | 4.12   | -    | -    | 4.12  | -    | -    |
| Critical Hdwy Stg 1      | 6.12   | 5.52  | -      | 6.12       | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.12   | 5.52  | -      | 6.12       | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.518  | 4.018 | 3.318  | 3.518      | 4.018  | 3.318 | 2.218  | -    | -    | 2.218 | -    | -    |
| Pot Cap-1 Maneuver       | 274    | 286   | 646    | 280        | 302    | 689   | 1154   | -    | -    | 1165  | -    | -    |
| Stage 1                  | 565    | 553   | -      | 661        | 628    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 641    | 604   | -      | 558        | 553    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |       |        |            |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 249    | 276   | 646    | 264        | 292    | 689   | 1154   | -    | -    | 1165  | -    | -    |
| Mov Cap-2 Maneuver       | 249    | 276   | -      | 264        | 292    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 564    | 535   | -      | 660        | 627    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 597    | 603   | -      | 523        | 535    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |       |        |            |        |       |        |      |      |       |      |      |
| Approach                 | EB     |       | WB     |            | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 12.2   |       | 17.5   |            | 0      |       | 0.7    |      |      |       |      |      |
| HCM LOS                  | B      |       | C      |            |        |       |        |      |      |       |      |      |
|                          |        |       |        |            |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT   | NBR    | EBLn1WBLn1 | SBL    | SBT   | SBR    |      |      |       |      |      |
| Capacity (veh/h)         | 1154   | -     | -      | 526        | 382    | 1165  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | 0.001  | -     | -      | 0.043      | 0.245  | 0.034 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 8.1    | -     | -      | 12.2       | 17.5   | 8.2   | -      | -    |      |       |      |      |
| HCM Lane LOS             | A      | -     | -      | B          | C      | A     | -      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -     | -      | 0.1        | 0.9    | 0.1   | -      | -    |      |       |      |      |

| Intersection             |                                                                                   |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Int Delay, s/veh         | 0.8                                                                               |      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Movement                 | EBL                                                                               | EBR  | NBL                                                                               | NBT                                                                               | SBT                                                                               | SBR                                                                               |
| Lane Configurations      |  |      |  |  |  |  |
| Traffic Vol, veh/h       | 16                                                                                | 23   | 16                                                                                | 320                                                                               | 385                                                                               | 21                                                                                |
| Future Vol, veh/h        | 16                                                                                | 23   | 16                                                                                | 320                                                                               | 385                                                                               | 21                                                                                |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |
| Sign Control             | Stop                                                                              | Stop | Free                                                                              | Free                                                                              | Free                                                                              | Free                                                                              |
| RT Channelized           | -                                                                                 | None | -                                                                                 | None                                                                              | -                                                                                 | None                                                                              |
| Storage Length           | 0                                                                                 | -    | 50                                                                                | -                                                                                 | -                                                                                 | -                                                                                 |
| Veh in Median Storage, # | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Grade, %                 | 0                                                                                 | -    | -                                                                                 | 0                                                                                 | 0                                                                                 | -                                                                                 |
| Peak Hour Factor         | 92                                                                                | 92   | 92                                                                                | 92                                                                                | 92                                                                                | 92                                                                                |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2                                                                                 | 2                                                                                 | 2                                                                                 | 2                                                                                 |
| Mvmt Flow                | 17                                                                                | 25   | 17                                                                                | 348                                                                               | 418                                                                               | 23                                                                                |

| Major/Minor          | Minor2 | Major1 | Major2 |   |   |   |
|----------------------|--------|--------|--------|---|---|---|
| Conflicting Flow All | 812    | 430    | 441    | 0 | - | 0 |
| Stage 1              | 430    | -      | -      | - | - | - |
| Stage 2              | 382    | -      | -      | - | - | - |
| Critical Hdwy        | 6.42   | 6.22   | 4.12   | - | - | - |
| Critical Hdwy Stg 1  | 5.42   | -      | -      | - | - | - |
| Critical Hdwy Stg 2  | 5.42   | -      | -      | - | - | - |
| Follow-up Hdwy       | 3.518  | 3.318  | 2.218  | - | - | - |
| Pot Cap-1 Maneuver   | 348    | 625    | 1119   | - | - | - |
| Stage 1              | 656    | -      | -      | - | - | - |
| Stage 2              | 690    | -      | -      | - | - | - |
| Platoon blocked, %   |        |        |        | - | - | - |
| Mov Cap-1 Maneuver   | 343    | 625    | 1119   | - | - | - |
| Mov Cap-2 Maneuver   | 461    | -      | -      | - | - | - |
| Stage 1              | 646    | -      | -      | - | - | - |
| Stage 2              | 690    | -      | -      | - | - | - |

| Approach             | EB   | NB  | SB |
|----------------------|------|-----|----|
| HCM Control Delay, s | 12.2 | 0.4 | 0  |
| HCM LOS              | B    |     |    |

| Minor Lane/Major Mvmt | NBL   | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h)      | 1119  | -   | 545   | -   | -   |
| HCM Lane V/C Ratio    | 0.016 | -   | 0.078 | -   | -   |
| HCM Control Delay (s) | 8.3   | -   | 12.2  | -   | -   |
| HCM Lane LOS          | A     | -   | B     | -   | -   |
| HCM 95th %tile Q(veh) | 0     | -   | 0.3   | -   | -   |

## Queues

## 7: University Drive &amp; Whitehead Street/Democracy Lane

06/20/2025

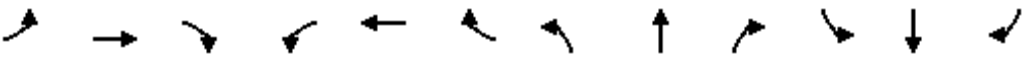


| Lane Group              | EBT  | EBR  | WBT  | NBL  | NBT  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 109  | 71   | 116  | 29   | 336  | 32   | 318  |
| v/c Ratio               | 0.20 | 0.12 | 0.23 | 0.06 | 0.39 | 0.07 | 0.37 |
| Control Delay           | 21.9 | 7.9  | 21.0 | 16.0 | 16.3 | 16.1 | 16.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 21.9 | 7.9  | 21.0 | 16.0 | 16.3 | 16.1 | 16.2 |
| Queue Length 50th (ft)  | 13   | 0    | 13   | 3    | 37   | 3    | 35   |
| Queue Length 95th (ft)  | 91   | 32   | 93   | 28   | 206  | 30   | 196  |
| Internal Link Dist (ft) | 245  |      | 267  |      | 117  |      | 232  |
| Turn Bay Length (ft)    |      |      |      | 50   |      | 150  |      |
| Base Capacity (vph)     | 954  | 1023 | 880  | 854  | 1578 | 800  | 1585 |
| Starvation Cap Reductn  | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.11 | 0.07 | 0.13 | 0.03 | 0.21 | 0.04 | 0.20 |
| Intersection Summary    |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 7: University Drive & Whitehead Street/Democracy Lane

06/20/2025

|                                   |  |      |       |      |       |                           |       |      |      |      |      |      |
|-----------------------------------|------------------------------------------------------------------------------------|------|-------|------|-------|---------------------------|-------|------|------|------|------|------|
| Movement                          | EBL                                                                                | EBT  | EBR   | WBL  | WBT   | WBR                       | NBL   | NBT  | NBR  | SBL  | SBT  | SBR  |
| Lane Configurations               |                                                                                    | ↰    | ↱     |      | ↰     | ↱                         | ↰     | ↱    |      | ↰    | ↱    |      |
| Traffic Volume (vph)              | 51                                                                                 | 50   | 65    | 64   | 23    | 19                        | 27    | 266  | 43   | 29   | 271  | 21   |
| Future Volume (vph)               | 51                                                                                 | 50   | 65    | 64   | 23    | 19                        | 27    | 266  | 43   | 29   | 271  | 21   |
| Ideal Flow (vphpl)                | 1900                                                                               | 1900 | 1900  | 1900 | 1900  | 1900                      | 1900  | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s)               |                                                                                    | 6.0  | 6.0   |      | 6.0   |                           | 5.0   | 5.0  |      | 5.0  | 5.0  |      |
| Lane Util. Factor                 |                                                                                    | 1.00 | 1.00  |      | 1.00  |                           | 1.00  | 1.00 |      | 1.00 | 1.00 |      |
| Frpb, ped/bikes                   |                                                                                    | 1.00 | 0.92  |      | 0.99  |                           | 1.00  | 0.99 |      | 1.00 | 1.00 |      |
| Flpb, ped/bikes                   |                                                                                    | 1.00 | 1.00  |      | 0.97  |                           | 0.99  | 1.00 |      | 0.98 | 1.00 |      |
| Frt                               |                                                                                    | 1.00 | 0.85  |      | 0.98  |                           | 1.00  | 0.98 |      | 1.00 | 0.99 |      |
| Flt Protected                     |                                                                                    | 0.98 | 1.00  |      | 0.97  |                           | 0.95  | 1.00 |      | 0.95 | 1.00 |      |
| Satd. Flow (prot)                 |                                                                                    | 1758 | 1456  |      | 1657  |                           | 1752  | 1813 |      | 1730 | 1816 |      |
| Flt Permitted                     |                                                                                    | 0.78 | 1.00  |      | 0.75  |                           | 0.54  | 1.00 |      | 0.51 | 1.00 |      |
| Satd. Flow (perm)                 |                                                                                    | 1408 | 1456  |      | 1285  |                           | 987   | 1813 |      | 934  | 1816 |      |
| Peak-hour factor, PHF             | 0.92                                                                               | 0.92 | 0.92  | 0.92 | 0.92  | 0.92                      | 0.92  | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph)                   | 55                                                                                 | 54   | 71    | 70   | 25    | 21                        | 29    | 289  | 47   | 32   | 295  | 23   |
| RTOR Reduction (vph)              | 0                                                                                  | 0    | 58    | 0    | 7     | 0                         | 0     | 6    | 0    | 0    | 3    | 0    |
| Lane Group Flow (vph)             | 0                                                                                  | 109  | 13    | 0    | 109   | 0                         | 29    | 330  | 0    | 32   | 315  | 0    |
| Confl. Peds. (#/hr)               | 3                                                                                  |      | 22    | 22   |       | 3                         | 12    |      | 18   | 28   |      | 12   |
| Heavy Vehicles (%)                | 6%                                                                                 | 4%   | 2%    | 2%   | 14%   | 2%                        | 2%    | 2%   | 2%   | 2%   | 2%   | 19%  |
| Turn Type                         | Perm                                                                               | NA   | Perm  | Perm | NA    |                           | Perm  | NA   |      | Perm | NA   |      |
| Protected Phases                  |                                                                                    | 8    |       |      | 4     |                           |       | 2    |      |      | 6    |      |
| Permitted Phases                  | 8                                                                                  |      | 8     | 4    |       |                           | 2     |      |      | 6    |      |      |
| Actuated Green, G (s)             |                                                                                    | 8.1  | 8.1   |      | 8.1   |                           | 17.3  | 17.3 |      | 17.3 | 17.3 |      |
| Effective Green, g (s)            |                                                                                    | 8.1  | 8.1   |      | 8.1   |                           | 17.3  | 17.3 |      | 17.3 | 17.3 |      |
| Actuated g/C Ratio                |                                                                                    | 0.18 | 0.18  |      | 0.18  |                           | 0.38  | 0.38 |      | 0.38 | 0.38 |      |
| Clearance Time (s)                |                                                                                    | 6.0  | 6.0   |      | 6.0   |                           | 5.0   | 5.0  |      | 5.0  | 5.0  |      |
| Vehicle Extension (s)             |                                                                                    | 3.0  | 3.0   |      | 3.0   |                           | 3.0   | 3.0  |      | 3.0  | 3.0  |      |
| Lane Grp Cap (vph)                |                                                                                    | 252  | 260   |      | 230   |                           | 377   | 693  |      | 357  | 695  |      |
| v/s Ratio Prot                    |                                                                                    |      |       |      |       |                           | c0.18 |      |      |      | 0.17 |      |
| v/s Ratio Perm                    |                                                                                    | 0.08 | 0.01  |      | c0.08 |                           | 0.03  |      |      | 0.03 |      |      |
| v/c Ratio                         |                                                                                    | 0.43 | 0.05  |      | 0.47  |                           | 0.08  | 0.48 |      | 0.09 | 0.45 |      |
| Uniform Delay, d1                 |                                                                                    | 16.5 | 15.4  |      | 16.6  |                           | 8.9   | 10.5 |      | 8.9  | 10.4 |      |
| Progression Factor                |                                                                                    | 1.00 | 1.00  |      | 0.99  |                           | 1.00  | 1.00 |      | 1.00 | 1.00 |      |
| Incremental Delay, d2             |                                                                                    | 1.2  | 0.1   |      | 1.5   |                           | 0.1   | 0.5  |      | 0.1  | 0.5  |      |
| Delay (s)                         |                                                                                    | 17.7 | 15.4  |      | 18.0  |                           | 9.0   | 11.0 |      | 9.0  | 10.9 |      |
| Level of Service                  |                                                                                    | B    | B     |      | B     |                           | A     | B    |      | A    | B    |      |
| Approach Delay (s)                |                                                                                    | 16.8 |       |      | 18.0  |                           |       | 10.9 |      |      | 10.7 |      |
| Approach LOS                      |                                                                                    | B    |       |      | B     |                           |       | B    |      |      | B    |      |
| <b>Intersection Summary</b>       |                                                                                    |      |       |      |       |                           |       |      |      |      |      |      |
| HCM 2000 Control Delay            |                                                                                    |      | 12.7  |      |       | HCM 2000 Level of Service |       |      |      | B    |      |      |
| HCM 2000 Volume to Capacity ratio |                                                                                    |      | 0.40  |      |       |                           |       |      |      |      |      |      |
| Actuated Cycle Length (s)         |                                                                                    |      | 45.2  |      |       | Sum of lost time (s)      |       |      |      | 15.0 |      |      |
| Intersection Capacity Utilization |                                                                                    |      | 45.9% |      |       | ICU Level of Service      |       |      |      | A    |      |      |
| Analysis Period (min)             |                                                                                    |      | 15    |      |       |                           |       |      |      |      |      |      |
| c Critical Lane Group             |                                                                                    |      |       |      |       |                           |       |      |      |      |      |      |

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HCM 6th Edition methodology does not support exclusive ped or hold phases.

HCM 6th TWSC  
8: Garage Access & Democracy Lane

06/20/2025

| Intersection             |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|--------------------------|-----------------------------------------------------------------------------------|------|--------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------|
| Int Delay, s/veh         | 2.1                                                                               |      |        |                                                                                   |                                                                                   |       |
| Movement                 | EBT                                                                               | EBR  | WBL    | WBT                                                                               | NBL                                                                               | NBR   |
| Lane Configurations      |  |      |        |  |  |       |
| Traffic Vol, veh/h       | 92                                                                                | 30   | 30     | 88                                                                                | 18                                                                                | 19    |
| Future Vol, veh/h        | 92                                                                                | 30   | 30     | 88                                                                                | 18                                                                                | 19    |
| Conflicting Peds, #/hr   | 0                                                                                 | 0    | 0      | 0                                                                                 | 0                                                                                 | 0     |
| Sign Control             | Free                                                                              | Free | Free   | Free                                                                              | Stop                                                                              | Stop  |
| RT Channelized           | -                                                                                 | None | -      | None                                                                              | -                                                                                 | None  |
| Storage Length           | -                                                                                 | -    | -      | -                                                                                 | 0                                                                                 | -     |
| Veh in Median Storage, # | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Grade, %                 | 0                                                                                 | -    | -      | 0                                                                                 | 0                                                                                 | -     |
| Peak Hour Factor         | 92                                                                                | 92   | 92     | 92                                                                                | 92                                                                                | 92    |
| Heavy Vehicles, %        | 2                                                                                 | 2    | 2      | 2                                                                                 | 2                                                                                 | 2     |
| Mvmt Flow                | 100                                                                               | 33   | 33     | 96                                                                                | 20                                                                                | 21    |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Major/Minor              | Major1                                                                            |      | Major2 |                                                                                   | Minor1                                                                            |       |
| Conflicting Flow All     | 0                                                                                 | 0    | 133    | 0                                                                                 | 279                                                                               | 117   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 117                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 162                                                                               | -     |
| Critical Hdwy            | -                                                                                 | -    | 4.12   | -                                                                                 | 6.42                                                                              | 6.22  |
| Critical Hdwy Stg 1      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Critical Hdwy Stg 2      | -                                                                                 | -    | -      | -                                                                                 | 5.42                                                                              | -     |
| Follow-up Hdwy           | -                                                                                 | -    | 2.218  | -                                                                                 | 3.518                                                                             | 3.318 |
| Pot Cap-1 Maneuver       | -                                                                                 | -    | 1452   | -                                                                                 | 711                                                                               | 935   |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 908                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 867                                                                               | -     |
| Platoon blocked, %       | -                                                                                 | -    |        | -                                                                                 |                                                                                   |       |
| Mov Cap-1 Maneuver       | -                                                                                 | -    | 1452   | -                                                                                 | 694                                                                               | 935   |
| Mov Cap-2 Maneuver       | -                                                                                 | -    | -      | -                                                                                 | 694                                                                               | -     |
| Stage 1                  | -                                                                                 | -    | -      | -                                                                                 | 908                                                                               | -     |
| Stage 2                  | -                                                                                 | -    | -      | -                                                                                 | 846                                                                               | -     |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Approach                 | EB                                                                                |      | WB     |                                                                                   | NB                                                                                |       |
| HCM Control Delay, s     | 0                                                                                 |      | 1.9    |                                                                                   | 9.7                                                                               |       |
| HCM LOS                  |                                                                                   |      |        |                                                                                   | A                                                                                 |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
|                          |                                                                                   |      |        |                                                                                   |                                                                                   |       |
| Minor Lane/Major Mvmt    | NBLn1                                                                             | EBT  | EBR    | WBL                                                                               | WBT                                                                               |       |
| Capacity (veh/h)         | 800                                                                               | -    | -      | 1452                                                                              | -                                                                                 |       |
| HCM Lane V/C Ratio       | 0.05                                                                              | -    | -      | 0.022                                                                             | -                                                                                 |       |
| HCM Control Delay (s)    | 9.7                                                                               | -    | -      | 7.5                                                                               | 0                                                                                 |       |
| HCM Lane LOS             | A                                                                                 | -    | -      | A                                                                                 | A                                                                                 |       |
| HCM 95th %tile Q(veh)    | 0.2                                                                               | -    | -      | 0.1                                                                               | -                                                                                 |       |

| Intersection             |        |       |      |        |       |      |        |       |       |        |       |       |
|--------------------------|--------|-------|------|--------|-------|------|--------|-------|-------|--------|-------|-------|
| Int Delay, s/veh         | 1.7    |       |      |        |       |      |        |       |       |        |       |       |
| Movement                 | EBL    | EBT   | EBR  | WBL    | WBT   | WBR  | NBL    | NBT   | NBR   | SBL    | SBT   | SBR   |
| Lane Configurations      |        | ↕     |      |        | ↕     |      |        | ↕     |       |        | ↕     |       |
| Traffic Vol, veh/h       | 1      | 216   | 16   | 25     | 162   | 0    | 9      | 0     | 34    | 4      | 0     | 12    |
| Future Vol, veh/h        | 1      | 216   | 16   | 25     | 162   | 0    | 9      | 0     | 34    | 4      | 0     | 12    |
| Conflicting Peds, #/hr   | 2      | 0     | 0    | 0      | 0     | 2    | 1      | 0     | 0     | 0      | 0     | 1     |
| Sign Control             | Free   | Free  | Free | Free   | Free  | Free | Stop   | Stop  | Stop  | Stop   | Stop  | Stop  |
| RT Channelized           | -      | -     | None | -      | -     | None | -      | -     | None  | -      | -     | None  |
| Storage Length           | -      | -     | -    | -      | -     | -    | -      | -     | -     | -      | -     | -     |
| Veh in Median Storage, # | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Grade, %                 | -      | 0     | -    | -      | 0     | -    | -      | 0     | -     | -      | 0     | -     |
| Peak Hour Factor         | 92     | 92    | 92   | 92     | 92    | 92   | 92     | 92    | 92    | 92     | 92    | 92    |
| Heavy Vehicles, %        | 2      | 2     | 13   | 7      | 3     | 2    | 2      | 2     | 2     | 2      | 2     | 2     |
| Mvmt Flow                | 1      | 235   | 17   | 27     | 176   | 0    | 10     | 0     | 37    | 4      | 0     | 13    |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Major/Minor              | Major1 |       |      | Major2 |       |      | Minor1 |       |       | Minor2 |       |       |
| Conflicting Flow All     | 178    | 0     | 0    | 252    | 0     | 0    | 484    | 478   | 244   | 496    | 486   | 179   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 246    | 246   | -     | 232    | 232   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 238    | 232   | -     | 264    | 254   | -     |
| Critical Hdwy            | 4.12   | -     | -    | 4.17   | -     | -    | 7.12   | 6.52  | 6.22  | 7.12   | 6.52  | 6.22  |
| Critical Hdwy Stg 1      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Critical Hdwy Stg 2      | -      | -     | -    | -      | -     | -    | 6.12   | 5.52  | -     | 6.12   | 5.52  | -     |
| Follow-up Hdwy           | 2.218  | -     | -    | 2.263  | -     | -    | 3.518  | 4.018 | 3.318 | 3.518  | 4.018 | 3.318 |
| Pot Cap-1 Maneuver       | 1398   | -     | -    | 1285   | -     | -    | 493    | 486   | 795   | 484    | 481   | 864   |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 758    | 703   | -     | 771    | 713   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 765    | 713   | -     | 741    | 697   | -     |
| Platoon blocked, %       |        | -     | -    |        | -     | -    |        |       |       |        |       |       |
| Mov Cap-1 Maneuver       | 1395   | -     | -    | 1285   | -     | -    | 476    | 473   | 795   | 452    | 468   | 862   |
| Mov Cap-2 Maneuver       | -      | -     | -    | -      | -     | -    | 476    | 473   | -     | 452    | 468   | -     |
| Stage 1                  | -      | -     | -    | -      | -     | -    | 757    | 702   | -     | 769    | 695   | -     |
| Stage 2                  | -      | -     | -    | -      | -     | -    | 735    | 695   | -     | 706    | 696   | -     |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Approach                 | EB     |       |      | WB     |       |      | NB     |       |       | SB     |       |       |
| HCM Control Delay, s     | 0      |       |      | 1.1    |       |      | 10.5   |       |       | 10.3   |       |       |
| HCM LOS                  |        |       |      |        |       |      | B      |       |       | B      |       |       |
|                          |        |       |      |        |       |      |        |       |       |        |       |       |
| Minor Lane/Major Mvmt    | NBLn1  | EBL   | EBT  | EBR    | WBL   | WBT  | WBR    | SBLn1 |       |        |       |       |
| Capacity (veh/h)         | 697    | 1395  | -    | -      | 1285  | -    | -      | 703   |       |        |       |       |
| HCM Lane V/C Ratio       | 0.067  | 0.001 | -    | -      | 0.021 | -    | -      | 0.025 |       |        |       |       |
| HCM Control Delay (s)    | 10.5   | 7.6   | 0    | -      | 7.9   | 0    | -      | 10.3  |       |        |       |       |
| HCM Lane LOS             | B      | A     | A    | -      | A     | A    | -      | B     |       |        |       |       |
| HCM 95th %tile Q(veh)    | 0.2    | 0     | -    | -      | 0.1   | -    | -      | 0.1   |       |        |       |       |

## Queues

## 10: Old Lee Highway &amp; Layton Hall Drive/Farrcroft Drive

06/20/2025



| Lane Group              | EBL  | EBT  | WBL  | WBT  | NBL  | NBT  | NBR  | SBL  | SBT  |
|-------------------------|------|------|------|------|------|------|------|------|------|
| Lane Group Flow (vph)   | 197  | 69   | 14   | 29   | 52   | 449  | 18   | 19   | 704  |
| v/c Ratio               | 0.53 | 0.18 | 0.09 | 0.17 | 0.14 | 0.55 | 0.03 | 0.05 | 0.59 |
| Control Delay           | 37.6 | 14.9 | 43.9 | 28.3 | 13.3 | 23.2 | 0.1  | 13.2 | 24.4 |
| Queue Delay             | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Total Delay             | 37.6 | 14.9 | 43.9 | 28.3 | 13.3 | 23.2 | 0.1  | 13.2 | 24.4 |
| Queue Length 50th (ft)  | 91   | 8    | 7    | 5    | 14   | 150  | 0    | 5    | 158  |
| Queue Length 95th (ft)  | 196  | 47   | 30   | 37   | 38   | 368  | 0    | 19   | 262  |
| Internal Link Dist (ft) |      | 305  |      | 220  |      | 864  |      |      | 293  |
| Turn Bay Length (ft)    |      |      |      |      |      |      | 230  | 150  |      |
| Base Capacity (vph)     | 799  | 772  | 641  | 625  | 533  | 1462 | 1078 | 597  | 2644 |
| 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       | 0.25 | 0.09 | 0.02 | 0.05 | 0.10 | 0.31 | 0.02 | 0.03 | 0.27 |
| Intersection Summary    |      |      |      |      |      |      |      |      |      |

# HCM Signalized Intersection Capacity Analysis

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

06/20/2025

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (vph)              | 191                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 436                                                                                 | 17                                                                                  | 18                                                                                  | 555                                                                                 | 128                                                                                 |
| Future Volume (vph)               | 191                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 436                                                                                 | 17                                                                                  | 18                                                                                  | 555                                                                                 | 128                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                |                                                                                     |
| Frpb, ped/bikes                   | 1.00                                                                              | 0.99                                                                              |                                                                                   | 1.00                                                                              | 0.98                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.93                                                                                | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flpb, ped/bikes                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 0.99                                                                                | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.89                                                                              |                                                                                   | 1.00                                                                              | 0.91                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 0.85                                                                                | 1.00                                                                                | 0.97                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                | 1.00                                                                                | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1752                                                                              | 1638                                                                              |                                                                                   | 1687                                                                              | 1621                                                                              |                                                                                   | 1768                                                                                | 1863                                                                                | 1413                                                                                | 1754                                                                                | 3368                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.27                                                                                | 1.00                                                                                | 1.00                                                                                | 0.40                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1752                                                                              | 1638                                                                              |                                                                                   | 1687                                                                              | 1621                                                                              |                                                                                   | 497                                                                                 | 1863                                                                                | 1413                                                                                | 735                                                                                 | 3368                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Adj. Flow (vph)                   | 197                                                                               | 18                                                                                | 51                                                                                | 14                                                                                | 11                                                                                | 18                                                                                | 52                                                                                  | 449                                                                                 | 18                                                                                  | 19                                                                                  | 572                                                                                 | 132                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 41                                                                                | 0                                                                                 | 0                                                                                 | 17                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 11                                                                                  | 0                                                                                   | 13                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 197                                                                               | 28                                                                                | 0                                                                                 | 14                                                                                | 12                                                                                | 0                                                                                 | 52                                                                                  | 449                                                                                 | 7                                                                                   | 19                                                                                  | 691                                                                                 | 0                                                                                   |
| Confl. Peds. (#/hr)               | 3                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 3                                                                                 | 6                                                                                   |                                                                                     | 26                                                                                  | 26                                                                                  |                                                                                     | 6                                                                                   |
| Heavy Vehicles (%)                | 3%                                                                                | 2%                                                                                | 2%                                                                                | 7%                                                                                | 9%                                                                                | 2%                                                                                | 2%                                                                                  | 2%                                                                                  | 6%                                                                                  | 2%                                                                                  | 3%                                                                                  | 6%                                                                                  |
| Turn Type                         | Split                                                                             | NA                                                                                |                                                                                   | Split                                                                             | NA                                                                                |                                                                                   | pm+pt                                                                               | NA                                                                                  | Perm                                                                                | pm+pt                                                                               | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                 | 4                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                   | 1                                                                                   | 6                                                                                   |                                                                                     | 5                                                                                   | 2                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 6                                                                                   |                                                                                     | 6                                                                                   | 2                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 16.1                                                                              | 16.1                                                                              |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 38.5                                                                                | 33.1                                                                                | 33.1                                                                                | 31.9                                                                                | 29.8                                                                                |                                                                                     |
| Effective Green, g (s)            | 16.1                                                                              | 16.1                                                                              |                                                                                   | 3.6                                                                               | 3.6                                                                               |                                                                                   | 38.5                                                                                | 33.1                                                                                | 33.1                                                                                | 31.9                                                                                | 29.8                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.20                                                                              | 0.20                                                                              |                                                                                   | 0.04                                                                              | 0.04                                                                              |                                                                                   | 0.47                                                                                | 0.40                                                                                | 0.40                                                                                | 0.39                                                                                | 0.36                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                               | 6.5                                                                               |                                                                                   | 7.3                                                                               | 7.3                                                                               |                                                                                   | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 | 6.9                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                               | 3.0                                                                               |                                                                                   | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 | 3.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 341                                                                               | 319                                                                               |                                                                                   | 73                                                                                | 70                                                                                |                                                                                   | 315                                                                                 | 747                                                                                 | 566                                                                                 | 310                                                                                 | 1216                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.11                                                                             | 0.02                                                                              |                                                                                   | c0.01                                                                             | 0.01                                                                              |                                                                                   | c0.01                                                                               | c0.24                                                                               |                                                                                     | 0.00                                                                                | 0.21                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | 0.07                                                                                |                                                                                     | 0.01                                                                                | 0.02                                                                                |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.58                                                                              | 0.09                                                                              |                                                                                   | 0.19                                                                              | 0.17                                                                              |                                                                                   | 0.17                                                                                | 0.60                                                                                | 0.01                                                                                | 0.06                                                                                | 0.57                                                                                |                                                                                     |
| Uniform Delay, d1                 | 30.1                                                                              | 27.2                                                                              |                                                                                   | 38.0                                                                              | 38.0                                                                              |                                                                                   | 12.8                                                                                | 19.5                                                                                | 14.9                                                                                | 15.9                                                                                | 21.2                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 2.4                                                                               | 0.1                                                                               |                                                                                   | 1.3                                                                               | 1.1                                                                               |                                                                                   | 0.2                                                                                 | 1.4                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 0.6                                                                                 |                                                                                     |
| Delay (s)                         | 32.5                                                                              | 27.3                                                                              |                                                                                   | 39.3                                                                              | 39.1                                                                              |                                                                                   | 13.0                                                                                | 20.9                                                                                | 14.9                                                                                | 16.0                                                                                | 21.8                                                                                |                                                                                     |
| Level of Service                  | C                                                                                 | C                                                                                 |                                                                                   | D                                                                                 | D                                                                                 |                                                                                   | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 31.1                                                                              |                                                                                   |                                                                                   | 39.2                                                                              |                                                                                   |                                                                                     | 19.9                                                                                |                                                                                     |                                                                                     | 21.6                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | B                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 23.2                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.56                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 82.5                                                                              |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                     |                                                                                     | 27.6                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 61.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                     |                                                                                     | B                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

# HCM 6th Signalized Intersection Summary

## 10: Old Lee Highway & Layton Hall Drive/Farrcroft Drive

06/20/2025

|                              |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                     | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                                 | NBT                                                                                 | NBR                                                                                 | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations          |  |  |                                                                                   |  |  |                                                                                   |  |  |  |  |  |  |
| Traffic Volume (veh/h)       | 191                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 436                                                                                 | 17                                                                                  | 18                                                                                  | 555                                                                                 | 128                                                                                 |
| Future Volume (veh/h)        | 191                                                                               | 17                                                                                | 49                                                                                | 14                                                                                | 11                                                                                | 17                                                                                | 50                                                                                  | 436                                                                                 | 17                                                                                  | 18                                                                                  | 555                                                                                 | 128                                                                                 |
| Initial Q (Qb), veh          | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   | 0                                                                                   |
| Ped-Bike Adj(A_pbT)          | 1.00                                                                              |                                                                                   | 0.99                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              | 0.99                                                                                |                                                                                     | 0.96                                                                                | 0.98                                                                                |                                                                                     | 0.96                                                                                |
| 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                                                                                  |                                                                                     |                                                                                     |
| Adj Sat Flow, veh/h/ln       | 1856                                                                              | 1870                                                                              | 1870                                                                              | 1796                                                                              | 1767                                                                              | 1870                                                                              | 1870                                                                                | 1870                                                                                | 1811                                                                                | 1870                                                                                | 1856                                                                                | 1811                                                                                |
| Adj Flow Rate, veh/h         | 197                                                                               | 18                                                                                | 51                                                                                | 14                                                                                | 11                                                                                | 18                                                                                | 52                                                                                  | 449                                                                                 | 18                                                                                  | 19                                                                                  | 572                                                                                 | 132                                                                                 |
| Peak Hour Factor             | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                              | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                | 0.97                                                                                |
| Percent Heavy Veh, %         | 3                                                                                 | 2                                                                                 | 2                                                                                 | 7                                                                                 | 9                                                                                 | 2                                                                                 | 2                                                                                   | 2                                                                                   | 6                                                                                   | 2                                                                                   | 3                                                                                   | 6                                                                                   |
| Cap, veh/h                   | 278                                                                               | 67                                                                                | 190                                                                               | 87                                                                                | 30                                                                                | 50                                                                                | 296                                                                                 | 628                                                                                 | 495                                                                                 | 268                                                                                 | 877                                                                                 | 202                                                                                 |
| Arrive On Green              | 0.16                                                                              | 0.16                                                                              | 0.16                                                                              | 0.05                                                                              | 0.05                                                                              | 0.05                                                                              | 0.05                                                                                | 0.34                                                                                | 0.34                                                                                | 0.02                                                                                | 0.31                                                                                | 0.31                                                                                |
| Sat Flow, veh/h              | 1767                                                                              | 427                                                                               | 1211                                                                              | 1711                                                                              | 598                                                                               | 979                                                                               | 1781                                                                                | 1870                                                                                | 1475                                                                                | 1781                                                                                | 2820                                                                                | 648                                                                                 |
| Grp Volume(v), veh/h         | 197                                                                               | 0                                                                                 | 69                                                                                | 14                                                                                | 0                                                                                 | 29                                                                                | 52                                                                                  | 449                                                                                 | 18                                                                                  | 19                                                                                  | 357                                                                                 | 347                                                                                 |
| Grp Sat Flow(s),veh/h/ln     | 1767                                                                              | 0                                                                                 | 1639                                                                              | 1711                                                                              | 0                                                                                 | 1577                                                                              | 1781                                                                                | 1870                                                                                | 1475                                                                                | 1781                                                                                | 1763                                                                                | 1705                                                                                |
| Q Serve(g_s), s              | 6.7                                                                               | 0.0                                                                               | 2.4                                                                               | 0.5                                                                               | 0.0                                                                               | 1.1                                                                               | 1.2                                                                                 | 13.4                                                                                | 0.5                                                                                 | 0.5                                                                                 | 11.1                                                                                | 11.2                                                                                |
| Cycle Q Clear(g_c), s        | 6.7                                                                               | 0.0                                                                               | 2.4                                                                               | 0.5                                                                               | 0.0                                                                               | 1.1                                                                               | 1.2                                                                                 | 13.4                                                                                | 0.5                                                                                 | 0.5                                                                                 | 11.1                                                                                | 11.2                                                                                |
| Prop In Lane                 | 1.00                                                                              |                                                                                   | 0.74                                                                              | 1.00                                                                              |                                                                                   | 0.62                                                                              | 1.00                                                                                |                                                                                     | 1.00                                                                                | 1.00                                                                                |                                                                                     | 0.38                                                                                |
| Lane Grp Cap(c), veh/h       | 278                                                                               | 0                                                                                 | 258                                                                               | 87                                                                                | 0                                                                                 | 80                                                                                | 296                                                                                 | 628                                                                                 | 495                                                                                 | 268                                                                                 | 548                                                                                 | 530                                                                                 |
| V/C Ratio(X)                 | 0.71                                                                              | 0.00                                                                              | 0.27                                                                              | 0.16                                                                              | 0.00                                                                              | 0.36                                                                              | 0.18                                                                                | 0.72                                                                                | 0.04                                                                                | 0.07                                                                                | 0.65                                                                                | 0.66                                                                                |
| Avail Cap(c_a), veh/h        | 833                                                                               | 0                                                                                 | 773                                                                               | 672                                                                               | 0                                                                                 | 620                                                                               | 632                                                                                 | 1764                                                                                | 1392                                                                                | 648                                                                                 | 1663                                                                                | 1609                                                                                |
| 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                                                                                |
| Upstream Filter(l)           | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                              | 0.00                                                                              | 1.00                                                                              | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                | 1.00                                                                                |
| Uniform Delay (d), s/veh     | 25.4                                                                              | 0.0                                                                               | 23.6                                                                              | 28.9                                                                              | 0.0                                                                               | 29.2                                                                              | 14.6                                                                                | 18.5                                                                                | 14.2                                                                                | 15.4                                                                                | 18.9                                                                                | 19.0                                                                                |
| Incr Delay (d2), s/veh       | 3.3                                                                               | 0.0                                                                               | 0.6                                                                               | 0.9                                                                               | 0.0                                                                               | 2.7                                                                               | 0.3                                                                                 | 1.5                                                                                 | 0.0                                                                                 | 0.1                                                                                 | 1.3                                                                                 | 1.4                                                                                 |
| Initial Q Delay(d3),s/veh    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 | 0.0                                                                                 |
| %ile BackOfQ(50%),veh/ln     | 3.0                                                                               | 0.0                                                                               | 0.9                                                                               | 0.2                                                                               | 0.0                                                                               | 0.5                                                                               | 0.5                                                                                 | 5.5                                                                                 | 0.2                                                                                 | 0.2                                                                                 | 4.4                                                                                 | 4.3                                                                                 |
| Unsig. Movement Delay, s/veh |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| LnGrp Delay(d),s/veh         | 28.7                                                                              | 0.0                                                                               | 24.1                                                                              | 29.8                                                                              | 0.0                                                                               | 31.9                                                                              | 14.8                                                                                | 20.0                                                                                | 14.2                                                                                | 15.5                                                                                | 20.3                                                                                | 20.4                                                                                |
| LnGrp LOS                    | C                                                                                 | A                                                                                 | C                                                                                 | C                                                                                 | A                                                                                 | C                                                                                 | B                                                                                   | C                                                                                   | B                                                                                   | B                                                                                   | C                                                                                   | C                                                                                   |
| Approach Vol, veh/h          | 266                                                                               |                                                                                   |                                                                                   | 43                                                                                |                                                                                   |                                                                                   | 519                                                                                 |                                                                                     |                                                                                     | 723                                                                                 |                                                                                     |                                                                                     |
| Approach Delay, s/veh        | 27.5                                                                              |                                                                                   |                                                                                   | 31.2                                                                              |                                                                                   |                                                                                   | 19.3                                                                                |                                                                                     |                                                                                     | 20.2                                                                                |                                                                                     |                                                                                     |
| Approach LOS                 | C                                                                                 |                                                                                   |                                                                                   | C                                                                                 |                                                                                   |                                                                                   | B                                                                                   |                                                                                     |                                                                                     | C                                                                                   |                                                                                     |                                                                                     |
| Timer - Assigned Phs         | 1                                                                                 | 2                                                                                 |                                                                                   | 4                                                                                 | 5                                                                                 | 6                                                                                 |                                                                                     | 8                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Phs Duration (G+Y+Rc), s     | 9.9                                                                               | 26.7                                                                              |                                                                                   | 16.5                                                                              | 8.3                                                                               | 28.3                                                                              |                                                                                     | 10.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Change Period (Y+Rc), s      | * 6.9                                                                             | * 6.9                                                                             |                                                                                   | 6.5                                                                               | * 6.9                                                                             | * 6.9                                                                             |                                                                                     | 7.3                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Green Setting (Gmax), s  | * 15                                                                              | * 60                                                                              |                                                                                   | 30.0                                                                              | * 15                                                                              | * 60                                                                              |                                                                                     | 25.0                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Max Q Clear Time (g_c+I1), s | 3.2                                                                               | 13.2                                                                              |                                                                                   | 8.7                                                                               | 2.5                                                                               | 15.4                                                                              |                                                                                     | 3.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Green Ext Time (p_c), s      | 0.1                                                                               | 5.2                                                                               |                                                                                   | 1.0                                                                               | 0.0                                                                               | 3.3                                                                               |                                                                                     | 0.1                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

### Intersection Summary

|                    |      |
|--------------------|------|
| HCM 6th Ctrl Delay | 21.5 |
| HCM 6th LOS        | C    |

### Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

| Intersection             |        |       |        |       |        |       |        |      |      |       |      |      |
|--------------------------|--------|-------|--------|-------|--------|-------|--------|------|------|-------|------|------|
| Int Delay, s/veh         | 5.4    |       |        |       |        |       |        |      |      |       |      |      |
| Movement                 | EBL    | EBT   | EBR    | WBL   | WBT    | WBR   | NBL    | NBT  | NBR  | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕     |        |       | ↕      |       |        | ↕    |      |       | ↕    |      |
| Traffic Vol, veh/h       | 91     | 8     | 12     | 1     | 20     | 1     | 11     | 27   | 1    | 1     | 1    | 87   |
| Future Vol, veh/h        | 91     | 8     | 12     | 1     | 20     | 1     | 11     | 27   | 1    | 1     | 1    | 87   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0     | 0      | 0     | 0      | 0    | 0    | 0     | 0    | 0    |
| Sign Control             | Stop   | Stop  | Stop   | Stop  | Stop   | Stop  | Free   | Free | Free | Free  | Free | Free |
| RT Channelized           | -      | -     | None   | -     | -      | None  | -      | -    | None | -     | -    | None |
| Storage Length           | -      | -     | -      | -     | -      | -     | -      | -    | -    | -     | -    | -    |
| Veh in Median Storage, # | -      | 0     | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Grade, %                 | -      | 0     | -      | -     | 0      | -     | -      | 0    | -    | -     | 0    | -    |
| Peak Hour Factor         | 92     | 92    | 92     | 92    | 92     | 92    | 92     | 92   | 92   | 92    | 92   | 92   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2     | 2      | 2     | 2      | 2    | 2    | 2     | 2    | 2    |
| Mvmt Flow                | 99     | 9     | 13     | 1     | 22     | 1     | 12     | 29   | 1    | 1     | 1    | 95   |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Major/Minor              | Minor2 |       | Minor1 |       | Major1 |       | Major2 |      |      |       |      |      |
| Conflicting Flow All     | 116    | 105   | 49     | 116   | 152    | 30    | 96     | 0    | 0    | 30    | 0    | 0    |
| Stage 1                  | 51     | 51    | -      | 54    | 54     | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 65     | 54    | -      | 62    | 98     | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy            | 7.12   | 6.52  | 6.22   | 7.12  | 6.52   | 6.22  | 4.12   | -    | -    | 4.12  | -    | -    |
| Critical Hdwy Stg 1      | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.12   | 5.52  | -      | 6.12  | 5.52   | -     | -      | -    | -    | -     | -    | -    |
| Follow-up Hdwy           | 3.518  | 4.018 | 3.318  | 3.518 | 4.018  | 3.318 | 2.218  | -    | -    | 2.218 | -    | -    |
| Pot Cap-1 Maneuver       | 861    | 785   | 1020   | 861   | 740    | 1044  | 1498   | -    | -    | 1583  | -    | -    |
| Stage 1                  | 962    | 852   | -      | 958   | 850    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 946    | 850   | -      | 949   | 814    | -     | -      | -    | -    | -     | -    | -    |
| Platoon blocked, %       |        |       |        |       |        |       |        | -    | -    |       | -    | -    |
| Mov Cap-1 Maneuver       | 835    | 778   | 1020   | 837   | 733    | 1044  | 1498   | -    | -    | 1583  | -    | -    |
| Mov Cap-2 Maneuver       | 835    | 778   | -      | 837   | 733    | -     | -      | -    | -    | -     | -    | -    |
| Stage 1                  | 954    | 851   | -      | 950   | 843    | -     | -      | -    | -    | -     | -    | -    |
| Stage 2                  | 913    | 843   | -      | 926   | 813    | -     | -      | -    | -    | -     | -    | -    |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Approach                 | EB     |       | WB     |       | NB     |       | SB     |      |      |       |      |      |
| HCM Control Delay, s     | 10     |       | 10     |       | 2.1    |       | 0.1    |      |      |       |      |      |
| HCM LOS                  | B      |       | B      |       |        |       |        |      |      |       |      |      |
|                          |        |       |        |       |        |       |        |      |      |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT   | NBR    | EBLn1 | WBLn1  | SBL   | SBT    | SBR  |      |       |      |      |
| Capacity (veh/h)         | 1498   | -     | -      | 847   | 747    | 1583  | -      | -    |      |       |      |      |
| HCM Lane V/C Ratio       | 0.008  | -     | -      | 0.142 | 0.032  | 0.001 | -      | -    |      |       |      |      |
| HCM Control Delay (s)    | 7.4    | 0     | -      | 10    | 10     | 7.3   | 0      | -    |      |       |      |      |
| HCM Lane LOS             | A      | A     | -      | B     | B      | A     | A      | -    |      |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -     | -      | 0.5   | 0.1    | 0     | -      | -    |      |       |      |      |

Intersection

Int Delay, s/veh 4

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|----------|-----|-----|-----|-----|-----|-----|
|----------|-----|-----|-----|-----|-----|-----|

|                     |  |                                                                                   |                                                                                   |  |                                                                                   |  |
|---------------------|--|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|--|
| Lane Configurations |  |  |  |  |  |  |
|---------------------|--|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------|--|

|                    |    |    |    |   |   |    |
|--------------------|----|----|----|---|---|----|
| Traffic Vol, veh/h | 54 | 54 | 43 | 1 | 2 | 43 |
|--------------------|----|----|----|---|---|----|

|                   |    |    |    |   |   |    |
|-------------------|----|----|----|---|---|----|
| Future Vol, veh/h | 54 | 54 | 43 | 1 | 2 | 43 |
|-------------------|----|----|----|---|---|----|

|                        |   |   |   |   |   |   |
|------------------------|---|---|---|---|---|---|
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
|------------------------|---|---|---|---|---|---|

|              |      |      |      |      |      |      |
|--------------|------|------|------|------|------|------|
| Sign Control | Free | Free | Free | Free | Stop | Stop |
|--------------|------|------|------|------|------|------|

|                |   |      |   |      |   |      |
|----------------|---|------|---|------|---|------|
| RT Channelized | - | None | - | None | - | None |
|----------------|---|------|---|------|---|------|

|                |   |   |   |   |   |   |
|----------------|---|---|---|---|---|---|
| Storage Length | - | - | - | - | 0 | - |
|----------------|---|---|---|---|---|---|

|                          |   |   |   |   |   |   |
|--------------------------|---|---|---|---|---|---|
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
|--------------------------|---|---|---|---|---|---|

|          |   |   |   |   |   |   |
|----------|---|---|---|---|---|---|
| Grade, % | - | 0 | 0 | - | 0 | - |
|----------|---|---|---|---|---|---|

|                  |    |    |    |    |    |    |
|------------------|----|----|----|----|----|----|
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
|------------------|----|----|----|----|----|----|

|                   |   |   |   |   |   |   |
|-------------------|---|---|---|---|---|---|
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
|-------------------|---|---|---|---|---|---|

|           |    |    |    |   |   |    |
|-----------|----|----|----|---|---|----|
| Mvmt Flow | 59 | 59 | 47 | 1 | 2 | 47 |
|-----------|----|----|----|---|---|----|

| Major/Minor | Major1 | Major2 | Minor2 |
|-------------|--------|--------|--------|
|-------------|--------|--------|--------|

|                      |    |   |   |     |    |
|----------------------|----|---|---|-----|----|
| Conflicting Flow All | 48 | 0 | 0 | 225 | 48 |
|----------------------|----|---|---|-----|----|

|         |   |   |   |    |   |
|---------|---|---|---|----|---|
| Stage 1 | - | - | - | 48 | - |
|---------|---|---|---|----|---|

|         |   |   |   |     |   |
|---------|---|---|---|-----|---|
| Stage 2 | - | - | - | 177 | - |
|---------|---|---|---|-----|---|

|               |      |   |   |      |      |
|---------------|------|---|---|------|------|
| Critical Hdwy | 4.12 | - | - | 6.42 | 6.22 |
|---------------|------|---|---|------|------|

|                     |   |   |   |      |   |
|---------------------|---|---|---|------|---|
| Critical Hdwy Stg 1 | - | - | - | 5.42 | - |
|---------------------|---|---|---|------|---|

|                     |   |   |   |      |   |
|---------------------|---|---|---|------|---|
| Critical Hdwy Stg 2 | - | - | - | 5.42 | - |
|---------------------|---|---|---|------|---|

|                |       |   |   |       |       |
|----------------|-------|---|---|-------|-------|
| Follow-up Hdwy | 2.218 | - | - | 3.518 | 3.318 |
|----------------|-------|---|---|-------|-------|

|                    |      |   |   |     |      |
|--------------------|------|---|---|-----|------|
| Pot Cap-1 Maneuver | 1559 | - | - | 763 | 1021 |
|--------------------|------|---|---|-----|------|

|         |   |   |   |     |   |
|---------|---|---|---|-----|---|
| Stage 1 | - | - | - | 974 | - |
|---------|---|---|---|-----|---|

|         |   |   |   |     |   |
|---------|---|---|---|-----|---|
| Stage 2 | - | - | - | 854 | - |
|---------|---|---|---|-----|---|

|                    |   |   |   |   |   |
|--------------------|---|---|---|---|---|
| Platoon blocked, % | - | - | - | - | - |
|--------------------|---|---|---|---|---|

|                    |      |   |   |     |      |
|--------------------|------|---|---|-----|------|
| Mov Cap-1 Maneuver | 1559 | - | - | 733 | 1021 |
|--------------------|------|---|---|-----|------|

|                    |   |   |   |     |   |
|--------------------|---|---|---|-----|---|
| Mov Cap-2 Maneuver | - | - | - | 733 | - |
|--------------------|---|---|---|-----|---|

|         |   |   |   |     |   |
|---------|---|---|---|-----|---|
| Stage 1 | - | - | - | 936 | - |
|---------|---|---|---|-----|---|

|         |   |   |   |     |   |
|---------|---|---|---|-----|---|
| Stage 2 | - | - | - | 854 | - |
|---------|---|---|---|-----|---|

| Approach | EB | WB | SB |
|----------|----|----|----|
|----------|----|----|----|

|                      |     |   |     |
|----------------------|-----|---|-----|
| HCM Control Delay, s | 3.7 | 0 | 8.8 |
|----------------------|-----|---|-----|

|         |  |  |   |
|---------|--|--|---|
| HCM LOS |  |  | A |
|---------|--|--|---|

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|-----------------------|-----|-----|-----|-----|-------|
|-----------------------|-----|-----|-----|-----|-------|

|                  |      |   |   |   |      |
|------------------|------|---|---|---|------|
| Capacity (veh/h) | 1559 | - | - | - | 1003 |
|------------------|------|---|---|---|------|

|                    |       |   |   |   |       |
|--------------------|-------|---|---|---|-------|
| HCM Lane V/C Ratio | 0.038 | - | - | - | 0.049 |
|--------------------|-------|---|---|---|-------|

|                       |     |   |   |   |     |
|-----------------------|-----|---|---|---|-----|
| HCM Control Delay (s) | 7.4 | 0 | - | - | 8.8 |
|-----------------------|-----|---|---|---|-----|

|              |   |   |   |   |   |
|--------------|---|---|---|---|---|
| HCM Lane LOS | A | A | - | - | A |
|--------------|---|---|---|---|---|

|                       |     |   |   |   |     |
|-----------------------|-----|---|---|---|-----|
| HCM 95th %tile Q(veh) | 0.1 | - | - | - | 0.2 |
|-----------------------|-----|---|---|---|-----|

## **Appendix I – Intersection Analysis Worksheets – 2028 Future with Development (Full-Build)**

| Intersection             |        |       |        |       |       |        |       |      |        |       |      |      |
|--------------------------|--------|-------|--------|-------|-------|--------|-------|------|--------|-------|------|------|
| Int Delay, s/veh         | 5.8    |       |        |       |       |        |       |      |        |       |      |      |
| Movement                 | EBL    | EBT   | EBR    | WBL   | WBT   | WBR    | NBL   | NBT  | NBR    | SBL   | SBT  | SBR  |
| Lane Configurations      |        | ↕     |        |       | ↕     |        |       | ↕    |        |       | ↕    |      |
| Traffic Vol, veh/h       | 63     | 7     | 11     | 1     | 9     | 1      | 11    | 27   | 1      | 1     | 1    | 32   |
| Future Vol, veh/h        | 63     | 7     | 11     | 1     | 9     | 1      | 11    | 27   | 1      | 1     | 1    | 32   |
| Conflicting Peds, #/hr   | 0      | 0     | 0      | 0     | 0     | 0      | 0     | 0    | 0      | 0     | 0    | 0    |
| Sign Control             | Stop   | Stop  | Stop   | Stop  | Stop  | Stop   | Free  | Free | Free   | Free  | Free | Free |
| RT Channelized           | -      | -     | None   | -     | -     | None   | -     | -    | None   | -     | -    | None |
| Storage Length           | -      | -     | -      | -     | -     | -      | -     | -    | -      | -     | -    | -    |
| Veh in Median Storage, # | -      | 0     | -      | -     | 0     | -      | -     | 0    | -      | -     | 0    | -    |
| Grade, %                 | -      | 0     | -      | -     | 0     | -      | -     | 0    | -      | -     | 0    | -    |
| Peak Hour Factor         | 92     | 92    | 92     | 92    | 92    | 92     | 92    | 92   | 92     | 92    | 92   | 92   |
| Heavy Vehicles, %        | 2      | 2     | 2      | 2     | 2     | 2      | 2     | 2    | 2      | 2     | 2    | 2    |
| Mvmt Flow                | 68     | 8     | 12     | 1     | 10    | 1      | 12    | 29   | 1      | 1     | 1    | 35   |
|                          |        |       |        |       |       |        |       |      |        |       |      |      |
| Major/Minor              | Minor2 |       | Minor1 |       |       | Major1 |       |      | Major2 |       |      |      |
| Conflicting Flow All     | 80     | 75    | 19     | 85    | 92    | 30     | 36    | 0    | 0      | 30    | 0    | 0    |
| Stage 1                  | 21     | 21    | -      | 54    | 54    | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 59     | 54    | -      | 31    | 38    | -      | -     | -    | -      | -     | -    | -    |
| Critical Hdwy            | 7.12   | 6.52  | 6.22   | 7.12  | 6.52  | 6.22   | 4.12  | -    | -      | 4.12  | -    | -    |
| Critical Hdwy Stg 1      | 6.12   | 5.52  | -      | 6.12  | 5.52  | -      | -     | -    | -      | -     | -    | -    |
| Critical Hdwy Stg 2      | 6.12   | 5.52  | -      | 6.12  | 5.52  | -      | -     | -    | -      | -     | -    | -    |
| Follow-up Hdwy           | 3.518  | 4.018 | 3.318  | 3.518 | 4.018 | 3.318  | 2.218 | -    | -      | 2.218 | -    | -    |
| Pot Cap-1 Maneuver       | 908    | 815   | 1059   | 901   | 798   | 1044   | 1575  | -    | -      | 1583  | -    | -    |
| Stage 1                  | 998    | 878   | -      | 958   | 850   | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 953    | 850   | -      | 986   | 863   | -      | -     | -    | -      | -     | -    | -    |
| Platoon blocked, %       |        |       |        |       |       |        |       | -    | -      |       | -    | -    |
| Mov Cap-1 Maneuver       | 893    | 808   | 1059   | 878   | 791   | 1044   | 1575  | -    | -      | 1583  | -    | -    |
| Mov Cap-2 Maneuver       | 893    | 808   | -      | 878   | 791   | -      | -     | -    | -      | -     | -    | -    |
| Stage 1                  | 990    | 877   | -      | 950   | 843   | -      | -     | -    | -      | -     | -    | -    |
| Stage 2                  | 933    | 843   | -      | 965   | 862   | -      | -     | -    | -      | -     | -    | -    |
|                          |        |       |        |       |       |        |       |      |        |       |      |      |
|                          |        |       |        |       |       |        |       |      |        |       |      |      |
| Approach                 | EB     |       | WB     |       |       | NB     |       |      | SB     |       |      |      |
| HCM Control Delay, s     | 9.4    |       | 9.5    |       |       | 2.1    |       |      | 0.2    |       |      |      |
| HCM LOS                  | A      |       | A      |       |       |        |       |      |        |       |      |      |
|                          |        |       |        |       |       |        |       |      |        |       |      |      |
| Minor Lane/Major Mvmt    | NBL    | NBT   | NBR    | EBLn1 | WBLn1 | SBL    | SBT   | SBR  |        |       |      |      |
| Capacity (veh/h)         | 1575   | -     | -      | 904   | 816   | 1583   | -     | -    |        |       |      |      |
| HCM Lane V/C Ratio       | 0.008  | -     | -      | 0.097 | 0.015 | 0.001  | -     | -    |        |       |      |      |
| HCM Control Delay (s)    | 7.3    | 0     | -      | 9.4   | 9.5   | 7.3    | 0     | -    |        |       |      |      |
| HCM Lane LOS             | A      | A     | -      | A     | A     | A      | A     | -    |        |       |      |      |
| HCM 95th %tile Q(veh)    | 0      | -     | -      | 0.3   | 0     | 0      | -     | -    |        |       |      |      |

**Intersection**

Int Delay, s/veh 4.6

**Movement** EBL EBT WBT WBR SBL SBRLane Configurations 

Traffic Vol, veh/h 22 21 7 1 1 18

Future Vol, veh/h 22 21 7 1 1 18

Conflicting Peds, #/hr 0 0 0 0 0 0

Sign Control Free Free Free Free Stop Stop

RT Channelized - None - None - None

Storage Length - - - - 0 -

Veh in Median Storage, # - 0 0 - 0 -

Grade, % - 0 0 - 0 -

Peak Hour Factor 92 92 92 92 92 92

Heavy Vehicles, % 2 2 2 2 2 2

Mvmt Flow 24 23 8 1 1 20

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All 9 0 - 0 80 9

Stage 1 - - - - 9 -

Stage 2 - - - - 71 -

Critical Hdwy 4.12 - - - 6.42 6.22

Critical Hdwy Stg 1 - - - - 5.42 -

Critical Hdwy Stg 2 - - - - 5.42 -

Follow-up Hdwy 2.218 - - - 3.518 3.318

Pot Cap-1 Maneuver 1611 - - - 922 1073

Stage 1 - - - - 1014 -

Stage 2 - - - - 952 -

Platoon blocked, % - - - -

Mov Cap-1 Maneuver 1611 - - - 908 1073

Mov Cap-2 Maneuver - - - - 908 -

Stage 1 - - - - 999 -

Stage 2 - - - - 952 -

**Approach** EB WB SB

HCM Control Delay, s 3.7 0 8.5

HCM LOS A

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h) 1611 - - - 1063

HCM Lane V/C Ratio 0.015 - - - 0.019

HCM Control Delay (s) 7.3 0 - - 8.5

HCM Lane LOS A A - - A

HCM 95th %tile Q(veh) 0 - - - 0.1

| Intersection             |        |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
|--------------------------|--------|-----------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------------------------------------|--------|-------|-----------------------------------------------------------------------------------|--------|-------|-------------------------------------------------------------------------------------|------|
| Int Delay, s/veh         | 5.6    |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
| Movement                 | EBL    | EBT                                                                               | EBR    | WBL   | WBT                                                                               | WBR    | NBL   | NBT                                                                               | NBR    | SBL   | SBT                                                                                 | SBR  |
| Lane Configurations      |        |  |        |       |  |        |       |  |        |       |  |      |
| Traffic Vol, veh/h       | 91     | 8                                                                                 | 12     | 1     | 20                                                                                | 1      | 6     | 11                                                                                | 1      | 1     | 1                                                                                   | 87   |
| Future Vol, veh/h        | 91     | 8                                                                                 | 12     | 1     | 20                                                                                | 1      | 6     | 11                                                                                | 1      | 1     | 1                                                                                   | 87   |
| Conflicting Peds, #/hr   | 0      | 0                                                                                 | 0      | 0     | 0                                                                                 | 0      | 0     | 0                                                                                 | 0      | 0     | 0                                                                                   | 0    |
| Sign Control             | Stop   | Stop                                                                              | Stop   | Stop  | Stop                                                                              | Stop   | Free  | Free                                                                              | Free   | Free  | Free                                                                                | Free |
| RT Channelized           | -      | -                                                                                 | None   | -     | -                                                                                 | None   | -     | -                                                                                 | None   | -     | -                                                                                   | None |
| Storage Length           | -      | -                                                                                 | -      | -     | -                                                                                 | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Veh in Median Storage, # | -      | 0                                                                                 | -      | -     | 0                                                                                 | -      | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Grade, %                 | -      | 0                                                                                 | -      | -     | 0                                                                                 | -      | -     | 0                                                                                 | -      | -     | 0                                                                                   | -    |
| Peak Hour Factor         | 92     | 92                                                                                | 92     | 92    | 92                                                                                | 92     | 92    | 92                                                                                | 92     | 92    | 92                                                                                  | 92   |
| Heavy Vehicles, %        | 2      | 2                                                                                 | 2      | 2     | 2                                                                                 | 2      | 2     | 2                                                                                 | 2      | 2     | 2                                                                                   | 2    |
| Mvmt Flow                | 99     | 9                                                                                 | 13     | 1     | 22                                                                                | 1      | 7     | 12                                                                                | 1      | 1     | 1                                                                                   | 95   |
|                          |        |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
| Major/Minor              | Minor2 |                                                                                   | Minor1 |       |                                                                                   | Major1 |       |                                                                                   | Major2 |       |                                                                                     |      |
| Conflicting Flow All     | 89     | 78                                                                                | 49     | 89    | 125                                                                               | 13     | 96    | 0                                                                                 | 0      | 13    | 0                                                                                   | 0    |
| Stage 1                  | 51     | 51                                                                                | -      | 27    | 27                                                                                | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 38     | 27                                                                                | -      | 62    | 98                                                                                | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy            | 7.12   | 6.52                                                                              | 6.22   | 7.12  | 6.52                                                                              | 6.22   | 4.12  | -                                                                                 | -      | 4.12  | -                                                                                   | -    |
| Critical Hdwy Stg 1      | 6.12   | 5.52                                                                              | -      | 6.12  | 5.52                                                                              | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Critical Hdwy Stg 2      | 6.12   | 5.52                                                                              | -      | 6.12  | 5.52                                                                              | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Follow-up Hdwy           | 3.518  | 4.018                                                                             | 3.318  | 3.518 | 4.018                                                                             | 3.318  | 2.218 | -                                                                                 | -      | 2.218 | -                                                                                   | -    |
| Pot Cap-1 Maneuver       | 896    | 812                                                                               | 1020   | 896   | 765                                                                               | 1067   | 1498  | -                                                                                 | -      | 1606  | -                                                                                   | -    |
| Stage 1                  | 962    | 852                                                                               | -      | 990   | 873                                                                               | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 977    | 873                                                                               | -      | 949   | 814                                                                               | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Platoon blocked, %       |        |                                                                                   |        |       |                                                                                   |        |       | -                                                                                 | -      |       | -                                                                                   | -    |
| Mov Cap-1 Maneuver       | 872    | 807                                                                               | 1020   | 874   | 760                                                                               | 1067   | 1498  | -                                                                                 | -      | 1606  | -                                                                                   | -    |
| Mov Cap-2 Maneuver       | 872    | 807                                                                               | -      | 874   | 760                                                                               | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 1                  | 957    | 851                                                                               | -      | 985   | 869                                                                               | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
| Stage 2                  | 947    | 869                                                                               | -      | 926   | 813                                                                               | -      | -     | -                                                                                 | -      | -     | -                                                                                   | -    |
|                          |        |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
|                          |        |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
| Approach                 | EB     |                                                                                   | WB     |       |                                                                                   | NB     |       |                                                                                   | SB     |       |                                                                                     |      |
| HCM Control Delay, s     | 9.7    |                                                                                   | 9.8    |       |                                                                                   | 2.5    |       |                                                                                   | 0.1    |       |                                                                                     |      |
| HCM LOS                  | A      |                                                                                   | A      |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
|                          |        |                                                                                   |        |       |                                                                                   |        |       |                                                                                   |        |       |                                                                                     |      |
| Minor Lane/Major Mvmt    | NBL    | NBT                                                                               | NBR    | EBLn1 | WBLn1                                                                             | SBL    | SBT   | SBR                                                                               |        |       |                                                                                     |      |
| Capacity (veh/h)         | 1498   | -                                                                                 | -      | 881   | 775                                                                               | 1606   | -     | -                                                                                 |        |       |                                                                                     |      |
| HCM Lane V/C Ratio       | 0.004  | -                                                                                 | -      | 0.137 | 0.031                                                                             | 0.001  | -     | -                                                                                 |        |       |                                                                                     |      |
| HCM Control Delay (s)    | 7.4    | 0                                                                                 | -      | 9.7   | 9.8                                                                               | 7.2    | 0     | -                                                                                 |        |       |                                                                                     |      |
| HCM Lane LOS             | A      | A                                                                                 | -      | A     | A                                                                                 | A      | A     | -                                                                                 |        |       |                                                                                     |      |
| HCM 95th %tile Q(veh)    | 0      | -                                                                                 | -      | 0.5   | 0.1                                                                               | 0      | -     | -                                                                                 |        |       |                                                                                     |      |

Intersection

Int Delay, s/veh 4.3

| Movement                 | EBL  | EBT                                                                               | WBT                                                                               | WBR  | SBL                                                                               | SBR  |
|--------------------------|------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------|------|
| Lane Configurations      |      |  |  |      |  |      |
| Traffic Vol, veh/h       | 54   | 54                                                                                | 37                                                                                | 1    | 2                                                                                 | 49   |
| Future Vol, veh/h        | 54   | 54                                                                                | 37                                                                                | 1    | 2                                                                                 | 49   |
| Conflicting Peds, #/hr   | 0    | 0                                                                                 | 0                                                                                 | 0    | 0                                                                                 | 0    |
| Sign Control             | Free | Free                                                                              | Free                                                                              | Free | Stop                                                                              | Stop |
| RT Channelized           | -    | None                                                                              | -                                                                                 | None | -                                                                                 | None |
| Storage Length           | -    | -                                                                                 | -                                                                                 | -    | 0                                                                                 | -    |
| Veh in Median Storage, # | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Grade, %                 | -    | 0                                                                                 | 0                                                                                 | -    | 0                                                                                 | -    |
| Peak Hour Factor         | 92   | 92                                                                                | 92                                                                                | 92   | 92                                                                                | 92   |
| Heavy Vehicles, %        | 2    | 2                                                                                 | 2                                                                                 | 2    | 2                                                                                 | 2    |
| Mvmt Flow                | 59   | 59                                                                                | 40                                                                                | 1    | 2                                                                                 | 53   |

| Major/Minor          | Major1 | Major2 | Minor2        |
|----------------------|--------|--------|---------------|
| Conflicting Flow All | 41     | 0      | 0 218 41      |
| Stage 1              | -      | -      | - 41 -        |
| Stage 2              | -      | -      | - 177 -       |
| Critical Hdwy        | 4.12   | -      | - 6.42 6.22   |
| Critical Hdwy Stg 1  | -      | -      | - 5.42 -      |
| Critical Hdwy Stg 2  | -      | -      | - 5.42 -      |
| Follow-up Hdwy       | 2.218  | -      | - 3.518 3.318 |
| Pot Cap-1 Maneuver   | 1568   | -      | - 770 1030    |
| Stage 1              | -      | -      | - 981 -       |
| Stage 2              | -      | -      | - 854 -       |
| Platoon blocked, %   | -      | -      | -             |
| Mov Cap-1 Maneuver   | 1568   | -      | - 740 1030    |
| Mov Cap-2 Maneuver   | -      | -      | - 740 -       |
| Stage 1              | -      | -      | - 943 -       |
| Stage 2              | -      | -      | - 854 -       |

| Approach             | EB  | WB | SB  |
|----------------------|-----|----|-----|
| HCM Control Delay, s | 3.7 | 0  | 8.8 |
| HCM LOS              |     |    | A   |

| Minor Lane/Major Mvmt | EBL   | EBT | WBT | WBR | SBLn1 |
|-----------------------|-------|-----|-----|-----|-------|
| Capacity (veh/h)      | 1568  | -   | -   | -   | 1014  |
| HCM Lane V/C Ratio    | 0.037 | -   | -   | -   | 0.055 |
| HCM Control Delay (s) | 7.4   | 0   | -   | -   | 8.8   |
| HCM Lane LOS          | A     | A   | -   | -   | A     |
| HCM 95th %tile Q(veh) | 0.1   | -   | -   | -   | 0.2   |

## **Appendix J – Site Visit Photographs**

**Intersection 1: Blenheim Blvd and Street 3/  
Plaza Dr**



Photograph taken at Intersection 1, looking North

**Intersection 1: Blenheim Blvd and Street 3/  
Plaza Dr**



Photograph taken at Intersection 1, looking South

**Intersection 2: Blenheim Blvd and Fairfax  
Commons Entrance**



Photograph taken at Intersection 2, looking North

**Intersection 2: Blenheim Blvd and Fairfax  
Commons Entrance**



Photograph taken at Intersection 2, looking East

**Intersection 2: Blenheim Blvd and Fairfax Commons Entrance**



Photograph taken at Intersection 2, looking South

**Intersection 4: Blenheim Blvd and Southern Entrance**



Photograph taken at Intersection 4, looking North

**Intersection 4: Blenheim Blvd and Southern Entrance**



Photograph taken at Intersection 4, looking South

**Intersection 4: Blenheim Blvd and Southern Entrance**



Photograph taken at Intersection 4, looking West

**Intersection 4: Blenheim Blvd and Southern Entrance**



Photograph taken at Intersection 4, looking South

**Intersection 6: University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance**



Photograph taken at Intersection 6, looking West

**Intersection 6: University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance**



Photograph taken at Intersection 6, looking East

**Intersection 6: University Drive and Existing Courthouse Plaza Entrance/7-11 Entrance**



Photograph taken at Intersection 6, looking South

**Intersection 7: University Drive and Democracy Ln/Whitehead St**



Photograph taken at Intersection 7, looking South

**Intersection 7: University Drive and Democracy Ln/Whitehead St**



Photograph taken at Intersection 7, looking West

**Intersection 7: University Drive and Democracy Ln/Whitehead St**



Photograph taken at Intersection 7, looking North and East

**Intersection 7: University Drive and Democracy Ln/Whitehead St**



Photograph taken at Intersection 7, looking North

**Intersection 9: Democracy Ln and Layton Hall Drive**



Photograph taken at Intersection 9, looking West

**Intersection 9: Democracy Ln and Layton Hall Drive**



Photograph taken at Intersection 9, looking East

**Intersection 9: Democracy Ln and Layton Hall Drive**



Photograph taken at Intersection 9, looking West

**Intersection 9: Democracy Ln and Layton Hall Drive**



Photograph taken at Intersection 9, looking East

**Intersection 10: Blenheim Blvd and Layton Hall Dr**



Photograph taken at Intersection 10, looking North

**Intersection 10: Blenheim Blvd and Layton Hall Dr**



Photograph taken at Intersection 10, looking East

**Intersection 10: Blenheim Blvd and Layton Hall Dr**



Photograph taken at Intersection 10, looking West

**Intersection 10: Blenheim Blvd and Layton Hall Dr**



Photograph taken at Intersection 10, looking East

**Intersection 10: Blenheim Blvd and Layton Hall Dr**

**Intersection 10: Blenheim Blvd and Layton Hall Dr**



Photograph taken at Intersection 10, looking North



Photograph taken at Intersection 10, looking East

## **Appendix K – Simtraffic Analysis Results (Democracy Lane and University Drive intersection)**

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7: University Drive & Whitehead Street/Democracy Lane Performance by movement

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| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|-----|-----|
| Denied Del/Veh (s) | 0.2  | 0.2  | 0.1 | 0.0  | 0.0  | 0.0 | 0.1  | 0.0  | 0.0 | 3.7  | 0.3 | 0.2 |
| Total Del/Veh (s)  | 15.1 | 14.2 | 4.3 | 13.4 | 12.7 | 6.4 | 17.4 | 10.3 | 7.3 | 14.7 | 9.8 | 4.4 |

---

7: University Drive & Whitehead Street/Democracy Lane Performance by movement

---

| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.2  |
| Total Del/Veh (s)  | 10.7 |

Intersection: 7: University Drive & Whitehead Street/Democracy Lane

| Movement              | EB  | EB  | WB  | NB | NB  | SB  | SB  |
|-----------------------|-----|-----|-----|----|-----|-----|-----|
| Directions Served     | LT  | R   | LTR | L  | TR  | L   | TR  |
| Maximum Queue (ft)    | 127 | 53  | 94  | 56 | 139 | 37  | 166 |
| Average Queue (ft)    | 54  | 18  | 36  | 4  | 70  | 8   | 66  |
| 95th Queue (ft)       | 102 | 47  | 73  | 25 | 129 | 31  | 132 |
| Link Distance (ft)    | 274 | 274 | 279 |    | 130 |     | 270 |
| Upstream Blk Time (%) |     |     |     |    | 1   |     |     |
| Queuing Penalty (veh) |     |     |     |    | 3   |     |     |
| Storage Bay Dist (ft) |     |     |     | 50 |     | 150 |     |
| Storage Blk Time (%)  |     |     |     | 0  | 12  |     | 1   |
| Queuing Penalty (veh) |     |     |     | 0  | 1   |     | 0   |

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7: University Drive & Whitehead Street/Democracy Lane Performance by movement

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| Movement           | EBL  | EBT  | EBR | WBL  | WBT  | WBR | NBL  | NBT  | NBR | SBL  | SBT  | SBR |
|--------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Denied Del/Veh (s) | 0.1  | 0.2  | 0.1 | 0.0  | 0.0  | 0.0 | 0.0  | 0.0  | 0.0 | 3.5  | 0.4  | 0.4 |
| Total Del/Veh (s)  | 17.3 | 16.3 | 4.8 | 18.3 | 15.2 | 7.6 | 16.4 | 11.2 | 7.6 | 19.8 | 12.4 | 8.4 |

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7: University Drive & Whitehead Street/Democracy Lane Performance by movement

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| Movement           | All  |
|--------------------|------|
| Denied Del/Veh (s) | 0.3  |
| Total Del/Veh (s)  | 12.4 |

Intersection: 7: University Drive & Whitehead Street/Democracy Lane

| Movement              | EB  | EB  | WB  | NB | NB  | SB  | SB  |
|-----------------------|-----|-----|-----|----|-----|-----|-----|
| Directions Served     | LT  | R   | LTR | L  | TR  | L   | TR  |
| Maximum Queue (ft)    | 108 | 59  | 114 | 65 | 132 | 96  | 203 |
| Average Queue (ft)    | 45  | 29  | 49  | 16 | 79  | 20  | 91  |
| 95th Queue (ft)       | 89  | 55  | 91  | 48 | 138 | 63  | 170 |
| Link Distance (ft)    | 291 | 291 | 272 |    | 122 |     | 280 |
| Upstream Blk Time (%) |     |     |     |    | 3   |     | 0   |
| Queuing Penalty (veh) |     |     |     |    | 10  |     | 0   |
| Storage Bay Dist (ft) |     |     |     | 50 |     | 150 |     |
| Storage Blk Time (%)  |     |     |     | 1  | 15  |     | 1   |
| Queuing Penalty (veh) |     |     |     | 3  | 4   |     | 0   |