TRAFFIC IMPACT STUDY

NORTHFAX

CITY OF FAIRFAX, VIRGINIA

January 2, 2020
Revised April 30, 2020

GOROVE SLADE
Transportation Planners and Engineers

Prepared by:

GOROVE SLADE
Transportation Planners and Engineers

1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
Tel: 202.296.8625
Fax: 202.785.1276

3914 Centreville Road
Suite 330
Chantilly, VA 20171
Tel: 703.787.9595
Fax: 703.787.9905

15125 Washington Street
Suite 212
Haymarket, VA 20169
Tel: 571.248.0992
Fax: 703.787.9905

www.goroveslade.com

Table of Contents

List of Appendices

List of Figures

List of Tables

EXECUTIVE SUMMARY

The following report presents the findings of a Traffic Impact Study (TIS) for the Northfax development in the City of Fairfax, Virginia.

Site Location and Study Area

The proposed development site is located in the City of Fairfax, Virginia and is bounded by Assembly Townhouse Community to the north, Fairfax Boulevard (Route 50) to the south, McLean Avenue to the west, and Chain Bridge Road (Route 123) to the east. The site is illustrated in Figure 1.

The vehicular study area consists of eight intersections along Fairfax Boulevard and Chain Bridge Road and include one future intersection providing access to the development.

The site currently consists of two-single family detached units, an excess parking lot for an adjacent car dealership, and a few vacant parcels. The parcels fronting Fairfax Boulevard and Chain Bridge Road are currently zoned CR (Commercial Retail District), while the interior parcels along Orchard Street are zoned RM (Residential Medium). The Applicant is proposing to rezone the subject property from the CR and RM districts to the PD-M (Planned Development Mixed Use) district.

Proposed Project

The proposed Northfax development is anticipated to be completed in two phases. Phase 1 focuses on residential development on the northern and western portions of the site, while Phase 2 includes a balance of the residential development and commercial development within the site.

It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City of Fairfax. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

A description of each phase is presented below:

Phase 1: Phase 1 consists of 56 multi-family residential units and 200 continuing care retirement community units, which is anticipated to be completed and in operation by 2023. Access to the site is proposed to be provided via Orchard Street and via the proposed extension of Farr Avenue. Phase 1 will account for the planned extension of University Drive to join Eaton Place and the extension of Farr Avenue (by the City of Fairfax) to Orchard Street.

Phase 2: Phase 2 will include approximately 25,000 square feet of commercial uses (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027. In addition to Orchard Street, a right-in (RI) only access along Chain Bridge Road is proposed to provide access to the site. Phase 2 will account for the planned extension of University Drive to join Eaton Place; the extension of Farr Avenue to Orchard Street; signalization of Farr Avenue and Fairfax Boulevard; and Re-alignment of Warwick Avenue, Fairfax Boulevard, and McLean Avenue.

Of note, the development program for Phase 2 would be in addition to that of Phase 1.

Impacts and Recommendations

The analysis contained includes the following scenarios:

- Existing Conditions (2019),
- Future Conditions without Development – Phase 1 (2023),
- Future Conditions with Development – Phase 1 (2023),
- Future Conditions without Development – Phase 2 (2027), and
- Future Conditions with Development – Phase 2 (2027).

The analysis presented in this report supports the following major findings and recommendations:

Transit

The subject site is served by transit:

- There are 13 bus stops within a quarter-mile of the site. These stops are directly served by WMATA (Metrobus) and City of Fairfax City-University Energysaver (CUE) Bus routes.
- The site is approximately 3.6 miles from the nearest Vienna/Fairfax-GMU Metrorail Station. Access to the Vienna/Fairfax-GMU Metrorail Station from the site is served by the Gold1 and Green1 CUE bus routes.

It is anticipated that the proposed development will generate a small number of transit trips during the AM and PM peak hours

and is not anticipated to significantly increase the current boardings and alightings at adjacent bus stops.

Pedestrian

The roadways immediately surrounding the site provide sidewalks on both sides of the street, and crosswalks at major intersections. There are some existing deficiencies within a ¼ mile walk of the site, such as a lack of striped crosswalks and curb ramps that do not meet current ADA standards.

This project will reduce deficiencies by providing new ADA-compliant curb ramps at all site access points and an improved streetscape along Orchard Street and along internal roadways within the site. The future signal at the intersection of Farr Avenue and Fairfax Boulevard will provide an additional opportunity for pedestrians to cross Fairfax Boulevard.

Bicycle

The site does not have direct access to any designated bicycle facilities, although the sidewalk on Fairfax Boulevard is identified as a bikeable sidewalk according to the Bike Fairfax Interactive Map.

In Phase 1, the proposed site will include a five-foot bike lane along the south side of Orchard Street near the intersection with Chain Bridge Road and along both sides of Orchard Street internal to the site. Five-foot bike lanes are proposed along both sides of the Farr Avenue Extension to Orchard Street.

Vehicular

The site is well connected via Fairfax Boulevard and Chain Bridge Road, both classified as "Other Principal Arterials" by the Virginia Department of Transportation (VDOT). The arterials provide direct connections to I-66 and the Capital Beltway (I-495).

Under Phase 1, the proposed development will generate 51 new vehicular trips in the weekday morning (AM) peak hour, 62 new vehicular trips during the weekday afternoon (PM) peak hour, and 77 new vehicular trips during the Saturday midday (SAT) peak hour. Ultimately, under Phase 2, the proposed development will generate approximately 264 new vehicular trips in the AM peak hour, 342 new vehicular trips in the PM peak hour, and 402 new vehicular trips in the Saturday peak hour.

A trip generation comparison between the proposed and by-right uses was evaluated, and the results indicate that the proposed development program would generate approximately half of the peak hour traffic when compared to what is allowable by-right.

Under Phase 1 conditions, the increase in vehicular trips would attribute to an increase of less than 1.0% in peak hour traffic along Fairfax Boulevard and an increase of less than 1.1% in peak hour traffic along Chain Bridge Road as comparted to a future without the development conditions. Under Phase 2 conditions, the increase in vehicular trips would attribute to an increase of less than 3.3% in peak hour traffic along Fairfax Boulevard and an increase of less than 3.2% in peak hour traffic along Chain Bridge Road.

In order to determine the impacts of the proposed development on within the transportation network, this report projects future conditions with and without the proposed development and performs analyses of intersection delays.

Based on the analysis, the intersections within the study area have movements that operate at levels beyond acceptable thresholds in one or more peak hour in one or more conditions scenario, with the exception of Chain Bridge Road & Future (RI) Site Access (Intersection 8).

Under 2023 future with development conditions, the intersection of Chain Bridge Road at Eaton Place (main node) (Intersection 7) begins to operate at a LOS E during the AM peak hour with an increase in delay of 0.3 seconds over the LOS D/E threshold. Additionally, the intersection of Fairfax Boulevard at Chain Bridge Road begins to experience slight increases in delays. With slight increases in delays at these intersections, the impact of the proposed development is not anticipated to significantly alter driver's expectation at the signals. However, if necessary, the increases in delay can be mitigated with a slight change in the signal timings at these intersections.

Under 2027 Future with Development Conditions, five of the eight intersections are recommended to have improvements (geometric and/or adjustments to signal timings). The five intersection are as follows:

- Int 1: Fairfax Boulevard & Eaton Place
- Int 3: Fairfax Boulevard & Chain Bridge Road
- Int 4: Fairfax Boulevard & Farr Avenue/Future Site Access
- Int 6: Chain Bridge Road & Orchard Street
- Int 7: Chain Bridge Road & Eaton Place (main node)
- Int 7a: Chain Bridge Road & Eaton Place (east node)

Transportation Demand Management

Transportation Demand Management (TDM) is the implementation of measures to influence travel behavior by mode, frequency, time, route, or trip length in order to achieve a maximally efficient use of transportation facilities. The TDM plan will have many components that are tailored to accommodate the Northfax site.

A few of the typical TDM components include establishing a TDM coordinator, promoting Metrorail/Metrobus/CUE Bus, establishing ride-sharing programs, parking management, lease agreements, and monitoring and compliance.

Once implemented, management measures taken by Northfax project can be monitored and adjusted as needed to continually create opportunities to reduce the amount of vehicular traffic generated by the site.

Summary and Recommendations

This report concludes that the proposed development **will have a negligible impact** to the surrounding transportation and roadway network assuming that all planned site design elements are implemented.

The development has several positive elements contained within its design that minimize potential transportation impacts, including:

- The streetscape improvements planned as part of the proposed development.
- The provision of bike lanes along Orchard Street and the site access opposite Farr Avenue.
- The proposed development's proximity to WMATA and CUE bus routes.
- The inclusion of long and short-term bicycle parking.
- The improvement of pedestrian sidewalks adjacent to the site that meet City of Fairfax and ADA requirements.
- A Transportation Management Plan (TMP) that aims to reduce the demand of single-occupancy, private vehicles to/from the proposed development during peak period travel times.

INTRODUCTION

This report presents the findings of a TIS conducted for the proposed Northfax development (the "Site") in the City of Fairfax, Virginia (the "City"). The proposed Northfax development is anticipated to be completed in two phases. Phase 1 focuses on residential development on the northern and western portions of the site, while Phase 2 includes a balance of the residential development and commercial development within the site. Phase 1 is anticipated to be completed by 2023, while Phase 2 is anticipated to be complete by 2027. The parcels fronting Fairfax Boulevard and Chain Bridge Road are currently zoned CR (Commercial Retail District), while the interior parcels along Orchard Street are zoned RM (Residential Medium). The Applicant is proposing to rezone the subject property from the CR and RM districts to the PD-M (Planned Development Mixed Use) district.

It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

PURPOSE OF STUDY

The purpose of this study is to evaluate the transportation network in the vicinity of the site and identify any potential transportation impacts that may result from the proposed redevelopment. Elements of this report include a description of the proposed development, an evaluation of the existing multimodal transportation network, and evaluations of the future transportation network with and without the proposed development.

STUDY TASKS

The following tasks were completed as part of this study.

- A scoping meeting was held on April 2, 2019 with City of Fairfax staff. After the first submission of this study, the scope and trip generation were revised. The scoping document, which includes the agreed to parameters of the study and relevant background information, is provided in the Appendix A.
- Traffic counts at the study area intersections were conducted on Wednesday, March 20, 2019 during the weekday morning and evening peak periods, and on Saturday, March 23, 2019 during the midday peak period. The raw traffic count data is included in Appendix B.
- As outlined in the scoping document, two planned developments in the vicinity of the proposed project were included as part of the analysis of future conditions. A 2.0% yearly growth rate was assumed for the years between 2019 and 2023, and a 1.0% yearly growth rate was assumed for the years between 2023 and 2027.
- Proposed site traffic volumes were generated based on the methodology outlined in Trip Generation Manual, 10th Edition, published by the Institute of Transportation Engineers (ITE).
- Intersection capacity analyses were performed using the software package Synchro, Version 10, based on the Highway Capacity Manual (HCM) methodology. Traffic analyses were performed for the existing conditions (2019), future conditions (2023) with and without development, and future conditions (2027) with and without development.
- Transportation Demand Management (TDM) strategies with respect to the development were assessed.
- A first submission of the study was submitted to the City in January 2020. Per subsequent discussion with the City, the trip generation was revised, and the network models were simulated using SimTraffic, Version 10.

PROJECT SUMMARY

Site Location

The project site is located in the City of Fairfax, Virginia and is bounded by Assembly Townhouse Community to the north, Fairfax Boulevard (Route 50) to the south, McLean Avenue to the west, and Chain Bridge Road (Route 123) to the east. The site location is shown in Figure 1.

Parcel Information

The site currently consists of two-single family detached units, an excess parking lot for the adjacent car dealership, and a few vacant parcels. A parcel map showing the location of the property is presented in Figure 2.

General Land Use Plan Recommendations

According to the City of Fairfax's Zoning Map, this site is listed as Commercial Retail (CR) and Residential Medium (RM) use. The zoning map for the site is illustrated in Figure 3.

Proposed Plan

The proposed development plan includes two phases. It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

Phase 1: Phase 1 consists of 56 multi-family residential units and 200 continuing care retirement community units, which is anticipated to be completed by 2023. Access to the site is proposed to be provided via Orchard Street and via the proposed extension of Farr Avenue. Phase 1 will account for the planned extension of University Drive to join Eaton Place and the extension of Farr Avenue (by the City of Fairfax) to Orchard Street.

Phase 2: Phase 2 will include approximately 25,000 square feet of commercial uses (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027. In addition to Orchard Street, a right-in (RI) only access along Chain Bridge Road is proposed to provide access to the site under this scenario. Phase 2 will account for the planned extension of University Drive to join Eaton Place; the extension of Farr Avenue to Orchard Street; signalization of Farr Avenue and Fairfax Boulevard; and Re-alignment of Warwick Avenue, Fairfax Boulevard and McLean Avenue. The development program for Phase 2 would be in addition to that of Phase 1.

The proposed site plan is shown in Figure 4. Of note, this plan is for conceptual purposes only.

Scope and Limits of the Study Area

The study area is bounded by Assembly Townhouse Community to the north, Fairfax Boulevard (Route 50) to the south, McLean Avenue to the west, and Chain Bridge Road (Route 123) to the east. The following intersections were identified for inclusion in the vehicular study area, as shown in Figure 5.

1. Fairfax Boulevard and Eaton Place
2. Fairfax Boulevard and University Drive
3. Chain Bridge Road and Fairfax Boulevard
4. Fairfax Boulevard and Farr Avenue/Future Site Access
5. Fairfax Boulevard and Warwick Lane/McLean Avenue
6. Chain Bridge Road and Orchard Street
7. Chain Bridge Road and Assembly Drive/Eaton Place
8. Chain Bridge Road and Right-in only Site Access (Future)

Data Sources

Sources of data for this study include the City of Fairfax (the "City"), the Virginia Department of Transportation (VDOT), the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, 10th Edition publication, and the office files of Gorove/Slade Associates, Inc.

CONTENTS OF STUDY

This report contains 10 chapters as follows:

- *Study Area Overview*
  This chapter reviews the area near and adjacent to the project and includes an overview of the site location.
- *Transit*
  This chapter summarizes the existing and future transit service adjacent to the site, reviews how the project's transit demand will be accommodated, outlines impacts, and presents recommendations as needed.
- *Pedestrian Facilities*
  This chapter summarizes existing and future pedestrian access to the site, reviews walking routes to and from the project site, outlines impacts, and presents recommendations as needed.
- *Bicycle Facilities*
  This chapter summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the project site, outlines impacts, and presents recommendations as needed.
- *Project Design*
  This chapter reviews the transportation components of the project, including the site plan and access.
- *Trip Generation*
  This chapter outlines the travel demand of the proposed project. It summarizes the trip generation of the project.
- *Traffic Operations*
  This chapter provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. This section highlights the vehicular impacts of the project, including presenting mitigation measures for minimizing impacts as needed.

- *Traffic Simulation (Queuing Operations)*
  This chapter provides a summary of the existing and future roadway conditions in the study area. This section highlights potential queues within the road network, as part of a planning level exercise.
- *Transportation Demand Management Plan*
  This chapter outlines various components of a TDM Plan for the proposed development.
- *Safety/Crash Analysis*
  This chapter includes a review of existing intersections in the study area and a qualitative discussion on how the development will influence safety.
- *Summary and Conclusions*
  This chapter presents a summary of the recommended mitigation measures by mode and presents overall findings and conclusions.

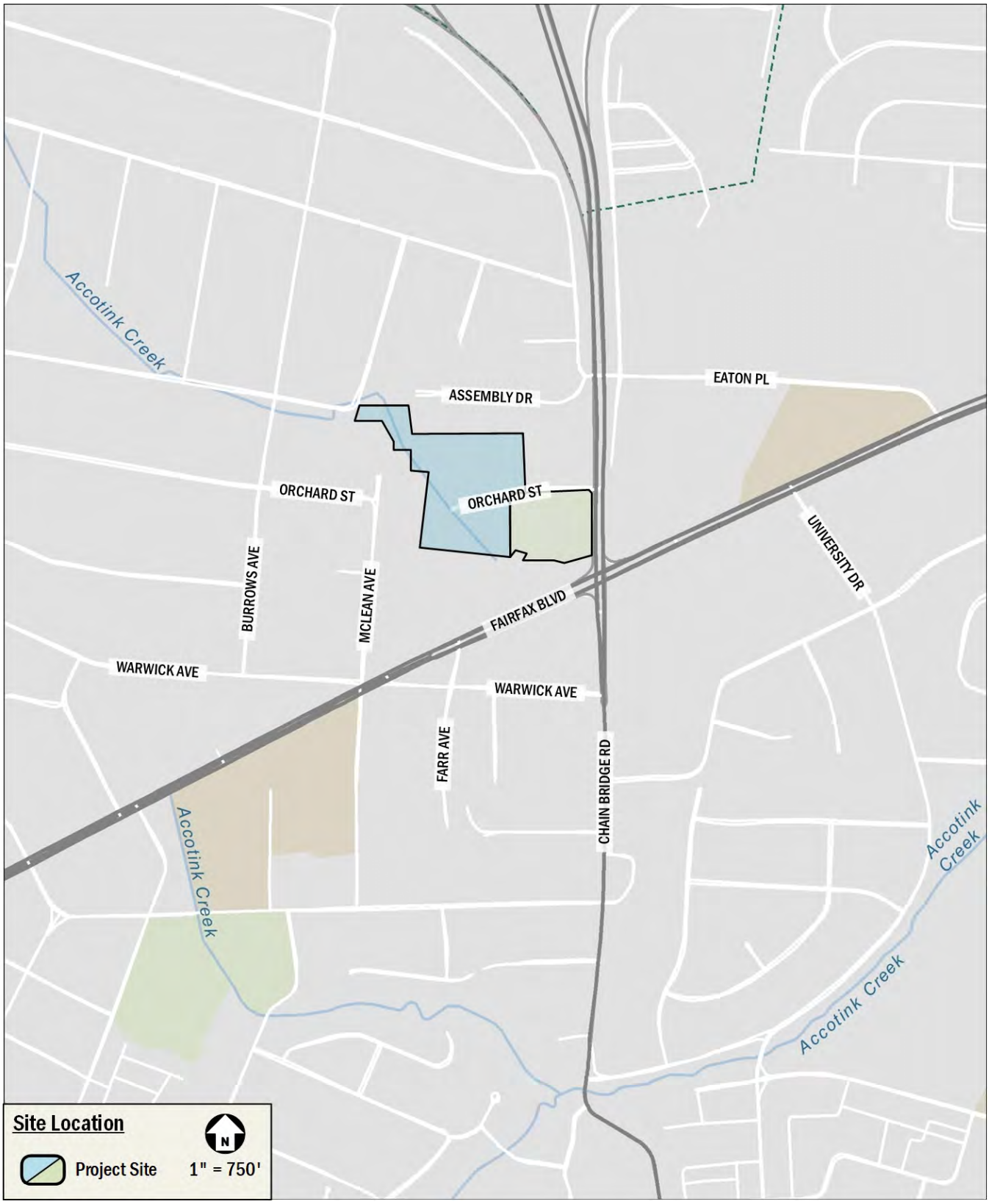


Figure 1: Site Location

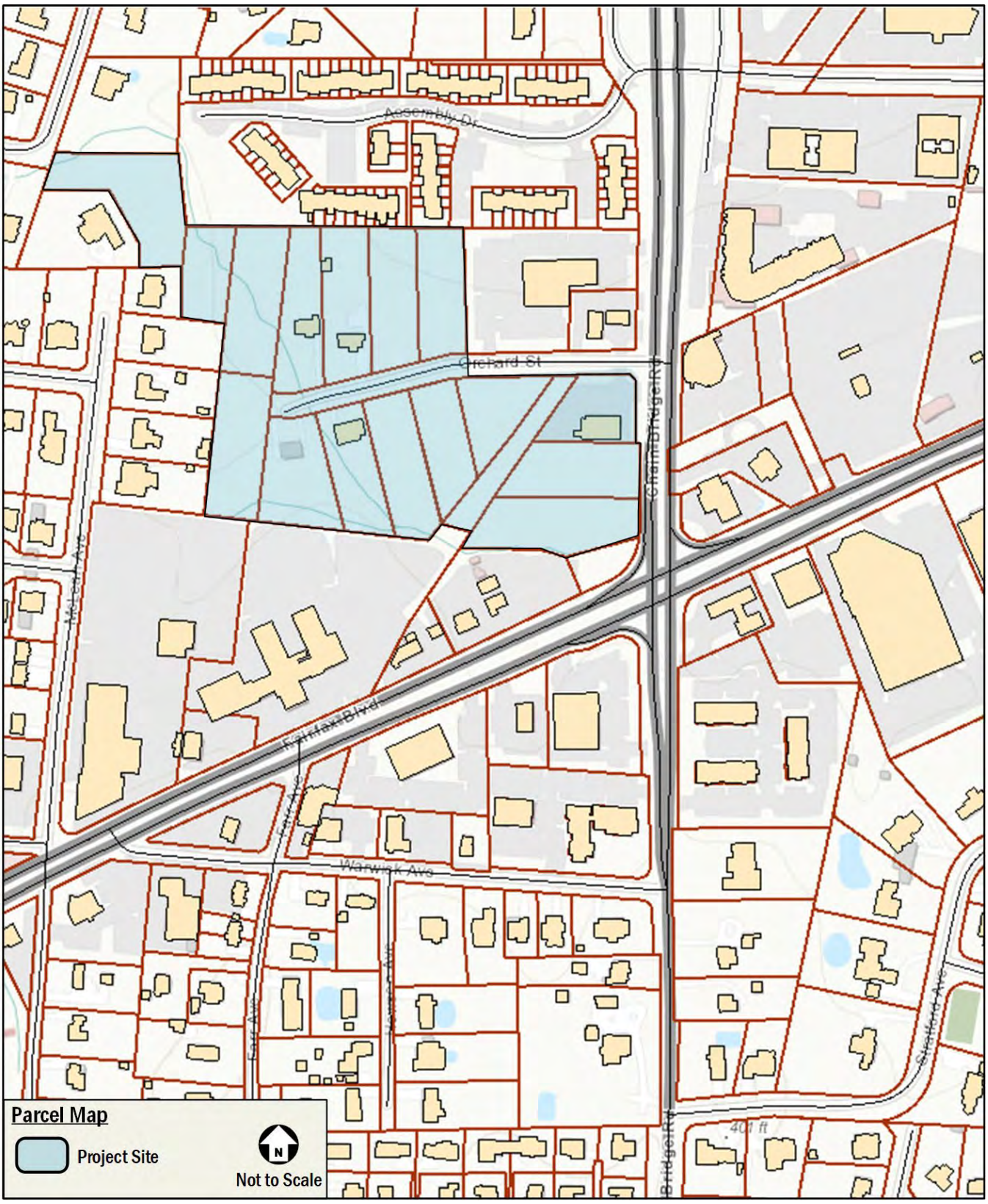


Figure 2: Parcel Map (Source: City of Fairfax Real Estate Map)

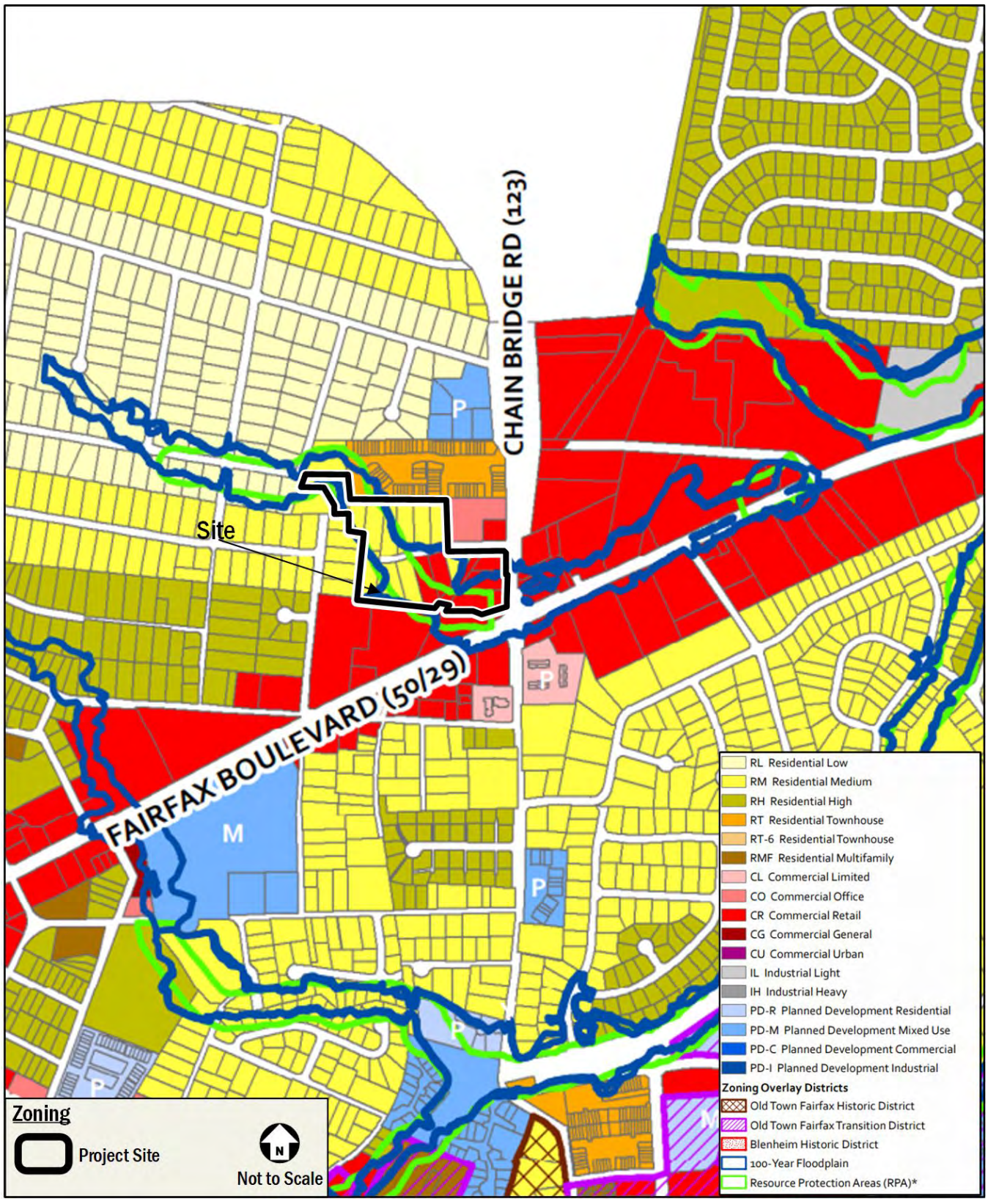


Figure 3: Planned Land Uses (Source: City of Fairfax Zoning Map, February 2019)

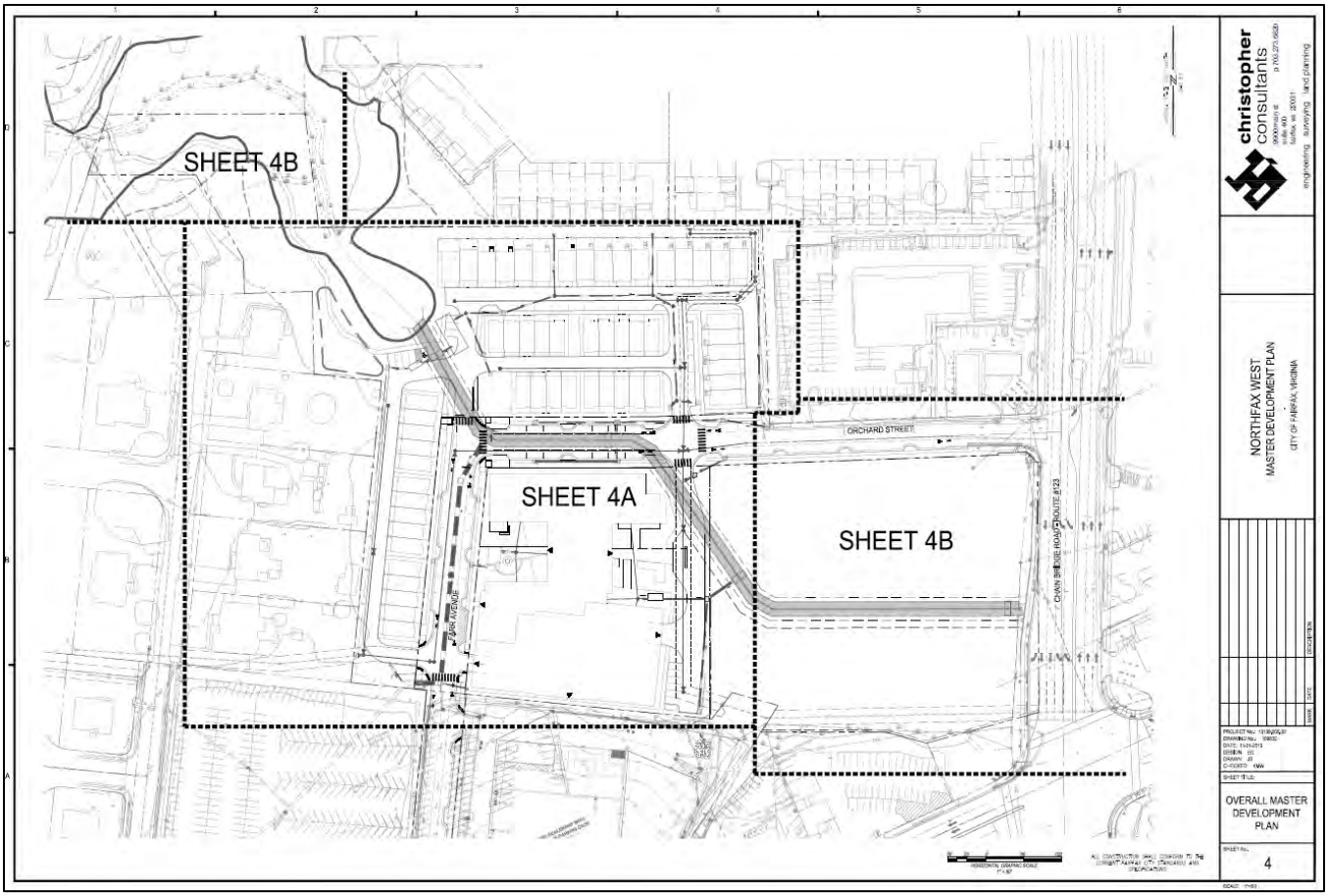


Figure 4: Overall Master Development Plan

Figure 5: Study Area Overview

STUDY AREA OVERVIEW

This chapter reviews the existing conditions of the surrounding transportation network and includes an overview of the site location, including a summary of the major transportation characteristics of the area and of future regional projects. More specific characteristics of each mode and their subsequent study areas will be defined in the following sections.

The following conclusions are reached within this chapter:

- The site is surrounded by a local transportation system that will accommodate the residents, employees, and patrons of the proposed development.
- In the vicinity of the site, most roadways have sidewalks on both sides of the street and crosswalks at major intersections. There are some existing deficiencies within a ¼ mile walk of the site, such as a lack of striped crosswalks and curb ramps not meeting ADA standards.
- The site has access to a bikeable sidewalk, as identified by the Bike Fairfax Interactive Map, along Fairfax Boulevard. There are a number of other streets in the vicinity of the site that are identified in the Bike Fairfax Interactive Map as "most comfortable" or "somewhat comfortable", such as Eaton Place, Burrows Avenue, and Orchard Street (west of Burrows Street).
- Several local initiatives will positively impact the study area, including the extension of University Drive to Eaton Place, the extension of Farr Avenue to Orchard Street, the signalization of Farr Avenue at Fairfax Boulevard, and a reconfiguration of the intersection of Fairfax Boulevard, Warwick Avenue, and McLean Avenue.

MAJOR TRANSPORTATION FEATURES

Overview of Regional Access

Under existing conditions, the proposed development site has access to regional vehicular and transit-based transportation options, as shown in Figure 6, that connect the site to destinations within Virginia, the District, and Maryland.

The site is directly accessible from several principal arterials such as Fairfax Boulevard (Route 50) and Chain Bridge Road (Route 123). The arterials create connections to I-66, and ultimately the Capital Beltway (I-495).

The site is located approximately 3.6 miles from the Vienna/Fairfax-GMU Metrorail Station, which provides connections to areas in Virginia, the District, and Maryland. The Orange Line connects Fairfax, VA with New Carrollton, MD while providing access to the District core. The Orange Line provides connections to the Red Line, which provides a direct connection to Union Station, a hub for commuter rail – such as Amtrak, MARC, and VRE – in addition to all additional Metrorail lines, allowing for access to much of the DC Metropolitan area.

The site is located approximately six miles from the Burke Center VRE Station, which provides peak hour commuter rail service between Northern Virginia and Washington, DC. The Burke Center Station is serviced by the VRE Manassas Line, which connects Broad Run with Washington Union Station.

Overall, the site has access to several regional roadways, transit, and bicycle options, making it convenient to travel between the site and destinations in Virginia, the District, and Maryland.

Overview of Local Access

There are several local transportation options near the site that serve vehicular, transit, walking, and cycling trips under existing conditions, as illustrated on Figure 7**.**

In addition to the two principal arterials described above, the site is served by a local vehicular network that includes an existing network of local and collector roadways that provide access to the site.

Two bus systems provide local transit service in the vicinity of the site, including connections to the Vienna/Fairfax-GMU Metro station. As illustrated in Figure 7, there are multiple bus routes that serve the site. In the vicinity of the site the majority of routes travel along Fairfax Boulevard, Chain Bridge Road and Eaton Place.

The existing pedestrian infrastructure surrounding the Site provides a mixed-quality walking environment. There are sidewalks along primary roadways but not along some minor streets. There are some crosswalk and curb ramp deficiencies. However, improvements to the pedestrian infrastructure surrounding the site will improve pedestrian comfort and connectivity. A detailed review of existing and proposed pedestrian access and infrastructure is provided in a later section of this report.

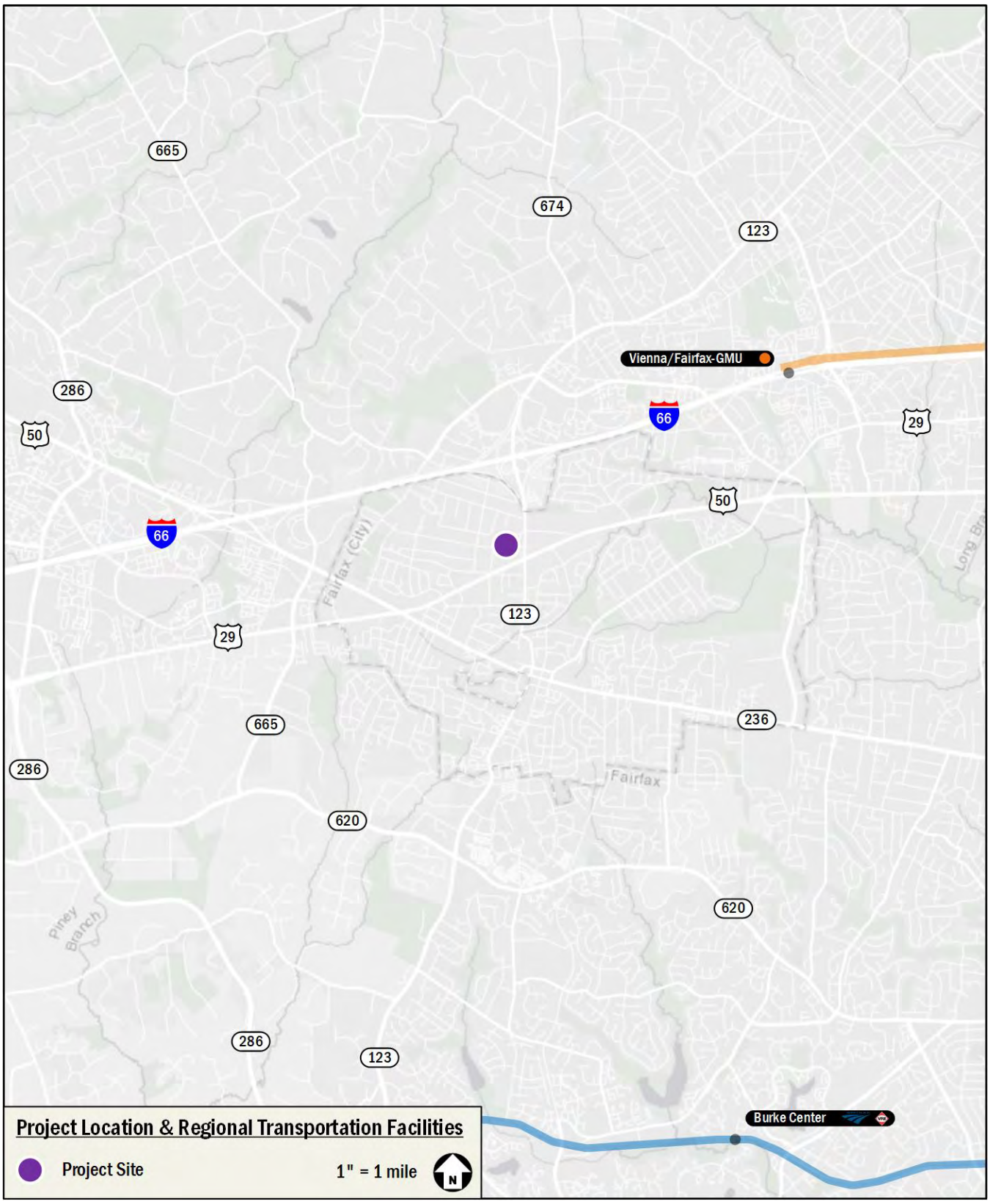


Figure 6: Major Regional Transportation Facilities

Figure 7: Major Local Transportation Facilities

Walk Score and Bike Score

Walkscore.com is a website that provides scores and rankings for the walking, biking, and transit conditions for an area. The project location was estimated to have a walk score of 64 (or "Somewhat Walkable"), a transit score of 39 (or "Some Transit"), and a bike score of 63 (or "Bikeable"). The City of Fairfax has an average walk score of 54, an average transit score of 38, and an average bike score of 51. Figure 8 shows the neighborhood borders in relation to the site location and displays a heat map for walkability.

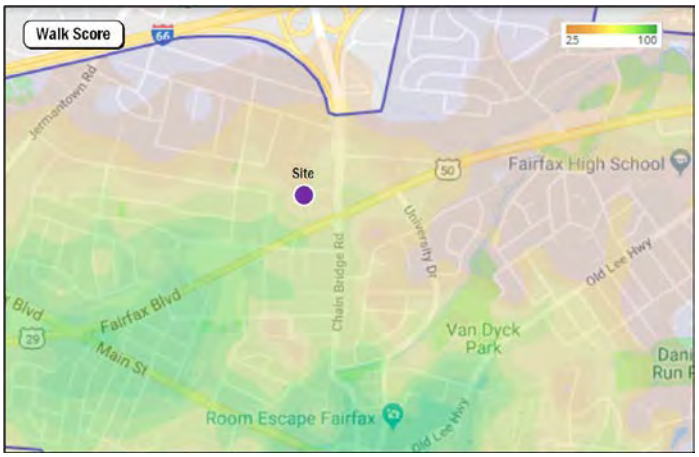


Figure 8: Walk Score (Source: Walkscore.com)

Local Initiatives

City of Fairfax Comprehensive Plan (2019)

The recent update to the City's Comprehensive Plan, "Livable Fairfax", was adopted in February 2019. The Plan provides the long-term vision for the City of Fairfax through 2035. The Plan identifies a number of guiding principles for various aspects of the City, such as land use, neighborhoods, economic vitality, housing, parks and recreation, infrastructure and utilities, community design and historic preservation, education, sustainability, multimodal transportation, and commercial corridors and activity centers, among others.

Specifically, the Plan describes the Northfax Activity Center, as follows, in part:

> *"The Northfax Activity Center ("Northfax") is considered the most appropriate location in the City to accommodate a regional mixed-use destination. Its location at the intersection of Fairfax Boulevard and Chain Bridge Road, with immediate access to Interstate 66 and a potential future Metro station, is more accessible than other Activity Centers. It is also equidistant from existing regional mixed-use destinations at Merrifield and Fairfax Corner."*

City of Fairfax Multimodal Transportation Plan (2017)

The City of Fairfax's *Multimodal Transportation Plan* was initiated in April 2016 and was developed as part of the City's Comprehensive Plan Update, "Livable Fairfax". The Plan identifies the goals of connecting the City with the region, providing viable and attractive mobility choices, integrating transportation with land use, and adopting policies and procedures for strategic transportation decision making. The Plan presents a transportation system based on the values of being safe, secure, connected, intergenerational, vibrant, green, and robust.

To realize a transportation system based on these values, the Plan identifies recommended action items that support the Plan's stated goals. In the immediate Northfax area, these action items include:

- Complete improvements to the Northfax intersection of Fairfax Boulevard and Chain Bridge Road.
- Simplify multi-leg and offset intersections, such as the intersection of McLean Avenue, Warwick Avenue, and Fairfax Boulevard.
- Address safety and operational deficiencies at major intersections, such as the intersection of Eaton Place and Chain Bridge Road.
- Identify a priority transit network providing enhanced transit operations and more frequent services along key corridors including Main Street, Old Lee Highway, and Fairfax Boulevard.
- Implement Complete Streets improvements on major corridors including Fairfax Boulevard, Chain Bridge Road and University Drive, Old Lee Highway, and Main Street.

The Plan identifies the following key recommended transportation policies and projects in the immediate Northfax area, as shown on Figure 9:

- Project 1: Improve Warwick Avenue and Fairfax Boulevard
- Project 9: Improve intersection of Eaton Place and Chain Bridge Road
- Project 11: Expand the roadway network in Northfax West

Finally, the Plan recommends improvements to the existing transit and bicycle networks, which are reviewed in the transit and bicycle chapters of this report.

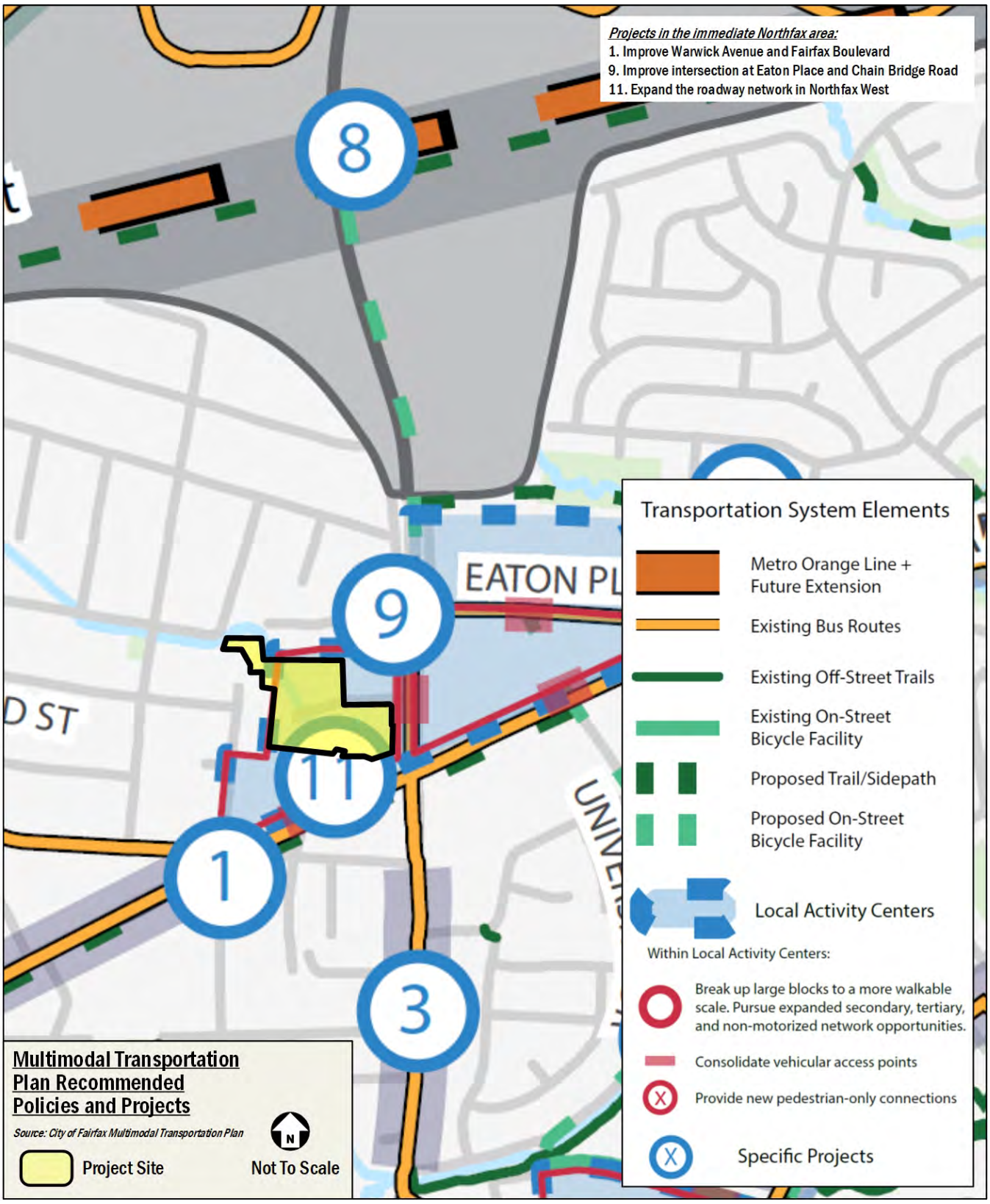


Figure 9: Multimodal Transportation Plan Recommended Policies and Projects

TRANSIT

This chapter discusses the existing and proposed transit facilities in the vicinity of the Site, accessibility to transit, and evaluates the overall transit impacts of the project.

The following conclusions are reached within this chapter:

- The development has some access to transit.
- The development is located 3.6 miles from the Vienna/Fairfax-GMU Metro Station.

The Site is served by five transit routes under existing conditions. Combined, these transit services provide local and city-wide transit connections and link the Site with major residential, employment, and commercial destinations throughout the area. Figure 10 identifies the major transit routes, stations, and stops in the study area.

Existing Metrorail Service

The Site is located approximately 3.6 miles from the Vienna/Fairfax-GMU Metrorail Station. The station is located northeast of the development site along Saintsbury Drive near I-66.

The Vienna/Fairfax-GMU Metrorail Station serves the Orange Line. The average daily ridership at the Crystal City and Pentagon City stations in 2018 were approximately 9,000 boardings on weekdays, according to the publication *Metrorail Average Weekday Daily Boardings* (WMATA, September 2018). The Orange Line travels west from Fairfax, VA into Washington, DC, then onto New Carrollton, MD. Trains run approximately every eight minutes during the morning and afternoon peak periods. They run about every 12 minutes during weekday non-peak periods, every 20 minutes on weekday evenings after 9:30pm, and every 12-20 minutes on weekends.

Existing Bus Service

The Site is served by several bus lines and routes along multiple primary corridors. These bus lines connect the site to many areas of the City of Fairfax, as well as the Metrorail Orange Line.

Table 1 shows a detailed inventory of the existing Metrobus and Fairfax CUE stops within a quarter-mile radius of the site, detailing individual bus stop amenities and conditions. These stops are served by one WMATA Metrobus route and four Fairfax CUE routes.

Table 2 presents bus route information, including service hours, headways, and walking distance from the site for each route.

Existing Commuter Rail Service

The site is located approximately six miles from the Burke Center VRE Station, which provides peak hour commuter rail service between Northern Virginia and Washington, DC. The Burke Center Station is serviced by the VRE Manassas Line, which connects Broad Run with Washington Union Station.

Recommended Transit Enhancements

The City of Fairfax's *Multimodal Transportation Plan* (2017) recommends several enhancements to the existing transit network. In the immediate Northfax area, these enhancements include:

- A bus improvement corridor along Fairfax Boulevard featuring enhanced transit operations and more frequent service.
- A bus transfer improvement area at the intersection of Fairfax Boulevard and Chain Bridge Road featuring quality passenger amenities, expanded information, and improved pedestrian facilities.

These recommended enhancements are shown on Figure 11.

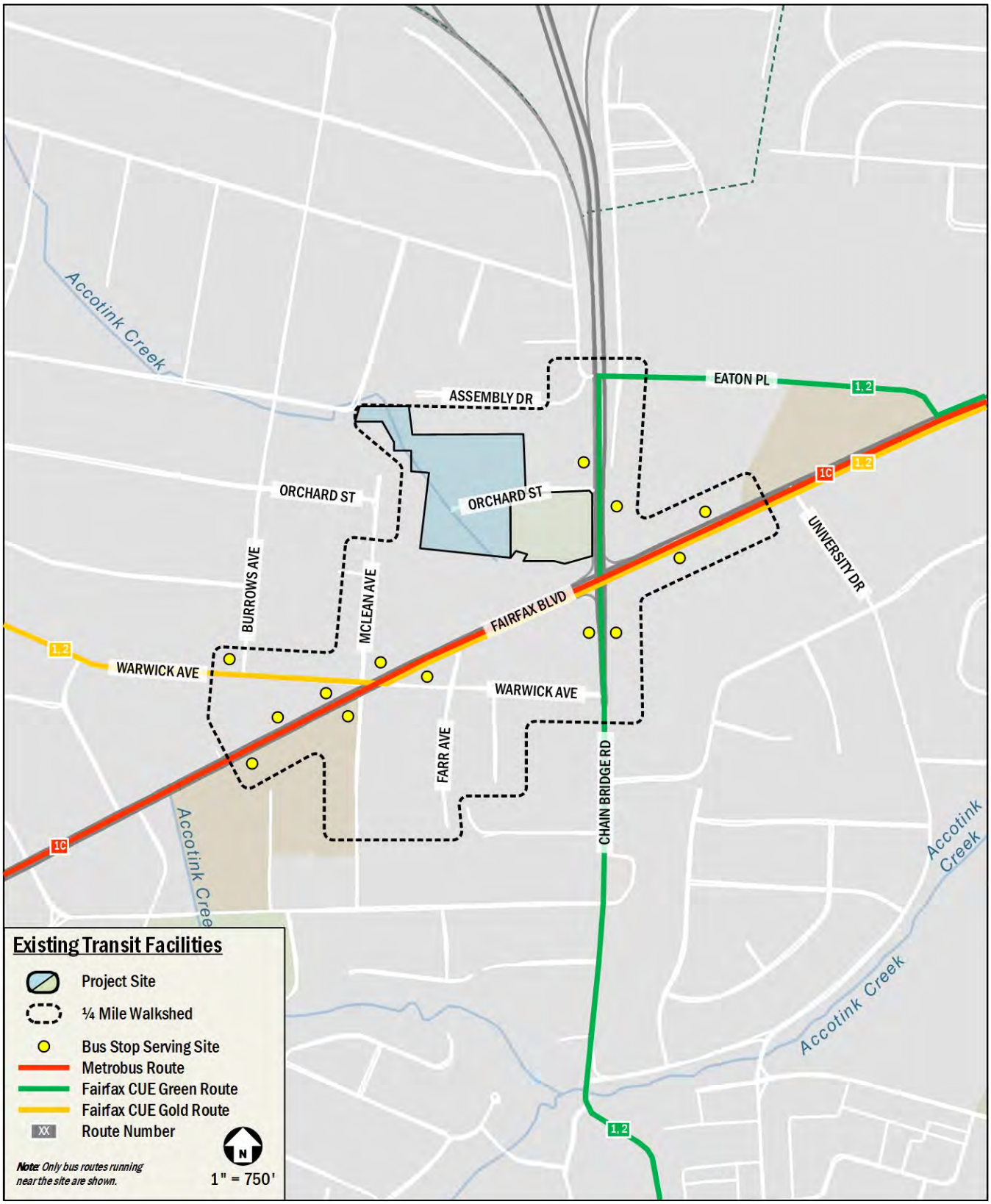


Figure 10: Existing Transit Facilities

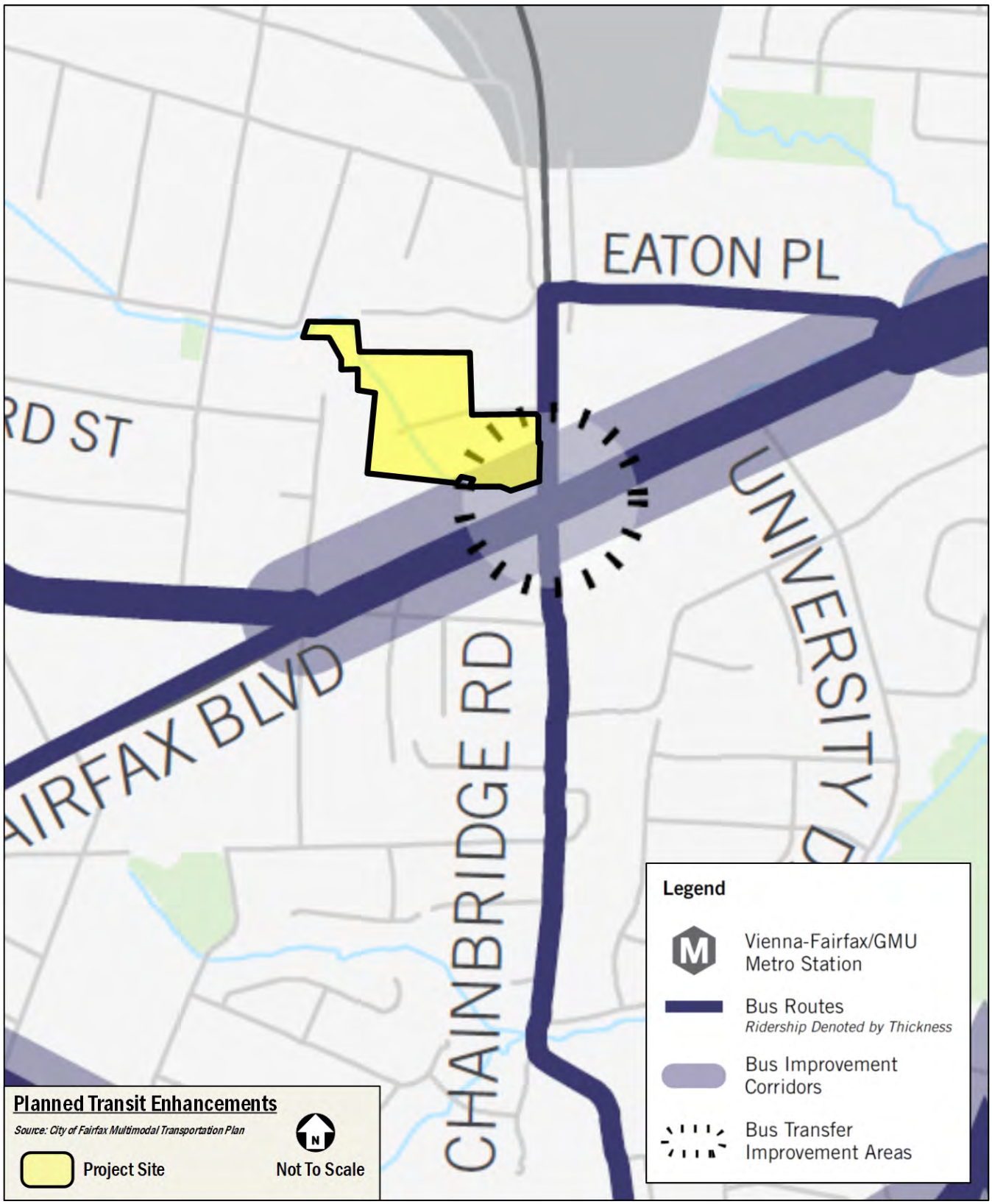


Figure 11: Planned Transit Enhancements

Table 1: Bus Stop Inventory

Location	Stop ID (WMATA, *CUE*)	Routes Served (WMATA, *CUE*)	Features							
			Sign	ADA Land-ing Pad	Side-walk	Street Lighting	Info Case	Seating	Shelter	Trash Recep.
Rt 29/50 Fairfax Blvd & Paul VI High School (EB)	5001049	1C	●	●	●	●				
Rt 29/50 Fairfax Blvd & Paul VI High School (WB)	5001054	1C	●	●	●	●				
Fairfax Blvd & McLean Ave (EB)	5001057	1C	●		●	●				
Fairfax Blvd & McLean Ave (WB)	5002129	1C	●							
Fairfax Blvd & Chain Bridge Rd (EB)	5001076 *173*	1C *Gold 1*	●		●		●			●
Fairfax Blvd & Chain Bridge Rd (WB)	5001079 *66*	1C *Gold 2*	●		●					
Chain Bridge Rd & Orchard St (SB)	*18*	*Green 2*	●		●	●				
Fairfax Blvd & Chain Bridge Rd (NB)	*133*	*Green 1*	●		●	●				●
Fairfax Blvd & Chain Bridge Rd (SB)	*19*	*Green 2*	●	●	●	●	●	●	●	●
Fairfax Blvd & McLean Ave (EB)	*172*	*Gold 1*	●		●	●				
Fairfax Blvd & McLean Ave (WB)	*67*	*Gold 2*	●		●	●				
Warwick Ave & Burrows Ave (WB)	*68*	*Gold 2*	●		●	●				●
Chain Bridge Rd & Marriott Hotel (NB)	*134*	*Green 1*	●	●		●				●

Table 2: Bus Route Information

Route Number	Service Hours	Headway	Walking Distance to Nearest Bus Stop
Metrobus Route 1C	Weekdays: 4:00AM-12:26AM Saturdays: 6:25AM-11:35PM Sundays: 7:20AM-11:09PM	30-60 min	0.1 miles, 3 minutes
CUE Green Route 1	Weekdays: 5:30AM-11:00PM Saturdays: 8:25AM-8:35PM Sundays: 10:00AM-5:55PM	30-90 min	0.1 miles, 3 minutes
CUE Green Route 2	Weekdays: 5:15AM-8:45PM Saturdays: 8:02AM-8:12PM Sundays: 9:37AM-5:32PM	30-90 min	150 feet, 1 minute
CUE Gold Route 1	Weekdays: 5:40AM-11:10PM Saturdays: 8:25AM-8:52PM Sundays: 10:00AM-6:28PM	30-90 min	0.2 miles, 3 minutes
CUE Gold Route 2	Weekdays: 5:25AM-9:57PM Saturdays: 8:00AM-8:27PM Sundays: 9:33AM-6:01PM	30-90 min	450 feet, 2 minutes

PEDESTRIAN FACILITIES

This chapter summarizes the existing and future pedestrian access to the Site.

The following conclusions are reached within this chapter:

- The existing pedestrian infrastructure surrounding the Site provides a mixed-quality walking environment. There are sidewalks along primary roadways but not along some minor streets. There were some crosswalk and curb ramp deficiencies identified.
- Improvements to the pedestrian infrastructure surrounding the site will improve pedestrian comfort and connectivity.

Pedestrian Study Area

Pedestrian facilities within a quarter-mile of the Site were evaluated for quality and adherence to City of Fairfax and ADA design standards. The Site is generally accessible to transit options, which all nearby bus routes stopping within 0.2 miles of the site perimeter. There are some areas of concern within the study area that negatively impact the quality of and attractiveness of the walking environment, especially the area south of Warwick Avenue. This includes nonexistent sidewalks and incomplete or insufficient crosswalks or curb ramps at busy intersections.

Existing Pedestrian Facilities

A review of pedestrian facilities surrounding the planned development shows that many facilities provide a quality walking environment. Figure 12 illustrates a detailed inventory of the existing pedestrian infrastructure surrounding the site. Sidewalks, crosswalks, and curb ramps are evaluated based on the guidelines set forth by the City of Fairfax and ADA standards.

.

The City of Fairfax's *Public Facilities Manual* (2005) requires that sidewalks be provided on both sides of all streets and have a minimum width of 4 feet. ADA standards require that curb ramps be provided wherever an accessible route crosses a curb and must have a detectable warning. Additionally, curb ramps shared between two crosswalks is not desired.

As shown in Figure 12, under existing conditions the primary roadways of Fairfax Boulevard and Chain Bridge Road have standards-compliant sidewalks on both sides, but sidewalks are lacking on minor streets, particularly south of Warwick Avenue. Under existing conditions there are some deficiencies with crosswalks and curb ramps near the site.

Figure 13 shows the existing pedestrian peak hour volumes at the existing vehicular study area intersections. The most heavily used crosswalk in the study area is across Fairfax Boulevard on the east side of Chain Bridge Road.

Planned Pedestrian Facilities

As a result of the development, pedestrian facilities around the perimeter of the Site will be improved to meet City of Fairfax and ADA standards. This includes providing new ADA-compliant curb ramps at all site access points and an improved streetscape along Orchard Street and internal roadways

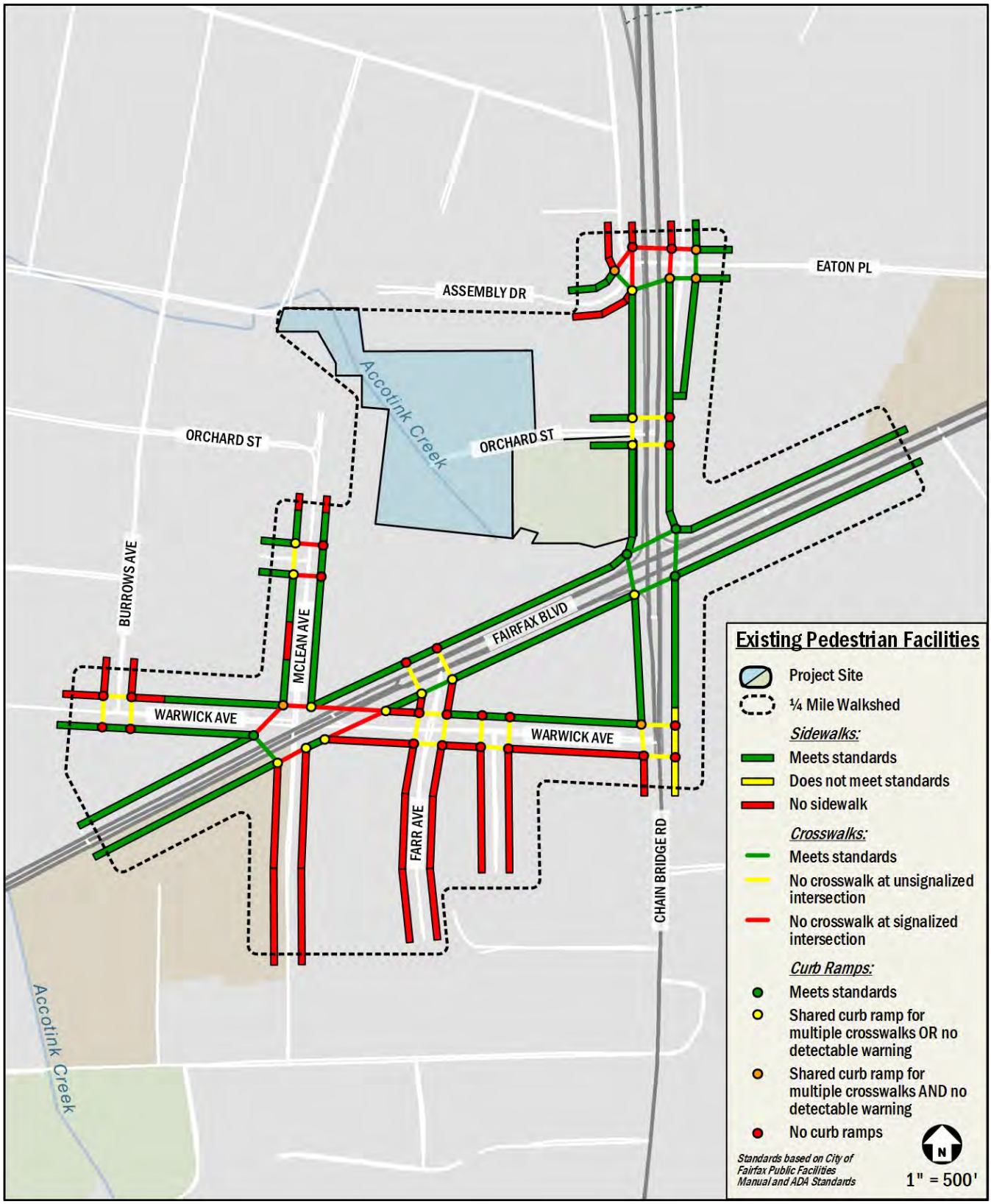


Figure 12: Existing Pedestrian Infrastructure

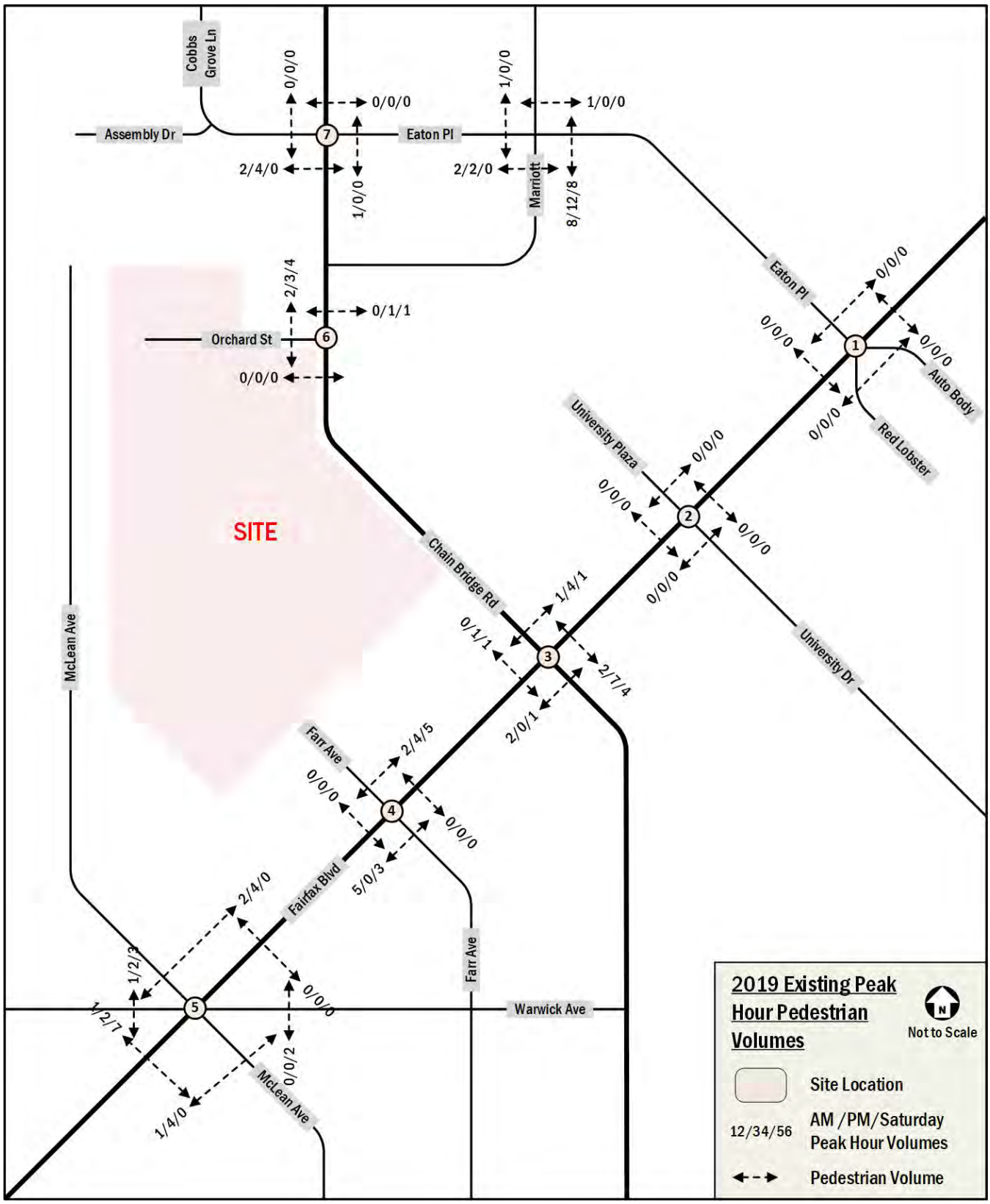


Figure 13: 2019 Existing Peak Hour Pedestrian Volumes

BICYCLE FACILITIES

This chapter summarizes existing and future bicycle access, reviews the quality of cycling routes to and from the Site, and presents recommendations.

The following conclusions are reached within this chapter:

- The site has access to an existing bikeable sidewalk along Fairfax Boulevard.
- Future plans in the vicinity of the Site include a shared use path along Fairfax Boulevard and an on-street bicycle facility along Chain Bridge Road, Eaton Place, and University Drive.

EXISTING BICYCLE FACILITIES

Figure 14 shows the existing facilities for bicycle travel and bicycle facilities within the site area. The only existing trail (shared use path) within the site area is a bikeable sidewalk along Fairfax Boulevard.

The City of Fairfax assigns bicycle comfort ratings to its streets, with ratings including 'Most Comfortable', 'Somewhat Comfortable', 'Less Comfortable', and 'Use Caution'. The majority of streets within the site area are rated 'Most Comfortable', with the exception of Chain Bridge Road, which is rated 'Less Comfortable', and Fairfax Boulevard, which is rated 'Use Caution'.

PLANNED BICYCLE FACILITIES

In Phase 1, the proposed site will include a five-foot bike lane along the south side of Orchard Street near the intersection with Chain Bridge Road and along both sides of Orchard Street internal to the site. Five-foot bike lanes are proposed along both sides of the Farr Avenue Extension to Orchard Street.

As part of the City of Fairfax's *Multimodal Transportation Plan* (2017), several bicycle network improvements are proposed throughout the City of Fairfax. In the immediate Northfax area, these improvements include:

- A shared use path along Fairfax Boulevard.
- An on-street bicycle facility on Chain Bridge Road north of Eaton Place, continuing onto Eaton Place and University Drive.

The improvements proposed as part of the *Multimodal Transportation Plan* are shown on Figure 15.

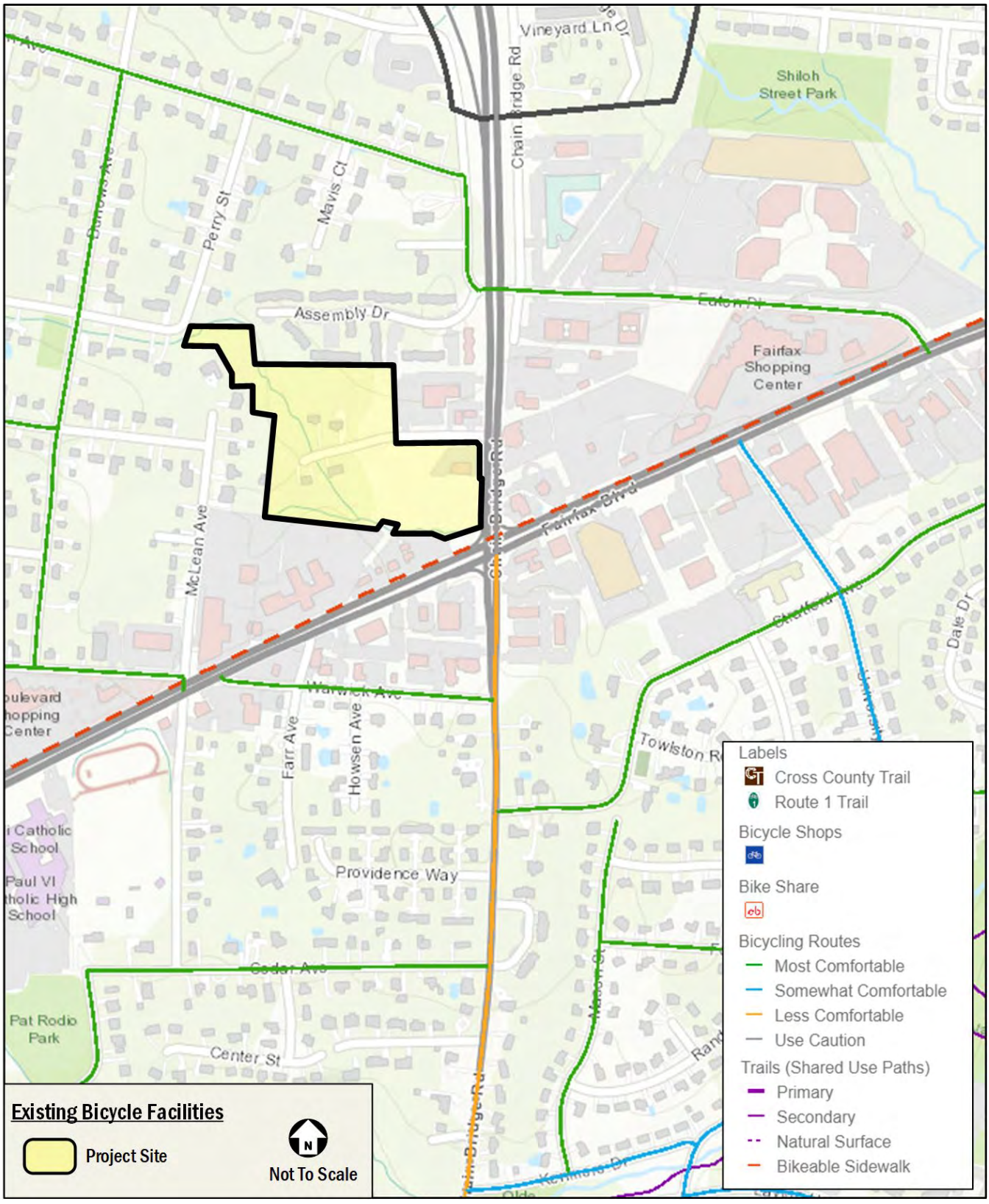


Figure 14: Existing Bicycle Facilities

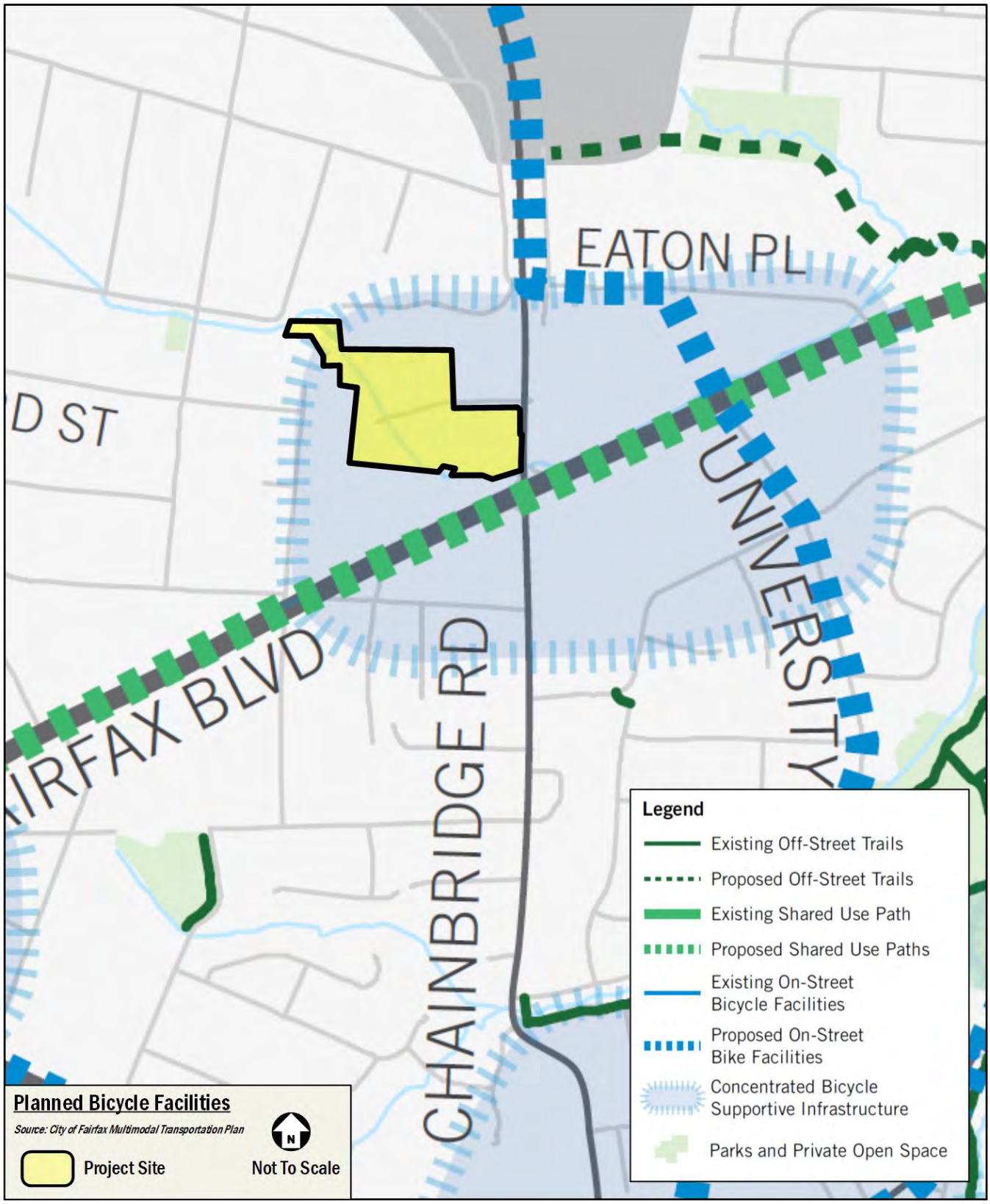


Figure 15: Planned Bicycle Facilities

PROJECT DESIGN

This chapter reviews the transportation components of the Northfax development, including the proposed site plan and access points.

The proposed development site is located in the City of Fairfax, Virginia and is bounded by Assembly Townhouse Community to the north, Fairfax Boulevard (Route 50) to the south, McLean Avenue to the west, and Chain Bridge Road (Route 123) to the east, as illustrated in Figure 1. The proposed site plan is illustrated in Figure 4.

The proposed Northfax development is anticipated to be completed in two phases. Phase 1 focuses on residential development on the northern and western portions of the site, while Phase 2 includes a balance of the residential development and commercial development within the site. A description of each phase is presented below.

Phase 1: Phase 1 consists of 56 multi-family residential units and 200 continuing care retirement community units, which is anticipated to be completed by 2023.

Phase 2: Phase 2 will include approximately 25,000 square feet of commercial uses (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027.

It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

SITE ACCESS

Access to the Northfax site is anticipated to be developed in phases. A description of site access for each phase is presented below.

Phase 1: As illustrated in Figure 4, Orchard Street provides access to the site in Phase 1. The existing section of Orchard Street, which intersects Chain Bridge Road north of Fairfax Boulevard, will be extended to the west to provide access to the proposed residential buildings. Furthermore, Farr Avenue will be extended to Orchard Street and would provide a right-in/right-out (RIRO) access along Fairfax Boulevard.

Phase 2: In Phase 2, the Orchard Street access identified for Phase 1 will remain, and an additional right-in (RI) only access to the site will be provided via Chain Bridge Road, south of Orchard Street. Furthermore, it is anticipated that Farr Avenue extension would be signalized and converted to a full movement as part of the planned project to modify the intersection of Warwick Avenue and Fairfax Boulevard.

BICYCLE AND PEDESTRIAN FACILITIES

In Phase 1, the proposed site will include a 5-foot bike lane along the south side of Orchard Street near the intersection with Chain Bridge Road. The streetscape along the south side of Orchard Street will include an 8-foot parallel parking lane, 5-foot zone for street trees, and a 6-foot sidewalk. The existing curb, grass strip, and sidewalk along the north side of Orchard Street will be maintained. One 11-foot travel lane will be provided in each direction.

The extension of Orchard Street to the west as part of Phase 1 will include 5-foot bike lanes, a 5-foot zone for street trees, and a 5 - 6 foot sidewalk on both sides of the street. An 8-foot parking lane will be provided on the south side of Orchard Street. One 11-foot travel lane will be provided in each direction.

The City's expansion of Farr Avenue will occur in conjunction with Phase 1 of the development. The roadway expansion would connect Farr Avenue from Chain Bridge Road to Orchard Street within the site. The Farr Avenue expansion will include 5-foot bike lanes, a 5-foot zone for street trees, and a 5 - 6 foot sidewalk on both sides of the street. In addition, 8-foot parking lanes will be provided on the both side of Farr Avenue. One 11-foot travel lane will be provided in each direction.

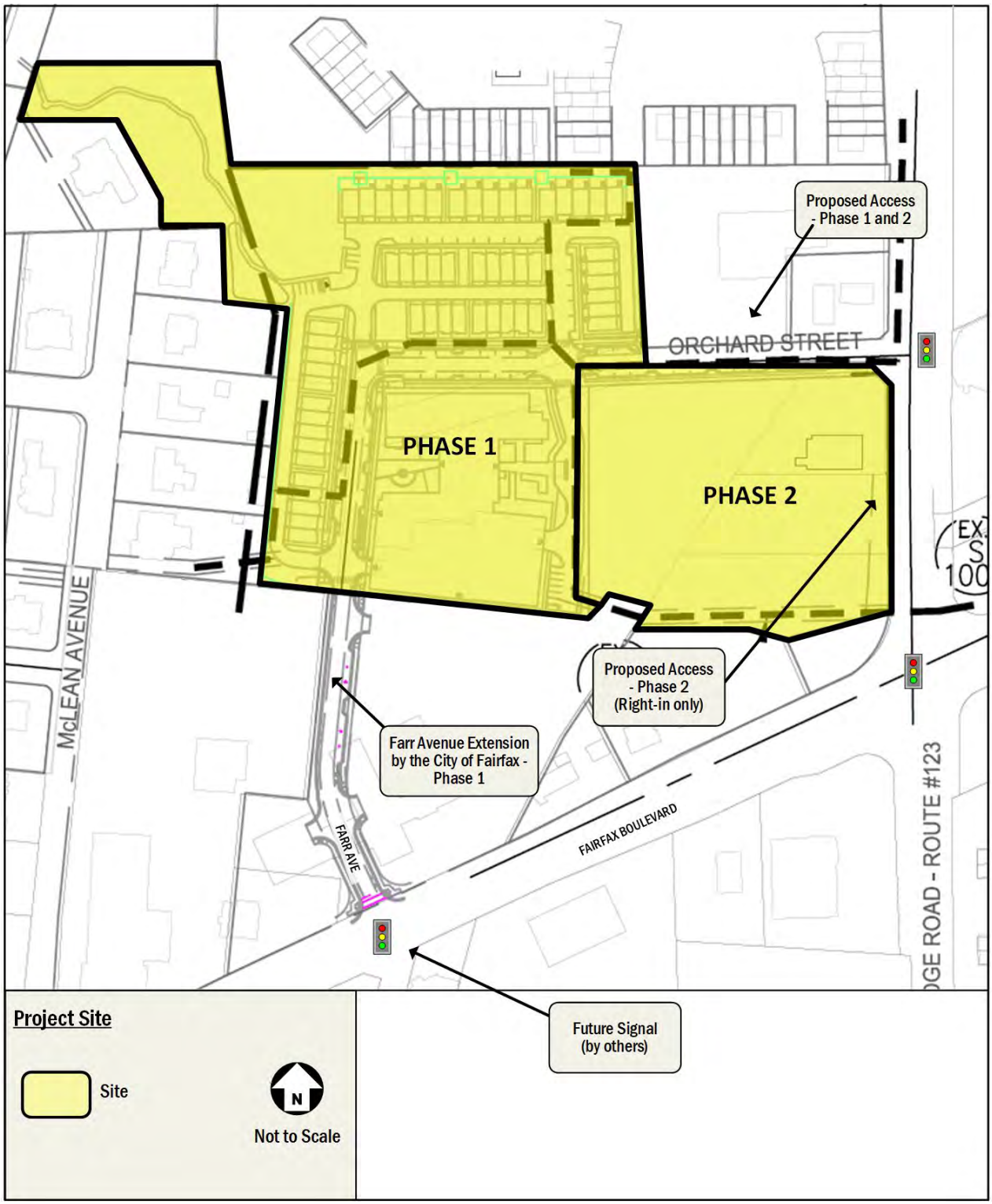


Figure 16: Site Access

TRIP GENERATION

This chapter outlines the transportation demand of the proposed Northfax development. It summarizes the projected trip generation of the site by land use and by mode, which forms the basis for the chapters that follow.

The Site is served by local transit and has multiple bus stops surrounding it. However, it is expected that the vast majority of trips during the weekday and Saturday peak hours will be by personal vehicle. The proposed mode splits were vetted and approved by the City of Fairfax during the scoping process and are illustrated in Table 3.

As noted previously, Phase 1 consists of 56 multi-family residential units and 200 continuing care retirement community units; Phase 2 will include approximately 25,000 square feet of commercial uses (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City of Fairfax. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

In order to calculate the trips generated by the proposed development, peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, 10th Edition.

Trip generation rates for the two existing single-family homes that will be removed were calculated based on ITE Land Use 210, Single Family Detached Housing.

Trip generation rates for the 56 multi-family residential units in Phase 1 were calculated based on ITE Land Use 220, Multifamily Housing (Low-Rise).

Trip generation rates for the 200 continuing care retirement community units in Phase 1 were calculated based on ITE Land Use 255.

Trip generation rates for the 180 multi-family residential units in Phase 2 were calculated based on ITE Land Use 221, Multifamily Housing (Mid-Rise).

Trip generation rates for the 140-room hotel in Phase 2 were calculated based on ITE Land Use 310, Hotel.

To analyze the commercial portion to be constructed in Phase 2, the 25,000 square feet of commercial uses was split between retail space (2,000 square feet), office space (10,000 square feet), and restaurant space (5,000 square feet for high-turnover sit-down uses and 8,000 square feet of quality restaurant uses).

Trip generation rates for the 2,000 square foot GLA retail space in Phase 2 were calculated based on ITE Land Use 820, Shopping Center.

Trip generation rates for the 10,000 square foot GFA office space in Phase 2 were calculated based on ITE Land Use 710, General Office Building.

Trip generation rates for 5,000 square foot GFA restaurant in Phase 2 were calculated based on ITE Land Use 932, High-Turnover (Sit-Down) Restaurant.

Trip generation rates for 8,000 square foot GFA restaurant in Phase 2 were calculated based on ITE Land Use 931, Quality Restaurant.

Under Phase 1, the proposed development will generate 51 new vehicular trips in the weekday morning (AM) peak hour, 62 new vehicular trips during the weekday afternoon (PM) peak hour, and 77 new vehicular trips during the Saturday midday (SAT) peak hour. Ultimately, under Phase 2, the proposed development will generate approximately 264 new vehicular trips in the AM peak hour, 342 new vehicular trips in the PM peak hour, and 402 new vehicular trips in the Saturday peak hour.

Under Phase 1 conditions, the increase in vehicular trips would attribute to an increase of less than 1.0% in peak hour traffic along Fairfax Boulevard and an increase of less than 1.1% in peak hour traffic along Chain Bridge Road. Under Phase 2 conditions, the increase in vehicular trips would attribute to an increase of less than 3.3% in peak hour traffic along Fairfax Boulevard and an increase of less than 3.2% in peak hour traffic along Chain Bridge Road.

Table 4 below shows a comparison of trips generated by the proposed and the by-right uses. As illustrated in the table, the proposed development program would generate approximately half of the peak hour traffic when compared to what is allowable by-right. A technical memorandum, discussing the comparison of the by-right development trips and the proposed trips, was submitted to the City and is included in Appendix C.

Table 3: Proposed Site Trip Generation (ITE 10; Peak Hour of the Adjacent Street)

Land Use	ITE LUC	Size	AM PEAK HOUR			PM PEAK HOUR			DAILY	SAT PEAK HOUR			SATURDAY DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	TOTAL	IN	OUT	TOTAL	TOTAL
Existing (to be removed)													
Single-Family Detached Homes	210	2 DU	0	1	1	1	1	2	19	1	1	2	19
Total Existing Trips (To Be Removed)			**0**	**1**	**1**	**1**	**1**	**2**	**19**	**1**	**1**	**2**	**19**
PHASE 1													
Multi-Family Housing (Low-Rise)	220	56 DU	6	21	27	22	13	35	383	21	18	39	263
Continuing Care	255	200 Units	18	10	28	12	20	32	480	23	21	44	406
Total Phase 1 Development Trips (without Reductions)			**24**	**31**	**55**	**34**	**33**	**67**	**863**	**44**	**39**	**83**	**669**
TDM/Transit Ructions		*5%*	*-1*	*-2*	*-3*	*-2*	*-1*	*-3*	*-43*	*-2*	*-2*	*-4*	*-33*
Total Phase 1 Development Trips (with Reductions)			**23**	**29**	**52**	**32**	**32**	**64**	**820**	**42**	**37**	**79**	**636**
Proposed New External Trips Under Phase 1 (Proposed Phase 1 Trips - Existing Trips)			**23**	**28**	**51**	**31**	**31**	**62**	**801**	**41**	**36**	**77**	**617**
PHASE 2													
Multi-Family Housing (Mid-Rise)	221	180 DU	16	45	61	48	30	78	979	39	40	79	884
Hotel	310	140 Rooms	38	27	65	40	39	79	1,170	56	45	101	1,147
Quality Restaurant	931	8 kSF	3	3	6	42	20	62	671	50	35	85	720
High-Turnover (Sit-Down) Restaurant	932	5 kSF	27	23	50	30	19	49	561	29	27	56	612
General Office Building	710	10 kSF	31	5	36	2	11	13	114	3	2	5	22
Shopping Center[2]	820	2 kSF	1	1	2	4	4	8	76	5	4	9	92
Total Phase 2 Development Trips (without Reductions)			**116**	**104**	**220**	**166**	**123**	**289**	**3,571**	**182**	**153**	**335**	**3,477**
Total Phase 1 + Phase 2 Development Trips (without Reductions)			**140**	**135**	**275**	**200**	**156**	**356**	**4,434**	**226**	**192**	**418**	**4,146**
Internal Capture - Res and Non-Res[1]		*5%*	*-1*	*-3*	*-4*	*-3*	*-2*	*-5*	*-68*	*-3*	*-3*	*-6*	*-57*
TDM/Transit Ructions		*5%*	*-2*	*-4*	*-6*	*-4*	*-3*	*-7*	*-92*	*-4*	*-4*	*-8*	*-75*
Total Development Trips (with Reductions)			**137**	**128**	**265**	**193**	**151**	**344**	**4,274**	**219**	**185**	**404**	**4,014**
Net New Trips without Reductions			**140**	**134**	**274**	**199**	**155**	**354**	**4,415**	**225**	**191**	**416**	**4,127**
Net New Trips with Reductions			**137**	**127**	**264**	**192**	**150**	**342**	**4,255**	**218**	**184**	**402**	**3,995**

Notes:

1. Internal capture between residential (multifamily) and non-residential uses (shopping center , quality restaurant, high turnover (sit-down) restaurant, and general office buidling) was based on a minimum of 5% for AM, PM and SAT peak hour trips.

2. For Shopping Center, the rates have been used as 2,000 sft of retail falls outside the data range.

Table 4: Trip Generation Comparison Between Proposed and By-Right Uses (without any Reductions Applied)

Land Use	ITE Code	Size	------ Weekday ------							------ Weekend ------			
			AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Sat Daily
			In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
Single-Family Detached Housing	210	42 DU	9	26	35	28	16	44	468	29	24	53	434
General Office Building	710	378 ksf of GFA	329	53	382	64	339	403	3,854	108	92	200	835
Shopping Center	820	91.5 kSF of GLA	53	33	86	168	181	349	3,454	214	198	412	4,220
Fast-Food Restaurant without Drive-Thru Window	933	3 KSF of GFA	66	44	110	43	42	85	1039	80	84	164	2088
By-Right Trips			**457**	**156**	**613**	**303**	**578**	**881**	**8,815**	**431**	**398**	**829**	**7,577**

	------ Weekday ------							------ Weekend ------			
	AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Sat Daily
	In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
By-Right Trips	457	156	613	303	578	881	8,815	431	398	829	7,577
Proposed Development	140	134	274	199	155	354	4,415	225	191	416	4,127
Delta	**-317**	**-22**	**-339**	**-104**	**-423**	**-527**	**-4,400**	**-206**	**-207**	**-413**	**-3,450**

TRAFFIC OPERATIONS

This chapter provides a summary of an analysis of the existing and future roadway capacity in the study area. Included is an analysis of potential vehicular impacts of the Northfax development and a discussion of potential improvements.

The purpose of the capacity analysis is to:

- Determine the existing capacity of the study area roadways;
- Determine the overall impact of the proposed development on the study area roadways; and
- Discuss potential improvements and mitigation measures to accommodate the additional vehicular trips.

The capacity analysis focuses on the weekday morning (AM), weekday afternoon (PM), and Saturday midday (SAT) peak hours, as determined by the existing traffic volumes in the study area.

The proposed development is considered to have an impact at an intersection within the vehicular study area if any of the following conditions are met:

- The overall intersection or any approach operates at LOS E or LOS F in the future conditions with the proposed development where one does not exist in the background conditions without the proposed development;
- The overall intersection or any approach operates at LOS E or LOS F during the background condition and the delay increases by more than 10 percent in the future conditions with the proposed development; or
- There is an increase in the 95th percentile queues along a movement where queues exceed available storage capacity of turning lanes in the future conditions with the proposed development where one does not exist in background conditions without the proposed development.

The following conclusions are reached within this chapter:

- Every study intersection except Chain Bridge Road & Future Site Access (Intersection 8) operates at unacceptable levels of service during at least one study scenario.
- Overall, this report concludes that the project **will have a negligible impact** to the surrounding transportation network.

STUDY AREA, SCOPE, & METHODOLOGY

This section outlines the vehicular trips generated in the study area along the vehicular access routes and defines the analysis assumptions.

The general methodology of the analysis follows industry standards on the preparation of transportation impact evaluations of site development, unless stated otherwise.

Capacity Analysis Scenarios

The vehicular analyses are performed to determine if the proposed development will lead to adverse impacts on traffic operations. This is accomplished by comparing future scenarios: (1) without the proposed development (referred to as the Background conditions) and (2) with the development approved and constructed (referred to as the Future conditions).

Specifically, the roadway capacity analysis examined the following scenarios:

1. 2019 Existing Conditions
2. 2023 Future Conditions without the Development (2023 Background)
3. 2023 Future Conditions with Phase 1 of the Development (2023 Total Future – Phase 1)
4. 2027 Future Conditions without the Development (2027 Background)
5. 2027 Future Conditions with Phase 1 and Phase 2 of the Development (2027 Total Future – Phase 2)

Study Area

The study area of the analysis is a set of intersections where detailed capacity analyses are performed for the scenarios listed above. The set of intersections included are those intersections most likely to have potential impacts or require changes to traffic operations to accommodate the proposed development. The aforementioned study area was discussed and agreed to in a scoping meeting with the City.

Based on the projected future trip generation and the location of the site access points, the following intersections were chosen for analysis:

1. Fairfax Boulevard and Eaton Place;
2. Fairfax Boulevard and University Drive;
3. Chain Bridge Road and Fairfax Boulevard;
4. Fairfax Boulevard, Farr Avenue, and Future Site Access;
5. Fairfax Boulevard, Warwick Lane, and McLean Avenue;
6. Chain Bridge Road and Orchard Street;
7. Chain Bridge Road and Eaton Place; and
8. Chain Bridge Road and Right-in Only Site Access (2027 Total Future scenario only).

Figure 5 illustrates the location of the aforementioned study intersections.

GEOMETRY AND OPERATIONS ASSUMPTIONS

The following section reviews the roadway geometry and operations assumptions made and the methodologies used in the roadway capacity analyses.

Existing Geometry and Operations Assumptions

The geometry and operations assumed in the existing conditions scenario are those present when the main data collection occurred. Gorove/Slade made observations and confirmed the existing lane configurations and traffic controls at the intersections within the study area. Existing signal timings and offsets were obtained from the City of Fairfax.

A description of the roadways within the study area is presented below in Table 5. The existing local roadway network including lane configurations and intersection control is detailed in and illustrated in Figure 17.

2023 Background and Future Phase 1 Geometry and Operations Assumptions (with and/or without Phase 1 of the proposed development)

Following industry standard methodologies, a background improvement must meet the following criteria to be incorporated into the analysis:

- Be funded; and
- Have a construction completion date prior or close to the proposed development.

Based on these criteria, some geometry improvements were included in the 2023 Background and 2023 Future Phase 1 scenarios. Roadway improvements that are part of the Northfax East/University Drive Extension project and the Farr Avenue extension were incorporated. Detailed plans of this project are included in the Appendix D.

The Northfax East/University Drive Extension project consists of an extension of University Drive from Fairfax Boulevard to Eaton Place, providing new vehicular, pedestrian, and bicycle connections. The new roadway will include sidewalks, pedestrian crossings, on-road bike lanes, lighting, and landscaping. The new intersection of University Drive and Eaton Place will be controlled by two-way stop control.

The extension of Farr Avenue to Orchard Street would occur prior to the completion of Phase 1 of the development. The extension would provide new vehicular, pedestrian, and bicycle connections within the road network. Under Phase 1, it is anticipated that the intersection of Farr Avenue at Fairfax Boulevard would operate under stop-controlled conditions and would utilize right-in/right-out (RIRO) movements.

Because the Phase 1 portion of the Northfax development does not include any roadway geometry improvements, the 2023 Background and 2023 Future Phase 1 scenarios are combined for geometry and operations purposes.

The 2023 Background and Future Phase 1 lane configurations and intersection controls are illustrated on Figure 18.

2027 Background Geometry and Operations Assumptions (without the proposed development)

Based on the aforementioned background improvement criteria, some geometry improvements were included in the 2027 Background scenario in addition to those included in the 2023 Background and 2023 Future Phase 1 scenarios. Roadway improvements that are part of the Warwick Avenue/Fairfax Boulevard/McLean Avenue Intersection Improvements project were incorporated into the 2027 Background scenario. Detailed plans of this project are included in the Appendix D.

The Warwick Avenue/Fairfax Boulevard/McLean Avenue Intersection Improvements project consists of realigning the intersection to remove two of the intersection approaches (McLean Avenue to the north of Fairfax Boulevard and Warwick Avenue to the south of Fairfax Boulevard), reducing pedestrian crossing distances and intersection conflict points. The project adds a new traffic signal at Farr Avenue to allow neighborhood traffic south of Fairfax Boulevard access to a signal to make left turns onto Fairfax Boulevard.

The 2027 Background lane configurations and intersection controls is shown on Figure 19.

2027 Future Phase 2 Geometry and Operations Assumptions (with Phase 1 and Phase 2 of the proposed development)

In addition to the background improvements included in the 2027 Background scenario, the 2027 Future Phase 2 scenario includes roadway geometry improvements occurring as a result of Phase 2 of the Northfax development. These improvements include the addition of a right-in site access along Chain Bridge Road.

The 2027 Future Phase 2 lane configurations and intersection controls is illustrated on Figure 20.

Table 5: Existing Roadway Network

Roadway	Classification (VDOT) *	Classification (City of Fairfax) **	Lanes	Speed	On-Street Parking	ADT ***
Fairfax Boulevard (west of Chain Bridge Road	Other Principal Arterial	Arterial	4	35 mph	No	37,000
Fairfax Boulevard (east of Chain Bridge Road)	Other Principal Arterial	Arterial	4	35 mph	No	35,000
Chain Bridge Road	Other Principal Arterial	Arterial	2 to 6	30 mph	No	38,000
University Drive	Major Collector	Collector	2	25 mph	No	6,700

* Source: VDOT

** Source: City of Fairfax

*** Source: 2018 VDOT ADT Data

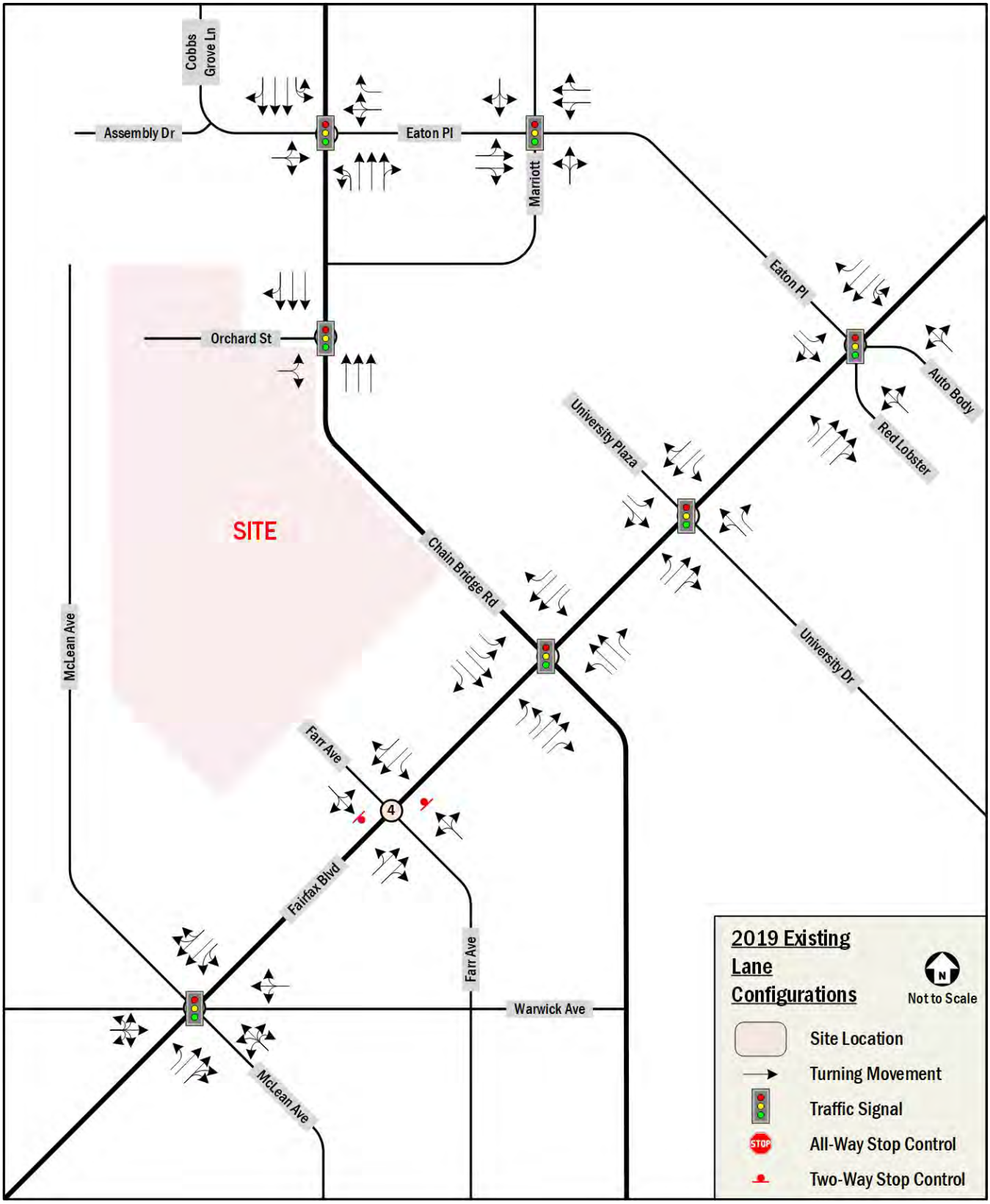


Figure 17: 2019 Existing Lane Configurations and Traffic Controls

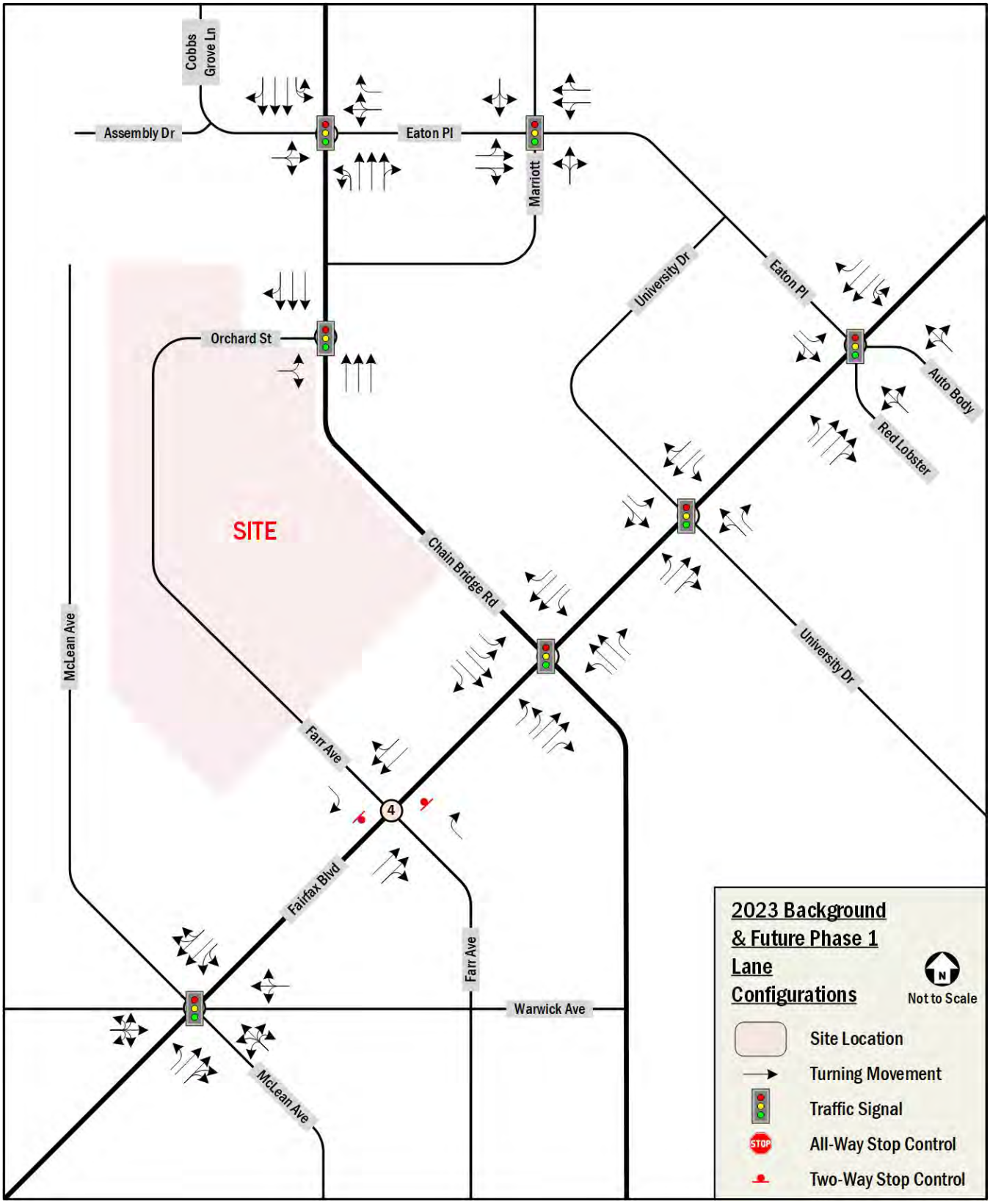


Figure 18: 2023 Background and Future Phase 1 Lane Configurations and Traffic Controls

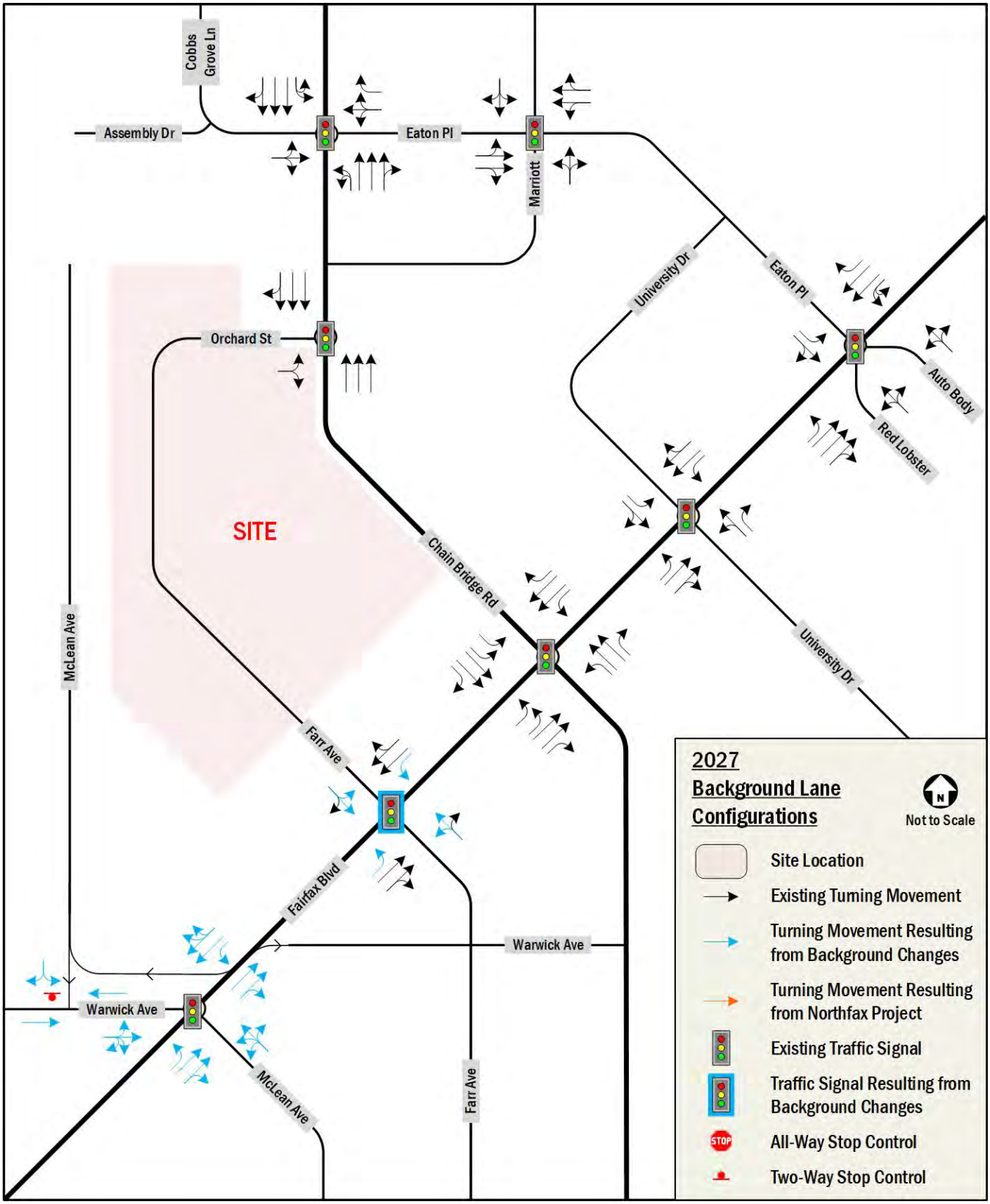


Figure 19: 2027 Background Lane Configurations and Traffic Controls

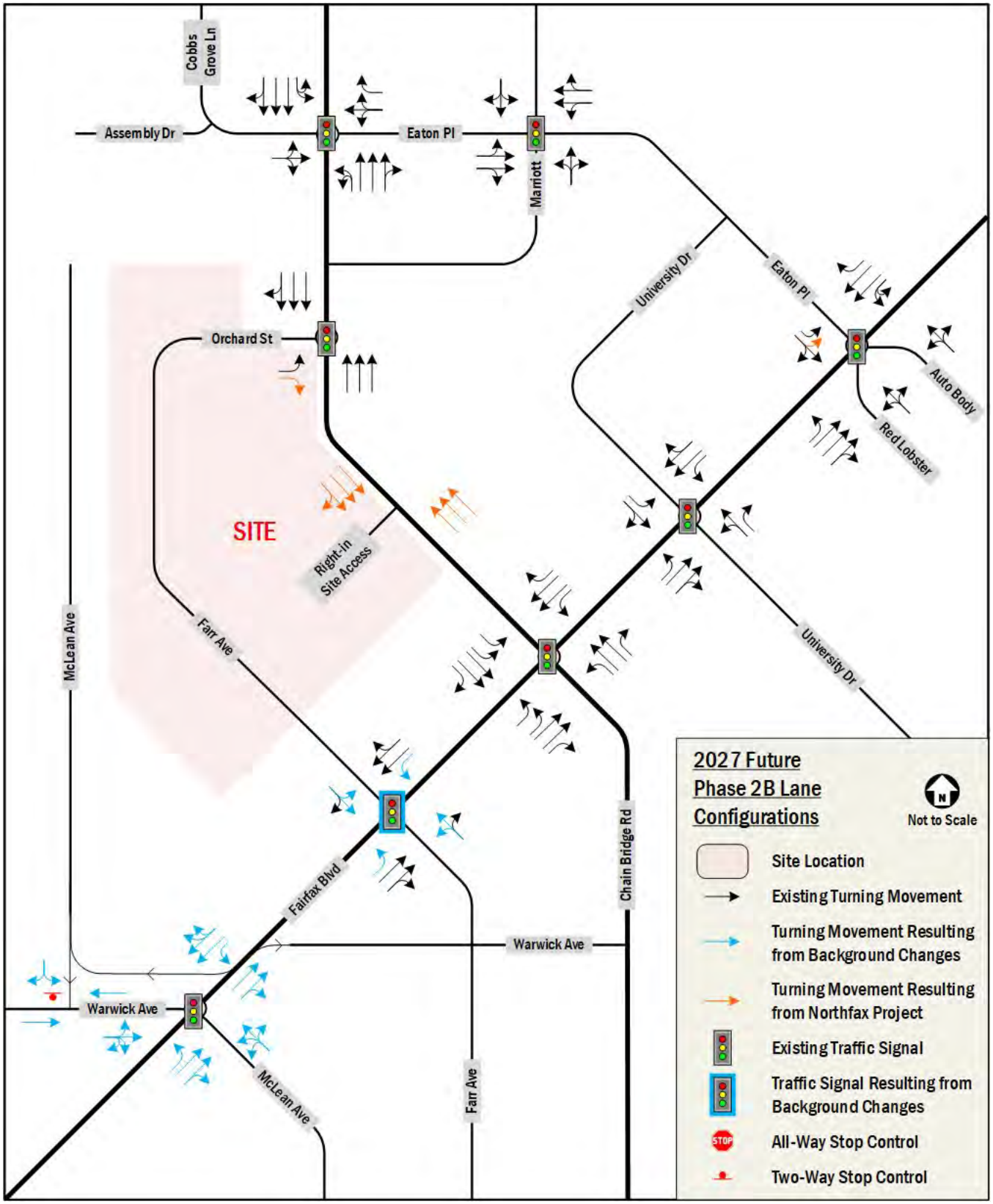


Figure 20: 2027 Future Phase 2 Lane Configurations and Traffic Controls

TRAFFIC VOLUME ASSUMPTIONS

The following section reviews the traffic volume assumptions and methodologies used in the roadway capacity analyses.

Existing Traffic Volumes

The existing traffic volumes are compiled from two sources:

- Turning movement count data, which was collected on Wednesday, March 20, 2019 from 6:00 AM to 9:00 AM and 4:00 PM to 7:00 PM and on Saturday, March 23, 2019 from 11:00 AM to 2:00 PM; and
- *Synchro* software files containing weekday morning, weekend afternoon, and Saturday midday peak hour traffic volumes provided by the City of Fairfax.

The existing turning movement counts are included in the Appendix B.

Based on the existing counts, the following system peak hours were identified:

- AM Peak Hour: 7:45 to 8:45 AM,
- PM Peak Hour: 5:00 PM to 6:00 PM, and
- SAT Peak Hour: 1:00 to 2:00 PM.

The existing peak hour traffic volumes for the intersections within the vehicular study area are shown in Figure 21. Of note, the traffic volumes were balanced between intersection where appropriate.

2023 Background Traffic Volumes (without the proposed development)

Traffic projections for the 2023 Background conditions consist of the existing volumes with three additions:

- Inherent growth on the roadway (representing regional traffic growth),
- Traffic generated by developments expected to be completed prior to the project (known as background developments), and
- Potential rerouting of traffic due to future roadway improvement projects.

To account for inherent growth on the roadway, a growth percentage has been applied to all movements at the intersection of Fairfax Boulevard and Chain Bridge Road, with the resulting volume differences carried through the remaining study intersections. This growth percentage is 2.0% between 2019 and 2023, and 1.0% between 2023 and 2027.

Following industry methodologies, a background development must meet the following criteria to be incorporated into the analysis:

- Be located in the study area, defined as having an origin or destination point within the cluster of study area intersections;
- Have entitlements; and
- Have a construction completion date prior or close to the proposed development.

The analysis considered the following two developments and their locations relative to the proposed Northfax development can be found in Figure 22.

1) **Fairfax Shopping Center (Whole Foods):** Located in the City of Fairfax north of Fairfax Boulevard, south of Eaton Place, and east of Chain Bridge Road, the development proposes to replace the existing 82,268 SF of retail space with approximately 48,200 SF of retail space. The development is expected to generate 100 weekday AM peak hour vehicle trips and 368 weekday PM peak hour vehicle trips, based on the Traffic Impact Study prepared by Wells + Associates dated December 21, 2016. A Saturday peak hour trip generation of 545 trips was extrapolated from the AM and PM peak hour trips provided in this Traffic Impact Study. **This development is considered in the Background and Future scenarios for both 2023 and 2027.**

2) **Paul VI**: Located in the City of Fairfax south of Fairfax Boulevard, east of Oak Street, and west of McLean Avenue, the development proposes to replace the existing private high school with 184 residential condominium units, 137 town homes, 20,000 SF of local serving retail, and 24,000 SF of community center space. Including the removed trips from the existing site, the development is expected to generate (-746) weekday AM peak hour vehicle trips and 295 weekday PM peak hour vehicle trips, based on the Traffic Impact Study prepared by Wells + Associates dated April 18, 2017 and revised November 15, 2017. A Saturday peak hour trip generation of 502 trips was extrapolated from the AM and PM peak hour trips provided in this Traffic Impact Study. **Because this development will not be complete by 2023, it is only considered in the 2027 Background and Future scenarios.**

Trip distribution assumptions for the background developments were based on the distributions included in their respective studies or was based on those determined for the development and altered where necessary based on anticipated travel patterns. The total traffic generated by these background developments is presented in Table 6. Diagrams showing the trips generated by each background development are presented in Appendix D.

The 2023 regional growth-generated peak hour traffic volumes are shown in Figure 23. The 2023 background development-generated peak hour traffic volumes are shown in Figure 24.

The reroute of traffic due to proposed roadway improvements is illustrated in Figure 25

The 2023 Background peak hour traffic volumes are shown in Figure 26**.**

Table 6: Vehicular Traffic Generated by Background Developments

Development	Vehicular Trip Generation								
	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	*Out*	*Total*	*In*	*Out*	*Total*	*In*	*Out*	*Total*
Fairfax Shopping Center (Whole Foods) *	62	38	100	177	191	368	284	261	545
Paul VI **	-573	-173	-746	187	108	295	258	244	502
Total	**-511**	**-135**	**-646**	**364**	**299**	**663**	**542**	**505**	**1,047**

* Source: TIA prepared by Wells + Associates dated December 21, 2016

** Source: TIA prepared by Wells + Associates dated April 18, 2017 and revised November 15, 2017

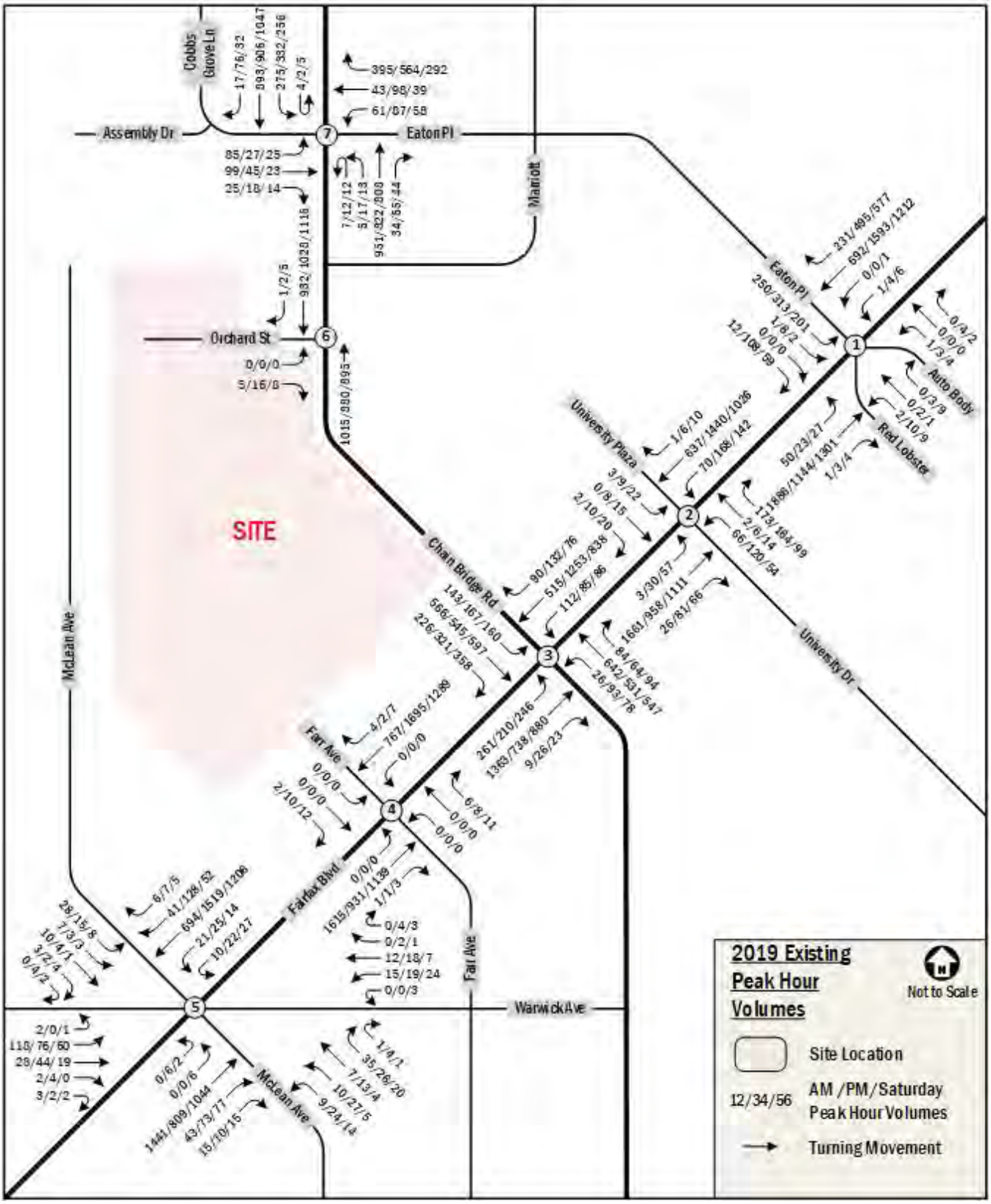


Figure 21: 2019 Existing Vehicular Peak Hour Traffic Volumes

Figure 22: Future Background Developments

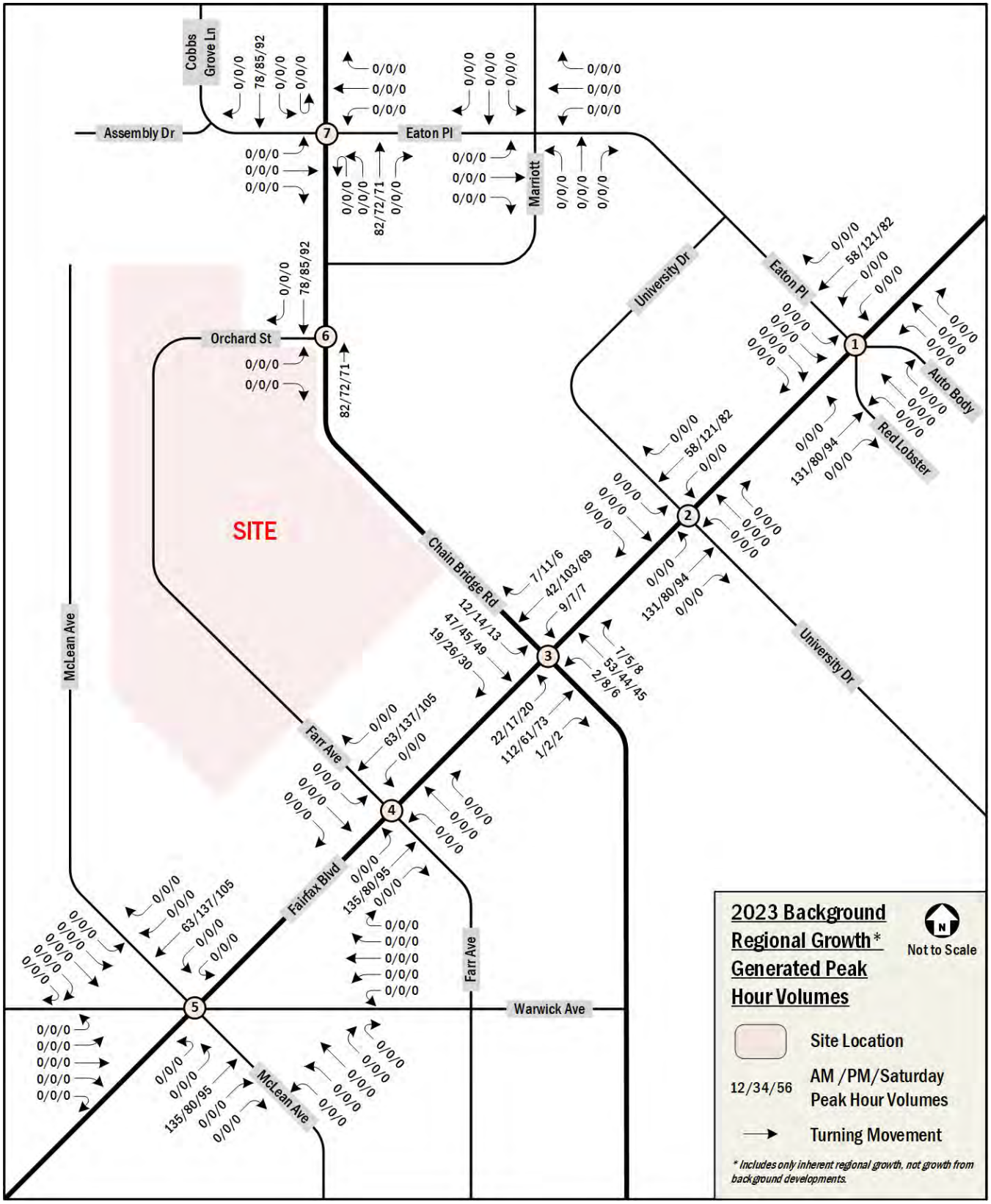


Figure 23: Inherent Regional Growth Peak Hour Traffic Volumes (2019 to 2023)

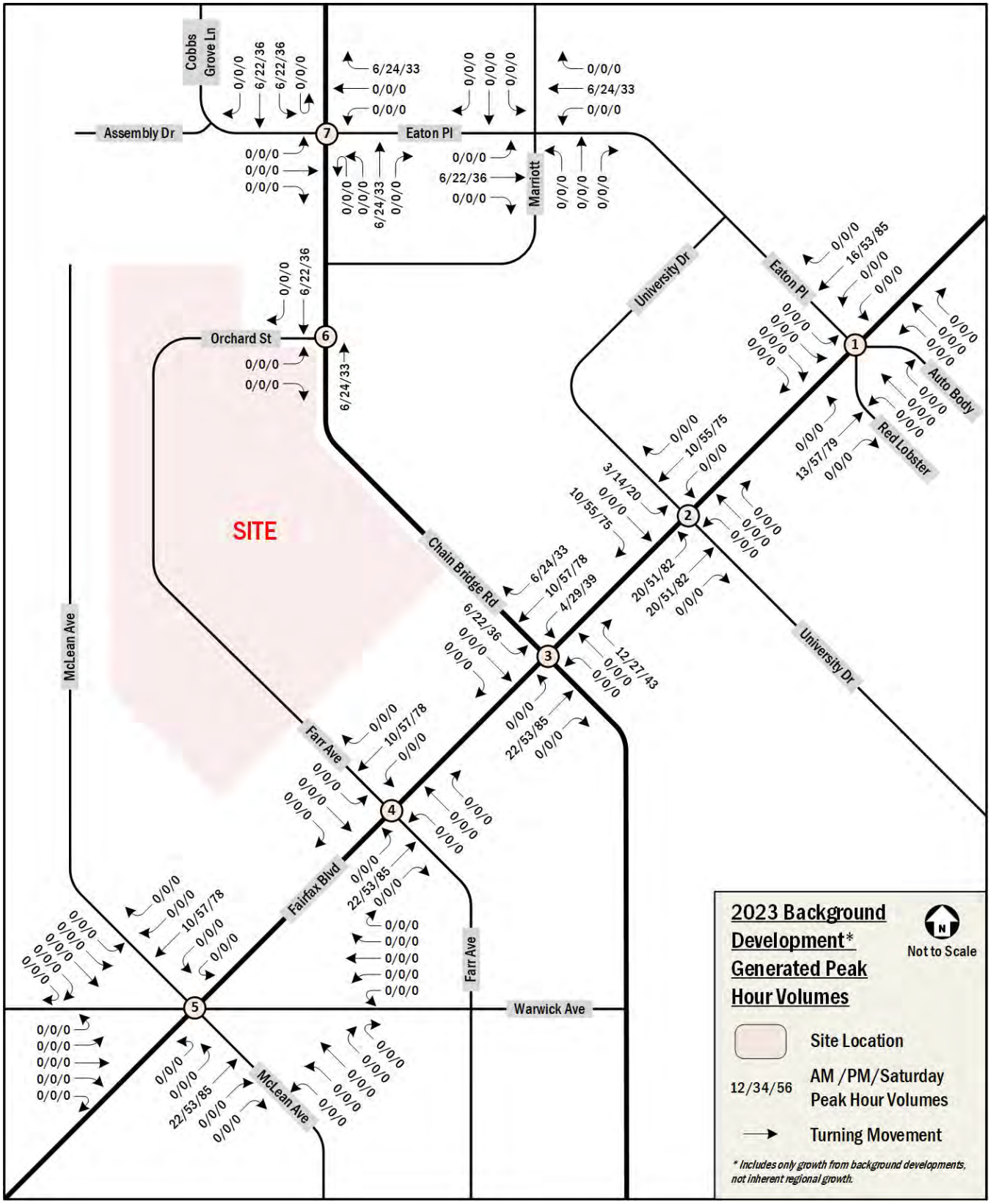


Figure 24: 2023 Background Development-Generated Peak Hour Traffic Volumes

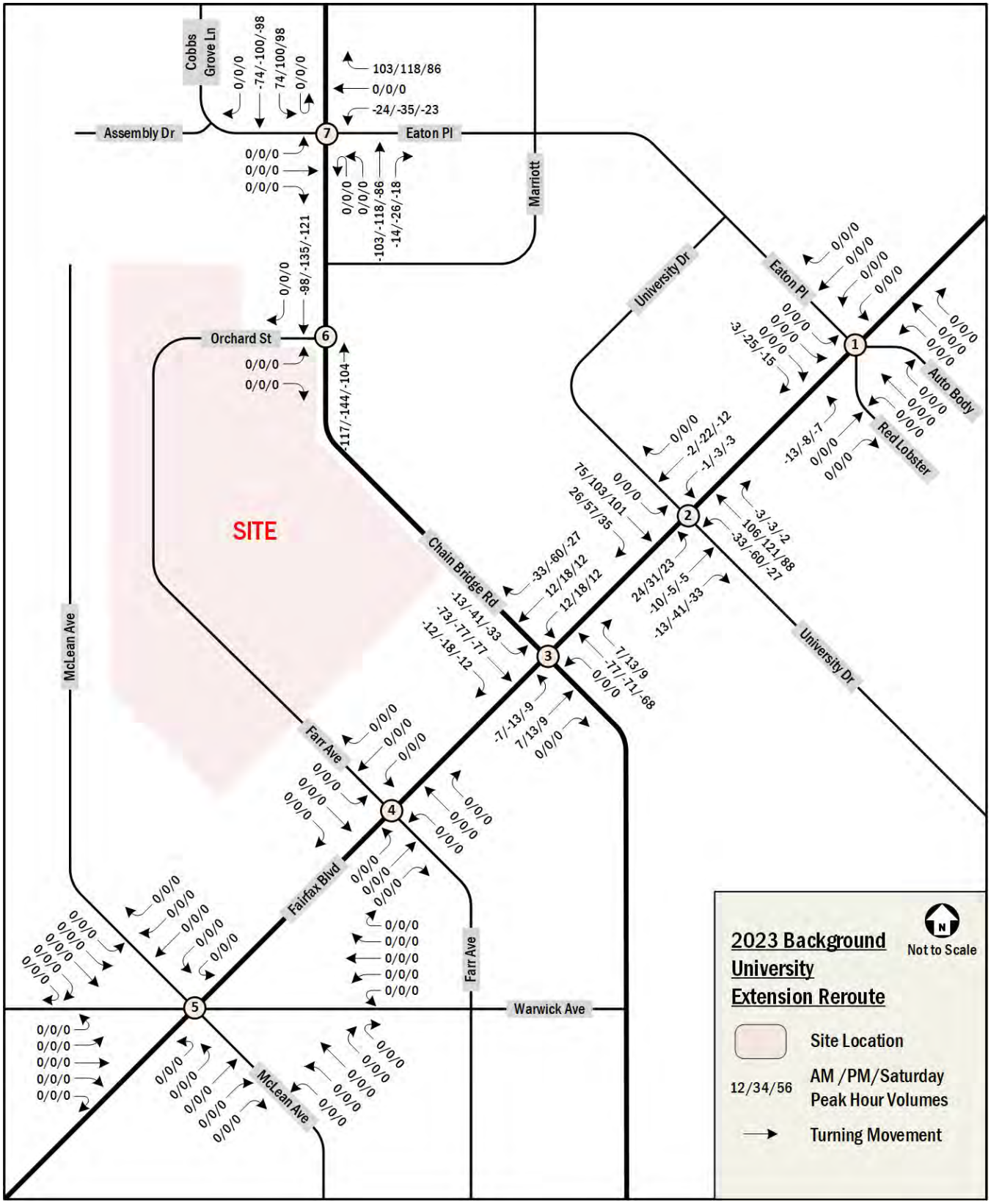


Figure 25: Rerouted Traffic due to Proposed Roadway Improvements (2023)

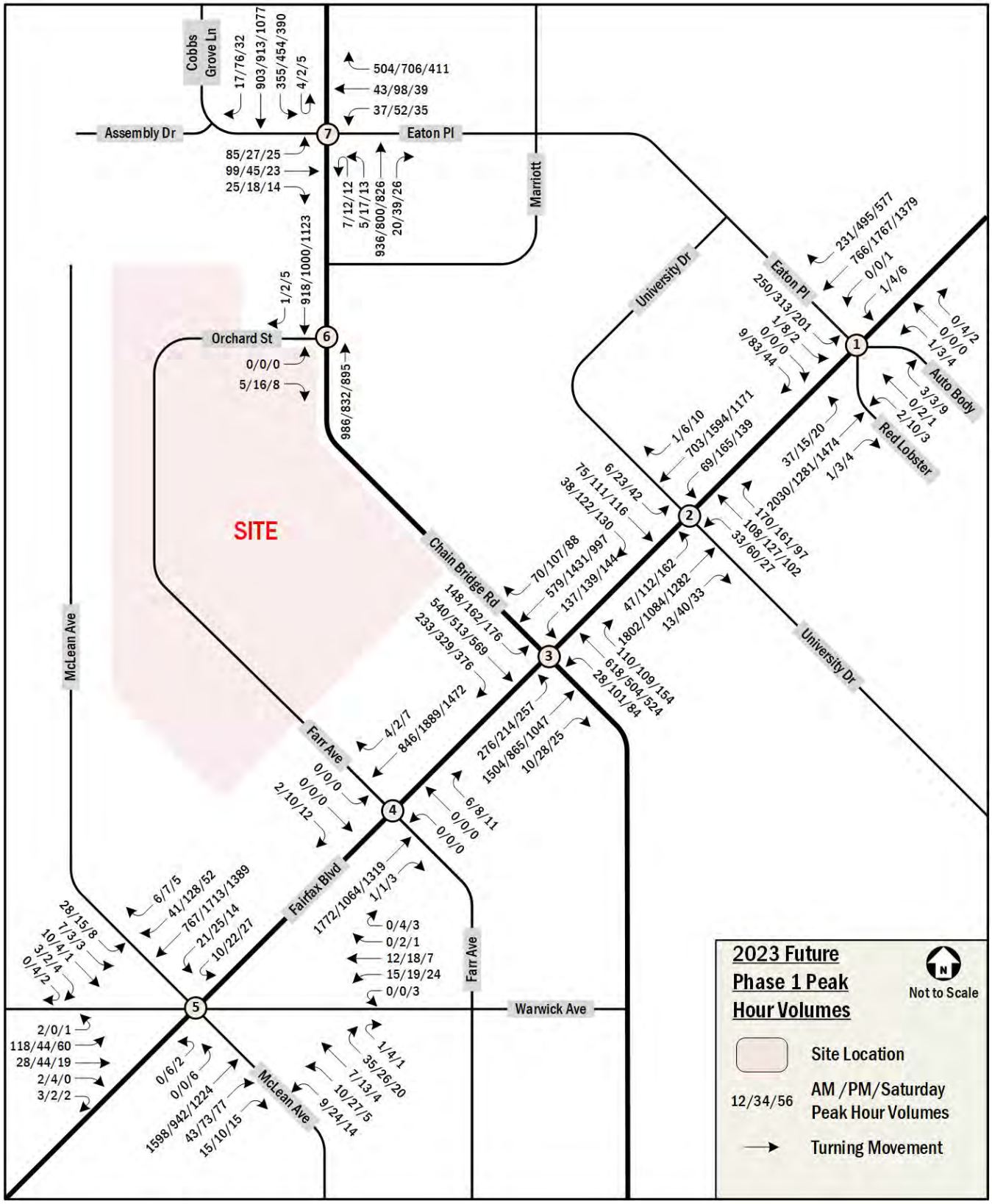


Figure 26: 2023 Background Peak Hour Vehicular Traffic Volumes

2023 Future Traffic Volumes (with Phase 1 of the Development)
The 2023 Future (with Phase 1 of the Development) traffic consists of the 2023 Background (without Development) volumes with the addition of the traffic volumes generated by Phase 1 of the proposed development. Thus, the 2023 Future (with Phase 1 of the Development) volumes include traffic generated by:

- Existing volumes,
- Inherent growth on the roadway (representing regional traffic growth),
- Developments expected to be completed prior to the project (known as background developments),
- Potential rerouting of traffic due to future roadway improvement projects,
- Removal of trips from the existing development(s) that would be replaced with the proposed development, and
- Phase 1 of the proposed development.

The distribution of site trips was based primarily on existing volumes, anticipated traffic patterns, other recent studies conducted in the area, and engineering judgment. The peak hour trips were calculated and assigned to the roadway network based on the traffic distributions shown in Figure 27 through Figure 31.

The 2023 Phase 1 site-generated trips are shown in Figure 32. The removal of existing trips, associated with the two single family detached homes, is illustrated in Figure 33. The 2023 Future (with Phase 1 of the Development) traffic volumes are shown in Figure 34.

Figure 27: Residential Trip Distribution

Figure 28: Continued Care Retirement Facility Trip Distribution

Figure 29: Hotel Trip Distribution

Figure 30: Restaurant Trip Distribution

Figure 31: Commercial Trip Distribution

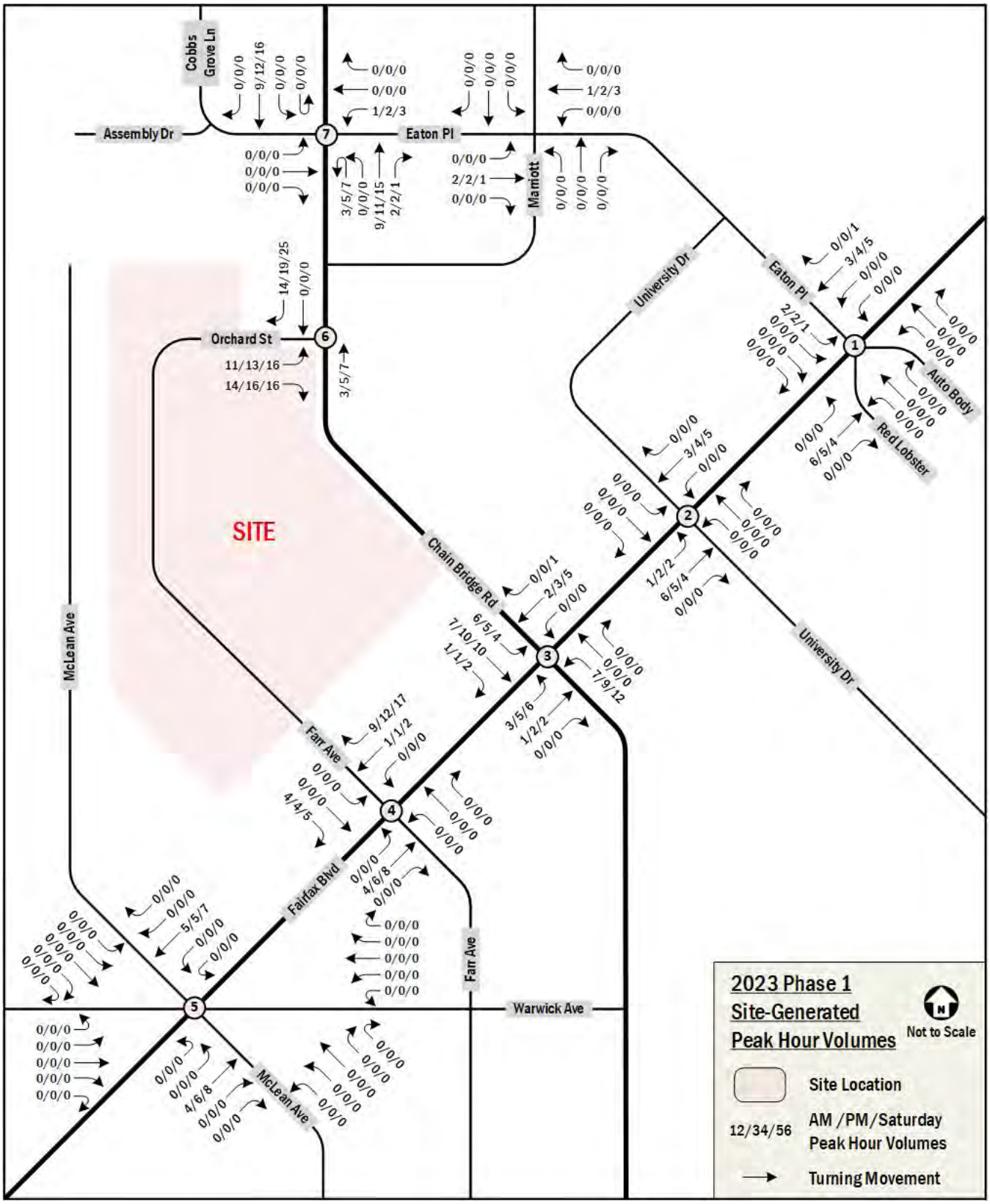


Figure 32: 2023 Phase 1 Site-Generated Peak Hour Traffic Volumes

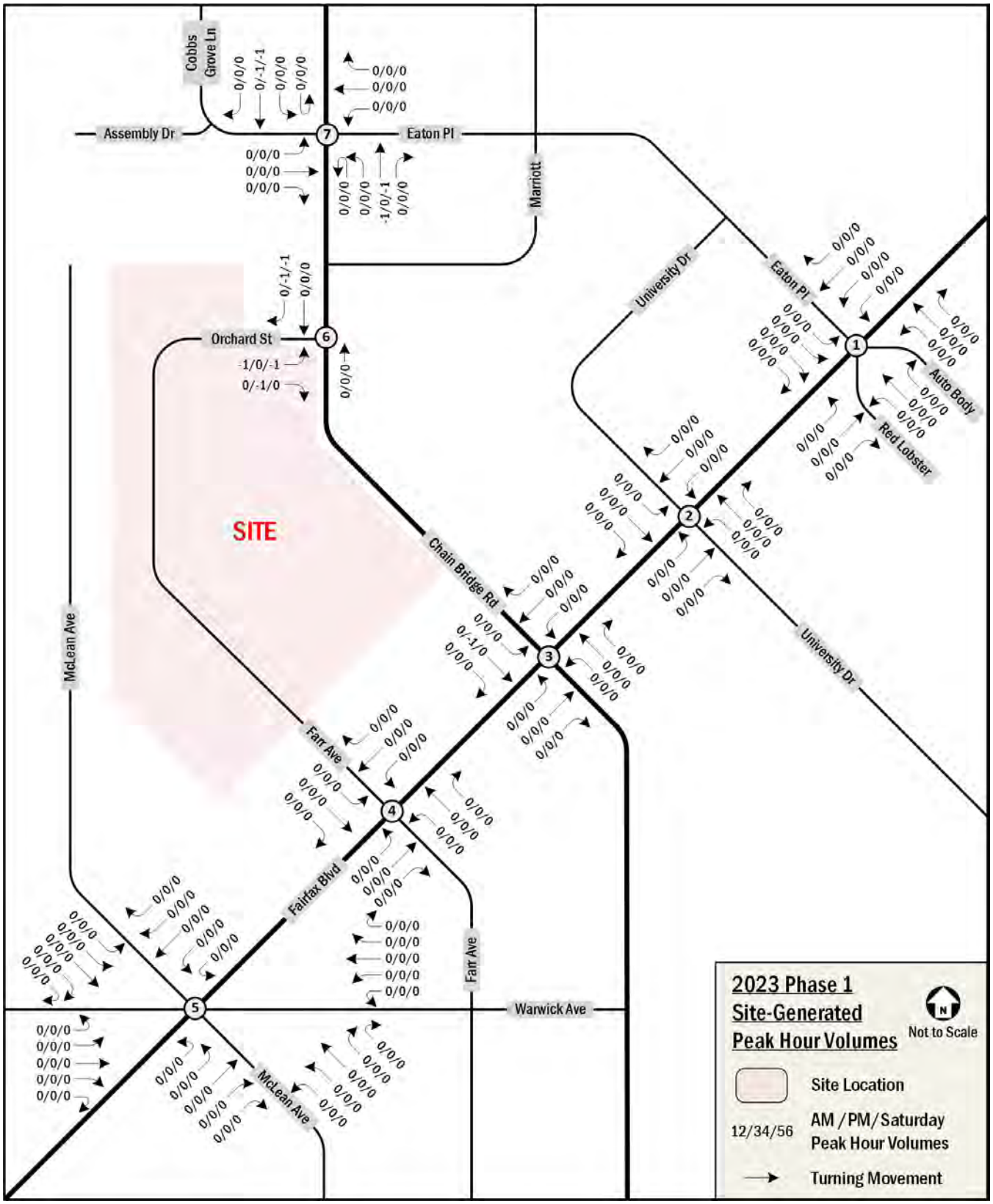


Figure 33: Removal of Existing Site Trips

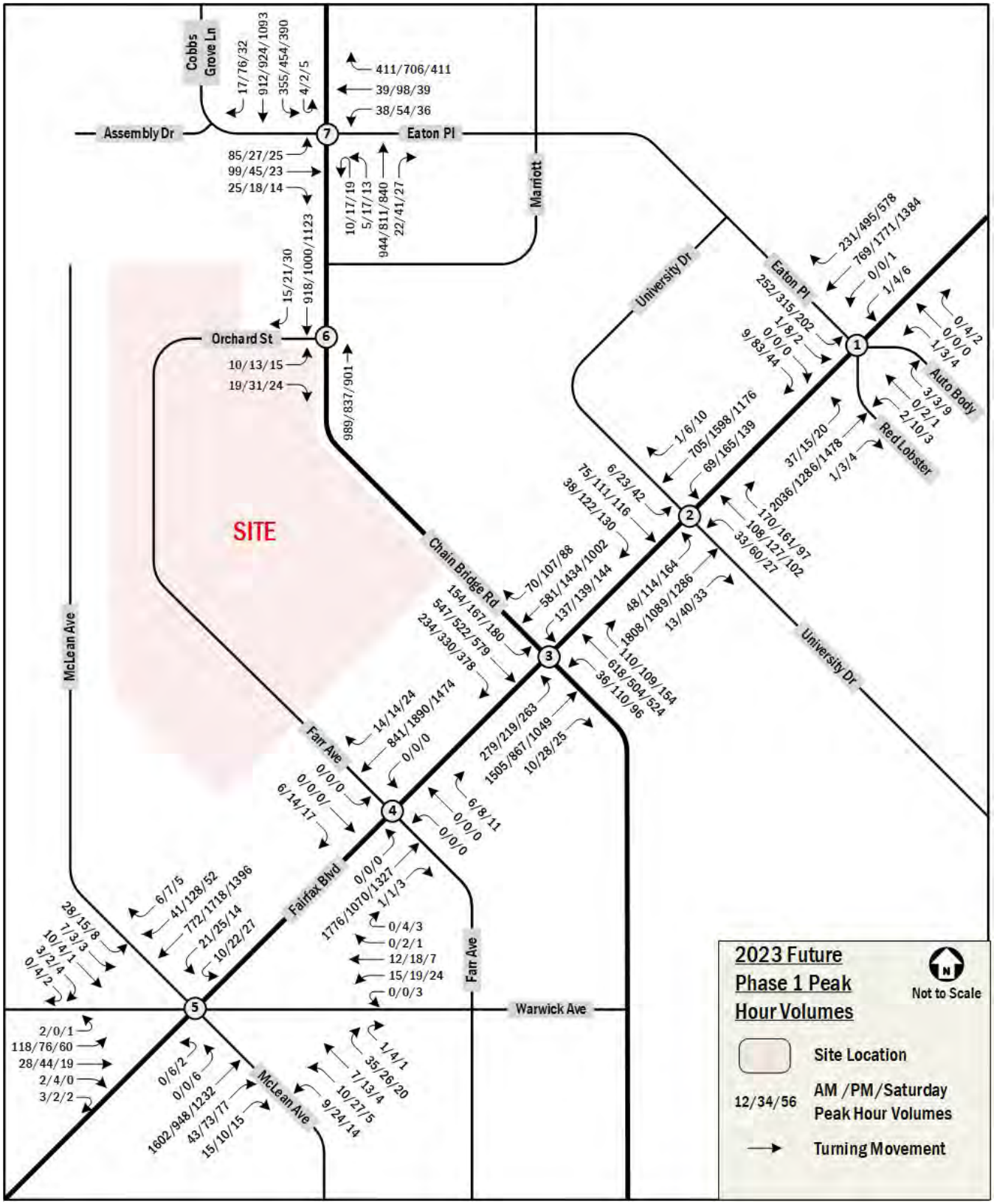


Figure 34: 2023 Future Phase 1 Peak Hour Volumes

2027 Background Traffic Volumes (without the proposed development)

Traffic projections for the 2027 Background conditions consist of the existing volumes with three additions:

- Inherent growth on the roadway (representing regional traffic growth),
- Traffic generated by developments expected to be completed prior to the project (known as background developments), and
- Potential rerouting of traffic due to future roadway improvement projects.

To account for inherent growth on the roadway, a growth percentage has been applied to all movements at the intersection of Fairfax Boulevard and Chain Bridge Road, with the resulting volume differences carried through the remaining study intersections. This growth percentage is 2.0% between 2019 and 2023, and 1.0% between 2023 and 2027.

Following industry methodologies, a background development must meet the following criteria to be incorporated into the analysis:

- Be located in the study area, defined as having an origin or destination point within the cluster of study area intersections;
- Have entitlements; and
- Have a construction completion date prior or close to the proposed development.

The analysis considered the following two developments and their locations relative to the proposed Northfax development can be found in Figure 22.

1) **Fairfax Shopping Center (Whole Foods):** Located in the City of Fairfax north of Fairfax Boulevard, south of Eaton Place, and east of Chain Bridge Road, the development proposes to replace the existing 82,268 SF of retail space with approximately 48,200 SF of retail space. The development is expected to generate 100 weekday AM peak hour vehicle trips and 368 weekday PM peak hour vehicle trips, based on the Traffic Impact Study prepared by Wells + Associates dated December 21, 2016. A Saturday peak hour trip generation of 545 trips was extrapolated from the AM and PM peak hour trips provided in this Traffic Impact Study. **This development is considered in the Background and Future scenarios for both 2023 and 2027.**

2) **Paul VI**: Located in the City of Fairfax south of Fairfax Boulevard, east of Oak Street, and west of McLean Avenue, the development proposes to replace the existing private high school with 184 residential condominium units, 137 town homes, 20,000 SF of local serving retail, and 24,000 SF of community center space. Including the removed trips from the existing site, the development is expected to generate (-746) weekday AM peak hour vehicle trips and 295 weekday PM peak hour vehicle trips, based on the Traffic Impact Study prepared by Wells + Associates dated April 18, 2017 and revised November 15, 2017. A Saturday peak hour trip generation of 502 trips was extrapolated from the AM and PM peak hour trips provided in this Traffic Impact Study. **Because this development will not be complete by 2023, it is only considered in the 2027 Background and Future scenarios.**

Trip distribution assumptions for the background developments were based on the distributions included in their respective studies or was based on those determined for the development and altered where necessary based on anticipated travel patterns. The total traffic generated by these background developments is presented in Table 6. Diagrams showing the trips generated by each background development are presented in the Appendix D.

The 2027 regional growth-generated peak hour traffic volumes are shown in Figure 35. The 2027 background development-generated peak hour traffic volumes are shown in Figure 36.

The reroute of traffic due to proposed roadway improvements is illustrated in Figure 37.

The 2023 Background peak hour traffic volumes are shown in Figure 26The 2027 Background peak hour traffic volumes are shown in Figure 38**.**

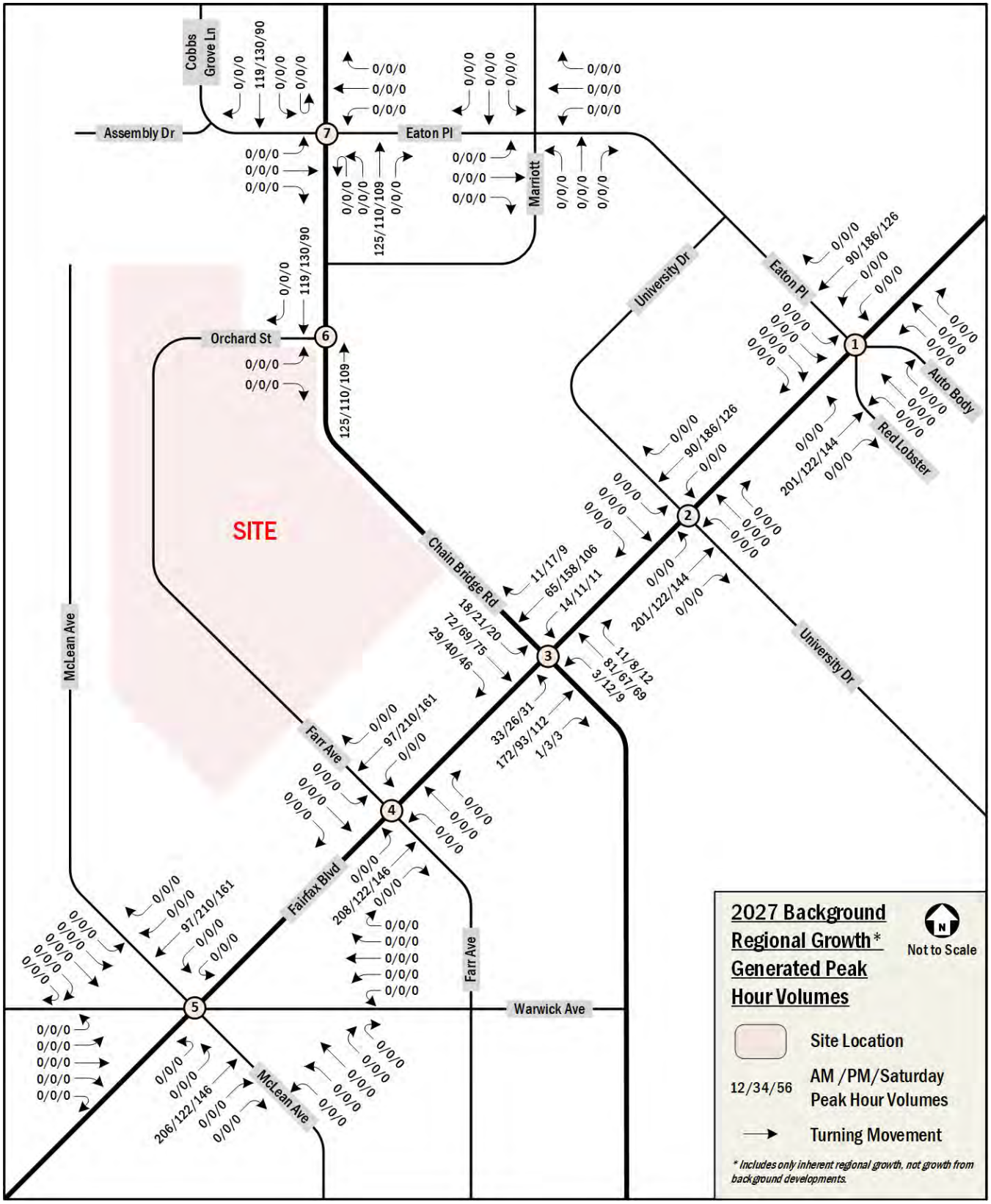


Figure 35: Inherent Regional Growth Peak Hour Traffic Volumes (2019-2027)

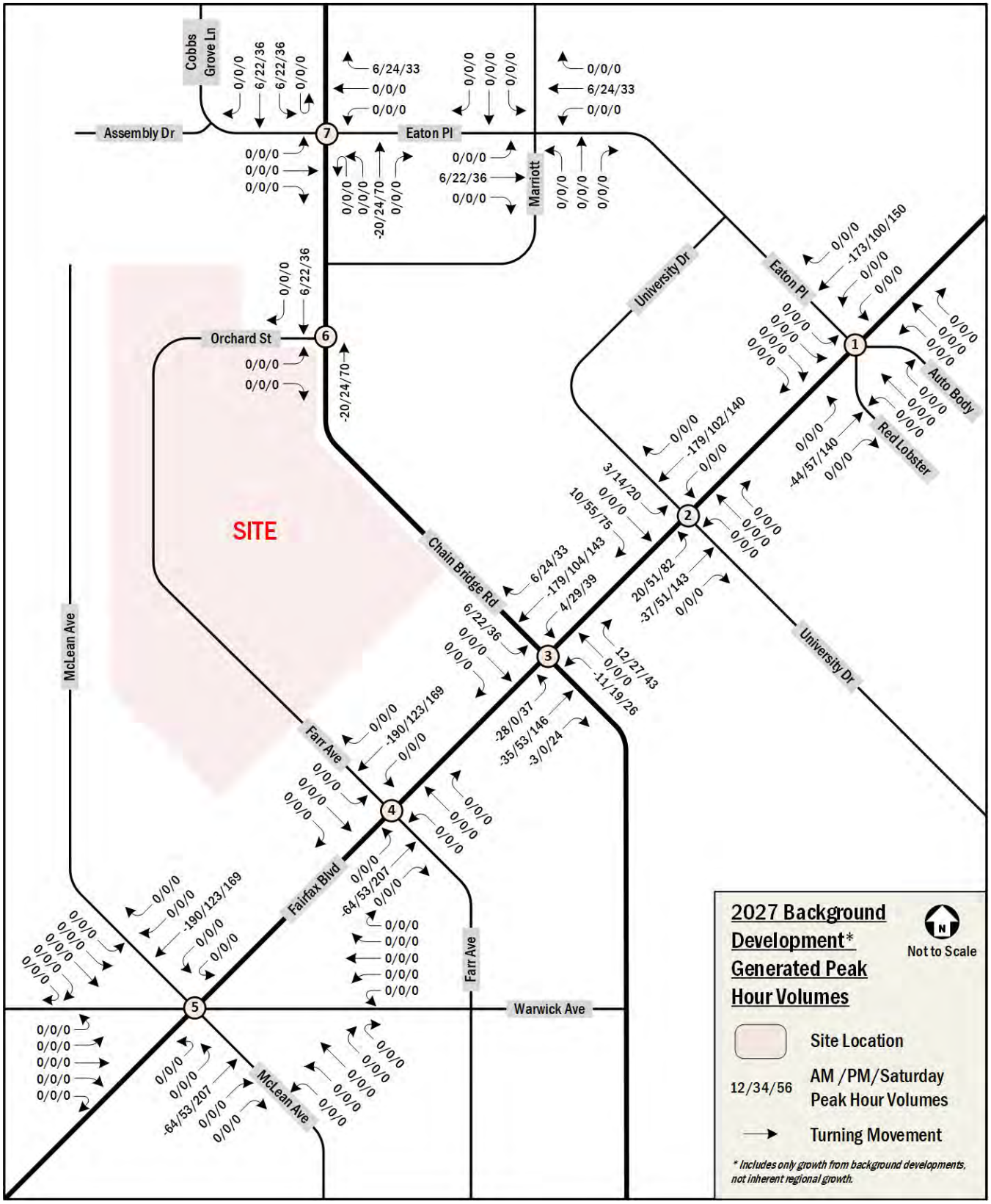


Figure 36: 2027 Background Development-Generated Peak Hour Traffic Volumes

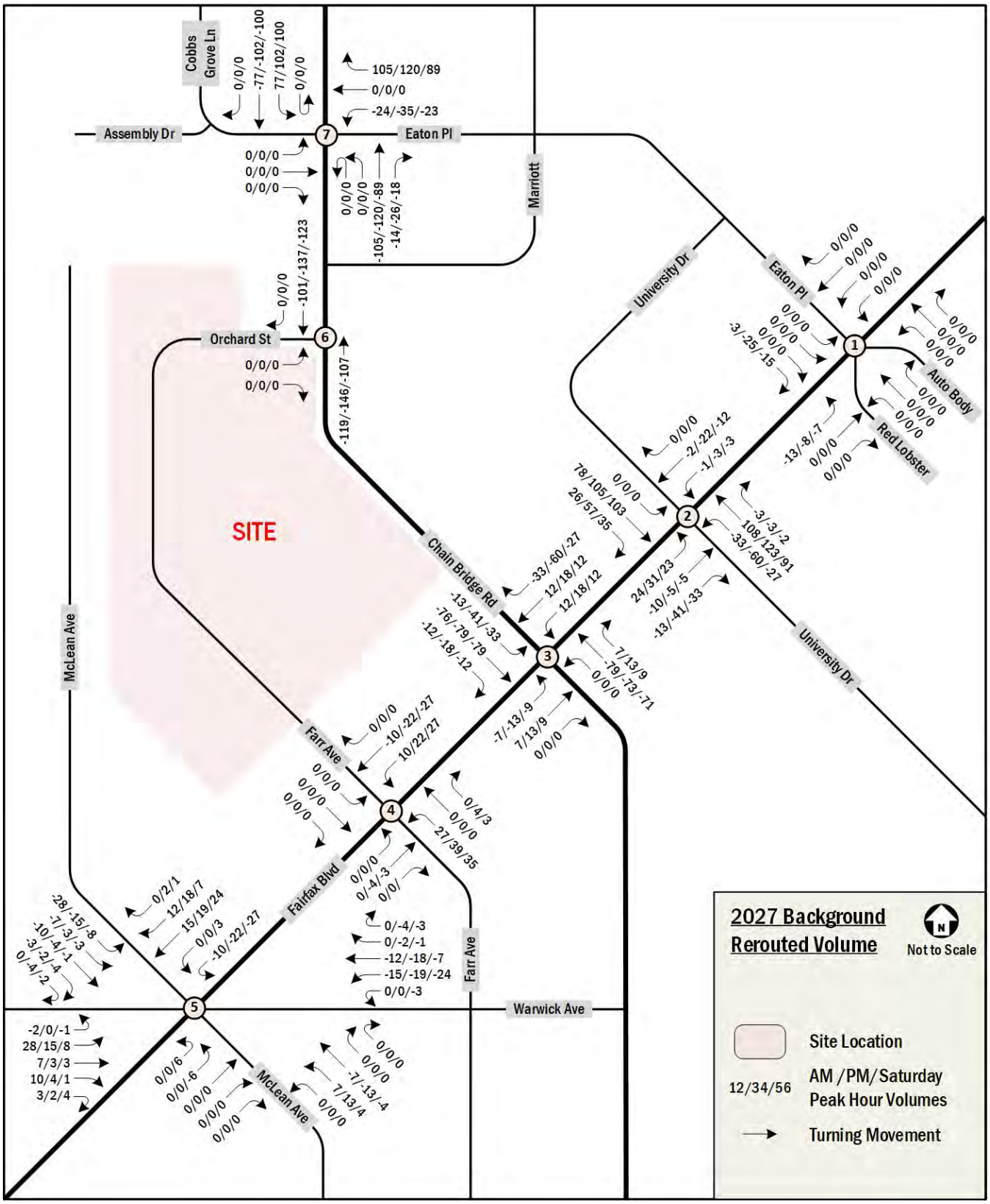


Figure 37: Rerouted Traffic due to Proposed Roadway Improvements (2027)

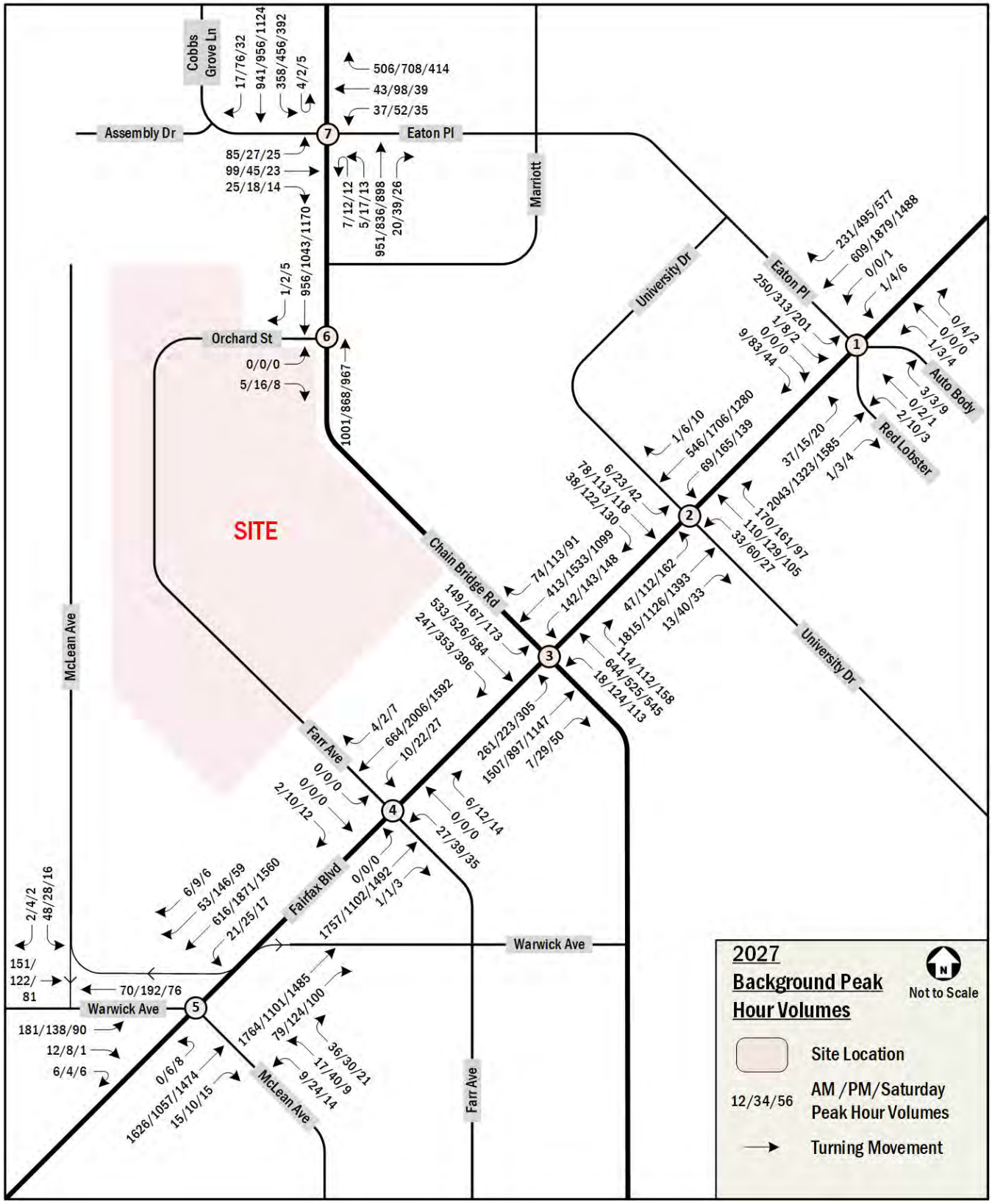


Figure 38: 2027 Background Peak Hour Vehicular Traffic Volumes

2027 Future Traffic Volumes (with Phase 2 of the Development)

The 2027 Future (with Phase 2 of the Development) traffic consists of the 2027 Background (without Development) volumes with the addition of the traffic volumes generated by Phase 1 and Phase 2 of the proposed development. Thus, the 2027 Future (with Phase 2 of the Development) volumes include traffic generated by:

- Existing volumes,
- Inherent growth on the roadway (representing regional traffic growth),
- Developments expected to be completed prior to the project (known as background developments),
- Potential rerouting of traffic due to future roadway improvement projects,
- Removal of trips from the existing development(s) that would be replaced with the proposed development,
- Phase 1 of the proposed development, and
- Phase 2 of the proposed development.

The distribution of site trips was based primarily on existing volumes, anticipated traffic patterns, and other recent studies conducted in the area. The peak hour trips were calculated and assigned to the roadway network based on the traffic distributions shown in Figure 27 through Figure 31.

The 2027 Phase 2 site-generated trips are shown in Figure 39. The removal of existing trips, associated with the two single family detached homes, is illustrated in Figure 33.The 2027 Future (with Phase 2 of the Development) traffic volumes are shown in Figure 40.

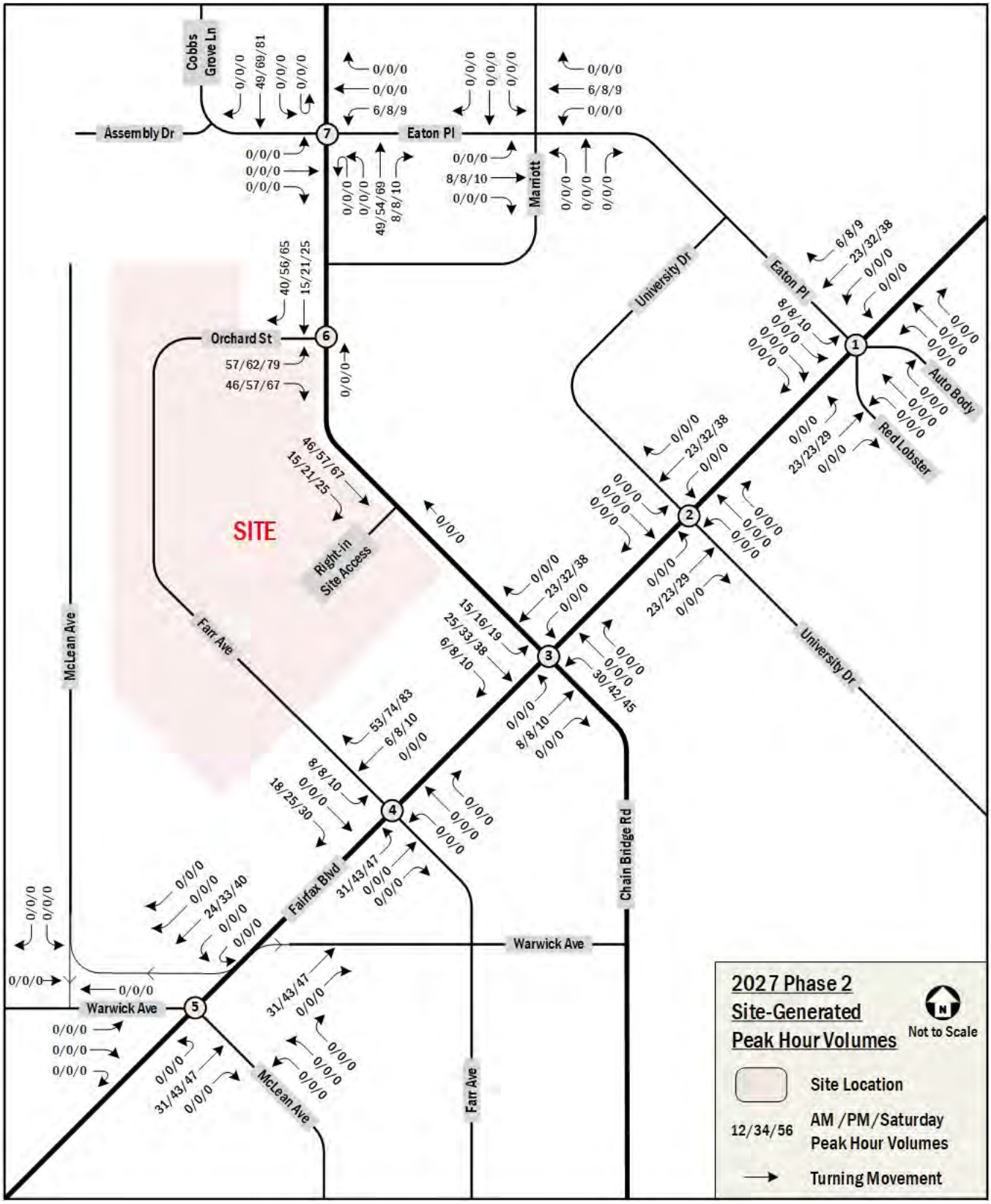


Figure 39: 2027 Phase 2 Site-Generated Peak Hour Traffic Volumes

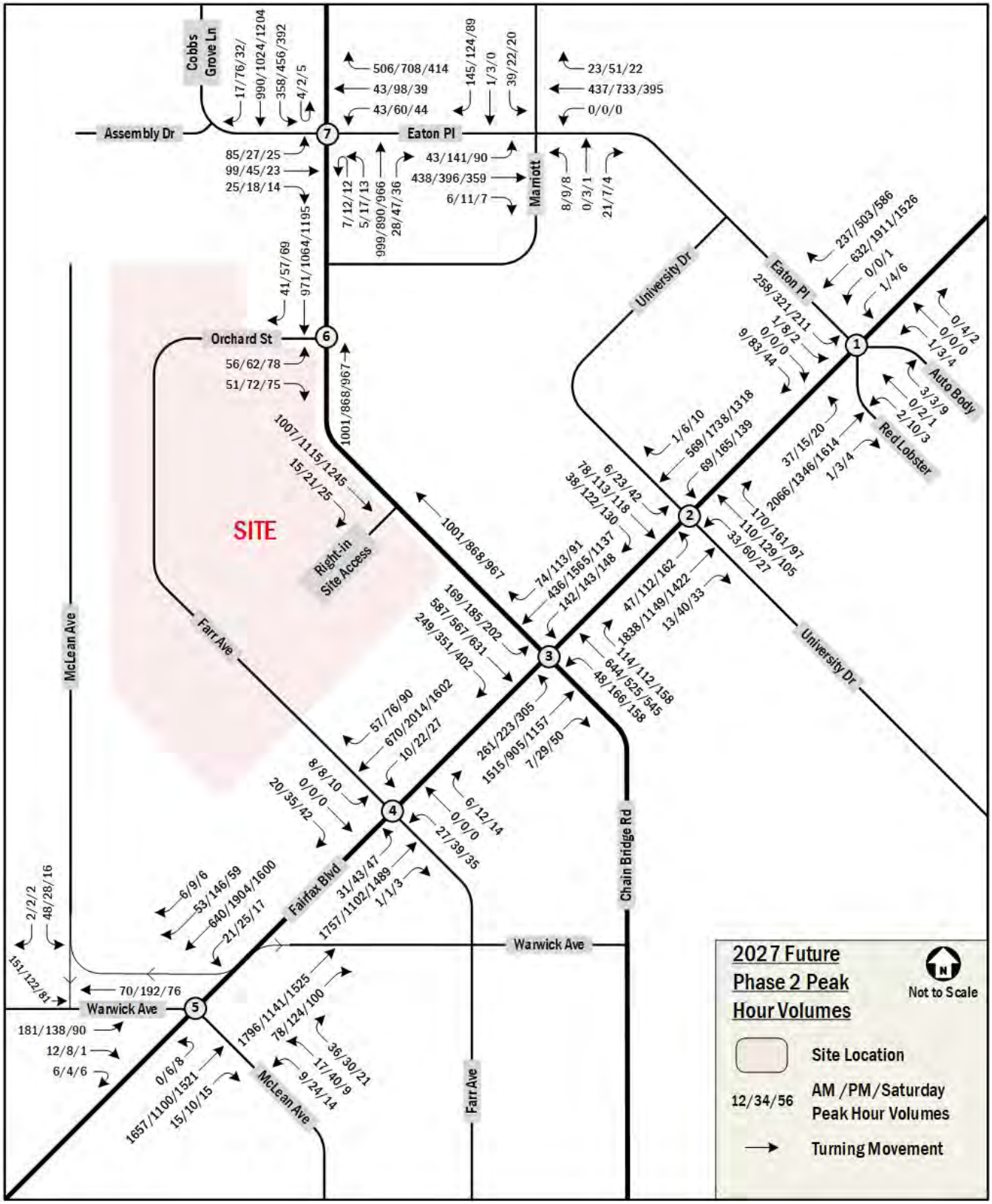


Figure 40: 2027 Future Phase 2 Peak Hour Vehicular Traffic Volumes

VEHICULAR ANALYSIS RESULTS

Intersection Capacity Analysis

Intersection capacity analyses were performed for the five scenarios outlined previously at the intersections contained within the study area during the weekday morning, weekday afternoon, and Saturday peak hours. *Synchro*, version 10 was used to analyze the study intersections based on the Highway Capacity Manual 2010 (HCM) methodology and includes level of service, delay, and queue length comparisons for the turning movements analyzed. HCM 2000 methodology was used when HCM 2010 methodology did not produce results.

Peak Hour Factors

Peak hour factors were applied in accordance with *Traffic Impact Analysis Regulations Administrative Guidelines* prepared by VDOT in 2018. As such, peak hour factors by intersection between 0.85 and 1.00 were used for the existing year analysis. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.85, the calculated factor was applied. Where the calculated factor was 0.85 or less, a factor of 0.85 was applied.

Peak hour factors by intersection between 0.92 and 1.00 were used for all future 2023 and 2027 scenarios. Where the calculated peak hour factor based on the existing turning movement counts was greater than 0.92, the calculated factor was applied. Where the calculated factor was 0.92 or less, a factor of 0.92 was applied.

Heavy Vehicle Percentages

Heavy vehicle percentages were based on existing turning movement counts. A default heavy vehicle percentage of 2.0% was used for any new movements.

Geometry and Operations

Existing signal timings were obtained from the City of Fairfax for signalized intersections in the vehicular study area. The geometry and operations were for the existing conditions were field verified.

Level of Service and Delay

The results of the capacity analyses are expressed in level of service (LOS) and delay (seconds per vehicle) for each approach. A LOS grade is a letter grade based on the average delay (in seconds) experienced by motorists traveling through an intersection. LOS results range from "A" being the best to "F" being the worst. LOS D is typically used as the acceptable LOS threshold in the City of Fairfax although LOS E or F is sometimes accepted in urbanized areas if vehicular improvements would be a detriment to safety or non-auto modes of transportation. For the purpose of this analysis, it is desirable to achieve a level of service (LOS) of D or better for each approach at the intersections, as per the agreed to by City staff.

The LOS capacity analyses were based on: (1) the peak hour traffic volumes; (2) the lane use and traffic controls; and (3) the Highway Capacity Manual (HCM) methodologies (using the *Synchro* software). The average delay of each movement and LOS is shown for the signalized intersections in addition to the overall average delay and intersection LOS grade. The HCM does not give guidelines for calculating the average delay for a two-way stop-controlled intersection, as the approaches without stop signs would technically have no delay. Detailed LOS descriptions and the analysis worksheets are contained in the Appendix E.

Queuing Analysis

In addition to the capacity analyses, a queuing analysis was performed at the study intersections. The queuing analysis was performed using *Synchro* software. The 95th percentile queue lengths are shown for each lane group at the study area signalized intersections. The 95th percentile queue is the maximum back of queue that is exceeded 5% of the time. For unsignalized intersection, only the 95th percentile queue is reported for each lane group (including free-flowing left turns and stop-controlled movements) based on the HCM 2010 calculations. HCM 2000 methodology was used when HCM 2010 methodology did not produce results.

Existing (2019) Conditions Results

The results of the intersection capacity analyses for the Existing (2019) conditions expressed in LOS and delay (seconds per vehicle) per movement are shown in Table 7. Detailed analysis worksheets are included in the Appendix F.

The capacity analysis results indicate that most intersections operate at acceptable LOS under Existing (2019) conditions; however, six intersections have one or more approaches that operate at levels beyond acceptable thresholds in one or more peak hour:

- 1. Fairfax Boulevard & Eaton Place
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
  - Northeastbound Approach (all peak hours)

- 2. Fairfax Boulevard & University Drive
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 3. Fairfax Boulevard & Chain Bridge Road
  - Overall Intersection (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (AM and PM peak hours)

- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Eastbound Approach (all peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 6. Chain Bridge Road & Orchard Street
  - Eastbound Approach (all peak hours)

- 7. Chain Bridge Road & Eaton Place (main node)
  - Eastbound Approach (all peak hours)
  - Southbound Approach (AM peak hour)

- 7a. Chain Bridge Road & Eaton Place (east node)
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

The 95th percentile turning movement queues at most lane groups at study area intersections do not exceed their available storage length in the Existing (2019) conditions; however, two intersections do have at least one movement with 95th percentile queues that exceed the available storage length in one or more peak hour:

- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (AM peak hour)
  - Northbound Left (PM peak hour)
  - Southbound Right (SAT peak hour)

- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound Left/U (AM and PM peak hour)

Table 7: Intersection Capacity Analysis and Queuing Results – Existing (2019) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized)		**C**	**34.1**		**D**	**50.9**		**C**	**27.6**	
	Eastbound Approach		***B***	***13.5***		***B***	***15.0***		***C***	***20.2***	
	Eastbound Left	130	A	7.2	m28	C	28.8	m24	C	21.7	m22
	Eastbound TR		B	13.7	#1034	B	14.7	380	C	20.2	311
	Westbound Approach		***E***	***55.2***		***B***	***15.3***		***C***	***23.7***	
	Westbound Left	80	D	44.1	m4	B	10.1	m2	A	8.2	m3
	Westbound Thru		D	45.3	582	B	16.9	383	C	23.1	#863
	Westbound Right		F	84.9	215	B	10.1	92	C	25.3	627
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***110.3***		***F***	***320.3***		***F***	***89.2***	
	Southbound Left		F	112.8	m389	F	351.2	m#928	F	99.7	#331
	Southbound TR		E	61.5	m0	F	237.1	m111	D	54.4	30
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
2	**Fairfax Blvd & University Drive**										
	Overall Intersection (Signalized)		**B**	**14.6**		**B**	**14.7**		**B**	**10.1**	
	Eastbound Approach		***A***	***4.3***		***A***	***5.0***		***A***	***6.1***	
	Eastbound Left	165	A	1.3	m1	A	4.8	5	A	3.9	m18
	Eastbound TR		A	4.3	185	A	5.0	218	A	6.3	158
	Westbound Approach		***B***	***14.9***		***A***	***1.6***		***A***	***4.0***	
	Westbound Left	150	F	117.0	114	A	2.8	14	C	28.8	109
	Westbound TR		A	3.8	110	A	1.5	7	A	0.6	3
	Northbound Approach		***F***	***84.6***		***F***	***116.0***		***E***	***64.2***	
	Northbound LT		F	93.2	149	F	151.3	#357	E	68.2	119
	Northbound Right		F	81.2	104	F	88.9	87	E	61.5	57
	Southbound Approach		***E***	***79.2***		***F***	***88.7***		***E***	***62.3***	
	Southbound Left	120	E	79.5	16	F	89.6	38	E	62.8	50
	Southbound TR		E	78.9	0	F	88.2	46	E	61.9	50
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized)		**E**	**59.1**		**D**	**54.3**		**D**	**43.4**	
	Eastbound Approach		***D***	***36.2***		***D***	***44.7***		***D***	***41.1***	
	Eastbound Left	600	F	118.4	m234	F	149.5	223	F	88.2	186
	Eastbound Thru		C	20.6	376	B	15.9	165	C	28.7	370
	Eastbound Right	500	B	16.6	m0	B	16.7	m0	B	15.4	m1
	Westbound Approach		***D***	***49.8***		***C***	***21.8***		***C***	***24.8***	
	Westbound Left	200	F	194.8	#302	E	79.3	m198	E	57.2	132
	Westbound Thru		C	24.4	302	B	19.5	496	C	23.1	314
	Westbound Right	350	B	15.7	37	A	6.3	m16	A	6.5	5
	Northbound Approach		***F***	***80.6***		***F***	***100.4***		***E***	***58.7***	
	Northbound Left	200	F	90.4	72	F	134.6	#258	E	68.9	135
	Northbound Thru		F	84.1	#525	F	99.5	488	E	60.9	334
	Northbound Right	225	D	50.2	30	E	58.6	0	D	37.5	15
	Southbound Approach		***F***	***88.8***		***E***	***79.0***		***D***	***52.7***	
	Southbound Left	300	F	121.0	143	F	145.6	182	F	95.3	129
	Southbound Thru		F	103.8	472	F	85.5	326	E	59.3	314
	Southbound Right	200	C	31.0	74	C	33.2	106	C	22.6	358
4	**Fairfax Blvd & Farr Ave**										
	Overall Intersection (TWSC)										
	Eastbound Approach										
	Eastbound LTR		A	0	0	A	0	0	A	0	0
	Westbound Approach										
	Westbound Left	80	A	0	0	A	0	0	A	0	0
	Northbound Approach		***C***	***16.9***		***B***	***12.1***		***B***	***13.2***	
	Northbound LTR		C	16.9	3	B	12.1	3	B	13.2	3
	Southbound Approach		***B***	***11***		***C***	***18.7***		***B***	***14.4***	
	Southbound LTR		B	11	0	C	18.7	3	B	14.4	3

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 7: Intersection Capacity Analysis and Queuing Results – Existing (2019) Conditions (continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**										
	Overall Intersection (Signalized)		**C**	**25.1**		**C**	**26.6**		**C**	**24.9**	
	Eastbound Approach		***F***	***118.8***		***F***	***111.6***		***E***	***67.2***	
	Eastbound LTR		F	118.8	#334	F	111.6	274	E	67.2	138
	Westbound Approach		***F***	***93.1***		***F***	***105.9***		***E***	***69.7***	
	Westbound LTR		F	93.1	72	F	105.9	116	E	69.7	76
	Northbound Approach		***F***	***89.0***		***F***	***112.3***		***E***	***70.4***	
	Northbound LTR		F	89.0	132	F	112.3	#243	E	70.4	86
	Southbound Approach		***F***	***87.8***		***F***	***91.9***		***E***	***65.8***	
	Southbound Left	175	F	89.9	87	F	92.5	60	E	66.0	31
	Southbound TR		F	81.8	41	F	90.7	38	E	65.5	23
	Northeastbound Approach		***B***	***15.1***		***A***	***8.7***		***C***	***24.0***	
	Northeastbound Left		A	0		B	11.0		C	21.6	
	Northeastbound TR		B	15.1	294	A	8.7	131	C	24.0	358
	Southwestbound Approach		***B***	***14.8***		***C***	***22.1***		***B***	***19.6***	
	Southwestbound Left	150	C	33.8	35	B	14.5	m37	B	18.2	m35
	Southwestbound TR		B	14.0	187	C	22.3	690	B	19.6	465
6	**Chain Bridge Rd & Orchard St**										
	Overall Intersection (Signalized)		**A**	**0.7**		**A**	**1.3**		**A**	**0.6**	
	Eastbound Approach		***F***	***93.7***		***F***	***106.0***		***E***	***73.7***	
	Eastbound Left/Right		F	93.7	0	F	106.0	0	E	73.7	0
	Northbound Approach		***A***	***0.4***		***A***	***0.3***		***A***	***0.4***	
	Northbound Thru		A	0.4	0	A	0.3	0	A	0.4	0
	Southbound Approach		***A***	***0.5***		***A***	***0.6***		***A***	***0.3***	
	Southbound TR		A	0.5	m39	A	0.6	35	A	0.3	12
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**D**	**44.9**		**C**	**31.8**		**C**	**33.4**	
	Eastbound Approach		***F***	***145.8***		***F***	***120.1***		***E***	***65.4***	
	Eastbound LTR		F	145.8	#488	F	120.1	#244	E	65.4	100
	Westbound Approach		***A***	***6.2***		***A***	***8.1***		***A***	***9.2***	
	Westbound LTR		A	4.0	m14	A	8.8	m68	A	4.5	20
	Westbound Right		A	8.3	m0	A	7.4	m0	B	12.6	51
	Northbound Approach		***C***	***31.1***		***B***	***18.1***		***D***	***42.6***	
	Northbound Left/U	135	F	142.9	45	F	142.6	92	F	87.9	61
	Northbound TR		C	29.7	468	B	13.9	92	D	41.3	210
	Southbound Approach		***E***	***55.1***		***D***	***48.8***		***C***	***33.0***	
	Southbound Left/U	470	F	90.1	#502	E	70.2	#523	C	29.5	#398
	Southbound TR		D	44.3	413	D	41.5	435	C	33.8	422
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**78.4**		**E**	**65.5**		**D**	**40.8**	
	Eastbound Approach		***A***	***1.9***		***A***	***1.6***		***A***	***2.3***	
	Eastbound LTR		A	1.9	m13	A	1.6	m9	A	2.3	13
	Westbound Approach		***F***	***85.9***		***F***	***93.2***		***E***	***70.3***	
	Westbound LTR		F	85.9	323	F	93.2	#658	E	70.3	220
	Northbound Approach		***F***	***89.0***		***F***	***103.8***		***E***	***69.0***	
	Northbound LTR		F	89.0	0	F	103.8	55	E	69.0	35
	Southbound Approach		***F***	***231.6***		***F***	***127.1***		***E***	***69.5***	
	Southbound LTR		F	231.6	#392	F	127.1	#246	E	69.5	0

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Background (2023) Conditions Results

The results of the intersection capacity analyses for the Future without Development (2023) conditions ("Background 2023") expressed in LOS and delay (seconds per vehicle) per movement are shown in Table 8. Detailed analysis worksheets are included in the Appendix G.

The capacity analysis results indicate that most intersections operate at acceptable LOS under Background (2023) conditions; however, six intersections have one or more approaches that operate at levels beyond acceptable thresholds in one or more peak hour:

- 1. Fairfax Boulevard & Eaton Place
  - Overall Intersection (PM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
  - Northeastbound Approach (all peak hours)
- 2. Fairfax Boulevard & University Drive
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Overall Intersection (AM and PM Peak Hours)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Eastbound Approach (all peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 6. Chain Bridge Road & Orchard Street
  - Eastbound Approach (all peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Overall Intersection (SAT peak hour)
  - Eastbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 7a. Chain Bridge Road & Eaton Place (east node)
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (AM and PM peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

The 95th percentile turning movement queues at most lane groups at study area intersections do not exceed their available storage length in the Background (2023) conditions; however, two intersections do have at least one movement with 95th percentile queues that exceed the available storage length in one or more peak hour:

- 3. Fairfax Boulevard & Chain Bridge Road
  - Northbound Left (PM peak hour)
  - Southbound Right (PM and SAT peak hour)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound left/U (all peak hours)

Table 8: Intersection Capacity Analysis and Queuing Results – Background (2023) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized)		**C**	**34.6**		**E**	**58.6**		**C**	**32.3**	
	Eastbound Approach		***B***	***14.5***		***A***	***9.5***		***C***	***31.4***	
	Eastbound Left	130	A	8.9	m19	C	27.4	m9	D	38.3	m28
	Eastbound TR		B	14.6	#1178	A	9.3	230	C	31.3	506
	Westbound Approach		***D***	***54.2***		***B***	***16.9***		***C***	***25.4***	
	Westbound Left	80	D	48.7	m4	B	11.7	m2	A	7.4	m2
	Westbound Thru		D	47.7	641	B	18.9	#1596	C	26.5	#1063
	Westbound Right		E	75.9	229	A	9.8	136	C	23.1	650
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***118.2***		***F***	***447.5***		***F***	***89.5***	
	Southbound Left		F	120.5	m402	F	352.8	m#928	F	97.6	#338
	Southbound TR		E	61.5	m0	F	772.7	m91	D	54.3	24
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
2	**Fairfax Blvd & University Drive**										
	Overall Intersection (Signalized)		**C**	**21.7**		**C**	**33.6**		**C**	**23.4**	
	Eastbound Approach		***A***	***9.5***		***C***	***24.3***		***B***	***12.8***	
	Eastbound Left	450	A	3.8	m10	E	74.0	174	C	27.2	78
	Eastbound TR		A	9.6	193	B	19.4	570	B	11.0	760
	Westbound Approach		***B***	***12.8***		***B***	***16.6***		***B***	***18.2***	
	Westbound Left	150	F	107.9	119	C	29.1	m134	D	47.9	m144
	Westbound TR		A	3.4	6	B	15.3	322	B	14.7	775
	Northbound Approach		***F***	***96.6***		***F***	***120.6***		***E***	***66.5***	
	Northbound LT		F	124.4	#301	F	166.1	#478	E	78.1	202
	Northbound Right		E	73.6	196	E	67.8	71	D	50.9	50
	Southbound Approach		***E***	***73.9***		***E***	***77.8***		***E***	***67.3***	
	Southbound Left	120	E	68.8	25	E	68.4	61	D	53.3	75
	Southbound TR		E	74.2	197	E	78.7	403	E	69.7	305
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized)		**E**	**61.8**		**E**	**56.1**		**D**	**50.4**	
	Eastbound Approach		***D***	***37.2***		***D***	***41.0***		***D***	***43.1***	
	Eastbound Left	600	F	117.4	m238	F	147.8	#229	F	86.6	192
	Eastbound Thru		C	22.7	412	B	15.4	181	C	33.1	454
	Eastbound Right	500	B	16.4	m0	B	16.0	m0	B	15.0	m1
	Westbound Approach		***E***	***68.7***		***C***	***32.6***		***D***	***38.1***	
	Westbound Left	450	F	284.4	m#383	F	110.8	m#306	F	99.7	#284
	Westbound Thru		C	22.9	338	C	26.4	1186	C	31.3	438
	Westbound Right	350	C	25.7	m38	B	13.7	m40	B	13.3	25
	Northbound Approach		***E***	***78.4***		***F***	***98.8***		***E***	***58.0***	
	Northbound Left	200	F	90.6	76	F	143.8	#285	E	70.1	145
	Northbound Thru		F	82.7	488	F	98.2	462	E	61.5	320
	Northbound Right	225	D	51.3	54	E	59.9	37	D	39.5	53
	Southbound Approach		***F***	***90.1***		***F***	***81.4***		***E***	***67.3***	
	Southbound Left	300	F	124.7	147	F	148.3	178	F	92.1	139
	Southbound Thru		F	106.1	452	F	89.7	302	E	76.8	340
	Southbound Right	200	C	31.2	76	D	35.6	208	D	41.3	446
4	**Fairfax Blvd & Farr Ave**										
	Overall Intersection (TWSC)										
	Northbound Approach		***C***	***18.5***		***B***	***12.9***		***B***	***14.5***	
	Northbound Right		C	18.5	3	B	12.9	3	B	14.5	3
	Southbound Approach		***B***	***11.4***		***C***	***21.2***		***C***	***15.9***	
	Southbound Right		B	11.4	0	C	21.2	3	C	15.9	3

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 8: Intersection Capacity Analysis and Queuing Results – Background (2023) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**										
	Overall Intersection (Signalized)		**C**	**30.5**		**C**	**31.4**		**C**	**30.0**	
	Eastbound Approach		***F***	***118.8***		***F***	***111.6***		***E***	***67.2***	
	Eastbound LTR		F	118.8	#334	F	111.6	274	E	67.2	138
	Westbound Approach		***F***	***93.1***		***F***	***105.9***		***E***	***69.7***	
	Westbound LTR		F	93.1	72	F	105.9	116	E	69.7	76
	Northbound Approach		***F***	***89.0***		***F***	***112.3***		***E***	***70.4***	
	Northbound LTR		F	89.0	132	F	112.3	#243	E	70.4	86
	Southbound Approach		***F***	***87.8***		***F***	***91.9***		***E***	***65.8***	
	Southbound Left	175	F	89.9	87	F	92.5	60	E	66.0	31
	Southbound TR		F	81.8	41	F	90.7	38	E	65.5	23
	Northeastbound Approach		***C***	***24.8***		***B***	***10.5***		***C***	***27.1***	
	Northeastbound Left		A	0	0	C	22.2		C	26.8	
	Northeastbound TR		C	24.8	593	B	10.5	190	C	27.1	443
	Southwestbound Approach		***B***	***16.1***		***C***	***31.0***		***C***	***27.8***	
	Southwestbound Left	150	E	59.3	50	B	19.7	m38	C	26.3	m35
	Southwestbound TR		B	14.5	196	C	31.2	#1638	C	27.9	#617
6	**Chain Bridge Rd & Orchard St**										
	Overall Intersection (Signalized)		**A**	**0.5**		**A**	**1.3**		**A**	**0.5**	
	Eastbound Approach		***F***	***93.7***		***F***	***106.0***		***E***	***73.7***	
	Eastbound Left/Right		F	93.7	0	F	106.0	0	E	73.7	0
	Southbound Approach		***A***	***0.6***		***A***	***0.6***		***A***	***0.3***	
	Southbound TR		A	0.6	m39	A	0.6	36	A	0.3	6
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**D**	**54.4**		**D**	**46.8**		**E**	**57.3**	
	Eastbound Approach		***F***	***143.5***		***F***	***118.3***		***E***	***61.5***	
	Eastbound LTR		F	143.5	#486	F	118.3	#244	E	61.5	98
	Westbound Approach		***C***	***20.5***		***B***	***11.9***		***C***	***21.0***	
	Westbound LTR		A	1.4	m0	A	5.7	m41	A	0.6	0
	Westbound Right		C	34.8	m62	B	18.2	m57	C	31.9	118
	Northbound Approach		***C***	***31.1***		***B***	***17.0***		***D***	***43.5***	
	Northbound Left/U	135	F	144.0	45	F	146.4	92	F	94.7	60
	Northbound TR		C	29.7	423	B	12.4	79	D	42.0	213
	Southbound Approach		***E***	***73.0***		***F***	***80.9***		***E***	***77.0***	
	Southbound Left/U	470	F	146.4	#735	F	165.3	#895	F	176.9	#788
	Southbound TR		D	44.3	413	D	41.9	439	D	41.4	456
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**71.9**		**F**	**88.9**		**D**	**36.9**	
	Eastbound Approach		***A***	***0.6***		***A***	***1.5***		***A***	***2.7***	
	Eastbound LTR		A	0.6	m3	A	1.5	m8	A	2.7	m11
	Westbound Approach		***F***	***86.7***		***F***	***140.6***		***E***	***64.6***	
	Westbound LTR		F	86.7	390	F	140.6	#844	E	64.6	284
	Northbound Approach		***F***	***88.8***		***F***	***103.0***		***E***	***69.0***	
	Northbound LTR		F	88.8	0	F	103.0	55	E	69.0	35
	Southbound Approach		***F***	***216.3***		***F***	***134.4***		***E***	***69.3***	
	Southbound LTR		F	216.3	#393	F	134.4	#246	E	69.3	0

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Future – Phase 1 (2023) Conditions Results

The results of the intersection capacity analyses for the Future with Development – Phase 1 (2023) conditions ("Future – Phase 1") expressed in LOS and delay (seconds per vehicle) per movement are shown in Table 9. Detailed analysis worksheets are included in the Appendix H.

The capacity analysis results indicate that most intersections operate at acceptable LOS under Future – Phase 1 (2023) conditions; however, six intersections have one or more approaches that operate at levels beyond acceptable thresholds in one or more peak hour:

- 1. Fairfax Boulevard & Eaton Place
  - Overall Intersection (PM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
  - Northeastbound Approach (all peak hours)
- 2. Fairfax Boulevard & University Drive
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Eastbound Approach (all peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 6. Chain Bridge Road & Orchard Street
  - Eastbound Approach (all peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Overall Intersection (AM and SAT peak hours)
  - Eastbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 7a. Chain Bridge Road & Eaton Place (east node)
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

As noted, the intersection of Chain Bridge Road at Eaton Place (main node) (Intersection 7) begins to operate at a LOS E during the AM peak hour with an increase in delay of 0.3 seconds per vehicle over the LOS D/E threshold. Additionally, the intersection of Fairfax Boulevard at Chain Bridge Road begins to experience slight increases in delays.

With slight increases in delays at these intersections, the impact of the proposed development is not anticipated to significantly alter driver's expectation at the signals. However, if necessary, the increases in delay can be mitigated with a slight change in the signal timings at these intersections.

Table 9 shows the queuing results for the study area intersections for the Future – Phase 1 (2023) conditions. The 95th percentile queues at most lane groups at study area intersections do not exceed their available storage length in the Future – Phase 1 (2023) conditions; however, two intersections do have at least one movement with 95th percentile queues that exceed the available storage length in one or more peak hour:

- 3. Fairfax Boulevard & Chain Bridge Road
  - Northbound Left (PM peak hour)
  - Southbound Right (SAT peak hour)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound left/U (all peak hours)

The queueing analysis indicates that the 95th percentile queues remain comparable to the Background 2023 scenario.

Table 9: Intersection Capacity Analysis and Queuing Results – Future Phase 1 (2023) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized)		**C**	**34.8**		**E**	**59.0**		**C**	**32.4**	
	Eastbound Approach		***B***	***14.6***		***A***	***9.4***		***C***	***31.5***	
	Eastbound Left	130	A	9.1	m19	C	27.4	m9	D	39.0	m28
	Eastbound TR		B	14.7	#1184	A	9.2	228	C	31.4	508
	Westbound Approach		***D***	***54.5***		***B***	***17.0***		***C***	***25.5***	
	Westbound Left	80	D	49.3	m4	B	11.7	m2	A	7.4	m2
	Westbound Thru		D	48.0	643	B	19.0	#1601	C	26.6	#1068
	Westbound Right		E	76.0	230	A	9.8	136	C	23.1	652
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***117.7***		***F***	***451.0***		***F***	***89.6***	
	Southbound Left		F	120.0	m406	F	356.7	m#934	F	97.7	#343
	Southbound TR		E	61.3	m0	F	776.8	m91	D	54.2	24
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
2	**Fairfax Blvd & University Drive**										
	Overall Intersection (Signalized)		**C**	**21.7**		**C**	**33.8**		**C**	**23.5**	
	Eastbound Approach		***A***	***9.7***		***C***	***24.5***		***B***	***13.0***	
	Eastbound Left	450	A	3.9	m10	E	74.4	176	C	28.7	82
	Eastbound TR		A	9.9	197	B	19.5	574	B	11.1	763
	Westbound Approach		***B***	***12.4***		***B***	***16.8***		***B***	***18.5***	
	Westbound Left	150	F	104.2	120	C	29.7	m135	D	47.9	m144
	Westbound TR		A	3.4	6	B	15.5	323	B	15.0	777
	Northbound Approach		***F***	***96.6***		***F***	***120.6***		***E***	***66.5***	
	Northbound LT		F	124.4	#301	F	166.1	#478	E	78.1	202
	Northbound Right		E	73.6	196	E	67.8	71	D	50.9	50
	Southbound Approach		***E***	***73.9***		***E***	***77.8***		***E***	***67.3***	
	Southbound Left	120	E	68.8	25	E	68.4	61	D	53.3	75
	Southbound TR		E	74.2	197	E	78.7	403	E	69.7	305
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized)		**E**	**63.5**		**E**	**57.3**		**D**	**51.6**	
	Eastbound Approach		***D***	***37.5***		***D***	***41.6***		***D***	***43.7***	
	Eastbound Left	600	F	117.1	m241	F	148.0	#236	F	87.1	195
	Eastbound Thru		C	22.8	412	B	15.6	181	C	33.5	455
	Eastbound Right	500	B	16.2	m0	B	16.2	m0	B	15.1	m1
	Westbound Approach		***E***	***68.9***		***C***	***33.0***		***D***	***38.6***	
	Westbound Left	450	F	284.5	m#383	F	110.6	m#302	F	100.1	#282
	Westbound Thru		C	23.3	340	C	26.9	1188	C	32.0	443
	Westbound Right	350	C	26.0	m38	B	13.8	m40	B	13.9	26
	Northbound Approach		***E***	***78.0***		***F***	***102.5***		***E***	***57.9***	
	Northbound Left	200	F	91.4	91	F	165.5	#318	E	72.5	161
	Northbound Thru		F	81.9	488	F	97.9	462	E	60.8	320
	Northbound Right	225	D	51.1	54	E	59.9	37	D	39.2	53
	Southbound Approach		***F***	***97.0***		***F***	***82.6***		***E***	***70.7***	
	Southbound Left	300	F	124.0	#154	F	147.3	182	F	89.5	142
	Southbound Thru		F	114.8	456	F	91.4	321	F	84.2	356
	Southbound Right	200	D	37.6	82	D	35.9	134	D	41.0	449
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized) (MIT: Adjust signal timings during the PM peak hour by 1 second from Phase 8 to Phase 7. Adjust signal timings during SAT peak hour by 1 second from Phase 6 to Phase 5.)					**E**	**56.9**		**D**	**51.4**	
	Eastbound Approach					***D***	***41.3***		***D***	***44.7***	
	Eastbound Left	600				F	148.0	#236	F	87.1	195
	Eastbound Thru					B	15.7	181	C	34.8	464
	Eastbound Right	500				A	0.0	m0	B	15.5	m1
	Westbound Approach					***C***	***33.1***		***D***	***37.0***	
	Westbound Left	450				F	110.6	m#302	F	85.7	#270
	Westbound Thru					C	27.1	1188	C	32.0	443
	Westbound Right	350				B	13.9	m40	B	13.9	26
	Northbound Approach					***F***	***99.2***		***E***	***57.8***	
	Northbound Left	200				F	146.8	#305	E	72.5	161
	Northbound Thru					F	97.2	462	E	60.8	320
	Northbound Right	225				E	60.3	63	D	38.5	52
	Southbound Approach					***F***	***83.2***		***E***	***70.7***	
	Southbound Left	300				F	147.3	182	F	89.6	142
	Southbound Thru					F	92.6	321	F	84.2	356
	Southbound Right	200				D	36.1	134	D	41.0	449

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 9: Intersection Capacity Analysis and Queuing Results – Future Phase 1 (2023) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
4	**Fairfax Blvd & Farr Ave**										
	Overall Intersection (TWSC)		**C**	**18.5**		**B**	**13**		**B**	**14.6**	
	Northbound Approach		***C***	***18.5***		***B***	***13***		***B***	***14.6***	
	Northbound Right		C	18.5	3	B	13	3	B	14.6	3
	Southbound Approach		***B***	***11.5***		***C***	***21.7***		***C***	***16.2***	
	Southbound Right		B	11.5	0	C	21.7	5	C	16.2	5
5	**Fairfax Blvd & Warwick Ln/McLean Ave**										
	Overall Intersection (Signalized)		**C**	**30.8**		**C**	**31.7**		**C**	**30.0**	
	Eastbound Approach		***F***	***118.8***		***F***	***111.6***		***E***	***67.2***	
	Eastbound LTR		F	118.8	#334	F	111.6	274	E	67.2	138
	Westbound Approach		***F***	***93.1***		***F***	***105.9***		***E***	***69.7***	
	Westbound LTR		F	93.1	72	F	105.9	116	E	69.7	76
	Northbound Approach		***F***	***89.0***		***F***	***112.3***		***E***	***70.4***	
	Northbound LTR		F	89.0	132	F	112.3	#243	E	70.4	86
	Southbound Approach		***F***	***87.8***		***F***	***91.9***		***E***	***65.8***	
	Southbound Left	175	F	89.9	87	F	92.5	60	E	66.0	31
	Southbound TR		F	81.8	41	F	90.7	38	E	65.5	23
	Northeastbound Approach		***C***	***25.0***		***B***	***10.7***		***C***	***27.3***	
	Northeastbound Left		A	0	0	C	22.9		C	27.4	
	Northeastbound TR		C	25.0	613	B	10.7	194	C	27.3	447
	Southwestbound Approach		***B***	***16.8***		***C***	***31.3***		***C***	***27.6***	
	Southwestbound Left	150	E	60.8	50	B	19.9	m39	C	26.6	m35
	Southwestbound TR		B	15.1	206	C	31.6	#1645	C	27.7	#627
6	**Chain Bridge Rd & Orchard St**										
	Overall Intersection (Signalized)		**A**	**1.9**		**A**	**2.9**		**A**	**1.6**	
	Eastbound Approach		***F***	***91.0***		***F***	***106.8***		***E***	***71.1***	
	Eastbound Left/Right		F	91.0	56	F	106.8	71	E	71.1	57
	Southbound Approach		***A***	***1.0***		***A***	***0.8***		***A***	***0.5***	
	Southbound TR		A	1.0	m50	A	0.8	53	A	0.5	8
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**55.3**		**D**	**47.9**		**E**	**60.0**	
	Eastbound Approach		***F***	***143.5***		***F***	***118.3***		***E***	***61.5***	
	Eastbound LTR		F	143.5	#486	F	118.3	#244	E	61.5	98
	Westbound Approach		***C***	***20.5***		***B***	***11.9***		***C***	***20.5***	
	Westbound LTR		A	1.4	m0	A	5.9	m43	A	0.6	0
	Westbound Right		C	35.0	m63	B	18.0	m57	C	31.3	115
	Northbound Approach		***C***	***33.0***		***B***	***18.6***		***D***	***44.8***	
	Northbound Left/U	135	F	142.3	53	F	146.2	105	F	92.4	72
	Northbound TR		C	31.3	430	B	13.4	85	D	43.0	220
	Southbound Approach		***E***	***73.8***		***F***	***82.5***		***F***	***81.6***	
	Southbound Left/U	470	F	146.5	#735	F	170.4	#906	F	189.2	#796
	Southbound TR		D	45.7	420	D	42.4	448	D	43.9	#487
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**71.7**		**F**	**89.3**		**D**	**36.9**	
	Eastbound Approach		***A***	***0.6***		***A***	***1.5***		***A***	***2.7***	
	Eastbound LTR		A	0.6	m3	A	1.5	m8	A	2.7	m11
	Westbound Approach		***F***	***86.7***		***F***	***141.6***		***E***	***64.5***	
	Westbound LTR		F	86.7	391	F	141.6	#846	E	64.5	285
	Northbound Approach		***F***	***88.8***		***F***	***103.0***		***E***	***69.0***	
	Northbound LTR		F	88.8	0	F	103.0	55	E	69.0	35
	Southbound Approach		***F***	***216.3***		***F***	***134.4***		***E***	***69.3***	
	Southbound LTR		F	216.3	#393	F	134.4	#246	E	69.3	0
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Singalized) (MIT: Adjust signal timings during the AM peak hour by 1 second from Phase 2 to Phase 1.)		**D**	**54.8**							
	Eastbound Approach		***F***	***143.5***							
	Eastbound LTR		F	143.5	#486						
	Westbound Approach		***C***	***20.5***							
	Westbound LTR		A	1.4	m0						
	Westbound Right		C	35.0	m63						
	Northbound Approach		***D***	***35.4***							
	Northbound Left/U	135	F	142.3	53						
	Northbound TR		C	33.8	447						
	Southbound Approach		***E***	***70.7***							
	Southbound Left/U	470	F	135.3	#723						
	Southbound TR		D	45.7	420						

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 9: Intersection Capacity Analysis and Queuing Results – Future Phase 1 (2023) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Singalized) (MIT: Adjust signal timings during the AM peak hour by 1 second from Phase 2 to Phase 1.)		**E**	**71.7**							
	Eastbound Approach		***A***	***0.6***							
	Eastbound LTR		A	0.6	m3						
	Westbound Approach		***F***	***86.7***							
	Westbound LTR		F	86.7	391						
	Northbound Approach		***F***	***88.8***							
	Northbound LTR		F	88.8	0						
	Southbound Approach		***F***	***216.3***							
	Southbound LTR		F	216.3	#393						

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

2023 Mitigations

An intersection was considered to have an impact if it met any of the following criteria:

- The overall intersection or any movement operates at LOS E or LOS F in the future conditions with the proposed development where one does not exist in the background conditions without the proposed development;
- The overall intersection or any movement operates at LOS E or LOS F during the background condition and the delay increases by more than 10 percent in the future conditions with the proposed development; or
- There is an increase in the 95th percentile queues along a movement where queues exceed available storage in the future conditions with the proposed development where one does not exist in background conditions without the proposed development.

Following these guidelines, and as noted previously, the intersection of Chain Bridge Road at Eaton Place (main node) (Intersection 7) begins to operate at a LOS E during the AM peak hour. Additionally, the intersection of Fairfax Boulevard at Chain Bridge Road begins to experience slight increases in delays.

With slight increases in delays at these intersections, the impact of the proposed development is not anticipated to significantly alter driver's expectation at the signals. However, if necessary, the increases in delay can be mitigated with a slight change in the signal timings at these intersections.

The following mitigations are recommended:

- 3. Fairfax Boulevard & Chain Bridge Road
  - PM peak hour:
    - Adjust signal timings by 1 second from Phase 8 to Phase 7.
  - SAT peak hour:
    - Adjust signal timings by 1 second from Phase 6 to Phase 5.

- 7. Chain Bridge Road & Eaton Place (main node)
  - AM peak hour:
    - Adjust signal timings by 1 second from Phase 2 to Phase 1.

- 7a. Chain Bridge Road & Eaton Place (east node)
  - AM peak hour:
    - Adjust signal timings by 1 second from Phase 2 to Phase 1.

With the recommended improvements in place, it is anticipated that the 2023 Future Phase 1 road network conditions would operate similarly to the Background 2023 scenario. Thus, the development will have a negligible impact to the surrounding transportation and roadway network under 2023 future conditions.

Background (2027) Conditions Results

The results of the intersection capacity analyses for the Future without Development (2027) conditions ("Background 2027") expressed in LOS and delay (seconds per vehicle) per movement are shown in Table 10. Detailed analysis worksheets are included in the Appendix I.

The capacity analysis results indicate that most intersections operate at acceptable LOS under Background (2027) conditions; however, seven intersections have one or more approaches that operate at levels beyond acceptable thresholds in one or more peak hour:

- 1. Fairfax Boulevard & Eaton Place
  - Overall Intersection (PM peak hour)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
  - Northeastbound Approach (all peak hours)
- 2. Fairfax Boulevard & University Drive
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 4. Fairfax Boulevard & Farr Avenue
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Eastbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
- 6. Chain Bridge Road & Orchard Street
  - Eastbound Approach (all peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Overall Intersection (AM and SAT peak hours)
  - Eastbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
- 7a. Chain Bridge Road & Eaton Place (east node)
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

The 95th percentile queues at most lane groups at study area intersections do not exceed their available storage length in the Background (2027) conditions; however, two intersections do have at least one movement with 95th percentile queues that exceed the available storage length in one or more peak hour:

- 3. Fairfax Boulevard & Chain Bridge Road
  - Northbound Left (PM peak hour)
  - Southbound Right (PM and SAT peak hour)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound left/U (all peak hours)

Table 10: Intersection Capacity Analysis and Queuing Results – Background (2027) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized)		**C**	**34.4**		**E**	**59.5**		**C**	**30.1**	
	Eastbound Approach		***B***	***11.2***		***A***	***8.7***		***C***	***26.0***	
	Eastbound Left	130	A	5.2	m16	D	52.1	m9	D	39.0	m21
	Eastbound TR		B	11.3	#1189	A	8.2	216	C	25.8	542
	Westbound Approach		***E***	***65.6***		***C***	***21.2***		***C***	***25.8***	
	Westbound Left	80	E	56.6	m5	B	12.8	m3	A	7.1	m2
	Westbound Thru		D	44.0	516	C	23.9	#1775	C	27.6	#1191
	Westbound Right		F	122.7	227	B	11.0	174	C	21.6	660
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***117.8***		***F***	***451.3***		***F***	***89.9***	
	Southbound Left		F	120.1	m402	F	353.0	m#929	F	98.0	#336
	Southbound TR		E	61.5	m0	F	788.7	m91	D	54.3	26
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
2	**Fairfax Blvd & University Drive**										
	Overall Intersection (Signalized)		**C**	**22.5**		**C**	**34.4**		**C**	**22.6**	
	Eastbound Approach		***A***	***9.5***		***C***	***23.7***		***B***	***16.3***	
	Eastbound Left	450	A	3.1	m12	F	91.5	198	D	49.3	m138
	Eastbound TR		A	9.6	235	B	17.1	514	B	12.5	884
	Westbound Approach		***B***	***15.7***		***B***	***20.0***		***B***	***13.8***	
	Westbound Left	150	F	105.6	135	D	36.7	m129	D	52.9	m139
	Westbound TR		A	4.3	39	B	18.4	342	A	9.6	231
	Northbound Approach		***F***	***93.7***		***F***	***119.3***		***E***	***66.1***	
	Northbound LT		F	122.6	277	F	163.6	#482	E	77.5	204
	Northbound Right		E	69.2	94	E	67.4	71	D	50.7	50
	Southbound Approach		***E***	***73.4***		***E***	***77.4***		***E***	***66.7***	
	Southbound Left	120	E	68.3	24	E	68.0	61	D	53.1	75
	Southbound TR		E	73.7	194	E	78.3	406	E	69.0	305
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized)		**E**	**65.8**		**E**	**59.8**		**D**	**49.0**	
	Eastbound Approach		***D***	***42.1***		***D***	***45.3***		***D***	***41.9***	
	Eastbound Left	600	F	106.6	208	F	141.0	#244	F	80.6	199
	Eastbound Thru		C	31.0	704	C	22.5	276	C	32.6	626
	Eastbound Right	500	B	18.1	m0	B	16.6	0	B	19.3	m5
	Westbound Approach		***F***	***85.4***		***D***	***35.7***		***D***	***35.9***	
	Westbound Left	450	F	305.9	#400	F	112.2	m#281	F	98.8	#293
	Westbound Thru		C	22.7	230	C	30.3	1282	C	29.4	472
	Westbound Right	350	B	13.1	m14	B	13.3	m43	B	11.6	m18
	Northbound Approach		***E***	***75.8***		***F***	***109.3***		***E***	***58.8***	
	Northbound Left	200	F	92.0	55	F	200.2	#372	E	78.7	#195
	Northbound Thru		E	79.9	#530	F	98.6	484	E	60.5	334
	Northbound Right	225	D	49.9	59	E	59.2	40	D	38.7	56
	Southbound Approach		***F***	***88.9***		***F***	***81.0***		***E***	***66.2***	
	Southbound Left	300	F	126.6	#153	F	148.4	184	F	91.4	144
	Southbound Thru		F	101.3	468	F	88.1	321	E	76.3	356
	Southbound Right	200	D	36.4	90	D	36.9	233	D	39.1	466
4	**Fairfax Blvd & Farr Ave**										
	Overall Intersection (Signalized)		**A**	**5.7**		**A**	**5.2**		**A**	**5.6**	
	Eastbound Approach		***A***	***5.5***		***A***	***4.9***		***A***	***6.9***	
	Eastbound Left	200	A	5.5		A	5.0		A	6.9	
	Eastbound TR		A	5.5	116	A	4.9	113	A	6.8	258
	Westbound Approach		***A***	***1.7***		***A***	***2.3***		***A***	***2.0***	
	Westbound Left	80	F	99.4	39	F	108.7	m46	E	72.8	m38
	Westbound TR		A	0.3	61	A	1.1	m142	A	0.8	268
	Northbound Approach		***F***	***95.7***		***F***	***109.2***		***E***	***74.1***	
	Northbound LTR		F	95.7	18	F	109.2	68	E	74.1	26
	Southbound Approach		***F***	***89.8***		***F***	***100.5***		***E***	***69.3***	
	Southbound LTR		F	89.8	0	F	100.5	0	E	69.3	0

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 10: Intersection Capacity Analysis and Queuing Results – Background (2027) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**										
	Overall Intersection (Signalized)		**B**	**13.8**		**B**	**17.1**		**A**	**9.2**	
	Eastbound Approach		***F***	***107.6***		***F***	***123.0***		***E***	***69.0***	
	Eastbound LTR		F	107.6	#247	F	123.0	#350	E	69.0	158
	Northbound Approach		***F***	***89.8***		***F***	***102.5***		***E***	***69.4***	
	Northbound LTR		F	89.8	9	F	102.5	88	E	69.4	0
	Northeastbound Approach		***A***	***3.5***		***A***	***2.7***		***A***	***5.9***	
	Northeastbound TR		A	3.5	136	A	2.7		A	5.9	
	Southwestbound Approach		***A***	***4.5***		***B***	***13.0***		***A***	***7.1***	
	Southwestbound Left	150	B	11.6	13	A	8.5		A	5.3	
	Southwestbound TR		A	4.3	111	B	13.1	m14	A	7.1	m2
6	**Chain Bridge Rd & Orchard St**										
	Overall Intersection (Signalized)		**A**	**0.5**		**A**	**1.2**		**A**	**0.6**	
	Eastbound Approach		***F***	***93.7***		***F***	***106.0***		***E***	***73.7***	
	Eastbound Left/Right		F	93.7	0	F	106.0	0	E	73.7	0
	Southbound Approach		***A***	***0.6***		***A***	***0.6***		***A***	***0.6***	
	Southbound TR		A	0.6	m41	A	0.6	38	A	0.6	6
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**55.2**		**D**	**49.1**		**E**	**63.8**	
	Eastbound Approach		***F***	***143.5***		***F***	***118.3***		***E***	***61.4***	
	Eastbound LTR		F	143.5	#486	F	118.3	#244	E	61.4	98
	Westbound Approach		***C***	***20.5***		***B***	***11.7***		***C***	***21.5***	
	Westbound LTR		A	1.4	m0	A	5.8	m41	A	0.6	0
	Westbound Right		C	35.0	m63	B	17.6	m60	C	32.6	121
	Northbound Approach		***C***	***32.4***		***B***	***17.6***		***D***	***47.8***	
	Northbound Left/U	135	F	142.3	46	F	146.0	92	F	93.0	60
	Northbound TR		C	31.0	440	B	13.2	83	D	46.6	243
	Southbound Approach		***E***	***73.5***		***F***	***85.5***		***F***	***87.0***	
	Southbound Left/U	470	F	149.5	#745	F	182.6	#930	F	216.9	#819
	Southbound TR		D	44.9	434	D	42.4	461	D	42.5	#498
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**71.2**		**F**	**90.0**		**D**	**37.3**	
	Eastbound Approach		***A***	***0.6***		***A***	***1.5***		***A***	***2.7***	
	Eastbound LTR		A	0.6	m3	A	1.5	m7	A	2.7	m10
	Westbound Approach		***F***	***85.6***		***F***	***142.8***		***E***	***65.5***	
	Westbound LTR		F	85.6	390	F	142.8	#847	E	65.5	286
	Northbound Approach		***F***	***88.8***		***F***	***103.0***		***E***	***69.0***	
	Northbound LTR		F	88.8	0	F	103.0	55	E	69.0	35
	Southbound Approach		***F***	***216.3***		***F***	***134.4***		***E***	***69.3***	
	Southbound LTR		F	216.3	#393	F	134.4	#246	E	69.3	0

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Future – Phase 2 (2027) Conditions Results

The results of the intersection capacity analyses for the Future with Development – Phase 2 (2027) conditions ("Future – Phase 2") expressed in LOS and delay (seconds per vehicle) per movement are shown in Table 11. Detailed analysis worksheets are included in the Appendix J.

The capacity analysis results indicate that most intersections operate at acceptable LOS under Future – Phase 2 (2027) conditions; however, seven intersections have one or more approaches that operate at levels beyond acceptable thresholds in one or more peak hour:

- 1. Fairfax Boulevard & Eaton Place
  - Overall Intersection (PM peak hour)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)
  - Northeastbound Approach (all peak hours)

- 2. Fairfax Boulevard & University Drive
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 3. Fairfax Boulevard & Chain Bridge Road
  - Overall Intersection (AM and PM peak hour)
  - Westbound Approach (AM peak hour)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 4. Fairfax Boulevard & Farr Avenue
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Eastbound Approach (all peak hours)
  - Northbound Approach (all peak hours)

- 6. Chain Bridge Road & Orchard Street
  - Eastbound Approach (all peak hours)

- 7. Chain Bridge Road & Eaton Place (main node)
  - Overall Intersection (AM and SAT peak hours)
  - Eastbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

- 7a. Chain Bridge Road & Eaton Place (east node)
  - Overall Intersection (AM and PM peak hours)
  - Westbound Approach (all peak hours)
  - Northbound Approach (all peak hours)
  - Southbound Approach (all peak hours)

The 95th percentile queues at most lane groups at study area intersections do not exceed their available storage length in the Future – Phase 2 (2027) conditions; however, two intersections do have at least one movement with 95th percentile queues that exceed the available storage length in one or more peak hour:

- 3. Fairfax Boulevard & Chain Bridge Road
  - Northbound Left (PM and SAT peak hour)
  - Southbound Right (SAT peak hour)

- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound left/U (all peak hours)

The queueing analysis indicates that the 95th percentile queues remain comparable to the Background 2027 scenario.

Table 11: Intersection Capacity Analysis and Queuing Results – Future Phase 2 (2027) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized)		**C**	**34.2**		**E**	**62.1**		**C**	**30.8**	
	Eastbound Approach		***B***	***11.3***		***A***	***8.6***		***C***	***26.3***	
	Eastbound Left	130	A	5.3	m16	E	57.4	m8	D	41.3	m21
	Eastbound TR		B	11.4	#1211	A	8.1	194	C	26.2	#576
	Westbound Approach		***E***	***63.3***		***C***	***22.7***		***C***	***26.4***	
	Westbound Left	80	E	58.9	m4	B	13.9	m3	A	7.0	m2
	Westbound Thru		D	45.0	439	C	25.6	#1828	C	28.4	#1236
	Westbound Right		F	112.2	211	B	11.5	188	C	21.5	671
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***118.2***		***F***	***468.3***		***F***	***93.4***	
	Southbound Left		F	120.4	m417	F	370.8	m#956	F	101.9	#365
	Southbound TR		E	61.0	m0	F	811.9	m94	D	54.1	28
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
1	**Fairfax Blvd & Eaton Pl**										
	Overall Intersection (Signalized) (MIT: Restripe SBTR to a SBLTR. Adjust signal timings during the PM peak hour by 1 second from Phases 2 and 6 to Phase 3.)		**C**	**34.6**		**E**	**63.9**		**C**	**31.5**	
	Eastbound Approach		***B***	***11.0***		***A***	***8.8***		***C***	***26.5***	
	Eastbound Left	130	A	5.2	m16	E	56.9	m9	D	41.3	m21
	Eastbound TR		B	11.2	#1211	A	8.3	212	C	26.3	#576
	Westbound Approach		***E***	***64.8***		***C***	***23.6***		***C***	***26.6***	
	Westbound Left	80	E	60.3	m4	B	14.5	m3	A	7.1	m2
	Westbound Thru		D	45.9	439	C	26.6	#1841	C	28.7	#1236
	Westbound Right		F	115.2	211	B	12.0	194	C	21.7	671
	Northbound Approach		***F***	***93.7***		***F***	***110.2***		***E***	***76.3***	
	Northbound LTR		F	93.7	9	F	110.2	33	E	76.3	22
	Southbound Approach		***F***	***120.3***		***F***	***480.9***		***F***	***100.0***	
	Southbound Left		F	122.6	m449	F	383.1	m#1012	F	110.1	#400
	Southbound LTR		E	60.2	m0	F	826.0	m102	D	53.9	31
	Northeastbound Approach		***F***	***89.5***		***F***	***104.2***		***E***	***68.2***	
	Northeastbound LTR		F	89.5	22	F	104.2	53	E	68.2	34
2	**Fairfax Blvd & University Drive**										
	Overall Intersection (Signalized)		**C**	**22.5**		**C**	**35.0**		**C**	**23.1**	
	Eastbound Approach		***A***	***9.9***		***C***	***24.4***		***B***	***16.9***	
	Eastbound Left	450	A	3.2	m12	F	97.4	206	D	51.5	m138
	Eastbound TR		B	10.1	247	B	17.5	538	B	13.1	906
	Westbound Approach		***B***	***15.2***		***C***	***21.0***		***B***	***14.6***	
	Westbound Left	150	F	101.3	138	D	41.5	m133	D	53.7	m139
	Westbound TR		A	4.8	56	B	19.0	348	B	10.5	249
	Northbound Approach		***F***	***93.7***		***F***	***119.3***		***E***	***66.1***	
	Northbound LT		F	122.6	277	F	163.6	#482	E	77.5	204
	Northbound Right		E	69.3	96	E	67.4	71	D	50.7	50
	Southbound Approach		***E***	***73.4***		***E***	***77.4***		***E***	***66.7***	
	Southbound Left	120	E	68.3	24	E	68.0	61	D	53.1	75
	Southbound TR		E	73.7	194	E	78.3	406	E	69.0	305
3	**Fairfax Blvd & Chain Bridge Road**										
	Overall Intersection (Signalized)		**E**	**67.7**		**E**	**65.7**		**D**	**50.3**	
	Eastbound Approach		***D***	***41.4***		***D***	***45.3***		***D***	***45.0***	
	Eastbound Left	600	F	106.6	208	F	142.3	#244	F	82.0	200
	Eastbound Thru		C	30.2	712	C	22.9	278	D	36.3	598
	Eastbound Right	500	B	16.4	m0	A	0.6	0	C	21.4	m5
	Westbound Approach		***F***	***82.5***		***D***	***37.1***		***D***	***35.8***	
	Westbound Left	450	F	305.1	#399	F	111.1	m#276	F	83.1	m#273
	Westbound Thru		C	21.9	246	C	32.0	1315	C	31.6	539
	Westbound Right	350	B	12.2	m13	B	13.5	m42	B	11.5	m17
	Northbound Approach		***F***	***80.1***		***F***	***133.3***		***E***	***64.6***	
	Northbound Left	200	F	95.6	112	F	294.1	#509	F	115.2	#311
	Northbound Thru		F	84.1	#530	F	98.1	484	E	57.9	334
	Northbound Right	225	D	50.9	59	E	59.9	67	D	36.9	56
	Southbound Approach		***F***	***95.0***		***F***	***85.2***		***E***	***63.0***	
	Southbound Left	300	F	128.5	m#175	F	142.9	m197	F	87.3	156
	Southbound Thru		F	105.0	488	F	93.6	366	E	73.2	381
	Southbound Right	200	D	48.5	m107	D	41.2	171	C	34.7	246

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 11: Intersection Capacity Analysis and Queuing Results – Future Phase 2 (2027) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
3	**Fairfax Blvd & Chain Bridge Road** **Overall Intersection (Signalized)** **(MIT: Adjust signal timings during all peak hours.** **AM peak: 2 seconds from Phases 2 and 6 to Phases 4 and 7, respectively.** **PM peak: 1 second from Phase 2 to Phase 3; 2 second from Phase 2 to Phase 4; 3 seconds from Phase 6 to Phase 7; and 4 seconds from Phase 8 to Phase 7.** **SAT peak: 1 second from Phase 6 to Phase 5; 6 seconds from Phase 8 to Phase 7.)**		**E**	**67.7**		**E**	**61.0**		**D**	**49.0**	
	Eastbound Approach		***D***	***42.6***		***D***	***47.2***		***D***	***47.3***	
	Eastbound Left	600	F	107.3	209	F	143.8	#244	F	85.1	200
	Eastbound Thru		C	31.6	732	C	25.0	287	D	38.2	602
	Eastbound Right	500	B	16.5	m0	A	0.6	0	C	25.9	5
	Westbound Approach		***F***	***83.3***		***D***	***39.4***		***D***	***36.2***	
	Westbound Left	450	F	304.3	#399	F	108.4	m#276	F	83.1	m#273
	Westbound Thru		C	23.0	257	C	34.9	1325	C	32.1	539
	Westbound Right	350	B	15.0	m17	B	14.2	m42	B	11.7	m17
	Northbound Approach		***E***	***77.0***		***F***	***98.0***		***E***	***55.2***	
	Northbound Left	200	F	91.8	111	F	155.6	#436	E	74.8	239
	Northbound Thru		F	80.7	505	F	88.6	478	E	55.2	334
	Northbound Right	225	D	50.1	58	E	56.8	67	D	35.6	52
	Southbound Approach		***F***	***94.7***		***F***	***84.3***		***E***	***61.1***	
	Southbound Left	300	F	127.3	#176	F	141.3	198	F	90.2	155
	Southbound Thru		F	106.4	488	F	93.8	365	E	71.8	365
	Southbound Right	200	D	45.0	100	D	38.9	169	C	29.8	418
4	**Fairfax Blvd & Farr Ave** **Overall Intersection (Signalized)**		**A**	**7.6**		**A**	**8.3**		**A**	**7.4**	
	Eastbound Approach		***A***	***7.1***		***B***	***10.8***		***A***	***9.0***	
	Eastbound Left	200	A	5.5	m63	A	4.8	m#149	A	6.6	m80
	Eastbound TR		A	5.4	114	A	4.8	110	A	6.6	252
	Westbound Approach		***A***	***1.7***		***A***	***2.5***		***A***	***2.1***	
	Westbound Left	80	F	99.3	m38	F	107.8	m43	E	72.2	m36
	Westbound TR		A	0.4	98	A	1.4	m217	A	1.0	326
	Northbound Approach		***F***	***94.5***		***F***	***108.7***		***E***	***73.6***	
	Northbound LTR		F	94.5	18	F	108.7	69	E	73.6	26
	Southbound Approach		***F***	***94.4***		***F***	***105.6***		***E***	***74.8***	
	Southbound LTR		F	94.4	10	F	105.6	53	E	74.8	30
4	**Fairfax Blvd & Farr Ave** **Overall Intersection (Signalized)** **(MIT: Convert EBL and WBL from Pt phasing to Pm+Pt operation.)**		**A**	**6.1**		**A**	**5.5**		**A**	**5.7**	
	Eastbound Approach		***A***	***5.4***		***A***	***4.7***		***A***	***6.5***	
	Eastbound Left	200	A	5.5	m5	A	4.8	m25	A	6.6	m18
	Eastbound TR		A	5.4	113	A	4.8	110	A	6.6	252
	Westbound Approach		***A***	***0.4***		***A***	***1.4***		***A***	***1.1***	
	Westbound Left	80	A	3.5	m5	A	2.7	m3	A	3.9	m6
	Westbound TR		A	0.4	84	A	1.4	246	A	1.0	316
	Northbound Approach		***F***	***94.5***		***F***	***108.7***		***E***	***73.6***	
	Northbound LTR		F	94.5	18	F	108.7	69	E	73.6	26
	Southbound Approach		***F***	***94.4***		***F***	***105.6***		***E***	***74.8***	
	Southbound LTR		F	94.4	10	F	105.6	53	E	74.8	30
5	**Fairfax Blvd & Warwick Ln/McLean Ave** **Overall Intersection (Signalized)**		**B**	**13.7**		**B**	**17.7**		**A**	**8.2**	
	Eastbound Approach		***F***	***107.6***		***F***	***123.0***		***E***	***69.0***	
	Eastbound LTR		F	107.6	#247	F	123.0	#350	E	69.0	158
	Northbound Approach		***F***	***89.8***		***F***	***102.5***		***E***	***69.4***	
	Northbound LTR		F	89.8	9	F	102.5	88	E	69.4	0
	Northeastbound Approach		***A***	***3.6***		***A***	***2.7***		***A***	***6.3***	
	Northeastbound TR		A	3.6	148	A	2.7	84	A	6.2	327
	Southwestbound Approach		***A***	***4.6***		***B***	***14.4***		***A***	***5.0***	
	Southwestbound Left	150	B	12.2	13	A	9.5	m13	A	4.1	m2
	Southwestbound TR		A	4.4	112	B	14.4	545	A	5.0	291

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

Table 11: Intersection Capacity Analysis and Queuing Results – Future Phase 2 (2027) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.) [1]	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
			LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)	LOS	Delay [2] (s/veh)	95th % Queue [3][4] (ft.)
6	**Chain Bridge Rd & Orchard St**										
	Overall Intersection (Signalized)		**A**	**7.2**		**A**	**9.5**		**A**	**5.7**	
	Eastbound Approach		***F***	***124.2***		***F***	***133.6***		***E***	***79.4***	
	Eastbound Left/Right		F	124.2	#245	F	133.6	#295	E	79.4	209
	Southbound Approach		***A***	***1.9***		***A***	***2.0***		***A***	***1.1***	
	Southbound TR		A	1.9	m63	A	2.0	64	A	1.1	27
6	**Chain Bridge Rd & Orchard St** **Overall Intersection (Signalized)** **(MIT: Install EBR turn lane. Adjust signal timings duirng the PM peak hour by 1 second from Phase 2 to Phase 4.)**		**A**	**5.3**		**A**	**7.3**		**A**	**4.9**	
	Eastbound Approach		***F***	***89.3***		***F***	***103.1***		***E***	***67.5***	
	Eastbound Left		F	94.0	132	F	109.4	152	E	71.3	134
	Eastbound Right	150	F	84.2	51	F	97.6	62	E	63.6	52
	Southbound Approach		***A***	***1.6***		***A***	***1.5***		***A***	***1.0***	
	Southbound TR		A	1.6	m63	A	1.5	67	A	1.0	27
7	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**58.5**		**D**	**54.5**		**E**	**69.5**	
	Eastbound Approach		***F***	***143.5***		***F***	***118.3***		***E***	***61.3***	
	Eastbound LTR		F	143.5	#486	F	118.3	#244	E	61.3	98
	Westbound Approach		***B***	***19.9***		***B***	***11.7***		***C***	***20.7***	
	Westbound LTR		A	1.6	m0	A	6.5	m50	A	0.7	0
	Westbound Right		C	34.2	m60	B	17.0	m55	C	31.8	117
	Northbound Approach		***D***	***48.1***		***C***	***25.7***		***D***	***50.9***	
	Northbound Left/U	135	F	143.4	m44	F	141.4	m89	F	89.1	m59
	Northbound TR		D	47.0	#587	C	22.0	134	D	50.0	278
	Southbound Approach		***E***	***70.1***		***F***	***92.5***		***F***	***96.4***	
	Southbound Left/U	470	F	138.3	#733	F	210.7	#975	F	259.4	#843
	Southbound TR		D	45.6	460	D	43.3	498	D	44.0	#560
7a	**Chain Bridge Rd & Eaton Pl**										
	Overall Intersection (Signalized)		**E**	**71.3**		**F**	**92.1**		**D**	**37.3**	
	Eastbound Approach		***A***	***0.7***		***A***	***1.4***		***A***	***2.8***	
	Eastbound LTR		A	0.7	m3	A	1.4	m7	A	2.8	m10
	Westbound Approach		***F***	***86.7***		***F***	***147.3***		***E***	***65.8***	
	Westbound LTR		F	86.7	396	F	147.3	#862	E	65.8	292
	Northbound Approach		***F***	***88.8***		***F***	***103.0***		***E***	***69.0***	
	Northbound LTR		F	88.8	0	F	103.0	55	E	69.0	35
	Southbound Approach		***F***	***216.3***		***F***	***134.4***		***E***	***69.3***	
	Southbound LTR		F	216.3	#393	F	134.4	#246	E	69.3	0
7	**Chain Bridge Rd & Eaton Pl** **Overall Intersection (Signalized)** **(MIT: Adjust signal timings during the PM peak hour by 4 seconds from Phase 2 to Phase 1. Adjust signal timings during the SAT peak hour by 2 seconds from Phase 2 to Phase 1.)**					**D**	**52.7**		**E**	**65.4**	
	Eastbound Approach					***F***	***118.3***		***E***	***61.3***	
	Eastbound LTR					F	118.3	#244	E	61.3	98
	Westbound Approach					***B***	***13.4***		***C***	***21.1***	
	Westbound LTR					A	6.5	m50	A	0.7	0
	Westbound Right					C	20.5	m55	C	32.4	117
	Northbound Approach					***C***	***29.3***		***E***	***55.5***	
	Northbound Left/U	135				F	142.1	93	F	86.8	61
	Northbound TR					C	25.7	137	D	54.7	294
	Southbound Approach					***F***	***85.4***		***F***	***85.3***	
	Southbound Left/U	470				F	186.4	#964	F	213.9	#815
	Southbound TR					D	43.3	498	D	44.0	#560
7a	**Chain Bridge Rd & Eaton Pl** **Overall Intersection (Signalized)** **(MIT: Adjust signal timings during the PM peak hour by 4 seconds from Phase 2 to Phase 1. Adjust signal timings during the SAT peak hour by 2 seconds from Phase 2 to Phase 1.)**					**F**	**92.0**		**D**	**37.7**	
	Eastbound Approach					***A***	***1.3***		***A***	***2.5***	
	Eastbound LTR					A	1.3	m7	A	2.5	m10
	Westbound Approach					***F***	***147.1***		***E***	***67.0***	
	Westbound LTR					F	147.1	#862	E	67.0	292
	Northbound Approach					***F***	***103.0***		***E***	***69.0***	
	Northbound LTR					F	103.0	55	E	69.0	35
	Southbound Approach					***F***	***134.4***		***E***	***69.3***	
	Southbound LTR					F	134.4	#246	E	69.3	0

NOTES:

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

[2] $: Delays (reported from Synchro) exceed 300 seconds.

[3] #: 95th percentile queues (reported from Synchro) exceed capacity; actual queues may be longer. Queues shown are based on the maximum after two cycles.

[4] m: 95th percentile volume and queues (reported from Synchro) are metered by upstream signal.

2027 Mitigations

An intersection was considered to have an impact if it met any of the following criteria:

- The overall intersection or any movement operates at LOS E or LOS F in the future conditions with the proposed development where one does not exist in the background conditions without the proposed development;
- The overall intersection or any movement operates at LOS E or LOS F during the background condition and the delay increases by more than 10 percent in the future conditions with the proposed development; or
- There is an increase in the 95th percentile queues along a movement where queues exceed available storage in the future conditions with the proposed development where one does not exist in background conditions without the proposed development.

Following these guidelines, there are impacts to five study area intersections as a result of Phase 2 of the proposed development. The following mitigations are recommended:

- 1. Fairfax Boulevard & Eaton Place
  - Restripe southbound approach from a L, TR configuration to a L, LTR configuration.
  - PM peak hour:
    - Adjust signal timings by 1 second from Phases 2 and 6 to Phase 3.

- 3. Fairfax Boulevard & Chain Bridge Road
  - AM peak hour:
    - Adjust signal timings by 2 seconds from Phase 2 to Phase 4.
    - Adjust signal timings by 6 seconds from Phase 2 to Phase 7.
  - PM peak hour:
    - Adjust signal timings by 1 second from Phase 2 to Phase 3.
    - Adjust signal timings by 2 seconds from Phase 2 to Phase 4.
    - Adjust signal timings by 3 second from Phase 6 to Phase 7.
    - Adjust signal timings by 4 second from Phase 8 to Phase 7.
  - SAT peak hour:
    - Adjust signal timings by 1 second from Phase 6 to Phase 5.
    - Adjust signal timings by 6 seconds from Phase 8 to Phase 7.

- 4. Fairfax Boulevard & Farr Avenue
  - Operate the eastbound and westbound left turns under permitted and protected operation.

- 6. Chain Bridge Road & Orchard Street
  - Install an eastbound right turn bay.
  - PM peak hour:
    - Adjust signal timings by 1 second from Phase 2 to Phase 4.
  - (Alternative) Operate the signal with a half-cycle length (not shown in this study). This mitigation could be assessed during the application of Phase 2 and would likely require an assessment of the Fairfax Boulevard and Change Bridge Road corridors.

- 7. Chain Bridge Road & Eaton Place (main node)
  - PM peak hour:
    - Adjust signal timings by 4 seconds from Phase 2 to Phase 1.
  - SAT peak hour:
    - Adjust signal timings by 2 seconds from Phase 2 to Phase 1.

- 7a. Chain Bridge Road & Eaton Place (east node)
  - PM peak hour:
    - Adjust signal timings by 4 seconds from Phase 2 to Phase 1.
  - SAT peak hour:
    - Adjust signal timings by 2 seconds from Phase 2 to Phase 1.

With the recommended improvements in place, it is anticipated that the 2027 Future Phase 2 road network conditions would operate similarly to the Background 2027 scenario. Thus, the development will have a negligible impact to the surrounding transportation and roadway network under 2027 conditions.

TRAFFIC SIMULATIONS

This chapter provides a summary of the anticipated queues for the existing and future conditions within the study area.

The purpose of the queuing analysis is to:

- Assess possible saturated conditions within the vicinity of the site for planning purposes;
- Identify potential queuing issues in greater detail as compared to what was discussed in the *Traffic Operations* chapter of this report;
- Provide an alternative assessment of how potential improvements and mitigation measures would accommodate the additional vehicular trips with the proposed development in place.

The queuing analysis focuses on the weekday morning (AM), weekday afternoon (PM), and Saturday midday (SAT) peak hours, as determined by the existing traffic volumes in the study area.

The following conclusions are reached within this chapter:

- Multiple study intersections experience saturated conditions during the analyzed peak hours, with or without the development in-place.
- Multiple movements exceed the capacity of existing and future turn bays.
- Overall, this report concludes that the project will have a negligible impact to the surrounding transportation network.

STUDY AREA & METHODOLOGY

The general methodology of the analysis follows Section 7.6 of VDOT's *Traffic Operations and Safety Analysis Manual* (TOSAM).

Queuing Analysis Scenarios

The queuing analyses were performed in order to assess possible saturated conditions within the study area under existing and future conditions. Queueing analyses were performed using *SimTraffic*, Version 10, using the same *Synchro* network models that were used in the intersection capacity analyses and based on the identical geometric and operations assumptions.

For the purposes of the analyses, each simulation was seeded, and each scenario was analyzed based on the average of a 10 simulation runs with any simulation, which experienced glitches, excluded from the average.

Identical to the capacity analysis, the queuing analysis examined the following scenarios:

1. 2019 Existing Conditions
2. 2023 Future Conditions without the Development (2023 Background)
3. 2023 Future Conditions with Phase 1 of the Development (2023 Total Future – Phase 1)
4. 2027 Future Conditions without the Development (2027 Background)
5. 2027 Future Conditions with Phase 1 and Phase 2 of the Development (2027 Total Future – Phase 2)

Study Area

The study area of the analysis includes intersections most likely to have potential impacts or require changes to traffic operations to accommodate the proposed development. Based on the projected future trip generation and the location of the site access points, the following intersections were chosen for analysis:

1. Fairfax Boulevard and Eaton Place;
2. Fairfax Boulevard and University Drive;
3. Chain Bridge Road and Fairfax Boulevard;
4. Fairfax Boulevard, Farr Avenue, and Future Site Access;
5. Fairfax Boulevard, Warwick Lane, and McLean Avenue;
6. Chain Bridge Road and Orchard Street;
7. Chain Bridge Road and Eaton Place; and
8. Chain Bridge Road and Right-in Only Site Access (2027 Total Future scenario only).

This study area was discussed and agreed to in a scoping meeting with the City. In addition to the study area, the *Synchro* network models included a majority of the City's roadway network.

SIMULATION RESULTS

Existing (2019) Conditions Results

The results of the queuing analyses for the Existing (2019) conditions are expressed in maximum queues per lane group/ movement are shown in Table 12. Detailed analysis worksheets are included in the Appendix F.

The queuing analysis results indicate that five of the seven existing study intersections operate with maximum queues that exceed the capacity of existing effective storage bays for dedicated turn lanes:

- 1. Fairfax Boulevard & Eaton Place
  - Eastbound Left (AM peak hour)
- 2. Fairfax Boulevard & University Drive
  - Westbound Left (PM and SAT peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (all peak hours)
  - Westbound Right (PM peak hour)
  - Northbound Left (all peak hours)
  - Northbound Right (AM and PM peak hours)
  - Southbound Right (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Southwestbound Left (PM and SAT peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Northbound Left (SAT peak hour)
  - Southbound Left (PM peak Hour)

Table 12: Simulation Queuing Results – Existing (2019) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
1	**Fairfax Blvd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	130	134	110	124
	Eastbound TR		329	232	304
	Westbound Approach				
	Westbound Left	80	20	46	61
	Westbound Thru		433	956	486
	Westbound Right		80	376	162
	Northbound Approach				
	Northbound LTR		21	52	44
	Southbound Approach				
	Southbound Left		433	1291	328
	Southbound TR		51	906	126
	Northeastbound Approach				
	Northeastbound LTR		37	60	49
2	**Fairfax Blvd & University Drive**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	165	18	77	87
	Eastbound TR		248	155	175
	Westbound Approach				
	Westbound Left	150	146	157	163
	Westbound TR		150	170	193
	Northbound Approach				
	Northbound LT		164	285	139
	Northbound Right		218	127	105
	Southbound Approach				
	Southbound Left	120	38	45	72
	Southbound TR		39	72	99
3	**Fairfax Blvd & Chain Bridge Road**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	600	228	198	181
	Eastbound Thru		394	234	353
	Eastbound Right	500	26	33	55
	Westbound Approach				
	Westbound Left	200	224	224	224
	Westbound Thru		586	604	422
	Westbound Right	350	182	375	210
	Northbound Approach				
	Northbound Left	200	225	225	214
	Northbound Thru		500	475	331
	Northbound Right	225	250	250	218
	Southbound Approach				
	Southbound Left	300	181	189	145
	Southbound Thru		356	354	352
	Southbound Right	200	225	225	225
4	**Fairfax Blvd & Farr Ave**				
	Overall Intersection (TWSC)				
	Northbound Approach				
	Northbound LTR		7	26	25
	Southbound Approach				
	Southbound LTR		17	43	39

Table 12: Simulation Queuing Results – Existing (2019) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		233	208	158
	Westbound Approach				
	Westbound LTR		81	127	93
	Northbound Approach				
	Northbound LTR		141	214	92
	Southbound Approach				
	Southbound Left	175	113	66	37
	Southbound TR		36	37	27
	Northeastbound Approach				
	Northeastbound Left		0	37	72
	Northeastbound TR		385	211	286
	Southwestbound Approach				
	Southwestbound Left	150	120	164	163
	Southwestbound TR		309	402	367
6	**Chain Bridge Rd & Orchard St**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left/Right		31	43	35
	Southbound Approach				
	Southbound TR		170	252	282
7	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		453	254	130
	Westbound Approach				
	Westbound LTR		56	56	66
	Westbound Right		67	57	52
	Northbound Approach				
	Northbound Left/U	135	112	91	500
	Northbound TR		382	166	630
	Southbound Approach				
	Southbound Left/U	470	421	480	420
	Southbound TR		406	693	463
7a	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		53	63	48
	Westbound Approach				
	Westbound LTR		348	1104	213
	Northbound Approach				
	Northbound LTR		97	76	47
	Southbound Approach				
	Southbound LTR		319	289	156

Background (2023) Conditions Results

The results of the queuing analyses for the Future without Development (2023) conditions ("Background 2023") conditions are expressed in maximum queues per lane group/ movement are shown in Table 13. Detailed analysis worksheets are included in the Appendix G.

The queuing analysis results indicate that five of the seven existing study intersections operate with maximum queues that exceed the capacity of future effective storage bays for dedicated turn lanes:

- 1. Fairfax Boulevard & Eaton Place
  - Eastbound Left (SAT peak hour)
- 2. Fairfax Boulevard & University Drive
  - Westbound Left (all peak hours)
  - Southbound Left (PM and SAT peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (AM and PM peak hours)
  - Westbound Right (PM and SAT peak hours)
  - Northbound Left (all peak hours)
  - Northbound Right (AM and PM peak hours)
  - Southbound Right (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Southwestbound Left (PM and SAT peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Northbound Left (AM peak hour)
  - Southbound Left (all peak hours)

Table 13: Simulation Queuing Results – Background (2023) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
1	**Fairfax Blvd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	130	78	47	154
	Eastbound TR		342	162	401
	Westbound Approach				
	Westbound Left	80	6	50	60
	Westbound Thru		538	1255	646
	Westbound Right		136	1212	234
	Northbound Approach				
	Northbound LTR		20	50	40
	Southbound Approach				
	Southbound Left		391	1326	296
	Southbound TR		42	948	99
	Northeastbound Approach				
	Northeastbound LTR		33	59	49
2	**Fairfax Blvd & University Drive**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	450	74	219	221
	Eastbound TR		242	327	347
	Westbound Approach				
	Westbound Left	150	153	174	174
	Westbound TR		368	393	484
	Northbound Approach				
	Northbound LT		430	411	230
	Northbound Right		262	145	116
	Southbound Approach				
	Southbound Left	120	101	144	145
	Southbound TR		242	283	236
3	**Fairfax Blvd & Chain Bridge Road**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	600	229	189	184
	Eastbound Thru		466	249	421
	Eastbound Right	500	26	31	46
	Westbound Approach				
	Westbound Left	450	475	474	406
	Westbound Thru		956	748	684
	Westbound Right	350	92	375	375
	Northbound Approach				
	Northbound Left	200	212	225	222
	Northbound Thru		500	489	308
	Northbound Right	225	250	256	217
	Southbound Approach				
	Southbound Left	300	171	155	146
	Southbound Thru		355	344	352
	Southbound Right	200	225	225	225
4	**Fairfax Blvd & Farr Ave**				
	Overall Intersection (TWSC)				
	Northbound Approach				
	Northbound Right		23	24	23
	Southbound Approach				
	Southbound Right		21	52	39

Table 13: Simulation Queuing Results – Background (2023) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		228	206	162
	Westbound Approach				
	Westbound LTR		89	105	88
	Northbound Approach				
	Northbound LTR		132	210	89
	Southbound Approach				
	Southbound Left	175	95	71	37
	Southbound TR		42	43	18
	Northeastbound Approach				
	Northeastbound Left		0	22	70
	Northeastbound TR		490	293	355
	Southwestbound Approach				
	Southwestbound Left	150	141	173	174
	Southwestbound TR		299	400	368
6	**Chain Bridge Rd & Orchard St**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left/Right		32	42	36
	Southbound Approach				
	Southbound TR		112	133	174
7	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		460	265	135
	Westbound Approach				
	Westbound LTR		64	61	68
	Westbound Right		65	53	62
	Northbound Approach				
	Northbound Left/U	135	267	80	109
	Northbound TR		404	156	231
	Southbound Approach				
	Southbound Left/U	470	494	495	495
	Southbound TR		848	1004	1001
7a	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		50	67	52
	Westbound Approach				
	Westbound LTR		555	1215	266
	Northbound Approach				
	Northbound LTR		81	79	46
	Southbound Approach				
	Southbound LTR		319	301	196

Future – Phase 1 (2023) Conditions Results

The results of the queuing analyses for the Future with Development – Phase 1 (2023) conditions ("Future – Phase 1") conditions with the recommended roadway improvement implemented are expressed in maximum queues per lane group/ movement are shown in Table 14. Detailed analysis worksheets are included in the Appendix H.

The queuing analysis results indicate that four of the seven existing study intersections operate with maximum queues that exceed the capacity of future effective storage bays for dedicated turn lanes:

- 2. Fairfax Boulevard & University Drive
  - Westbound Left (PM and SAT peak hours)
  - Southbound Left (PM and SAT peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (AM peak hours)
  - Westbound Right (PM and SAT peak hours)
  - Northbound Left (all peak hours)
  - Northbound Right (all peak hours)
  - Southbound Right (all peak hours)
- 5. Fairfax Boulevard & Warwick Lane/McLean Avenue
  - Southwestbound Left (PM and SAT peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Northbound Left (AM and PM peak hours)
  - Southbound Left (all peak hours)

The queueing analysis indicates that the queues remain comparable to the 2023 Background Condition scenario.

Table 14: Simulation Queuing Results – Future Phase 1 (2023) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
1	**Fairfax Blvd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	130	91	50	110
	Eastbound TR		415	145	452
	Westbound Approach				
	Westbound Left	80	18	39	73
	Westbound Thru		486	1252	837
	Westbound Right		66	1215	296
	Northbound Approach				
	Northbound LTR		18	58	41
	Southbound Approach				
	Southbound Left		400	1255	291
	Southbound TR		48	927	90
	Northeastbound Approach				
	Northeastbound LTR		36	51	51
2	**Fairfax Blvd & University Drive**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	450	79	217	204
	Eastbound TR		255	314	380
	Westbound Approach				
	Westbound Left	150	146	166	174
	Westbound TR		268	402	468
	Northbound Approach				
	Northbound LT		431	432	225
	Northbound Right		248	126	133
	Southbound Approach				
	Southbound Left	120	102	145	144
	Southbound TR		257	283	240
3	**Fairfax Blvd & Chain Bridge Road**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	600	232	208	204
	Eastbound Thru		456	240	434
	Eastbound Right	500	31	34	46
	Westbound Approach				
	Westbound Left	450	475	430	380
	Westbound Thru		917	761	674
	Westbound Right	350	69	375	375
	Northbound Approach				
	Northbound Left	200	225	225	224
	Northbound Thru		452	450	298
	Northbound Right	225	250	250	235
	Southbound Approach				
	Southbound Left	300	190	158	130
	Southbound Thru		357	345	343
	Southbound Right	200	225	225	225
4	**Fairfax Blvd & Farr Ave**				
	Overall Intersection (TWSC)				
	Northbound Approach				
	Northbound Right		20	24	29
	Southbound Approach				
	Southbound Right		31	76	48

Table 14: Simulation Queuing Results – Future Phase 1 (2023) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		216	204	151
	Westbound Approach				
	Westbound LTR		87	121	90
	Northbound Approach				
	Northbound LTR		121	240	86
	Southbound Approach				
	Southbound Left	175	110	73	38
	Southbound TR		44	46	25
	Northeastbound Approach				
	Northeastbound Left		0	46	32
	Northeastbound TR		499	281	414
	Southwestbound Approach				
	Southwestbound Left	150	146	174	174
	Southwestbound TR		305	405	380
6	**Chain Bridge Rd & Orchard St**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left/Right		95	115	96
	Southbound Approach				
	Southbound TR		145	190	105
7	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		470	262	132
	Westbound Approach				
	Westbound LTR		53	64	78
	Westbound Right		56	65	59
	Northbound Approach				
	Northbound Left/U	135	285	117	149
	Northbound TR		447	150	261
	Southbound Approach				
	Southbound Left/U	470	495	495	495
	Southbound TR		791	1000	997
7a	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		55	69	53
	Westbound Approach				
	Westbound LTR		533	1311	256
	Northbound Approach				
	Northbound LTR		88	90	55
	Southbound Approach				
	Southbound LTR		319	303	183

Background (2027) Conditions Results

The results of the queuing analyses for the Future without Development (2027) conditions ("Background 2027") conditions are expressed in maximum queues per lane group/ movement are shown in Table 15. Detailed analysis worksheets are included in the Appendix I.

The queuing analysis results indicate that four of the seven existing study intersections operate with maximum queues that exceed the capacity of future effective storage bays for dedicated turn lanes:

- 2. Fairfax Boulevard & University Drive
  - Westbound Left (all peak hours)
  - Southbound Left (PM and SAT peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (AM and PM peak hours)
  - Westbound Right (PM peak hour)
  - Northbound Left (PM and SAT peak hours)
  - Northbound Right (all peak hours)
  - Southbound Right (all peak hours)
- 4. Fairfax Boulevard & Farr Avenue
  - Westbound Left (PM and SAT peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Northbound Left (AM peak hour)
  - Southbound Left (all peak hours)

Table 15: Simulation Queuing Results – Background (2027) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
1	**Fairfax Blvd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	130	74	61	123
	Eastbound TR		359	244	445
	Westbound Approach				
	Westbound Left	80	12	50	58
	Westbound Thru		367	1252	947
	Westbound Right		51	1251	666
	Northbound Approach				
	Northbound LTR		18	48	39
	Southbound Approach				
	Southbound Left		393	988	418
	Southbound TR		41	576	205
	Northeastbound Approach				
	Northeastbound LTR		46	62	60
2	**Fairfax Blvd & University Drive**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	450	63	217	238
	Eastbound TR		308	396	384
	Westbound Approach				
	Westbound Left	150	162	174	164
	Westbound TR		292	470	607
	Northbound Approach				
	Northbound LT		394	430	218
	Northbound Right		249	153	149
	Southbound Approach				
	Southbound Left	120	96	126	143
	Southbound TR		252	283	242
3	**Fairfax Blvd & Chain Bridge Road**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	600	213	206	212
	Eastbound Thru		535	342	503
	Eastbound Right	500	29	34	74
	Westbound Approach				
	Westbound Left	450	475	474	437
	Westbound Thru		955	802	921
	Westbound Right	350	84	375	340
	Northbound Approach				
	Northbound Left	200	186	225	225
	Northbound Thru		599	587	415
	Northbound Right	225	338	325	321
	Southbound Approach				
	Southbound Left	300	173	169	166
	Southbound Thru		356	347	355
	Southbound Right	200	225	225	225
4	**Fairfax Blvd & Farr Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	200	0	0	0
	Eastbound TR		163	221	188
	Westbound Approach				
	Westbound Left	80	62	84	93
	Westbound TR		81	291	254
	Northbound Approach				
	Northbound LTR		86	136	110
	Southbound Approach				
	Southbound LTR		29	47	42

Table 15: Simulation Queuing Results – Background (2027) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		86	66	64
	Northbound Approach				
	Northbound LTR		128	210	94
	Northeastbound Approach				
	Northeastbound Left	120	0	30	28
	Northeastbound TR		202	163	214
	Southwestbound Approach				
	Southwestbound Left	150	53	92	75
	Southwestbound TR		142	198	221
6	**Chain Bridge Rd & Orchard St**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left/Right		35	38	36
	Southbound Approach				
	Southbound TR		136	143	242
7	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		451	249	121
	Westbound Approach				
	Westbound LTR		56	53	60
	Westbound Right		56	57	57
	Northbound Approach				
	Northbound Left/U	135	218	93	105
	Northbound TR		386	151	301
	Southbound Approach				
	Southbound Left/U	470	494	495	495
	Southbound TR		811	1002	992
7a	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		62	61	50
	Westbound Approach				
	Westbound LTR		518	1181	261
	Northbound Approach				
	Northbound LTR		84	61	47
	Southbound Approach				
	Southbound LTR		316	292	172

Future – Phase 2 (2027) Conditions Results

The results of the queuing analyses for the Future with Development – Phase 2 (2027) conditions ("Future – Phase 2") conditions with the recommended roadway improvement implemented are expressed in maximum queues per lane group/ movement are shown in Table 16. Detailed analysis worksheets are included in the Appendix J.

The queuing analysis results indicate that four of the seven existing study intersections operate with maximum queues that exceed the capacity of future effective storage bays for dedicated turn lanes:

- 2. Fairfax Boulevard & University Drive
  - Westbound Left (all peak hours)
  - Southbound Left (PM and SAT peak hours)
- 3. Fairfax Boulevard & Chain Bridge Road
  - Westbound Left (all peak hours)
  - Westbound Right (PM and SAT peak hours)
  - Northbound Left (all peak hours)
  - Northbound Right (all peak hours)
  - Southbound Right (all peak hours)
- 4. Fairfax Boulevard & Farr Avenue
  - Westbound Left (SAT peak hours)
- 7. Chain Bridge Road & Eaton Place (main node)
  - Southbound Left (all peak hours)

The queueing analysis indicates that the queues remain comparable to the 2027 Background Condition scenario.

Table 16: Simulation Queuing Results – Future Phase 2 (2027) Conditions

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
1	**Fairfax Blvd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	130	86	39	111
	Eastbound TR		265	207	403
	Westbound Approach				
	Westbound Left	80	7	49	58
	Westbound Thru		388	1268	1021
	Westbound Right		82	1262	769
	Northbound Approach				
	Northbound LTR		25	52	46
	Southbound Approach				
	Southbound Left		214	310	171
	Southbound LTR		228	334	192
	Northeastbound Approach				
	Northeastbound LTR		36	63	44
2	**Fairfax Blvd & University Drive**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	450	61	250	206
	Eastbound TR		319	348	253
	Westbound Approach				
	Westbound Left	150	155	174	175
	Westbound TR		424	467	783
	Northbound Approach				
	Northbound LT		418	382	222
	Northbound Right		222	143	144
	Southbound Approach				
	Southbound Left	120	94	144	145
	Southbound TR		261	283	232
3	**Fairfax Blvd & Chain Bridge Road**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	600	220	210	259
	Eastbound Thru		558	349	529
	Eastbound Right	500	82	45	207
	Westbound Approach				
	Westbound Left	450	475	475	475
	Westbound Thru		951	775	1006
	Westbound Right	350	89	375	375
	Northbound Approach				
	Northbound Left	200	225	225	225
	Northbound Thru		492	825	356
	Northbound Right	225	250	250	248
	Southbound Approach				
	Southbound Left	300	201	160	136
	Southbound Thru		306	294	262
	Southbound Right	200	225	225	225
4	**Fairfax Blvd & Farr Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left	200	51	115	80
	Eastbound TR		145	177	185
	Westbound Approach				
	Westbound Left	80	43	58	93
	Westbound TR		120	345	316
	Northbound Approach				
	Northbound LTR		98	132	98
	Southbound Approach				
	Southbound LTR		79	112	102

Table 16: Simulation Queuing Results – Future Phase 2 (2027) Conditions (Continued)

No.	Intersection (Movement)	Effective Storage Length (ft.)	AM Peak Max Queue (ft.)	PM Peak Max Queue (ft.)	SAT Peak Max Queue (ft.)
5	**Fairfax Blvd & Warwick Ln/McLean Ave**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		90	65	67
	Northbound Approach				
	Northbound LTR		140	209	81
	Northeastbound Approach				
	Northeastbound Left	120	0	28	36
	Northeastbound TR		179	138	208
	Southwestbound Approach				
	Southwestbound Left	150	68	105	64
	Southwestbound TR		144	195	223
6	**Chain Bridge Rd & Orchard St**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound Left		152	163	178
	Eastbound Right	150	113	125	144
	Southbound Approach				
	Southbound TR		221	244	563
7	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		428	260	128
	Westbound Approach				
	Westbound LTR		56	60	56
	Westbound Right		58	54	58
	Northbound Approach				
	Northbound Left/U	135	115	100	129
	Northbound TR		440	199	327
	Southbound Approach				
	Southbound Left/U	470	494	495	495
	Southbound TR		853	999	1001
7a	**Chain Bridge Rd & Eaton Pl**				
	Overall Intersection (Signalized)				
	Eastbound Approach				
	Eastbound LTR		53	59	52
	Westbound Approach				
	Westbound LTR		501	1197	254
	Northbound Approach				
	Northbound LTR		91	72	58
	Southbound Approach				
	Southbound LTR		320	292	183

TRANSPORTATION MANAGEMENT PLAN

Transportation Demand Management (TDM) is the establishment of measures to influence travel behavior by mode, frequency, time, route, or trip length in order to achieve a maximally efficient use of transportation facilities. The Northfax development is well connected via Fairfax Boulevard (Route 50) and Chain Bridge Road (Route 123), which are regional arterials that provide direct connections to I-66 and the Capital Beltway (I-495). The proposed Northfax development is located approximately 3.6 miles away from the Vienna/Fairfax-GMU Metrorail Station. The site is served by two bus systems, with three routes adjacent to the site.

The guidelines contained herein provide a variety of strategies that can be incorporated into a Transportation Demand Management (TDM) plan for the site. The TDM plan will have many components that are tailored to accommodate the Northfax site. Once implemented, the TDM program will be monitored and adjusted as needed to continually create opportunities to reduce the amount of traffic generated by the site.

A TDM plan, specific for the Northfax development site, will be submitted to the City of Fairfax as a separate document.

Major components of carrying out a TDM plan include (1) Metrorail/Metrobus/CUE Bus promotion, (2) ridesharing promotion, (3) parking management, (4) on-site construction measures, (5) lease agreements, and (6) monitoring and compliance.

The site's location in relation to the Vienna/Fairfax-GMU Metrorail Station and three existing Metrobus/CUE Bus routes lot allows for a TDM program that may include, but not be limited to, the following strategies:

PARTICIPATION AND FUNDING

1) Designate a member of the Northfax building management or leasing office to serve as the TMP coordinator. The TMP coordinator will function as the primary point of contact with the City and undertake the implementing, coordinating, and managing of all TDM obligations. Additionally, the TMP coordinator will oversee the enforcement and monitoring of the strategies included in the TDM plan.

FACILITIES AND IMPROVEMENTS

1) Bicycle racks will be installed across the site for the use of retail shoppers, residents and visitors. The bicycle racks for retail customers and visitors shall be located to provide convenient access to the retail store fronts or residential entrances as appropriate and may be located on the sidewalks and on the ground level of the garages as appropriate. The racks for residents may be located in bicycle storage areas inside the building.

2) Pedestrians will experience increased mobility with the proposed redevelopment due to the street pattern of smaller street blocks.

3) Provide in the lobby or lobbies, a transportation information display(s), the number, content, design, and location of which will be approved by the City of Fairfax.

PROMOTIONS, SERVICES, POLICIES

1) The TMP coordinator will serve as the focal point for all commuter transportation initiatives. The transportation coordinator's name and contact information are posted in employee break areas, the rental leasing company website, and other locations within the Northfax buildings. Additionally, the transportation coordinator establishes a calendar of events, provides regular employee and renter communications, conducts targeted vanpool and transit marketing and other outreach to keep commuting at the forefront of the resident environment. The TMP coordinator supports bicycling efforts by sponsoring events such as "Bike to Work" and participate in "Air Quality Action Days".

2) As appropriate, the TMP coordinator can sponsor development of a website that provides commuting information, linked to external transportation services. Additionally, they can provide links to websites, such as http://www.commuterconnections.org, which will serve as the platform in which the residents can interact for the purpose of setting up carpools. The website may act as a central carpooling organizer for residents in the building, where residents can login to post destination inquiries and carpool requests. Links

to websites for the local transit opportunities, such as Metro (http://www.wmata.com) will be provided.

3) Transit subsidy programs may include the regional Metrorail/Metrobus and CUE Bus systems. The property management company and retail tenants with employees who either ride transit or vanpool are encouraged to enroll in a *SmartBenefits* pre-tax benefits program to help them take advantage of available automated and convenient tax savings on their transit costs. Also, a coordinated approach to transit opportunities will be explored in conjunction with other projects / developments / apartment buildings located in the vicinity of the site to potentially create a bus service providing direct access between each participating building and the Vienna/Fairfax-GMU Metrorail station.

4) Encourage and promote rideshare matching and incentives for car/vanpooling for both Northfax residents and (non-resident) employees. Strategies include transportation fares, distribution of ridesharing marketing material to residents and employees, and displaying information material, such as posters, brochures, etc., in common areas like hallways elevators, restrooms, water fountains, building management offices and public space notice boards.

A reason often cited to not participate in ridesharing arrangements is the need to have a personal vehicle at hand for emergency situations. A number of innovative programs have been developed which provide emergency transportation to one's home or child's school, daycare, etc. Programs include a limited taxi/bus fare subsidy, relaxed company vehicle policies, and the free Guaranteed Ride Home service provided by Commuter Connections.

PERFORMANCE AND MONITORING

1) Surveys are useful in determining commuting patterns, mode split, average commute distance and travel times, employee and resident attitudes, needs, and willingness to switch modes. In order to set objectives and monitor performance, resident and (non-resident) employee transportation surveys should be conducted on a bi-yearly basis. The data is useful in developing successful transportation programs, such as transit subsidies, and car and vanpool programs. In addition to the travel survey, the TMP coordinator will conduct counts of car and bicycle parking usage and deliver them to the City.

CRASH DATA ANALYSIS

Historical crash data was obtained from VDOT for the existing study intersections for a five-year period, from January 2014 to December 2018. Based on the available data, over the past five years, there were no fatal crashes at any of the study intersections. Of the 257 reported crashes at the study intersections, 83 resulted in injury and 174 crashes resulted in property damage only. The crash data for the existing study intersections are broken down in Table 17 to Table 23. The crash data from VDOT is provided in the Appendix K.

According to the Institute of Transportation Engineers' *Transportation Impact Analysis for Site Development*, a crash rate of 1.0 or higher is an indication that further study is required. One of the seven intersections in this study area meet this criterion. The Northfax development should be developed in a manner to help alleviate, or at minimum not add to, the conflicts at this intersection.

A rate over 1.0 does not necessarily mean there is a significant problem at an intersection, but rather it is a threshold used to identify which intersections may have higher crash rates due to operational, geometric, or other deficiencies. Additionally, the crash data does not provide detailed location information. In some cases, the crashes were located near the intersections and not necessarily within the intersection.

The intersection of Fairfax Boulevard and Chain Bridge Road was found to have a crash rate of 1.08 crashes per million entering vehicles (MEV) over the course of the five-year study period. Of the 75 crashes recorded over this period, 44 were classified as rear end collision.

Based on the descriptions of the crashes, the rear end collisions occurred due mostly to distracted driving. No one direction appeared to show a higher rate of rear end collisions than another. The presence of construction along the westbound and southbound directions was cited as a reason for the distraction of drivers.

Table 17: Crash Data for the Intersection of Fairfax Blvd and Eaton Pl (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Fairfax Blvd and Eaton Pl (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision			1	4	3	1	9	31.03%
Type A					*2*		*2*	
Type B			*1*	*2*		*1*	*4*	
Type C				*2*	*1*		*3*	
Property Damage Only		4	7	1	5	3	20	68.97%
TOTAL		4	8	5	8	4	29	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash								0.00%
Head-On				1	1		2	6.90%
Sideswipe / Same Direction			1				1	3.45%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		3	4	3	5	2	17	58.62%
Angle Collision		1	3	1	2	2	9	31.03%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other								0.00%
TOTAL		4	8	5	8	4	29	100.00%
Other Factors								
Distracted Driver		1	2	4	2	1	10	34.48%
Alcohol Related								0.00%
Work-Zone Related					1		1	3.45%
Inclement Weather (Non-Dry)		4	8	5	8	4	29	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.40***	***Crashes per MEV***

Table 18: Crash Data for the Intersection of Fairfax Blvd and University Dr (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Fairfax Blvd and University Dr (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision		5	2	1			8	24.24%
Type A			*1*				*1*	
Type B		*5*		*1*			*6*	
Type C			*1*				*1*	
Property Damage Only		8	4	7	6		25	75.76%
TOTAL		13	6	8	6		33	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash		1					1	3.03%
Head-On								0.00%
Sideswipe / Same Direction			2	1	1		4	12.12%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		9	1	3	4		17	51.52%
Angle Collision		2	2	4	1		9	27.27%
Backed Into								0.00%
Pedestrian Collision			1				1	3.03%
Deer/Animal								0.00%
Other		1					1	3.03%
TOTAL		13	6	8	6	0	33	100.00%
Other Factors								
Distracted Driver		2	1	2	1		6	18.18%
Alcohol Related								0.00%
Work-Zone Related								0.00%
Inclement Weather (Non-Dry)		13	6	8	6		33	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.45***	***Crashes per MEV***

Table 19: Crash Data for the Intersection of Fairfax Blvd and Chain Bridge Road (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Fairfax Blvd and Chain Bridge Road (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision		7	6	9	1	5	28	37.33%
Type A			*1*	*1*			*2*	
Type B		*4*	*4*	*5*		*2*	*15*	
Type C		*3*	*1*	*3*	*1*	*3*	*11*	
Property Damage Only		10	6	15	12	4	47	62.67%
TOTAL		17	12	24	13	9	75	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash								0.00%
Head-On		1					1	1.33%
Sideswipe / Same Direction		1	1	3			5	6.67%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		10	7	14	7	6	44	58.67%
Angle Collision		5	4	7	6	3	25	33.33%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other								0.00%
TOTAL		17	12	24	13	9	75	100.00%
Other Factors								
Distracted Driver		3	2	3	4	1	13	17.33%
Alcohol Related								0.00%
Work-Zone Related					5		5	6.67%
Inclement Weather (Non-Dry)		17	12	24	13	9	75	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***1.08***	***Crashes per MEV***

Table 20: Crash Data for the Intersection of Fairfax Blvd and Farr Ave (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Fairfax Blvd and Farr Ave (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision					2		2	33.33%
Type A								
Type B					*1*		*1*	
Type C					*1*		*1*	
Property Damage Only			1		2	1	4	66.67%
TOTAL			1		4	1	6	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash								0.00%
Head-On								0.00%
Sideswipe / Same Direction					1		1	16.67%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision					2		2	33.33%
Angle Collision			1		1	1	3	50.00%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other								0.00%
TOTAL		0	1	0	4	1	6	100.00%
Other Factors								
Distracted Driver					1		1	16.67%
Alcohol Related								0.00%
Work-Zone Related								0.00%
Inclement Weather (Non-Dry)			1		4	1	6	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.09***	***Crashes per MEV***

Table 21: Crash Data for the Intersection of Fairfax Blvd and McLean Ave (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Fairfax Blvd and McLean Ave (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision		1	1		1		3	25.00%
Type A					*1*		*1*	
Type B		*1*					*1*	
Type C			*1*				*1*	
Property Damage Only		2		1	2	4	9	75.00%
TOTAL		3	1	1	3	4	12	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash								0.00%
Head-On								0.00%
Sideswipe / Same Direction					1		1	8.33%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		2		1	2	2	7	58.33%
Angle Collision			1			2	3	25.00%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other		1					1	8.33%
TOTAL		3	1	1	3	4	12	100.00%
Other Factors								
Distracted Driver		1	1		1	1	4	33.33%
Alcohol Related								0.00%
Work-Zone Related								0.00%
Inclement Weather (Non-Dry)		3	1	1	3	4	12	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.18***	***Crashes per MEV***

Table 22: Crash Data for the Intersection of Chain Bridge Road and Orchard St (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Chain Bridge Road and Orchard St (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision		3	3	2	2	1	11	32.35%
Type A								
Type B		*3*	*2*			*1*	*6*	
Type C			*1*	*2*	*2*		*5*	
Property Damage Only		2	5	7	5	4	23	67.65%
TOTAL		5	8	9	7	5	34	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash								0.00%
Head-On						1	1	2.94%
Sideswipe / Same Direction								0.00%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		1	1	1	1		4	11.76%
Angle Collision		4	7	7	5	3	26	76.47%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other				1	1	1	3	8.82%
TOTAL		5	8	9	7	5	34	100.00%
Other Factors								
Distracted Driver		2		1	3	2	8	23.53%
Alcohol Related								0.00%
Work-Zone Related					3		3	8.82%
Inclement Weather (Non-Dry)		5	8	9	7	5	34	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.49***	***Crashes per MEV***

Table 23: Crash Data for the Intersection of Chain Bridge Road and Eaton Pl (2014 – 2018)

Intersection	Int	Crash Data for the Intersection of Chain Bridge Road and Eaton Place (2014 – 2018)						
		2014	2015	2016	2017	2018	Total	Relative Frequency
Crash Severity								
Fatal Collision								0.00%
Injury Collision		5	7	3	3	4	22	32.35%
Type A			*1*	*2*		*1*	*4*	
Type B		*4*	*2*	*1*			*7*	
Type C		*1*	*4*		*3*	*3*	*11*	
Property Damage Only		9	4	12	12	9	46	67.65%
TOTAL		14	11	15	15	13	68	100.00%
Crash Type								
Fixed Object/ Single-Vehicle Crash			1		1		2	2.94%
Head-On				1			1	1.47%
Sideswipe / Same Direction		1	1	2	7	4	15	22.06%
Sideswipe / Opposite Direction								0.00%
Rear-End Collision		2	1	3	1	3	10	14.71%
Angle Collision		11	8	8	6	6	39	57.35%
Backed Into								0.00%
Pedestrian Collision								0.00%
Deer/Animal								0.00%
Other				1			1	1.47%
TOTAL		14	11	15	15	13	68	100.00%
Other Factors								
Distracted Driver		3	1	3	3	3	13	19.12%
Alcohol Related								0.00%
Work-Zone Related				1			1	1.47%
Inclement Weather (Non-Dry)		14	11	15	15	13	68	100.00%
Speeding								0.00%
Disregard of Traffic Control Device								0.00%
Pedestrian Injury								N/A
CALCULATED CRASH RATE							***0.98***	***Crashes per MEV***

SUMMARY AND CONCLUSIONS

This report presents the findings of a Traffic Impact Study (TIS) for the Northfax development in the City of Fairfax, Virginia.

The purpose of this report is to review existing and future transportation facilities in the area surrounding the project site, project the transportation demand needed of the project, determine if the new transportation demand generated by the project would have negative impacts on the surrounding transportation network, and present recommendations to minimize the negative impacts from the proposed project.

This report concludes that the proposed development **will have a negligible impact** to the surrounding transportation and roadway network assuming that all planned site design elements are implemented.

Site Location and Study Area
The proposed development site is located in the City of Fairfax, Virginia. The vehicular study area consists of eight intersections along Fairfax Boulevard and Chain Bridge Road, including one future intersection providing access to the development.

Proposed Project
The proposed Northfax development is anticipated to be completed in two phases. Phase 1 focuses on residential development on the northern and western portions of the site, while Phase 2 includes a balance of the residential development and commercial development within the site.

It should be noted that the current application for the site only pertains to Phase 1. A separate application for Phase 2 will be submitted subsequently to the City of Fairfax. As such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application.

A description of each phase is presented below.

Phase 1: Phase 1 consists of 56 multi-family residential units and 200 continuing care retirement community units, which is anticipated to be completed and in operation by 2023. Access to the site is proposed to be provided via Orchard Street and via the proposed extension of Farr Avenue. Phase 1 will account for the planned extension of University Drive to join Eaton Place and the extension of Farr Avenue (by the City of Fairfax) to Orchard Street.

Phase 2: Phase 2 will include approximately 25,000 square feet of commercial uses (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027. In addition to Orchard Street, a right-in (RI) only access along Chain Bridge Road is proposed to provide access to the site. Phase 2 will account for the planned extension of University Drive to join Eaton Place; the extension of Farr Avenue to Orchard Street; signalization of Farr Avenue and Fairfax Boulevard; and Re-alignment of Warwick Avenue, Fairfax Boulevard, and McLean Avenue.

Of note, the development program for Phase 2 would be in addition to that of Phase 1.

Impacts and Recommendations
The analysis contained includes the following scenarios:

- Existing Conditions (2019),
- Future Conditions without Development – Phase 1 (2023),
- Future Conditions with Development – Phase 1 (2023),
- Future Conditions without Development – Phase 2 (2027), and
- Future Conditions with Development – Phase 2 (2027).

The analysis presented in this report supports the following major findings and recommendations:

Transit
The subject site is served by transit, including 13 bus stops within a quarter-mile of the site, as well as the Vienna/Fairfax-GMU Metrorail Station which is 3.6 miles from the site and accessible by bus.

It is anticipated that the proposed development will generate a small number of transit trips during the AM and PM peak hours and is not anticipated to significantly increase the current boardings and alightings at adjacent bus stops.

Pedestrian
While there are some existing pedestrian network deficiencies within a ¼ mile walk of the site, this project will reduce deficiencies by providing new ADA-compliant curb ramps at all site access points and an improved streetscape along Orchard Street and internal roadways.

Bicycle

The proposed site will include improvements to the bicycle network within the site. Further bicycle improvements near the proposed site are planned as part of the City of Fairfax's *Multimodal Transportation Plan*.

Vehicular

The site is well connected via Fairfax Boulevard and Chain Bridge Road, both classified as "Other Principal Arterials" by the Virginia Department of Transportation (VDOT).

Under Phase 1, the proposed development will generate 51 new vehicular trips in the weekday morning (AM) peak hour, 62 new vehicular trips during the weekday afternoon (PM) peak hour, and 77 new vehicular trips during the Saturday midday (SAT) peak hour. Ultimately, under Phase 2, the proposed development will generate approximately 264 new vehicular trips in the AM peak hour, 342 new vehicular trips in the PM peak hour, and 402 new vehicular trips in the Saturday peak hour.

A trip generation comparison between the proposed and by-right uses was evaluated, and the results indicate that the proposed development program would generate half of the peak hour traffic when compared to what is allowable by-right.

Under Phase 1 conditions, the increase in vehicular trips would attribute to an increase of less than 1.0% in peak hour traffic along Fairfax Boulevard and an increase of less than 1.1% in peak hour traffic along Chain Bridge Road. Under Phase 2 conditions, the increase in vehicular trips would attribute to an increase of less than 3.3% in peak hour traffic along Fairfax Boulevard and an increase of less than 3.2% in peak hour traffic along Chain Bridge Road.

In order to determine the impacts of the proposed development on this transportation network, this report projects future conditions with and without the proposed development and performs analyses of intersection delays.

All intersections within the study area have approaches that operate at levels beyond acceptable thresholds in one or more peak hour in one or more conditions scenario, with the exception of Chain Bridge Road & Future Site Access (Intersection 8).

As outlined in this report, under 2023 Future with Development Conditions, the intersection of Chain Bridge Road at Eaton Place (main node) (Intersection 7) begins to operate at a LOS E during the AM peak hour with an increase in delay of 0.3 seconds over the LOS D/E threshold. Additionally, the intersection of Fairfax Boulevard at Chain Bridge Road begins to experience slight increases in delays.

With slight increases in delays at these intersections, the impact of the proposed development is not anticipated to significantly alter driver's expectation at the signals. However, if necessary, the increases in delay can be mitigated with a slight change in the signal timings at these intersections.

Under 2027 Future with Development Conditions, five of the eight intersections are recommended to have improvements (geometric and/or adjustments to signal timings). The five intersection are as follows:

- Int 1: Fairfax Boulevard & Eaton Place
- Int 3: Fairfax Boulevard & Chain Bridge Road
- Int 4: Fairfax Boulevard & Farr Avenue/Future Site Access
- Int 6: Chain Bridge Road & Orchard Street
- Int 7: Chain Bridge Road & Eaton Place (main node)
- Int 7a: Chain Bridge Road & Eaton Place (east node)

Transportation Management Plan

Transportation Demand Management (TDM) is the implementation of measures to influence travel behavior by mode, frequency, time, route, or trip length in order to achieve a maximally efficient use of transportation facilities. The TDM plan will have many components that are tailored to accommodate the Northfax site.

TDM components and management/monitoring measures are outlined in the report.

Summary and Recommendations

This report concludes that the proposed development **will have a negligible impact** to the surrounding transportation and roadway network assuming that all planned site design elements are implemented.

TECHNICAL APPENDIX

Appendix A

Signed Scoping Document

THIS IS NOT A CHAPTER 870 STUDY

VDOT Virginia Department of Transportation	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 VDOT and 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: Tele: E-mail:	Chad Baird, Gorove/Slade Associates, Inc. 571-248-0992 chad.baird@goroveslade.com		
Developer/Owner Name: Tele: E-mail:	Andrew Rosenberger, Madison Homes, LLC andrew@madisonhomesinc.com		
Project Information			
Project Name:	Northfax	Locality/County:	City of Fairfax
Project Location: (Attach regional and site specific location map)	The proposed Northfax development is planned to be situated along the western frontage of Chain Bridge Road (Rte. 123) and north of Fairfax Boulevard (Rte. 50), in the City of Fairfax, Virginia.		
Submission Type	Comp Plan ☐	Rezoning ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The proposed Northfax development is anticipated to be completed in two phases. Phase 1 would include the residential development at the back and Phase 2 would be the balance of the residential development and commercial developments. A brief description of each phase is presented below - <u>Phase 1</u>: Phase 1 would consist of 56 multi-family residential units and 200 continuing care retirement community units and is anticipated to be completed by 2023. Access to the site would be provided via one access from Orchard Street at Chain Bridge and one access from extended Farr Ave at Fairfax. This phase will also account for the planned extension of University Drive to Eaton Place <u>Phase 2</u>: This phase would include approximately 20,000 square feet of ground floor retail uses and 5,000 square feet of high turnover sit-down restaurant with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027. In addition to the Orchard Street and Farr Ave access points, a right-in access only along Chain Bridge Road will provide access to the site under this scenario. The proposed development is planned to be situated on approximately 15.2 acres of land. The land parcels constituting the site can be identified in the City's Real Estate Assessment Database as ID 57-2-47-000A, 57-2-02-003, 005, 009, 010 and 57-2-02-017, 018, 019, 57-2-07-015B, 57-2-08-005, 006, 007, 008, 010, 011, 012, 013, 014.		

<table>
<tr><td></td><td colspan="4">The parcels fronting Fairfax Boulevard and Chain Bridge Road are currently zoned CR (Commercial Retail District), while the interior parcels are zoned RM (Residential Medium).</td></tr>
<tr><td rowspan="2">Proposed Use(s):
(Check all that apply; attach additional pages as necessary)</td><td>Residential ☐</td><td>Commercial ☐</td><td>Mixed Use ☒</td><td>Other ☐</td></tr>
<tr><td colspan="2">Residential Uses(s)

Number of Units: 236 (56 units under phase 1 and 180 units under phase 2)
ITE LU Code(s): 220 and 221 (Multifamily Housing (Apartments, Townhomes, Condo)

Number of Units: 200
ITE LU Code(s): 255 (Continued Care Retirement Community)</td><td colspan="2">Retail Use(s)
ITE LU Code(s): 820 (Shopping Center)
Square Ft or Other Variable: 20,000 square feet

Other Use(s)
ITE LU Code(s): 310 (Hotel)
Square Ft or Other Variable: 140 rooms

ITE LU Code(s): 932 (High-Turnover (Sit-down) Restaurant)
Square Ft or Other Variable: 5,000 square feet</td></tr>
<tr><td>Total Peak Hour Trip Projection:</td><td>Less than 100 ☐</td><td>100 – 499 ☒</td><td>500 – 999 ☐</td><td>1,000 or more ☐</td></tr>
<tr><td colspan="5">Traffic Impact Analysis Assumptions</td></tr>
<tr><td>Study Period</td><td>Existing Year: 2019</td><td colspan="2">Phase 1 Build-out Year: 2023
Phase 2 Build-out Year: 2027</td><td>Design Year: N/A</td></tr>
<tr><td rowspan="2">Study Area Boundaries
(Attach map)</td><td colspan="2">North: Eaton Place/Assembly Drive</td><td colspan="2">South: Fairfax Boulevard (Rte. 50)</td></tr>
<tr><td colspan="2">East: Chain Bridge Road (Rte. 123)</td><td colspan="2">West: McLean Ave</td></tr>
<tr><td>External Factors That Could Affect Project
(Planned road improvements, other nearby developments)</td><td colspan="4">1. Extension of University Drive to meet Eaton Place
2. Extension of Farr Ave. to meet Orchard Street
3. Fairfax Boulevard and Warwick Ave./McLean Ave. Intersection Improvements
4. Crossover and Signalization of Farr Ave at Fairfax Boulevard (possible mitigation under Phase 1 development conditions; will be assumed constructed by 2027 with Warwick Improvements)
5. Whole Foods development along Fairfax Boulevard
6. Paul VI Redevelopment along Fairfax Boulevard</td></tr>
<tr><td>Consistency With Comprehensive Plan
(Land use, transportation plan)</td><td colspan="4">Yes</td></tr>
</table>

<table>
<tr><td>Available Traffic Data
(Historical, forecasts)</td><td colspan="3">VDOT Historical AADT Data</td></tr>
<tr><td>Trip Distribution
(Please refer to attached Figure 2 through Figure 6)</td><td colspan="3">(Please refer to attached Figure 2 through Figure 6)</td></tr>
<tr><td rowspan="3">Annual Vehicle Trip Growth Rate:</td><td rowspan="3">(2019-2023): 2%
(2023-2027): 1%</td><td>Peak Period for Study
(check all that apply)</td><td>☒ AM ☒ PM ☒ SAT</td></tr>
<tr><td>Peak Hour of the Generator Trips</td><td>332 AM; 412 PM; 4,284 Weekday Daily, 380 SAT, 4,289 SAT Daily</td></tr>
<tr><td>New Peak Hour of Adjacent Trips (Used in Study)</td><td>248 AM; 348 PM; 3,862 Weekday Daily, 367 SAT, 4,164 SAT Daily</td></tr>
<tr><td rowspan="4">Study Intersections and/or Road Segments
(Attach additional sheets as necessary)
Please refer to attached Figure 1</td><td colspan="2">1. Fairfax Boulevard and Eaton Place</td><td>2. Fairfax Boulevard and University Drive</td></tr>
<tr><td colspan="2">3. Chain Bridge Road and Fairfax Boulevard</td><td>4. Fairfax Boulevard and Farr Ave/Future Extension</td></tr>
<tr><td colspan="2">5. Fairfax Boulevard and Warwick Lane/McLean Ave</td><td>6. Chain Bridge Road and Orchard Street</td></tr>
<tr><td colspan="2">7. Chain Bridge Road and Eaton Place</td><td>8. Chain Bridge Road and Right-in Site Access (future intersection)</td></tr>
<tr><td>Trip Adjustment Factors</td><td colspan="2">Internal allowance Reduction:
☒ Yes ☐ No (5% between residential (multi-family) and retail (shopping center and restaurant))</td><td>Pass-by allowance Reduction:
☐ Yes ☒ No</td></tr>
<tr><td>Software Methodology</td><td colspan="3">☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☐ Other _____</td></tr>
<tr><td>Traffic Signal Proposed or Affected
(Analysis software to be used, progression speed, cycle length)</td><td colspan="3">Existing traffic signals that could be affected:
1. Fairfax Boulevard and Eaton Place
2. Fairfax Boulevard and University Drive
3. Fairfax Boulevard and Chain Bridge Road
4. Fairfax Boulevard and Warwick Lane/McLean Ave
5. Chain Bridge Road and Eaton Place
6. Chain Bridge Road and Orchard Street

Analysis Software: Synchro version 10 Results: HCM Methodology</td></tr>
<tr><td>Improvement(s) Assumed or to be Considered</td><td colspan="3">1. Signalization of Orchard Street at Chain Bridge Road
2. Extension of University Drive to meet Eaton Place
3. Extension of Farr Ave to meet Orchard Street
4. Signalization of Farr Avenue
5. Fairfax Boulevard and Warwick Ave./McLean Ave. Intersection Improvements</td></tr>
</table>

Background Traffic Studies Considered	1. Whole Foods development proposed along Fairfax Boulevard 2. Paul VI Redevelopment
Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other

NOTES ON ASSUMPTIONS:

1. Synchro files/signal timings will be obtained from City of Fairfax.
2. The scenarios to be included in the study are Existing (2019), Future without Development-Phase 1 (2023), Future with Development-Phase 1 (2023), Future without Development-Phase 2 (2027), and Future with Development-Phase 2 (2027).
3. A 2.0% regional growth will be applied to all movements at the intersection of Fairfax Boulevard (Rte. 29) and Chain Bridge Road between 2019 and 2023, with 1.0% annual growth between 2023 and 2027. The growth volumes will be carried as through remaining study intersections.
4. Existing peak hour factors in the range of 0.85 to 1.00 will be used for existing scenarios. The default peak hour factor of 0.92 will be used for all future scenarios unless the existing peak hour factor is found to be higher.
5. Heavy vehicle percentages from the traffic counts will be utilized for major movements.
6. For any approach, LOS D or better would be considered as acceptable/desirable traffic operation condition. For all approaches, the projected future conditions without development LOS and delay will be maintained in the future with development condition. Will show intersection, approach, and movement LOS.
7. HCM 2010 methodology will be used where applicable. HCM 2000 methodology will be used elsewhere.
8. 95th percentile queues will be provided from Synchro.
9. TDM strategies for the development would be briefly discussed.

SIGNED: _____ DATE: 12/18/2019
Applicant or Consultant

PRINT NAME: Chad Baird
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: Curt McCullough DATE: 12/20/19
Local Government Representative

PRINT NAME: Curt McCullough
Local Government Representative

Table 1: Historic Growth

Road Segment:	From:	To:	Published VDOT AADT					Growth Rate			
			2013	2014	2015	2016	2017	2013 - 2017	2014 - 2017	2015 - 2017	2016 - 2017
Lee Highway / Fairfax Blvd (SR 29/50)	US 50; SR 236 Main Street	SR 123 Chainbridge Road	36,000	36,000	35,000	36,000	36,000	0%	0%	1%	0%
Lee Highway / Fairfax Blvd (SR 29/50)	SR 123 Chainbridge Road	University Drive	35,000	35,000	34,000	35,000	35,000	0%	0%	1%	0%
Chainbridge Road (SR 123)	Kenmore Drive	US 29; US 50 Lee Highway	23,000	20,000	21,000	22,000	22,000	-1%	3%	2%	0%
Chainbridge Road (SR 123)	US 29; US 50 Lee Highway	I-66; NCL Fairfax	38,000	35,000	36,000	38,000	39,000	1%	4%	4%	3%

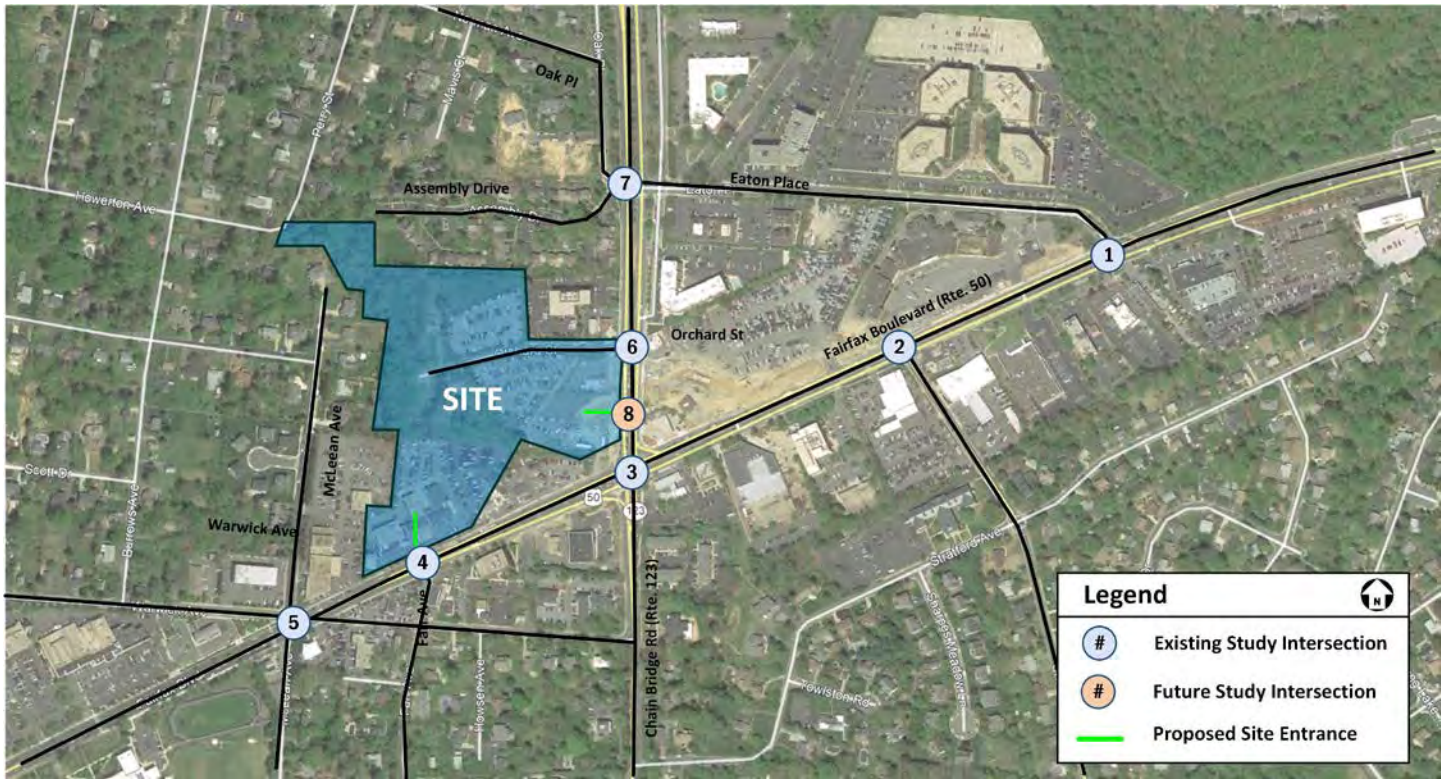


Figure 1: Existing Study Intersections

Figure 2: Direction of Approach for Residential Uses

Figure 3: Direction of Approach for Continued Care Retirement Facility

Figure 4: Direction of Approach for Hotel

Figure 5: Direction of Approach for Restaurant

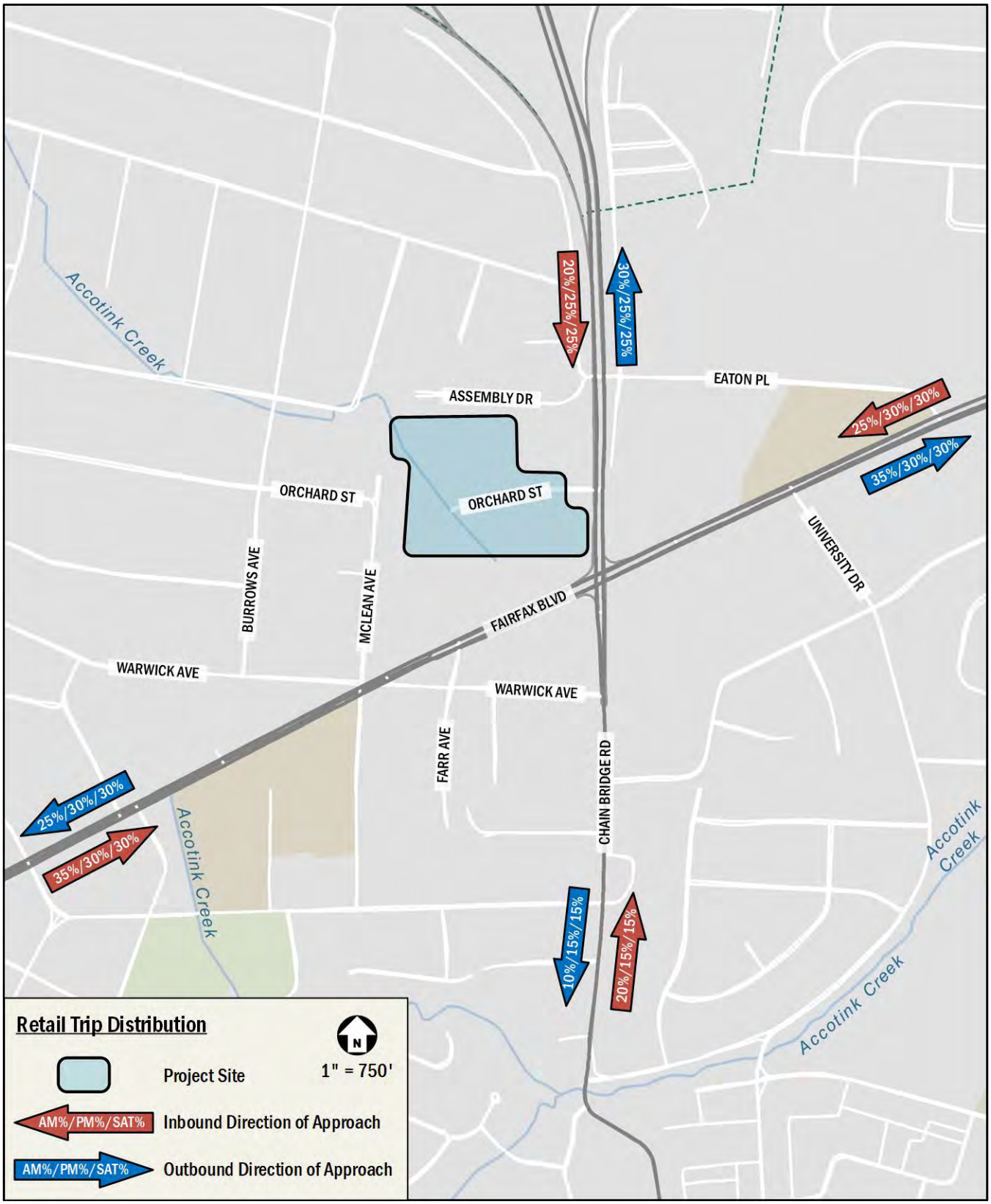


Figure 6: Direction of Approach for Retail (Shopping Center)

Table 2: Trip Generation – Peak Hour of Adjacent Street

Land Use	ITE Code	Size	Weekday							Weekend			
			AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Sat Daily
			In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
Existing Uses													
Single-Family Detached Housing	210	2 DU	2	4	6	1	1	2	28	11	9	20	25
Existing Trips			**2**	**4**	**6**	**1**	**1**	**2**	**28**	**11**	**9**	**20**	**25**
Proposed Uses													
Phase 1													
Multifamily Housing (Low-Rise)	220	56 DU	6	21	27	22	13	35	383	14	13	27	263
Continuing Care Retirement Community	255	200 Units	26	14	40	16	25	41	480	23	21	44	406
Phase 2													
Multifamily Housing (Mid-Rise) (Apartments, Townhomes, Condo; max	221	180 DU	16	45	61	48	30	78	979	40	42	82	964
Hotel	310	140 Rooms	39	27	66	43	41	84	890	57	44	101	1,147
High-Turnover (Sit-Down) Restaurant	932	5 ksf of GFA	28	22	50	30	19	49	561	29	27	56	612
Shopping Center	820	20 ksf of GLA	12	7	19	36	40	76	755	47	43	90	922
TDM/Transit Reduction		*5%*	*(2)*	*(4)*	*(6)*	*(4)*	*(3)*	*(8)*	*(92)*	*(4)*	*(4)*	*(8)*	*(82)*
Internal capture Between Residentail and Non-residential Uses [1]		*5%*	*(1)*	*(2)*	*(3)*	*(3)*	*(2)*	*(5)*	*(66)*	*(3)*	*(3)*	*(5)*	*(61)*
Development Trips with Reductions			**124**	**130**	**254**	**188**	**162**	**350**	**3,890**	**204**	**183**	**387**	**4,171**
Proposed New External Trips (Proposed Development Trips - Existing Trips)			**122**	**126**	**248**	**187**	**161**	**348**	**3,862**	**193**	**174**	**367**	**4,146**

Note:

1. Internal capture between residential (multifamily) and non-residentail uses (shopping center and high turnover (sit-down) restaurant) was based on a minimum of 5% for AM, PM and SAT peak hour trips.

Figure 7: Site Plan

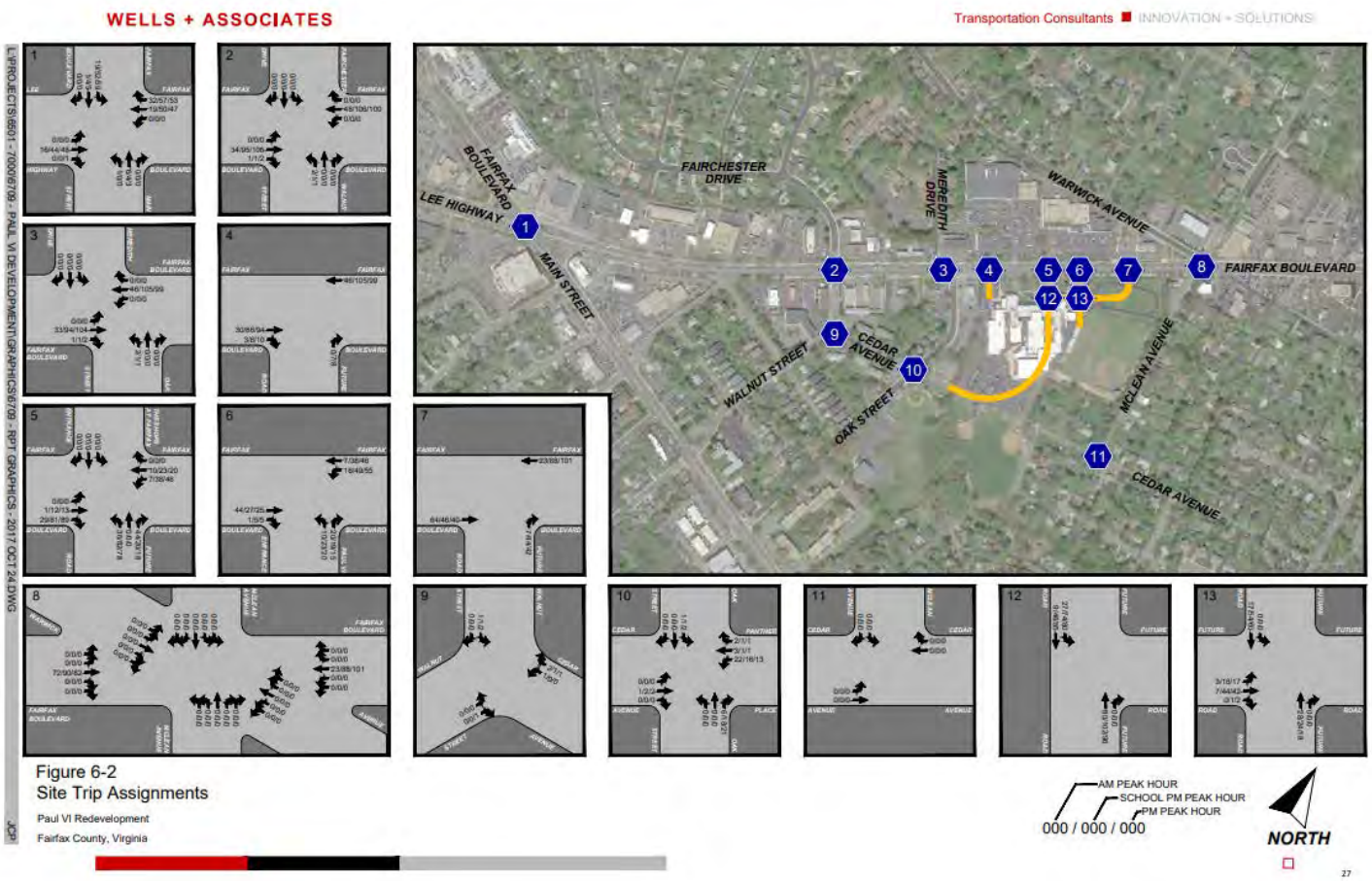


Figure 8: Site Trip Assignment for Paul VI Redevelopment (Excerpt from TIA titled, Paul VI Redevelopment Traffic Impact Study, dated November 15, 2017, conducted by Wells + Associates)

THIS IS NOT A CHAPTER 870 STUDY

VDOT Virginia Department of Transportation	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 VDOT and 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: Tele: E-mail:	Chad Baird, Gorove/Slade Associates, Inc. 571-248-0992 chad.baird@goroveslade.com		
Developer/Owner Name: Tele: E-mail:	Andrew Rosenberger, Madison Homes, LLC andrew@madisonhomesinc.com		
Project Information			
Project Name:	Northfax	Locality/County:	City of Fairfax
Project Location: (Attach regional and site specific location map)	The proposed Northfax development is planned to be situated along the western frontage of Chain Bridge Road (Rte. 123) and north of Fairfax Boulevard (Rte. 50), in the City of Fairfax, Virginia.		
Submission Type	Comp Plan ☐	Rezoning ☒	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The proposed Northfax development is anticipated to be completed in two phases. Phase 1 would include the residential development at the back and Phase 2 would be the balance of the residential development and commercial developments. A brief description of each phase is presented below - Phase 1: Phase 1 would consist of 56 multi-family residential units and 200 continuing care retirement community units and is anticipated to be completed by 2023. Access to the site would be provided via one access from Orchard Street at Chain Bridge and one access from extended Farr Ave at Fairfax. This phase will also account for the planned extension of University Drive to Eaton Place Phase 2: This phase would include approximately 25,000 square feet of commercial uses (including office space, retail space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. Phase 2 is anticipated to be complete by 2027. In addition to the Orchard Street and Farr Ave access points, a right-in access only along Chain Bridge Road will provide access to the site under this scenario. The proposed development is planned to be situated on approximately 11.46 acres of land. The land parcels constituting the site can be identified in the City's Real Estate Assessment Database as ID 57-2-47-000A; 57-2-02-003, 005; 57-2-02-017, 018, 019, 020; 57-2-07-015B; 57-2-08-005, 006, 007, 008, 010, 011, 012, 013, and 014. The parcels fronting Fairfax Boulevard and Chain Bridge Road are currently zoned CR (Commercial Retail District), while the interior parcels are zoned RM (Residential Medium). Of note, the current application for the Northfax development pertains only to Phase 1. A separate application will be conducted for Phase 2. As such, the Phase 2 scenario should be considered for transportation planning purposes.		

<table>
<tr><td rowspan="2">Proposed Use(s):
(Check all that apply; attach additional pages as necessary)</td><td>Residential ☐</td><td>Commercial ☐</td><td>Mixed Use ☒</td><td>Other ☐</td></tr>
<tr><td colspan="2">Residential Uses(s)

Number of Units: 236 (56 units under phase 1 and 180 units under phase 2)
ITE LU Code(s): 220 and 221 (Multifamily Housing (Apartments, Townhomes, Condo)

Number of Units: 200
ITE LU Code(s): 255 (Continued Care Retirement Community)

Retail Use(s)
ITE LU Code(s): 820 (Shopping Center)
Square Ft or Other Variable: 2,000 SF</td><td colspan="2">Other Use(s)
ITE LU Code(s): 310 (Hotel)
Square Ft or Other Variable: 140 rooms

ITE LU Code(s): 932 (High-Turnover (Sit-down) Restaurant)
Square Ft or Other Variable: 5,000 SF

ITE LU Code(s): 931 (Quality Restaurant)
Square Ft or Other Variable: 8,000 SF

ITE LU Code(s): 710 (General Office Building)
Square Ft or Other Variable: 10,000 SF</td></tr>
<tr><td>Total Peak Hour Trip Projection:</td><td>Less than 100 ☐</td><td>100 – 499 ☒</td><td>500 – 999 ☐</td><td>1,000 or more ☐</td></tr>
<tr><td colspan="5">Traffic Impact Analysis Assumptions</td></tr>
<tr><td>Study Period</td><td>Existing Year: 2019</td><td colspan="2">Phase 1 Build-out Year: 2023
Phase 2 Build-out Year: 2027</td><td>Design Year: N/A</td></tr>
<tr><td rowspan="2">Study Area Boundaries
(Attach map)</td><td colspan="2">North: Eaton Place/Assembly Drive</td><td colspan="2">South: Fairfax Boulevard (Rte. 50)</td></tr>
<tr><td colspan="2">East: Chain Bridge Road (Rte. 123)</td><td colspan="2">West: McLean Ave</td></tr>
<tr><td>External Factors That Could Affect Project
(Planned road improvements, other nearby developments)</td><td colspan="4">1. Extension of University Drive to meet Eaton Place
2. Extension of Farr Ave. to meet Orchard Street
3. Fairfax Boulevard and Warwick Ave./McLean Ave. Intersection Improvements
4. Crossover and Signalization of Farr Ave at Fairfax Boulevard (possible mitigation under Phase 1 development conditions; will be assumed constructed by 2027 with Warwick Improvements)
5. Whole Foods development along Fairfax Boulevard
6. Paul VI Redevelopment along Fairfax Boulevard</td></tr>
<tr><td>Consistency With Comprehensive Plan
(Land use, transportation plan)</td><td colspan="4">Yes</td></tr>
<tr><td>Available Traffic Data
(Historical, forecasts)</td><td colspan="4">VDOT Historical AADT Data</td></tr>
</table>

<table>
<tr><td>Trip Distribution
(Please refer to attached Figure 2 through Figure 6)</td><td colspan="3">(Please refer to attached Figure 2 through Figure 6)</td></tr>
<tr><td rowspan="2">Annual Vehicle Trip Growth Rate:</td><td rowspan="2">(2019-2023): 2%
(2023-2027): 1%</td><td>Peak Period for Study
(check all that apply)</td><td>☒ AM ☒ PM ☒ SAT</td></tr>
<tr><td>New Peak Hour of Adjacent Trips
(Used in Study; With Reductions)</td><td>264 AM;
342 PM;
4,255 Weekday Daily,
402 SAT,
3,995 SAT Daily</td></tr>
<tr><td rowspan="4">Study Intersections and/or Road Segments
(Attach additional sheets as necessary)
Please refer to attached Figure 1</td><td colspan="2">1. Fairfax Boulevard and Eaton Place</td><td>2. Fairfax Boulevard and University Drive</td></tr>
<tr><td colspan="2">3. Chain Bridge Road and Fairfax Boulevard</td><td>4. Fairfax Boulevard and Farr Ave/Future Extension</td></tr>
<tr><td colspan="2">5. Fairfax Boulevard and Warwick Lane/McLean Ave</td><td>6. Chain Bridge Road and Orchard Street</td></tr>
<tr><td colspan="2">7. Chain Bridge Road and Eaton Place</td><td>8. Chain Bridge Road and Right-in Site Access (future intersection)</td></tr>
<tr><td>Trip Adjustment Factors</td><td colspan="2">Internal allowance Reduction:
☒ Yes ☐ No
(5% between residential (multi-family) and commercial)</td><td>Pass-by allowance Reduction:
☐ Yes ☒ No</td></tr>
<tr><td>Software Methodology</td><td colspan="3">☒ Synchro ☐ HCS (v.2000/+) ☐ SIDRA ☐ CORSIM ☐ Other ____</td></tr>
<tr><td>Traffic Signal Proposed or Affected
(Analysis software to be used, progression speed, cycle length)</td><td colspan="3">Existing traffic signals that could be affected:
1. Fairfax Boulevard and Eaton Place
2. Fairfax Boulevard and University Drive
3. Fairfax Boulevard and Chain Bridge Road
4. Fairfax Boulevard and Warwick Lane/McLean Ave
5. Chain Bridge Road and Eaton Place
6. Chain Bridge Road and Orchard Street

Analysis Software: Synchro version 10 Results: HCM Methodology</td></tr>
<tr><td>Improvement(s) Assumed or to be Considered</td><td colspan="3">1. Signalization of Orchard Street at Chain Bridge Road
2. Extension of University Drive to meet Eaton Place
3. Extension of Farr Ave to meet Orchard Street
4. Signalization of Farr Avenue
5. Fairfax Boulevard and Warwick Ave./McLean Ave. Intersection Improvements</td></tr>
<tr><td>Background Traffic Studies Considered</td><td colspan="3">1. Whole Foods development proposed along Fairfax Boulevard
2. Paul VI Redevelopment</td></tr>
</table>

Plan Submission	☐ Master Development Plan (MDP) ☒ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)
Additional Issues to be Addressed	☒ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☐ Bike/Ped Accommodations ☒ Intersection(s) ☐ TDM Measures ☐ Other

NOTES ON ASSUMPTIONS:

1. Synchro files/signal timings will be obtained from City of Fairfax.
2. The scenarios to be included in the study are Existing (2019), Future without Development-Phase 1 (2023), Future with Development-Phase 1 (2023), Future without Development-Phase 2 (2027), and Future with Development-Phase 2 (2027).
3. A 2.0% regional growth will be applied to all movements at the intersection of Fairfax Boulevard (Rte. 29) and Chain Bridge Road between 2019 and 2023, with 1.0% annual growth between 2023 and 2027. The growth volumes will be carried as through remaining study intersections.
4. Existing peak hour factors in the range of 0.85 to 1.00 will be used for existing scenarios. The default peak hour factor of 0.92 will be used for all future scenarios unless the existing peak hour factor is found to be higher.
5. Heavy vehicle percentages from the traffic counts will be utilized for major movements.
6. For any approach, LOS D or better would be considered as acceptable/desirable traffic operation condition. For all approaches, the projected future conditions without development LOS will be maintained in the future with development condition. Will show intersection, approach, and movement LOS.
7. HCM 2010 methodology will be used where applicable. HCM 2000 methodology will be used elsewhere.
8. 95th percentile queues will be provided from Synchro. Max queues will be provided from SimTraffic for saturated intersections (identified in Synchro with "#"). Possible simulations of specific intersections and time periods will be conducted for planning purposes. Possible future mitigations will be based generally on Synchro results.
9. TDM strategies for the development would be briefly discussed.

SIGNED: _____ DATE: 4/22/2020
Applicant or Consultant

PRINT NAME: Chad A. Baird
Applicant or Consultant

SIGNED: _____ DATE: _____
VDOT Representative

PRINT NAME: _____
VDOT Representative

SIGNED: _____ DATE: _____
Local Government Representative

PRINT NAME: _____
Local Government Representative

Table 1: Historic Growth

Road Segment:	From:	To:	Published VDOT AADT					Growth Rate			
			2013	2014	2015	2016	2017	2013 - 2017	2014 - 2017	2015 - 2017	2016 - 2017
Lee Highway / Fairfax Blvd (SR 29/50)	US 50; SR 236 Main Street	SR 123 Chainbridge Road	36,000	36,000	35,000	36,000	36,000	0%	0%	1%	0%
Lee Highway / Fairfax Blvd (SR 29/50)	SR 123 Chainbridge Road	University Drive	35,000	35,000	34,000	35,000	35,000	0%	0%	1%	0%
Chainbridge Road (SR 123)	Kenmore Drive	US 29; US 50 Lee Highway	23,000	20,000	21,000	22,000	22,000	-1%	3%	2%	0%
Chainbridge Road (SR 123)	US 29; US 50 Lee Highway	I-66; NCL Fairfax	38,000	35,000	36,000	38,000	39,000	1%	4%	4%	3%

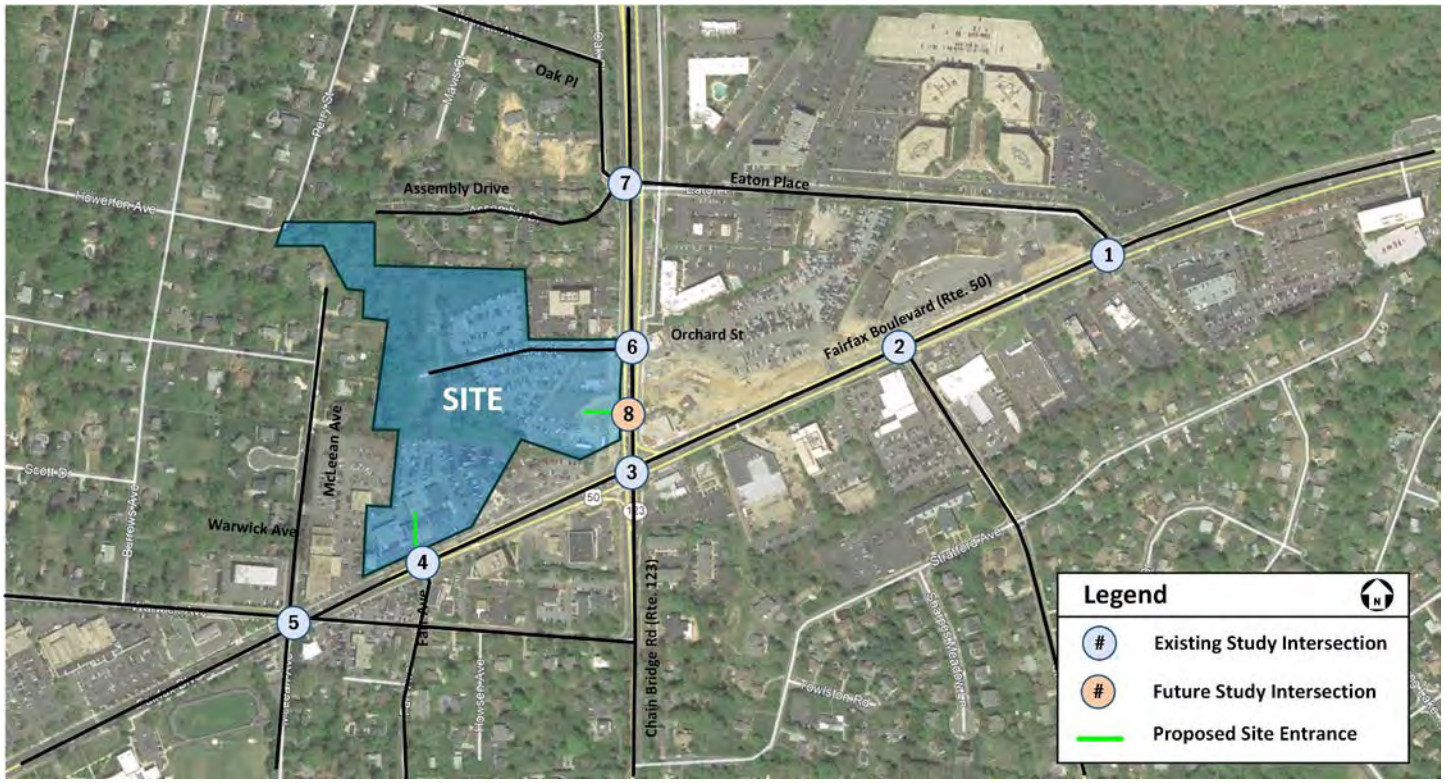


Figure 1: Existing Study Intersections

Figure 2: Direction of Approach for Residential Uses

Figure 3: Direction of Approach for Continued Care Retirement Facility

Figure 4: Direction of Approach for Hotel

Figure 5: Direction of Approach for Restaurant

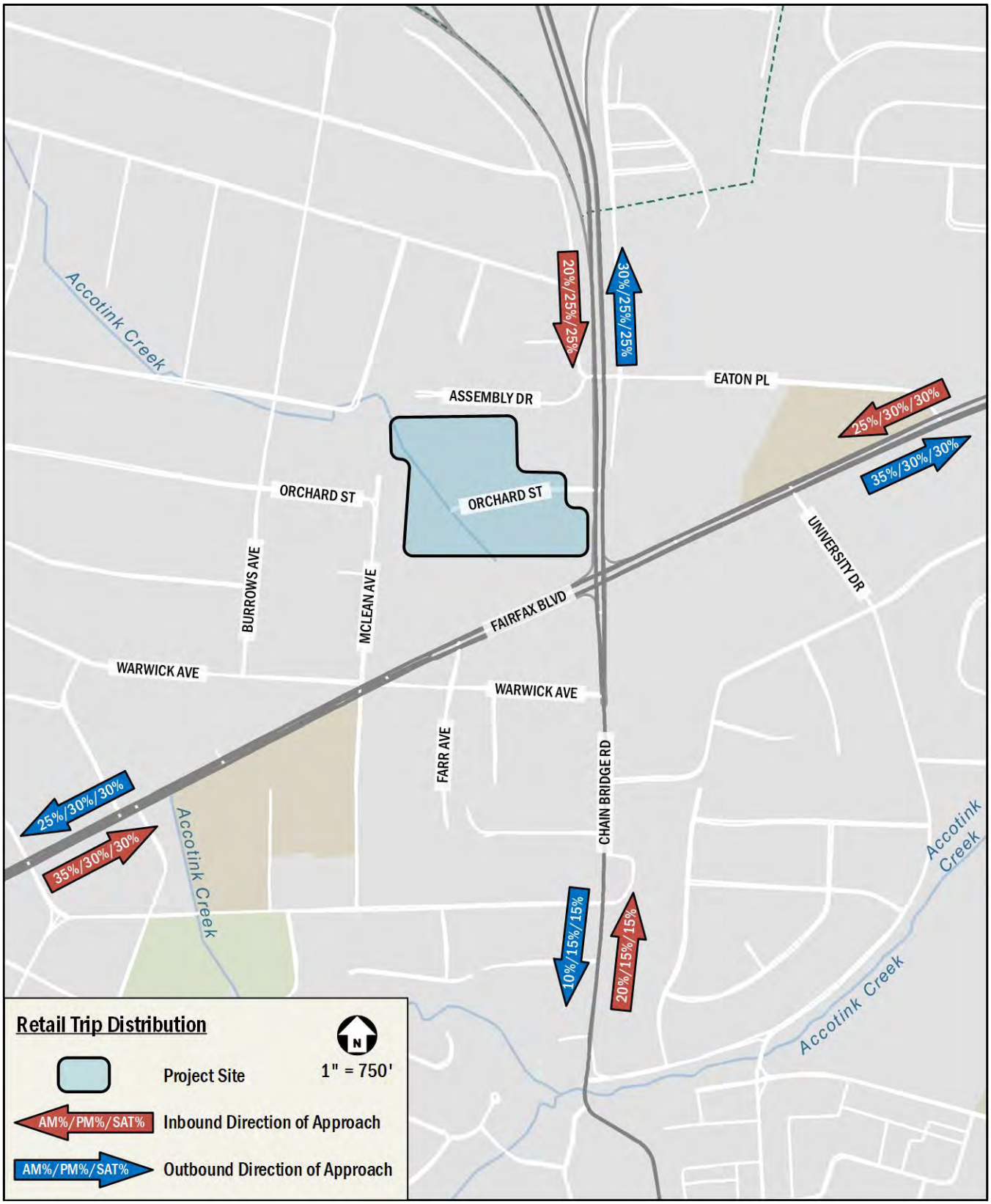


Figure 6: Direction of Approach for Commercial (Shopping Center and General Office)

Table 2: Trip Generation – Peak Hour of Adjacent Street

Land Use	ITE LUC	Size	DAILY	AM PEAK HOUR			PM PEAK HOUR			SATURDAY DAILY	SAT PEAK HOUR		
			TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	TOTAL	IN	OUT	TOTAL
Existing (to be removed)													
Single-Family Detached Homes	210	2 DU	19	0	1	1	1	1	2	19	1	1	2
Total Existing Trips (To Be Removed)			**19**	**0**	**1**	**1**	**1**	**1**	**2**	**19**	**1**	**1**	**2**
PHASE 1													
Multi-Family Housing (Low-Rise)	220	56 DU	383	6	21	27	22	13	35	263	21	18	39
Continuing Care	255	200 Units	480	18	10	28	12	20	32	406	23	21	44
Total Phase 1 Development Trips (without Reductions)			**863**	**24**	**31**	**55**	**34**	**33**	**67**	**669**	**44**	**39**	**83**
TDM/Transit Ructions		*5%*	*-43*	*-1*	*-2*	*-3*	*-2*	*-1*	*-3*	*-33*	*-2*	*-2*	*-4*
Total Phase 1 Development Trips (with Reductions)			**820**	**23**	**29**	**52**	**32**	**32**	**64**	**636**	**42**	**37**	**79**
Proposed New External Trips Under Phase 1 (Proposed Phase 1 Trips - Existing Trips)			**801**	**23**	**28**	**51**	**31**	**31**	**62**	**617**	**41**	**36**	**77**
PHASE 2													
Multi-Family Housing (Mid-Rise)	221	180 DU	979	16	45	61	48	30	78	884	39	40	79
Hotel	310	140 Rooms	1,170	38	27	65	40	39	79	1,147	56	45	101
Quality Restaurant	931	8 kSF	671	3	3	6	42	20	62	720	50	35	85
High-Turnover (Sit-Down) Restaurant	932	5 kSF	561	27	23	50	30	19	49	612	29	27	56
General Office Building	710	10 kSF	114	31	5	36	2	11	13	22	3	2	5
Shopping Center[2]	820	2 kSF	76	1	1	2	4	4	8	92	5	4	9
Total Phase 2 Development Trips (without Reductions)			**3,571**	**116**	**104**	**220**	**166**	**123**	**289**	**3,477**	**182**	**153**	**335**
Total Phase 1 + Phase 2 Development Trips (without Reductions)			**4,434**	**140**	**135**	**275**	**200**	**156**	**356**	**4,146**	**226**	**192**	**418**
*Internal Capture - Res and Non-Res**		*5%*	*-68*	*-1*	*-3*	*-4*	*-3*	*-2*	*-5*	*-57*	*-3*	*-3*	*-6*
TDM/Transit Ructions		*5%*	*-92*	*-2*	*-4*	*-6*	*-4*	*-3*	*-7*	*-75*	*-4*	*-4*	*-8*
Total Development Trips (with Reductions)			**4,274**	**137**	**128**	**265**	**193**	**151**	**344**	**4,014**	**219**	**185**	**404**
Proposed New External Trips at Ultimate Build-Out (Proposed Total Development Trips - Existing Trips)			**4,255**	**137**	**127**	**264**	**192**	**150**	**342**	**3,995**	**218**	**184**	**402**

Notes:

1. Internal capture between residential (multifamily) and non-residential uses (shopping center , quality restaurant, high turnover (sit-down) restaurant, and general office buidling) was based on a minimum of 5% for AM, PM and SAT peak hour trips.

2. For Shopping Center, the rates have been used as 2,000 sft of retail falls outside the data range.

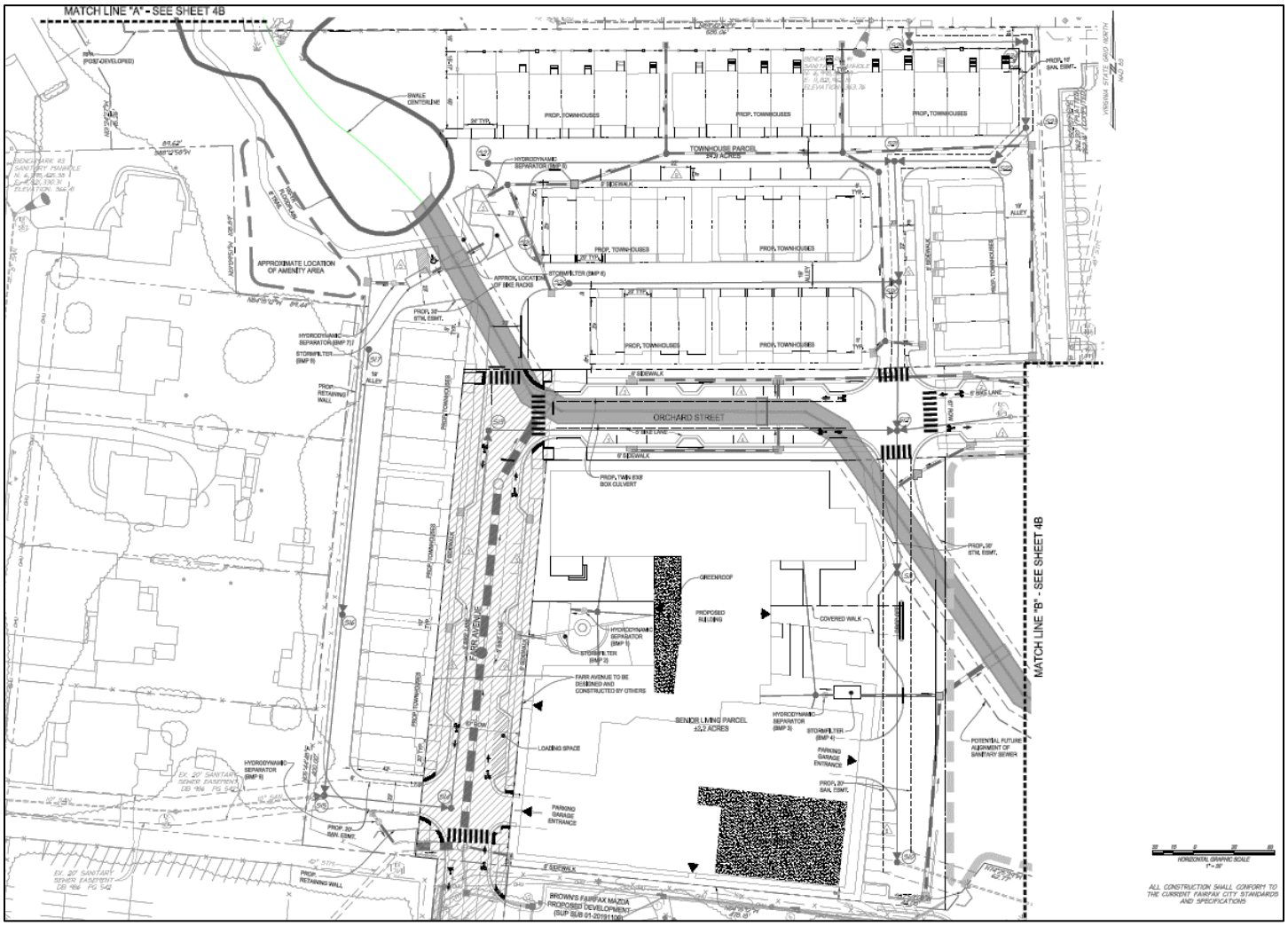


Figure 7: Master Development Plan (Christopher Consultants)

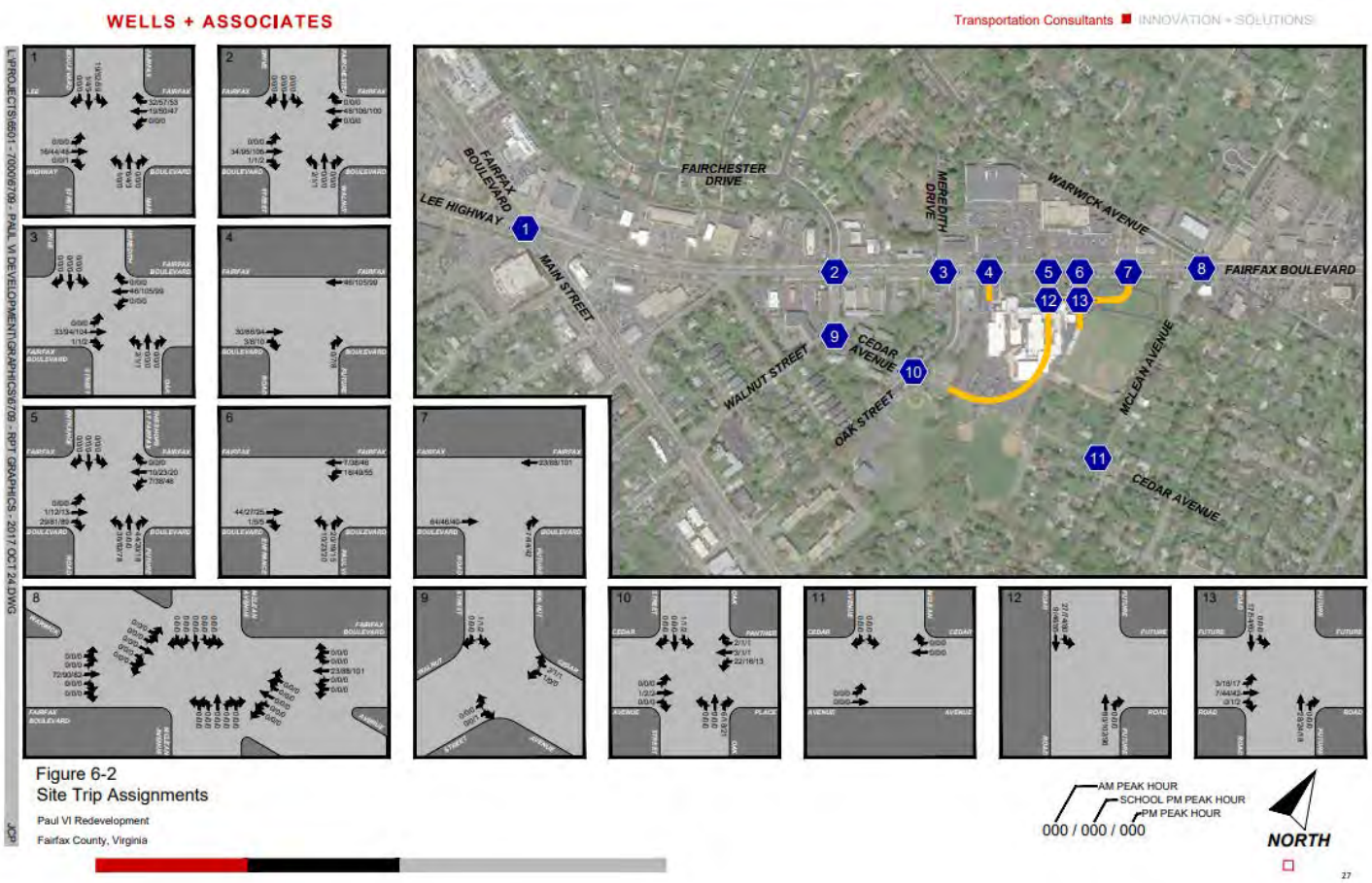


Figure 8: Site Trip Assignment for Paul VI Redevelopment (Excerpt from TIA titled, Paul VI Redevelopment Traffic Impact Study, dated November 15, 2017, conducted by Wells + Associates)

Steven Dauterman

From: Chad A. Baird
Sent: Wednesday, April 22, 2020 10:18 AM
To: Niraja Chandrapu; Kevin D. Sitzman; Steven Dauterman
Subject: Fwd: Northfax West TIS - Revised Trip Generation Table

Get Outlook for iOS

From: Sanford, Wendy Block <Wendy.Sanford@fairfaxva.gov>
Sent: Wednesday, April 22, 2020 10:15:02 AM
To: Chad A. Baird <cab@goroveslade.com>
Cc: Russell Rosenberger [russ@madisonhomesinc.com] <russ@madisonhomesinc.com>; Hardin, Brooke <Brooke.Hardin@fairfaxva.gov>; Sutphin, Jason <Jason.Sutphin@fairfaxva.gov>; McCullough, Curt <Curt.McCullough@fairfaxva.gov>; Frederick, Albert <Albert.Frederick@fairfaxva.gov>; Ritter, Chloe <Chloe.Ritter@fairfaxva.gov>; Summers, David <David.Summers@fairfaxva.gov>
Subject: Northfax West TIS - Revised Trip Generation Table

Chad,

We have completed the review of the TIA based on the revised trip generation table. The numbers you are showing are fine, and you may proceed with minor corrections: please update 1) hotel daily from 1,154 to 1,170 (average rate) and 2) quality restaurant daily from 669 to 671 (rounding issue)

In summary the new daily trips are:

Low-rise housing (56 DU) = 383
Continuing care facility (200 units) = 480
Mid-rise housing (1180 DU) = 979
Hotel (140 rooms) = 1170
Quality Restaurant (8K sf) = 671 (G-S had 669)
High-turnover Restaurant (5K sf) = 561
Shopping/retail (2K sf) = 76
General Office (10K sf) = 114

The daily total is 4,434 combined trips (increase of 4,415 over existing). The Saturday daily and weekday peak period numbers all look okay now for each proposed use.

Please going forward have all communications about the project go through CDP (Brooke, Jason and Fred) so that they can coordinate all reviewing disciplines.

Thanks,
Wendy

Appendix B

Existing Turning Movement Counts

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 3/20/2019

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	83	6	0	28	64	0	0	12	3	2	0	1	1	22	0	222
6:15 AM	0	108	3	1	27	48	0	0	12	4	1	0	13	2	26	0	245
6:30 AM	0	176	6	1	25	51	2	0	13	9	1	0	9	3	41	0	337
6:45 AM	1	209	9	1	35	102	3	1	12	7	1	0	16	5	37	0	439
7:00 AM	0	248	4	0	44	115	1	1	22	12	6	0	16	4	47	0	520
7:15 AM	1	237	7	1	50	182	5	0	22	34	3	0	16	8	68	0	634
7:30 AM	1	251	4	0	70	186	5	0	26	29	4	0	20	6	83	0	685
7:45 AM	1	231	10	1	87	243	7	2	18	53	4	0	17	8	109	0	791
8:00 AM	3	236	9	1	62	186	1	2	19	17	11	0	12	14	105	0	678
8:15 AM	1	232	7	4	55	230	3	0	31	13	7	0	20	15	94	0	712
8:30 AM	0	252	8	1	71	234	6	0	17	16	3	0	12	6	87	0	713
8:45 AM	3	243	8	5	73	262	4	1	29	12	1	0	12	4	70	0	727
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	11	2506	81	16	627	1903	37	7	233	209	44	0	164	76	789	0	6703
APPROACH %'s :	0.42%	95.87%	3.10%	0.61%	24.36%	73.93%	1.44%	0.27%	47.94%	43.00%	9.05%	0.00%	15.94%	7.39%	76.68%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	5	951	34	7	275	893	17	4	85	99	25	0	61	43	395	0	2894
PEAK HR FACTOR :	0.417	0.943	0.850	0.438	0.790	0.919	0.607	0.500	0.685	0.467	0.568	0.000	0.763	0.717	0.906	0.000	0.915
	0.955				0.877				0.697				0.931				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	211	15	2	56	224	10	0	3	6	8	0	21	17	143	0	717
4:15 PM	3	180	14	5	74	223	10	0	8	6	3	0	22	19	130	0	697
4:30 PM	0	187	19	2	70	202	17	3	9	13	1	0	19	18	148	0	708
4:45 PM	2	199	16	2	86	218	14	1	7	9	5	0	23	19	126	0	727
5:00 PM	3	184	14	4	80	176	16	1	2	12	5	0	23	21	138	0	679
5:15 PM	7	224	13	2	89	236	22	0	11	11	3	0	20	28	134	0	800
5:30 PM	3	217	16	3	74	243	17	1	8	15	5	0	21	24	144	0	791
5:45 PM	4	197	22	3	89	251	21	0	6	7	5	0	23	25	148	0	801
6:00 PM	2	181	14	5	88	224	26	1	6	8	6	0	18	20	136	0	735
6:15 PM	1	169	11	0	90	207	16	2	10	11	2	0	15	17	156	0	707
6:30 PM	3	180	13	6	87	194	13	0	9	13	1	0	15	17	141	0	692
6:45 PM	2	157	22	2	67	187	15	1	5	10	3	0	21	20	99	0	611
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	2286	189	36	950	2585	197	10	84	121	47	0	241	245	1643	0	8665
APPROACH %'s :	1.22%	89.93%	7.44%	1.42%	25.39%	69.08%	5.26%	0.27%	33.33%	48.02%	18.65%	0.00%	11.32%	11.51%	77.17%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	17	822	65	12	332	906	76	2	27	45	18	0	87	98	564	0	3071
PEAK HR FACTOR :	0.607	0.917	0.739	0.750	0.933	0.902	0.864	0.500	0.614	0.750	0.900	0.000	0.946	0.875	0.953	0.000	0.958
	0.931				0.911				0.804				0.955				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 3/20/2019

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	81	5	0	27	56	0	0	12	3	2	0	1	1	22	0	210
6:15 AM	0	103	3	1	27	46	0	0	12	4	1	0	12	2	26	0	237
6:30 AM	0	170	4	1	24	48	1	0	13	9	0	0	8	2	41	0	321
6:45 AM	1	203	8	1	34	95	3	1	12	6	1	0	11	4	37	0	417
7:00 AM	0	240	4	0	44	109	1	1	22	12	5	0	14	4	47	0	503
7:15 AM	1	222	6	1	49	178	5	0	22	32	3	0	15	8	68	0	610
7:30 AM	0	238	1	0	67	176	4	0	26	27	4	0	19	6	83	0	651
7:45 AM	1	218	9	1	87	232	7	2	17	50	3	0	15	7	106	0	755
8:00 AM	2	231	8	1	61	181	1	2	18	16	11	0	12	9	102	0	655
8:15 AM	1	221	6	4	54	224	3	0	31	13	7	0	20	12	92	0	688
8:30 AM	0	242	7	1	69	229	6	0	17	16	3	0	9	5	86	0	690
8:45 AM	2	235	8	5	71	252	4	1	29	12	1	0	12	4	70	0	706
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	2404	69	16	614	1826	35	7	231	200	41	0	148	64	780	0	6443
APPROACH %'s :	0.32%	96.28%	2.76%	0.64%	24.74%	73.57%	1.41%	0.28%	48.94%	42.37%	8.69%	0.00%	14.92%	6.45%	78.63%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	4	912	30	7	271	866	17	4	83	95	24	0	56	33	386	0	2788
PEAK HR FACTOR :	0.50	0.942	0.833	0.438	0.779	0.933	0.607	0.500	0.669	0.475	0.545	0.000	0.700	0.688	0.910	0.000	0.923
		0.953				0.883				0.721				0.928			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	206	14	2	55	220	10	0	3	6	8	0	21	16	139	0	700
4:15 PM	3	174	13	5	73	219	10	0	8	6	3	0	22	18	129	0	683
4:30 PM	0	183	17	2	68	198	17	3	9	13	1	0	17	18	148	0	694
4:45 PM	2	197	16	2	84	216	14	1	7	9	5	0	23	19	125	0	720
5:00 PM	3	181	12	4	80	175	16	1	2	12	5	0	22	20	138	0	671
5:15 PM	7	220	12	2	89	231	22	0	11	11	3	0	19	28	134	0	789
5:30 PM	3	215	16	3	73	242	16	1	8	15	5	0	21	23	143	0	784
5:45 PM	4	196	21	3	88	245	21	0	6	7	5	0	22	25	148	0	791
6:00 PM	2	179	12	5	87	221	26	1	6	8	6	0	17	20	136	0	726
6:15 PM	1	163	10	0	88	202	16	2	10	11	2	0	15	17	154	0	691
6:30 PM	3	175	13	6	86	187	13	0	8	13	1	0	15	17	141	0	678
6:45 PM	2	154	21	2	67	185	15	1	5	10	3	0	20	20	97	0	602
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	30	2243	177	36	938	2541	196	10	83	121	47	0	234	241	1632	0	8529
APPROACH %'s :	1.21%	90.23%	7.12%	1.45%	25.45%	68.96%	5.32%	0.27%	33.07%	48.21%	18.73%	0.00%	11.11%	11.44%	77.46%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	17	812	61	12	330	893	75	2	27	45	18	0	84	96	563	0	3035
PEAK HR FACTOR :	0.61	0.923	0.726	0.750	0.927	0.911	0.852	0.500	0.614	0.750	0.900	0.000	0.955	0.857	0.951	0.000	0.959
		0.936				0.918				0.804				0.953			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 3/20/2019

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	2	1	0	1	8	0	0	0	0	0	0	0	0	0	0	12
6:15 AM	0	5	0	0	0	2	0	0	0	0	0	0	1	0	0	0	8
6:30 AM	0	6	2	0	1	3	1	0	0	0	1	0	1	1	0	0	16
6:45 AM	0	6	1	0	1	7	0	0	0	1	0	0	5	1	0	0	22
7:00 AM	0	8	0	0	0	6	0	0	0	0	1	0	2	0	0	0	17
7:15 AM	0	15	1	0	1	4	0	0	0	2	0	0	1	0	0	0	24
7:30 AM	1	13	3	0	3	10	1	0	0	2	0	0	1	0	0	0	34
7:45 AM	0	13	1	0	0	11	0	0	1	3	1	0	2	1	3	0	36
8:00 AM	1	5	1	0	1	5	0	0	1	1	0	0	0	5	3	0	23
8:15 AM	0	11	1	0	1	6	0	0	0	0	0	0	0	3	2	0	24
8:30 AM	0	10	1	0	2	5	0	0	0	0	0	0	3	1	1	0	23
8:45 AM	1	8	0	0	2	10	0	0	0	0	0	0	0	0	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	102	12	0	13	77	2	0	2	9	3	0	16	12	9	0	260
APPROACH %'s :	2.56%	87.18%	10.26%	0.00%	14.13%	83.70%	2.17%	0.00%	14.29%	64.29%	21.43%	0.00%	43.24%	32.43%	24.32%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	39	4	0	4	27	0	0	2	4	1	0	5	10	9	0	106
PEAK HR FACTOR :	0.250	0.750	1.000	0.000	0.500	0.614	0.000	0.000	0.500	0.333	0.250	0.000	0.417	0.500	0.750	0.000	0.736
		0.786				0.705				0.350				0.750			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	5	1	0	1	4	0	0	0	0	0	0	0	1	4	0	17
4:15 PM	0	6	1	0	1	4	0	0	0	0	0	0	0	1	1	0	14
4:30 PM	0	4	2	0	2	4	0	0	0	0	0	0	2	0	0	0	14
4:45 PM	0	2	0	0	2	2	0	0	0	0	0	0	0	0	1	0	7
5:00 PM	0	3	2	0	0	1	0	0	0	0	0	0	1	1	0	0	8
5:15 PM	0	4	1	0	0	5	0	0	0	0	0	0	1	0	0	0	11
5:30 PM	0	2	0	0	1	1	1	0	0	0	0	0	0	1	1	0	7
5:45 PM	0	1	1	0	1	6	0	0	0	0	0	0	1	0	0	0	10
6:00 PM	0	2	2	0	1	3	0	0	0	0	0	0	1	0	0	0	9
6:15 PM	0	6	1	0	2	5	0	0	0	0	0	0	0	0	2	0	16
6:30 PM	0	5	0	0	1	7	0	0	1	0	0	0	0	0	0	0	14
6:45 PM	0	3	1	0	0	2	0	0	0	0	0	0	1	0	2	0	9
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	43	12	0	12	44	1	0	1	0	0	0	7	4	11	0	136
APPROACH %'s :	1.79%	76.79%	21.43%	0.00%	21.05%	77.19%	1.75%	0.00%	100.00%	0.00%	0.00%	0.00%	31.82%	18.18%	50.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	10	4	0	2	13	1	0	0	0	0	0	3	2	1	0	36
PEAK HR FACTOR :	0.00	0.625	0.500	0.000	0.500	0.542	0.250	0.000	0.000	0.000	0.000	0.000	0.750	0.500	0.250	0.000	0.818
		0.700				0.571								0.750			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 3/20/2019

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
APPROACH %'s :													50.00%	50.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250
										0.250							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-001
City: Fairfax **Date:** 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	1	0	1	0	0	2
8:45 AM	0	0	0	1	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	2	2	0	1	0	0	5
APPROACH %'s :			50.00%	50.00%	0.00%	100.00%			
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	0	1	1	0	1	0	0	3
PEAK HR FACTOR :			0.250	0.250		0.250			0.375
			0.500			0.250			

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	2	0	0	0	0	2
4:30 PM	0	0	0	2	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	2	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	1	0	0	0	0	1
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	3	6	0	0	0	0	9
APPROACH %'s :			33.33%	66.67%					
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	0	0	3	1	0	0	0	0	4
PEAK HR FACTOR :			0.375	0.250					0.500
			0.500						

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 3/20/2019

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	86	0	0	0	64	0	0	0	0	2	0	0	0	0	0	152
6:15 AM	0	106	0	0	0	65	0	0	0	0	1	0	0	0	0	0	172
6:30 AM	0	203	0	0	0	57	3	0	0	0	1	0	0	0	0	0	264
6:45 AM	0	214	0	0	0	112	0	0	0	0	3	0	0	0	0	0	329
7:00 AM	0	243	0	0	0	133	1	0	0	0	1	0	0	0	0	0	378
7:15 AM	0	262	0	0	0	190	1	0	0	0	1	0	0	0	0	0	454
7:30 AM	0	241	0	0	0	212	1	0	0	0	0	0	0	0	0	0	454
7:45 AM	0	244	0	0	0	249	0	0	0	0	1	0	0	0	0	0	494
8:00 AM	0	237	0	0	0	174	0	0	0	0	3	0	0	0	0	0	414
8:15 AM	0	259	0	0	0	250	1	0	0	0	0	0	0	0	0	0	510
8:30 AM	0	275	0	0	0	259	0	0	0	0	1	0	0	0	0	0	535
8:45 AM	0	239	0	0	0	271	0	0	0	0	1	0	0	0	0	0	511
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2609	0	0	0	2036	7	0	0	0	15	0	0	0	0	0	4667
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.66%	0.34%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**07:45 AM - 08:45 AM**																TOTAL
PEAK HR VOL :	0	1015	0	0	0	932	1	0	0	0	5	0	0	0	0	0	1953
PEAK HR FACTOR :	0.000	0.923	0.000	0.000	0.000	0.900	0.250	0.000	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.913
		0.923				0.901				0.417							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	232	0	0	0	250	0	0	0	0	5	0	0	0	0	0	487
4:15 PM	0	204	0	0	0	256	0	0	0	0	1	0	0	0	0	0	461
4:30 PM	0	210	0	0	0	238	1	0	0	0	7	0	0	0	0	0	456
4:45 PM	0	213	0	0	0	247	0	0	0	0	6	0	0	0	0	0	466
5:00 PM	0	216	0	0	0	238	0	0	0	0	5	0	0	0	0	0	459
5:15 PM	0	227	0	0	0	250	0	0	0	0	2	0	0	0	0	0	479
5:30 PM	0	225	0	0	0	260	2	0	0	0	7	0	0	0	0	0	494
5:45 PM	0	212	0	0	0	280	0	0	0	0	2	0	0	0	0	0	494
6:00 PM	0	209	0	0	0	255	2	0	0	0	7	0	0	0	0	0	473
6:15 PM	0	178	0	0	0	246	0	0	0	0	5	0	0	0	0	0	429
6:30 PM	0	209	0	0	0	223	2	0	0	0	1	0	0	0	0	0	435
6:45 PM	0	181	0	0	0	210	1	0	0	0	1	0	0	0	0	0	393
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2516	0	0	0	2953	8	0	0	0	49	0	0	0	0	0	5526
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.73%	0.27%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	880	0	0	0	1028	2	0	0	0	16	0	0	0	0	0	1926
PEAK HR FACTOR :	0.000	0.969	0.000	0.000	0.000	0.918	0.250	0.000	0.000	0.000	0.571	0.000	0.000	0.000	0.000	0.000	0.975
		0.969				0.920				0.571							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 3/20/2019

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	83	0	0	0	57	0	0	0	0	0	0	0	0	0	0	140
6:15 AM	0	102	0	0	0	62	0	0	0	0	1	0	0	0	0	0	165
6:30 AM	0	193	0	0	0	53	2	0	0	0	1	0	0	0	0	0	249
6:45 AM	0	208	0	0	0	99	0	0	0	0	3	0	0	0	0	0	310
7:00 AM	0	235	0	0	0	125	1	0	0	0	1	0	0	0	0	0	362
7:15 AM	0	244	0	0	0	183	1	0	0	0	1	0	0	0	0	0	429
7:30 AM	0	226	0	0	0	202	1	0	0	0	0	0	0	0	0	0	429
7:45 AM	0	232	0	0	0	236	0	0	0	0	1	0	0	0	0	0	469
8:00 AM	0	231	0	0	0	169	0	0	0	0	3	0	0	0	0	0	403
8:15 AM	0	246	0	0	0	244	1	0	0	0	0	0	0	0	0	0	491
8:30 AM	0	263	0	0	0	251	0	0	0	0	1	0	0	0	0	0	515
8:45 AM	0	229	0	0	0	260	0	0	0	0	1	0	0	0	0	0	490
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2492	0	0	0	1941	6	0	0	0	13	0	0	0	0	0	4452
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.69%	0.31%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**07:45 AM - 08:45 AM**																TOTAL
PEAK HR VOL :	0	972	0	0	0	900	1	0	0	0	5	0	0	0	0	0	1878
PEAK HR FACTOR :	0.00	0.924	0.000	0.000	0.000	0.896	0.250	0.000	0.000	0.000	0.417	0.000	0.000	0.000	0.000	0.000	0.912
		0.924				0.897				0.417							

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	224	0	0	0	246	0	0	0	0	5	0	0	0	0	0	475
4:15 PM	0	196	0	0	0	252	0	0	0	0	1	0	0	0	0	0	449
4:30 PM	0	205	0	0	0	234	1	0	0	0	7	0	0	0	0	0	447
4:45 PM	0	210	0	0	0	243	0	0	0	0	6	0	0	0	0	0	459
5:00 PM	0	213	0	0	0	236	0	0	0	0	5	0	0	0	0	0	454
5:15 PM	0	223	0	0	0	245	0	0	0	0	2	0	0	0	0	0	470
5:30 PM	0	222	0	0	0	258	2	0	0	0	7	0	0	0	0	0	489
5:45 PM	0	210	0	0	0	274	0	0	0	0	2	0	0	0	0	0	486
6:00 PM	0	205	0	0	0	250	2	0	0	0	7	0	0	0	0	0	464
6:15 PM	0	172	0	0	0	241	0	0	0	0	5	0	0	0	0	0	418
6:30 PM	0	203	0	0	0	216	2	0	0	0	1	0	0	0	0	0	422
6:45 PM	0	177	0	0	0	208	1	0	0	0	1	0	0	0	0	0	387
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2460	0	0	0	2903	8	0	0	0	49	0	0	0	0	0	5420
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.73%	0.27%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	868	0	0	0	1013	2	0	0	0	16	0	0	0	0	0	1899
PEAK HR FACTOR :	0.00	0.973	0.000	0.000	0.000	0.924	0.250	0.000	0.000	0.000	0.571	0.000	0.000	0.000	0.000	0.000	0.971
		0.973				0.926				0.571							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 3/20/2019

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	0	0	0	7	0	0	0	0	2	0	0	0	0	0	12
6:15 AM	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	0	7
6:30 AM	0	10	0	0	0	4	1	0	0	0	0	0	0	0	0	0	15
6:45 AM	0	6	0	0	0	13	0	0	0	0	0	0	0	0	0	0	19
7:00 AM	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	16
7:15 AM	0	18	0	0	0	7	0	0	0	0	0	0	0	0	0	0	25
7:30 AM	0	15	0	0	0	10	0	0	0	0	0	0	0	0	0	0	25
7:45 AM	0	12	0	0	0	13	0	0	0	0	0	0	0	0	0	0	25
8:00 AM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11
8:15 AM	0	13	0	0	0	6	0	0	0	0	0	0	0	0	0	0	19
8:30 AM	0	12	0	0	0	8	0	0	0	0	0	0	0	0	0	0	20
8:45 AM	0	10	0	0	0	11	0	0	0	0	0	0	0	0	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	117	0	0	0	95	1	0	0	0	2	0	0	0	0	0	215
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	98.96%	1.04%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**07:45 AM - 08:45 AM**																TOTAL
PEAK HR VOL :	0	43	0	0	0	32	0	0	0	0	0	0	0	0	0	0	75
PEAK HR FACTOR :	0.000	0.827	0.000	0.000	0.000	0.615	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
		0.827				0.615											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12
4:15 PM	0	8	0	0	0	4	0	0	0	0	0	0	0	0	0	0	12
4:30 PM	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9
4:45 PM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9
5:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45 PM	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0	8
6:00 PM	0	4	0	0	0	5	0	0	0	0	0	0	0	0	0	0	9
6:15 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	11
6:30 PM	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0	0	13
6:45 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	56	0	0	0	50	0	0	0	0	0	0	0	0	0	0	106
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	12	0	0	0	15	0	0	0	0	0	0	0	0	0	0	27
PEAK HR FACTOR :	0.00	0.750	0.000	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
		0.750				0.625											

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 3/20/2019

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
		0.250															

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Project ID: 19-11036-002
Date: 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Orchard St		Orchard St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	1	1
6:15 AM	0	0	0	0	0	0	0	1	1
6:30 AM	0	0	0	0	0	0	0	1	1
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	1
8:30 AM	0	0	0	0	0	0	0	1	1
8:45 AM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	0	0	0	0	5	6
APPROACH %'s :	100.00%	0.00%					0.00%	100.00%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	2	2
PEAK HR FACTOR :								0.500	0.500
							0.500		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	2	0	2
5:30 PM	0	1	0	0	0	0	1	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	2	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	0	2	0	0	3	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	100.00%			100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	0	1	0	0	0	0	3	0	4
PEAK HR FACTOR :		0.250					0.375		0.500
	0.250						0.375		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 3/20/2019

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	2	57	13	0	10	36	16	2	25	202	0	0	6	36	3	0	408
6:15 AM	4	85	24	0	10	29	29	0	34	301	1	0	3	37	7	0	564
6:30 AM	1	148	19	0	7	36	24	4	46	336	0	0	4	43	14	4	686
6:45 AM	5	121	13	0	16	45	42	1	48	377	2	0	2	64	11	3	750
7:00 AM	5	174	20	0	16	56	58	1	73	371	3	0	10	68	13	6	874
7:15 AM	4	184	20	0	23	94	93	0	83	329	1	0	18	72	26	2	949
7:30 AM	4	142	16	0	32	108	60	0	53	366	3	0	20	106	17	4	931
7:45 AM	6	140	24	0	37	123	64	2	54	390	0	0	22	133	21	5	1021
8:00 AM	4	183	24	0	28	123	49	1	57	361	2	0	19	150	28	7	1036
8:15 AM	8	173	24	0	43	167	56	3	76	300	6	0	23	124	20	4	1027
8:30 AM	8	146	12	0	28	153	57	1	74	312	1	0	27	108	21	5	953
8:45 AM	9	131	16	0	31	147	69	2	73	323	6	0	37	146	19	5	1014
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	60	1684	225	0	281	1117	617	17	696	3968	25	0	191	1087	200	45	10213
APPROACH %'s :	3.05%	85.53%	11.43%	0.00%	13.83%	54.97%	30.36%	0.84%	14.84%	84.62%	0.53%	0.00%	12.54%	71.37%	13.13%	2.95%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	26	642	84	0	136	566	226	7	261	1363	9	0	91	515	90	21	4037
PEAK HR FACTOR :	0.813	0.877	0.875	0.000	0.791	0.847	0.883	0.583	0.859	0.874	0.375	0.000	0.843	0.858	0.804	0.750	0.974
	0.891				0.869				0.919				0.879				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	131	19	0	26	126	87	3	51	179	7	0	26	314	41	5	1035
4:15 PM	21	106	21	0	30	136	70	4	59	175	8	0	30	336	30	6	1032
4:30 PM	25	122	11	0	34	144	69	7	47	168	6	0	16	331	26	4	1010
4:45 PM	17	150	12	0	44	168	64	3	47	187	10	0	18	326	26	3	1075
5:00 PM	21	139	22	0	35	130	82	6	55	212	9	0	22	316	30	3	1082
5:15 PM	25	145	16	0	38	136	85	2	54	180	4	0	14	307	38	5	1049
5:30 PM	28	136	11	0	32	136	82	8	58	164	8	0	13	289	36	2	1003
5:45 PM	19	111	15	0	41	143	72	5	42	182	5	1	24	341	28	2	1031
6:00 PM	25	124	20	0	37	150	58	4	42	175	14	0	18	349	16	9	1041
6:15 PM	10	111	14	0	30	132	75	3	37	192	3	0	22	315	34	3	981
6:30 PM	23	117	13	0	29	140	48	2	37	151	7	0	14	315	37	5	938
6:45 PM	19	107	18	0	34	139	68	3	45	135	6	0	29	254	27	6	890
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	253	1499	192	0	410	1680	860	50	574	2100	87	1	246	3793	369	53	12167
APPROACH %'s :	13.01%	77.11%	9.88%	0.00%	13.67%	56.00%	28.67%	1.67%	20.78%	76.03%	3.15%	0.04%	5.51%	85.03%	8.27%	1.19%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	93	531	64	0	146	545	321	21	209	738	26	1	73	1253	132	12	4165
PEAK HR FACTOR :	0.830	0.916	0.727	0.000	0.890	0.953	0.944	0.656	0.901	0.870	0.722	0.250	0.760	0.919	0.868	0.600	0.962
	0.925				0.989				0.882				0.930				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 3/20/2019

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	2	55	13	0	9	34	12	2	25	199	0	0	5	33	2	0	391
6:15 AM	3	82	23	0	8	28	27	0	34	294	1	0	3	35	6	0	544
6:30 AM	1	144	18	0	6	33	23	4	45	328	0	0	4	42	10	4	662
6:45 AM	5	115	13	0	9	41	40	1	48	371	2	0	2	59	8	3	717
7:00 AM	5	170	19	0	12	55	57	1	72	357	1	0	10	62	12	6	839
7:15 AM	4	179	20	0	19	91	92	0	81	317	0	0	15	71	15	2	906
7:30 AM	4	137	15	0	27	105	58	0	51	350	3	0	19	101	9	4	883
7:45 AM	6	137	23	0	31	120	60	2	51	381	0	0	21	118	16	5	971
8:00 AM	4	181	22	0	26	119	49	1	54	353	2	0	15	142	25	7	1000
8:15 AM	8	170	23	0	39	167	54	3	73	293	5	0	23	120	12	4	994
8:30 AM	8	140	12	0	26	150	54	1	73	298	1	0	25	102	17	5	912
8:45 AM	9	130	14	0	27	145	65	2	70	313	6	0	35	142	13	5	976
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	59	1640	215	0	239	1088	591	17	677	3854	21	0	177	1027	145	45	9795
APPROACH %'s :	3.08%	85.68%	11.23%	0.00%	12.35%	56.23%	30.54%	0.88%	14.87%	84.67%	0.46%	0.00%	12.70%	73.67%	10.40%	3.23%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	26	628	80	0	122	556	217	7	251	1325	8	0	84	482	70	21	3877
PEAK HR FACTOR :	0.81	0.867	0.870	0.000	0.782	0.832	0.904	0.583	0.860	0.869	0.400	0.000	0.840	0.849	0.700	0.750	0.969
		0.886				0.857				0.917				0.869			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	19	130	19	0	24	125	86	3	50	175	7	0	26	310	35	5	1014
4:15 PM	21	104	20	0	28	135	70	4	58	172	8	0	29	328	25	6	1008
4:30 PM	24	120	11	0	33	141	68	7	47	165	6	0	16	325	24	4	991
4:45 PM	17	150	12	0	42	167	63	3	47	183	10	0	17	320	24	3	1058
5:00 PM	21	137	20	0	35	129	81	6	54	207	9	0	20	313	29	3	1064
5:15 PM	24	144	16	0	35	135	84	2	53	178	4	0	14	301	35	5	1030
5:30 PM	28	136	11	0	30	136	82	8	58	159	8	0	12	288	33	2	991
5:45 PM	19	110	15	0	38	142	70	5	42	179	5	1	24	337	26	2	1015
6:00 PM	25	122	20	0	36	146	58	4	42	173	14	0	18	344	15	9	1026
6:15 PM	10	109	14	0	28	130	74	3	37	191	3	0	22	312	30	3	966
6:30 PM	23	116	13	0	25	139	48	2	37	151	7	0	14	313	33	5	926
6:45 PM	19	104	18	0	31	138	68	3	45	134	6	0	29	252	25	6	878
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	250	1482	189	0	385	1663	852	50	570	2067	87	1	241	3743	334	53	11967
APPROACH %'s :	13.01%	77.15%	9.84%	0.00%	13.05%	56.37%	28.88%	1.69%	20.92%	75.85%	3.19%	0.04%	5.51%	85.63%	7.64%	1.21%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	92	527	62	0	138	542	317	21	207	723	26	1	70	1239	123	12	4100
PEAK HR FACTOR :	0.82	0.915	0.775	0.000	0.908	0.954	0.943	0.656	0.892	0.873	0.722	0.250	0.729	0.919	0.879	0.600	0.963
		0.925				0.994				0.886				0.928			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 3/20/2019

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	2	0	0	1	2	4	0	0	3	0	0	1	3	1	0	17
6:15 AM	1	3	1	0	2	1	2	0	0	7	0	0	0	2	1	0	20
6:30 AM	0	4	1	0	1	3	1	0	1	8	0	0	0	1	4	0	24
6:45 AM	0	6	0	0	7	4	2	0	0	6	0	0	0	5	3	0	33
7:00 AM	0	4	1	0	4	1	1	0	1	14	2	0	0	6	1	0	35
7:15 AM	0	5	0	0	4	3	1	0	2	12	1	0	3	1	11	0	43
7:30 AM	0	5	1	0	5	3	2	0	2	16	0	0	1	5	8	0	48
7:45 AM	0	3	1	0	6	3	4	0	3	9	0	0	1	15	5	0	50
8:00 AM	0	2	2	0	2	4	0	0	3	8	0	0	4	8	3	0	36
8:15 AM	0	3	1	0	4	0	2	0	3	7	1	0	0	4	8	0	33
8:30 AM	0	6	0	0	2	3	3	0	1	14	0	0	2	6	4	0	41
8:45 AM	0	1	2	0	4	2	4	0	3	10	0	0	2	4	6	0	38
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	44	10	0	42	29	26	0	19	114	4	0	14	60	55	0	418
APPROACH %'s :	1.82%	80.00%	18.18%	0.00%	43.30%	29.90%	26.80%	0.00%	13.87%	83.21%	2.92%	0.00%	10.85%	46.51%	42.64%	0.00%	
PEAK HR :	**07:45 AM - 08:45 AM**																TOTAL
PEAK HR VOL :	0	14	4	0	14	10	9	0	10	38	1	0	7	33	20	0	160
PEAK HR FACTOR :	0.000	0.583	0.500	0.000	0.583	0.625	0.563	0.000	0.833	0.679	0.250	0.000	0.438	0.550	0.625	0.000	0.800
		0.750				0.635				0.817				0.714			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	0	0	2	1	1	0	1	4	0	0	0	4	6	0	21
4:15 PM	0	2	1	0	2	1	0	0	1	3	0	0	1	8	5	0	24
4:30 PM	1	2	0	0	1	3	1	0	0	3	0	0	0	6	2	0	19
4:45 PM	0	0	0	0	2	1	1	0	0	4	0	0	1	6	2	0	17
5:00 PM	0	2	2	0	0	1	1	0	1	5	0	0	2	3	1	0	18
5:15 PM	1	1	0	0	3	1	1	0	1	2	0	0	0	6	3	0	19
5:30 PM	0	0	0	0	2	0	0	0	0	5	0	0	1	1	3	0	12
5:45 PM	0	1	0	0	3	1	2	0	0	3	0	0	0	4	2	0	16
6:00 PM	0	2	0	0	1	4	0	0	0	2	0	0	0	5	1	0	15
6:15 PM	0	2	0	0	2	2	1	0	0	1	0	0	0	3	4	0	15
6:30 PM	0	1	0	0	4	1	0	0	0	0	0	0	0	2	4	0	12
6:45 PM	0	3	0	0	3	1	0	0	0	1	0	0	0	2	2	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	17	3	0	25	17	8	0	4	33	0	0	5	50	35	0	200
APPROACH %'s :	13.04%	73.91%	13.04%	0.00%	50.00%	34.00%	16.00%	0.00%	10.81%	89.19%	0.00%	0.00%	5.56%	55.56%	38.89%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	1	4	2	0	8	3	4	0	2	15	0	0	3	14	9	0	65
PEAK HR FACTOR :	0.25	0.500	0.250	0.000	0.667	0.750	0.500	0.000	0.500	0.750	0.000	0.000	0.375	0.583	0.750	0.000	0.855
		0.438				0.625				0.708				0.722			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 3/20/2019

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	2	0	0	0	0	0	0	2	0	0	5
APPROACH %'s :					33.33%	0.00%	66.67%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
							0.250										

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	0	3	0	0	0	2	0	0	6
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.500
										0.250				0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax

Project ID: 19-11036-003
Date: 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Fairfax Blvd		Fairfax Blvd						
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	3	0	0	0	0	0	4	8
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	1	1	0	0	0	1	1	0	0	4
8:30 AM	0	1	0	0	1	0	0	0	1	0	0	1	4
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	2	4
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	0	2	2	5	0	0	2	1	0	7	21
APPROACH %'s :	0.00%	100.00%	0.00%	100.00%	28.57%	71.43%			66.67%	33.33%	0.00%	100.00%	
PEAK HR :	07:45 AM - 08:45 AM												TOTAL
PEAK HR VOL :	0	1	0	2	2	0	0	0	2	1	0	1	9
PEAK HR FACTOR :		0.250		0.500	0.500				0.500	0.250		0.250	0.563
	0.250		0.500		0.500				0.375		0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
4:00 PM	1	0	1	1	0	0	1	1	0	0	0	0	5
4:15 PM	0	0	0	0	1	2	0	0	1	0	0	2	6
4:30 PM	0	0	2	0	0	1	0	0	0	0	3	1	7
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	2	4
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	3	0	0	0	2	0	0	0	0	0	5	10
5:30 PM	0	0	0	0	1	2	1	0	1	0	1	2	8
5:45 PM	0	0	0	0	2	0	0	0	2	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
6:15 PM	2	1	0	0	0	0	0	0	2	0	0	1	6
6:30 PM	0	1	0	0	0	0	0	0	0	0	0	1	2
6:45 PM	0	0	0	0	0	2	0	0	0	0	0	2	4
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	6	3	1	4	11	2	1	7	0	4	16	58
APPROACH %'s :	33.33%	66.67%	75.00%	25.00%	26.67%	73.33%	66.67%	33.33%	100.00%	0.00%	20.00%	80.00%	
PEAK HR :	05:00 PM - 06:00 PM												TOTAL
PEAK HR VOL :	0	4	0	0	3	4	1	0	3	0	1	7	23
PEAK HR FACTOR :		0.333			0.375	0.500	0.250		0.375		0.250	0.350	0.575
	0.333				0.583		0.250		0.375		0.400		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 3/20/2019

Total

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	204	0	0	0	44	1	0	250
6:15 AM	0	0	0	0	0	0	0	0	0	344	0	0	0	77	0	0	421
6:30 AM	0	0	0	0	0	0	0	0	0	430	0	0	0	72	0	0	502
6:45 AM	0	0	1	0	0	0	0	0	0	403	0	0	0	98	0	0	502
7:00 AM	0	0	0	0	0	0	0	0	0	413	0	0	0	131	1	0	545
7:15 AM	0	0	2	0	0	0	1	0	0	456	0	0	0	171	0	0	630
7:30 AM	0	0	2	0	0	0	0	0	0	428	1	0	0	154	1	0	586
7:45 AM	0	0	2	0	0	0	0	0	0	405	1	0	0	195	0	0	603
8:00 AM	0	0	1	0	0	0	1	0	0	413	0	0	0	202	1	0	618
8:15 AM	0	0	2	0	0	0	1	0	0	411	0	0	0	197	1	0	612
8:30 AM	0	0	1	0	0	0	0	0	0	386	0	0	0	173	2	0	562
8:45 AM	0	0	2	0	0	0	0	0	0	382	0	0	0	210	0	0	594
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	14	0	0	0	3	0	0	4675	2	0	0	1724	7	0	6425
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.04%	0.00%	0.00%	99.60%	0.40%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	6	0	0	0	2	0	0	1615	1	0	0	767	4	0	2395
PEAK HR FACTOR :	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.978	0.250	0.000	0.000	0.949	0.500	0.000	0.969
	0.750				0.500				0.978				0.950				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	6	0	0	0	1	0	0	236	0	0	0	412	2	0	657
4:15 PM	0	0	5	1	0	0	2	0	0	237	0	0	0	432	0	0	677
4:30 PM	0	0	4	0	0	0	3	0	0	226	0	0	0	423	0	0	656
4:45 PM	0	0	3	0	0	0	1	0	0	242	0	0	0	403	1	0	650
5:00 PM	0	0	2	0	0	0	2	0	0	271	1	0	0	438	1	0	715
5:15 PM	0	0	1	0	0	0	0	0	0	229	0	0	0	421	0	0	651
5:30 PM	0	0	2	0	0	0	5	0	0	215	0	0	0	388	1	0	611
5:45 PM	0	0	3	0	0	0	3	0	0	216	0	0	0	448	0	0	670
6:00 PM	0	0	4	0	0	0	4	0	0	220	0	0	0	398	1	0	627
6:15 PM	0	0	1	0	0	0	0	0	0	231	0	0	0	391	0	0	623
6:30 PM	0	0	0	0	0	0	3	0	0	211	0	0	0	414	0	0	628
6:45 PM	0	0	1	0	0	0	2	0	0	193	0	0	0	379	0	0	575
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	32	1	0	0	26	0	0	2727	1	0	0	4947	6	0	7740
APPROACH %'s :	0.00%	0.00%	96.97%	3.03%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.04%	0.00%	0.00%	99.88%	0.12%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	8	0	0	0	10	0	0	931	1	0	0	1695	2	0	2647
PEAK HR FACTOR :	0.000	0.000	0.667	0.000	0.000	0.000	0.500	0.000	0.000	0.859	0.250	0.000	0.000	0.946	0.500	0.000	0.926
	0.667				0.500				0.857				0.947				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 3/20/2019

Cars

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	202	0	0	0	38	1	0	241
6:15 AM	0	0	0	0	0	0	0	0	0	337	0	0	0	71	0	0	408
6:30 AM	0	0	0	0	0	0	0	0	0	421	0	0	0	70	0	0	491
6:45 AM	0	0	0	0	0	0	0	0	0	398	0	0	0	91	0	0	489
7:00 AM	0	0	0	0	0	0	0	0	0	397	0	0	0	124	1	0	522
7:15 AM	0	0	2	0	0	0	1	0	0	440	0	0	0	169	0	0	612
7:30 AM	0	0	2	0	0	0	0	0	0	408	1	0	0	147	1	0	559
7:45 AM	0	0	2	0	0	0	0	0	0	395	1	0	0	181	0	0	579
8:00 AM	0	0	1	0	0	0	1	0	0	404	0	0	0	189	1	0	596
8:15 AM	0	0	2	0	0	0	1	0	0	398	0	0	0	192	1	0	594
8:30 AM	0	0	0	0	0	0	0	0	0	372	0	0	0	168	2	0	542
8:45 AM	0	0	2	0	0	0	0	0	0	370	0	0	0	198	0	0	570
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	11	0	0	0	3	0	0	4542	2	0	0	1638	7	0	6203
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.04%	0.00%	0.00%	99.57%	0.43%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	5	0	0	0	2	0	0	1569	1	0	0	730	4	0	2311
PEAK HR FACTOR :	0.00	0.000	0.625	0.000	0.000	0.000	0.500	0.000	0.000	0.971	0.250	0.000	0.000	0.951	0.500	0.000	0.969
			0.625				0.500				0.972				0.951		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	6	0	0	0	1	0	0	230	0	0	0	407	2	0	646
4:15 PM	0	0	5	1	0	0	2	0	0	234	0	0	0	426	0	0	668
4:30 PM	0	0	4	0	0	0	3	0	0	223	0	0	0	412	0	0	642
4:45 PM	0	0	3	0	0	0	1	0	0	238	0	0	0	397	1	0	640
5:00 PM	0	0	2	0	0	0	2	0	0	265	1	0	0	433	1	0	704
5:15 PM	0	0	1	0	0	0	0	0	0	226	0	0	0	416	0	0	643
5:30 PM	0	0	1	0	0	0	4	0	0	211	0	0	0	385	1	0	602
5:45 PM	0	0	3	0	0	0	3	0	0	212	0	0	0	444	0	0	662
6:00 PM	0	0	4	0	0	0	4	0	0	218	0	0	0	393	1	0	620
6:15 PM	0	0	1	0	0	0	0	0	0	230	0	0	0	386	0	0	617
6:30 PM	0	0	0	0	0	0	3	0	0	210	0	0	0	411	0	0	624
6:45 PM	0	0	1	0	0	0	2	0	0	192	0	0	0	377	0	0	572
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	31	1	0	0	25	0	0	2689	1	0	0	4887	6	0	7640
APPROACH %'s :	0.00%	0.00%	96.88%	3.13%	0.00%	0.00%	100.00%	0.00%	0.00%	99.96%	0.04%	0.00%	0.00%	99.88%	0.12%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	7	0	0	0	9	0	0	914	1	0	0	1678	2	0	2611
PEAK HR FACTOR :	0.00	0.000	0.583	0.000	0.000	0.000	0.563	0.000	0.000	0.862	0.250	0.000	0.000	0.945	0.500	0.000	0.927
			0.583				0.563				0.860				0.946		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 3/20/2019

HT

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	2	0	0	0	6	0	0	9
6:15 AM	0	0	0	0	0	0	0	0	0	7	0	0	0	6	0	0	13
6:30 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	2	0	0	11
6:45 AM	0	0	1	0	0	0	0	0	0	5	0	0	0	7	0	0	13
7:00 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	7	0	0	23
7:15 AM	0	0	0	0	0	0	0	0	0	16	0	0	0	2	0	0	18
7:30 AM	0	0	0	0	0	0	0	0	0	20	0	0	0	7	0	0	27
7:45 AM	0	0	0	0	0	0	0	0	0	10	0	0	0	14	0	0	24
8:00 AM	0	0	0	0	0	0	0	0	0	9	0	0	0	13	0	0	22
8:15 AM	0	0	0	0	0	0	0	0	0	13	0	0	0	5	0	0	18
8:30 AM	0	0	1	0	0	0	0	0	0	14	0	0	0	5	0	0	20
8:45 AM	0	0	0	0	0	0	0	0	0	12	0	0	0	12	0	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	3	0	0	0	0	0	0	133	0	0	0	86	0	0	222
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**07:45 AM - 08:45 AM**																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	46	0	0	0	37	0	0	84
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.000	0.000	0.000	0.661	0.000	0.000	0.875
	0.250				0.000				0.821				0.661				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0	11
4:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	6	0	0	9
4:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	11	0	0	14
4:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0	0	10
5:00 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	5	0	0	11
5:15 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0	8
5:30 PM	0	0	1	0	0	0	1	0	0	4	0	0	0	3	0	0	9
5:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	8
6:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	0	7
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	5	0	0	6
6:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
6:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	1	0	0	38	0	0	0	60	0	0	100
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	1	0	0	17	0	0	0	17	0	0	36
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.708	0.000	0.000	0.000	0.850	0.000	0.000	0.818
	0.250				0.250				0.708				0.850				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 3/20/2019

Bikes

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375
														0.375			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0	7
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.375
										0.250				0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Project ID: 19-11036-004
Date: 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Farr Ave		Farr Ave		Fairfax Blvd		Fairfax Blvd		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	1	0	0	0	0	0	0	1
6:15 AM	0	1	0	0	0	0	0	0	1
6:30 AM	0	1	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	2	2	0	0	0	0	4
8:30 AM	0	2	0	1	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	5	2	4	0	0	0	0	11
APPROACH %'s :	0.00%	100.00%	33.33%	66.67%					
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	2	2	3	0	0	0	0	7
PEAK HR FACTOR :		0.250	0.250	0.375					0.438
	0.250		0.313						

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	1	2	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	3	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	0	0	0	0	0	0	2
5:15 PM	0	2	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	2	0	0	0	0	0	0	0	2
6:15 PM	0	1	0	0	0	0	0	0	1
6:30 PM	0	1	0	0	0	0	0	0	1
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	6	3	0	0	0	0	0	14
APPROACH %'s :	45.45%	54.55%	100.00%	0.00%					
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	2	2	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.250	0.250							0.500
	0.500								

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 3/20/2019

Total

NS/EW Streets: Mclean Ave/United Bank Dwy | Mclean Ave/United Bank Dwy | Fairfax Blvd/Warwick Ave | Fairfax Blvd/Warwick Ave | | | |

AM

	NORTHBOUND							SOUTHBOUND							EASTBOUND							WESTBOUND							NORTHBOUND2							WESTBOUND2							
	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	194	1	0	5	0	1	0	38	0	0	0	3	2	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	1	2	0	0	256
6:15 AM	1	0	2	0	0	0	0	1	0	0	0	0	0	0	0	343	1	0	7	0	0	0	68	1	0	0	3	1	0	0	0	0	0	0	2	0	0	0	6	1	0	0	2	0	0	1	0	0	443
6:30 AM	0	0	3	0	0	0	0	2	0	0	0	0	0	0	1	419	0	0	8	0	0	4	65	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	9	0	0	0	0	0	0	2	0	0	516
6:45 AM	0	1	3	0	1	0	0	1	0	1	0	1	0	0	0	384	2	0	9	0	0	3	87	0	0	0	9	2	0	0	0	0	0	0	3	0	0	0	8	0	0	0	4	0	0	6	0	0	525
7:00 AM	4	1	12	0	5	0	0	1	1	0	0	0	0	0	1	408	0	0	4	1	1	0	117	3	0	1	8	2	0	0	0	0	0	1	6	1	0	0	11	1	0	0	1	0	0	4	0	1	596
7:15 AM	1	0	2	0	2	0	0	4	0	0	0	1	0	0	1	407	1	0	10	0	0	4	151	2	0	0	12	4	0	0	0	0	0	0	11	0	0	0	24	1	0	0	3	0	0	3	1	0	645
7:30 AM	1	3	7	0	1	0	0	13	1	0	0	1	0	0	0	393	0	0	12	0	0	5	140	1	1	0	8	4	0	0	0	0	0	1	6	0	0	1	29	0	0	0	1	0	0	1	0	0	630
7:45 AM	3	4	14	0	4	0	0	16	4	1	0	1	0	0	0	342	3	0	9	1	0	7	170	2	0	0	11	4	0	0	0	0	0	1	6	2	0	0	49	0	0	0	4	0	0	5	0	0	661
8:00 AM	2	1	9	0	4	0	0	8	2	1	0	2	0	0	0	353	3	0	8	1	0	7	187	2	0	0	7	0	0	0	0	0	0	0	7	0	0	0	36	0	0	0	4	0	0	4	0	0	648
8:15 AM	3	1	4	0	1	0	0	2	1	0	0	2	0	0	0	369	4	0	8	1	0	4	164	1	0	0	17	1	0	0	1	0	0	1	10	0	0	1	18	0	3	0	2	0	1	3	0	0	623
8:30 AM	1	1	4	0	1	0	0	2	3	1	0	2	0	0	0	377	1	0	18	1	0	3	173	1	0	0	6	5	0	0	0	0	0	0	5	1	0	1	15	1	0	0	2	0	0	3	0	0	630
8:45 AM	1	2	7	0	1	2	0	0	0	0	0	0	0	0	1	349	3	0	19	3	1	5	187	2	0	0	5	7	0	0	0	0	0	0	7	0	0	0	12	1	0	0	2	0	0	4	0	1	622
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	17	14	68	0	20	2	0	50	12	5	0	12	0	0	4	4138	19	0	117	8	3	45	1547	15	1	1	91	32	0	1	0	0	0	0	65	2	0	3	221	5	3	0	25	0	2	38	1	2	6795
APPROACH %'s :	14.05%	11.57%	56.20%	0.00%	16.53%	1.65%	0.00%	63.29%	15.19%	6.33%	0.00%	15.19%	0.00%	0.00%	0.09%	96.64%	0.42%	0.00%	2.61%	0.18%	0.07%	2.60%	89.32%	0.87%	0.06%	0.06%	5.25%	1.85%	0.00%	14.29%	0.00%	0.00%	0.00%	85.71%	0.00%	21.74%	0.67%	0.00%	1.00%	73.91%	1.67%	1.00%	0.00%	36.76%	0.00%	2.94%	55.88%	1.47%	2.94%	
PEAK HR :	07:45 AM - 08:45 AM																																															TOTAL
PEAK HR VOL :	9	7	31	0	10	0	0	28	10	3	0	7	0	0	0	1441	11	0	43	4	0	21	694	6	0	0	41	10	0	1	0	0	0	4	0	28	1	0	2	118	1	3	0	12	0	1	15	0	0	2562
PEAK HR FACTOR :	0.750	0.438	0.554	0.000	0.625	0.000	0.000	0.438	0.625	0.750	0.000	0.875	0.000	0.000	0.000	0.956	0.688	0.000	0.597	1.000	0.000	0.750	0.928	0.750	0.000	0.000	0.603	0.500	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.700	0.250	0.000	0.500	0.602	0.250	0.250	0.000	0.750	0.000	0.250	0.750	0.000	0.000	0.969
				0.570							0.545							0.944							0.951							0.625											0.778				

PM

	NORTHBOUND							SOUTHBOUND							EASTBOUND							WESTBOUND							NORTHBOUND2							WESTBOUND2							
	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
4:00 PM	4	0	1	0	5	0	0	2	0	1	0	0	0	0	1	215	3	0	11	0	0	9	377	0	0	1	20	7	0	0	0	0	0	1	0	3	0	0	21	2	2	0	3	0	0	5	0	3	697
4:15 PM	2	4	3	0	5	0	0	1	1	0	0	0	0	0	3	204	5	0	17	0	0	4	401	1	0	0	17	8	0	0	0	0	0	1	0	7	0	0	18	1	2	0	0	0	0	7	0	2	714
4:30 PM	6	1	2	0	1	0	0	2	1	1	0	0	0	0	1	199	3	0	10	0	0	10	382	1	0	0	28	6	0	2	0	0	0	0	10	0	0	0	16	4	2	0	3	0	0	8	0	0	699
4:45 PM	3	4	7	0	0	1	0	1	0	1	0	1	0	0	0	229	7	0	17	0	2	6	356	1	0	0	30	4	1	1	0	1	0	1	0	10	0	0	12	1	0	0	1	0	0	4	0	0	703
5:00 PM	3	2	9	0	7	0	0	6	3	0	0	1	0	0	0	225	3	0	20	0	1	9	394	0	0	0	28	4	0	1	0	0	0	2	0	8	0	0	20	0	1	0	4	0	0	5	1	1	758
5:15 PM	7	2	4	0	8	1	0	4	0	2	0	1	0	0	0	196	1	0	16	1	1	2	364	2	0	0	29	6	0	0	0	0	0	2	0	15	0	0	23	0	0	0	3	0	0	4	0	2	696
5:30 PM	9	7	5	0	8	0	0	5	0	0	0	0	0	2	0	194	3	0	17	0	2	7	346	3	0	1	38	6	0	1	0	0	0	0	0	8	0	0	13	4	0	0	6	0	0	6	1	0	692
5:45 PM	5	2	3	0	4	1	0	0	1	0	0	1	0	2	0	194	2	0	20	0	2	6	415	2	0	0	33	6	0	0	0	0	0	1	0	13	0	0	20	0	1	0	5	0	0	4	0	1	744
6:00 PM	6	2	3	0	7	0	0	7	1	0	0	1	0	0	0	209	4	0	11	0	1	9	350	1	0	0	32	5	0	0	0	0	0	1	0	11	0	0	7	1	0	0	2	0	1	3	1	0	676
6:15 PM	3	1	5	0	2	0	0	2	0	1	0	1	0	0	0	207	5	0	7	0	1	10	360	2	0	0	38	1	0	0	0	0	0	0	0	4	0	0	17	3	0	0	4	0	0	1	4	0	679
6:30 PM	1	1	7	0	2	0	0	1	1	0	0	2	0	0	0	177	3	0	20	0	0	10	367	3	0	1	28	5	0	0	0	0	0	2	0	9	0	0	2	10	0	0	1	0	0	3	0	2	658
6:45 PM	4	0	3	0	3	0	0	1	0	1	0	1	0	0	2	183	0	0	12	0	1	6	353	1	0	1	14	8	0	0	0	0	0	0	0	8	0	0	0	15	2	0	0	5	0	0	5	1	0	631
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	53	26	52	0	52	3	0	32	8	7	0	9	0	4	7	2432	39	0	178	1	11	88	4465	17	0	4	335	66	1	5	0	2	0	11	0	106	0	0	3	192	18	8	0	37	0	2	58	4	11	8347
APPROACH %'s :	28.49%	13.98%	27.96%	0.00%	27.96%	1.61%	0.00%	53.33%	13.33%	11.67%	0.00%	15.00%	0.00%	6.67%	0.26%	91.15%	1.46%	0.00%	6.67%	0.04%	0.41%	1.77%	89.75%	0.34%	0.00%	0.08%	6.73%	1.33%	5.26%	26.32%	0.00%	10.53%	0.00%	57.89%	0.00%	32.42%	0.00%	0.00%	0.92%	58.72%	5.50%	2.45%	0.00%	33.04%	0.00%	1.79%	51.79%	3.57%	9.82%	
PEAK HR :	05:00 PM - 06:00 PM																																															TOTAL
PEAK HR VOL :	24	13	21	0	27	2	0	15	4	2	0	3	0	4	0	809	9	0	73	1	6	24	1519	7	0	1	128	22	0	2	0	0	0	5	0	44	0	0	0	76	4	2	0	18	0	0	19	2	4	2890
PEAK HR FACTOR :	0.667	0.464	0.583	0.000	0.844	0.500	0.000	0.625	0.333	0.250	0.000	0.750	0.000	0.500	0.000	0.899	0.750	0.000	0.913	0.250	0.750	0.667	0.915	0.583	0.000	0.250	0.842	0.917	0.000	0.500	0.000	0.000	0.000	0.625	0.000	0.733	0.000	0.000	0.000	0.826	0.250	0.500	0.000	0.750	0.000	0.792	0.500	0.500	0.953
				0.750							0.700							0.902							0.920							0.583											0.827				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 3/20/2019

Cars

NS/EW Streets: Mclean Ave/United Bank Dwy | Mclean Ave/United Bank Dwy | Fairfax Blvd/Warwick Ave | Fairfax Blvd/Warwick Ave | | | |

AM

	NORTHBOUND							SOUTHBOUND							EASTBOUND							WESTBOUND							NORTHBOUND2							WESTBOUND2							
	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
6:00 AM	0	0	1	0	0	0	0	0	0	1	0	2	0	0	0	191	1	0	4	0	1	0	35	0	0	0	2	2	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0	0	2	0	0	247
6:15 AM	1	0	2	0	0	0	0	1	0	0	0	0	0	0	0	338	1	0	7	0	0	2	64	1	0	0	2	1	0	0	0	0	0	0	2	0	0	0	5	1	0	0	2	0	1	0	0	431
6:30 AM	0	0	3	0	0	0	0	2	0	0	0	0	0	0	1	410	0	0	8	0	0	4	64	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	2	0	0	504
6:45 AM	0	1	3	0	1	0	0	1	0	1	0	1	0	0	0	379	2	0	8	0	0	3	79	0	0	0	8	2	0	0	0	0	0	0	3	0	0	0	7	0	0	0	4	0	0	5	0	0	508
7:00 AM	4	1	11	0	5	0	0	1	1	0	0	0	0	0	1	395	0	0	4	1	1	0	112	2	0	1	7	2	0	0	0	0	0	1	0	6	1	0	0	8	1	0	0	1	0	0	4	0	1	572
7:15 AM	1	0	2	0	2	0	0	4	0	0	0	1	0	0	1	395	1	0	10	0	0	4	150	2	0	0	11	4	0	0	0	0	0	0	0	10	0	0	0	21	1	0	0	3	0	0	3	1	0	627
7:30 AM	1	3	7	0	1	0	0	13	1	0	0	1	0	0	0	375	0	0	11	0	0	5	135	1	1	0	6	4	0	0	0	0	0	1	0	6	0	0	1	26	0	0	0	1	0	0	1	0	0	601
7:45 AM	3	4	14	0	4	0	0	15	4	1	0	1	0	0	0	333	3	0	9	1	0	7	157	2	0	0	8	4	0	0	0	0	0	1	0	6	0	0	0	48	0	0	0	1	0	0	4	0	0	634
8:00 AM	1	1	9	0	4	0	0	7	2	1	0	1	0	0	0	342	3	0	8	1	0	6	176	2	0	0	7	0	0	0	0	0	0	0	0	7	0	0	0	36	0	0	0	4	0	0	4	0	0	622
8:15 AM	3	1	4	0	1	0	0	2	1	0	0	2	0	0	0	359	4	0	8	1	0	4	156	1	0	0	17	1	0	0	1	0	0	1	0	9	0	0	0	17	0	3	0	2	0	1	2	0	0	601
8:30 AM	1	1	4	0	1	0	0	2	3	1	0	2	0	0	0	366	1	0	18	1	0	3	167	1	0	0	6	5	0	0	0	0	0	2	0	5	1	0	1	13	1	0	0	2	0	0	3	0	0	611
8:45 AM	1	2	7	0	1	2	0	0	0	0	0	0	0	0	1	338	3	0	19	3	1	5	177	2	0	0	4	7	0	0	0	0	0	0	0	7	0	0	0	10	1	0	0	2	0	0	4	0	1	598
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	16	14	67	0	20	2	0	48	12	5	0	11	0	0	4	4221	19	0	114	8	3	43	1472	14	1	1	80	32	0	1	0	0	0	4	0	62	2	0	2	203	5	3	0	25	0	1	36	1	2	6556
APPROACH %'s :	13.45%	11.76%	56.30%	0.00%	16.81%	1.68%	0.00%	63.16%	15.79%	6.58%	0.00%	14.47%	0.00%	0.00%	0.09%	96.61%	0.43%	0.00%	2.61%	0.18%	0.07%	2.62%	89.59%	0.85%	0.06%	0.06%	4.87%	1.95%	0.00%	14.29%	0.00%	0.00%	0.00%	85.71%	0.00%	22.38%	0.72%	0.00%	0.72%	73.29%	1.81%	1.08%	0.00%	38.46%	0.00%	1.54%	55.38%	1.54%	3.08%	
PEAK HR :	07:45 AM - 08:45 AM																																															TOTAL
PEAK HR VOL :	8	7	31	0	10	0	0	26	10	3	0	6	0	0	0	1400	11	0	43	4	0	20	656	6	0	0	38	10	0	1	0	0	0	4	0	27	1	0	1	114	1	3	0	12	0	1	14	0	0	2468
PEAK HR FACTOR :	0.67	0.438	0.554	0.000	0.625	0.000	0.000	0.433	0.625	0.750	0.000	0.750	0.000	0.000	0.000	0.956	0.688	0.000	0.597	1.000	0.000	0.714	0.932	0.750	0.000	0.000	0.559	0.500	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.750	0.250	0.000	0.250	0.594	0.250	0.250	0.000	0.750	0.000	0.250	0.700	0.000	0.000	0.973
				0.560							0.536							0.944						0.955							0.625										0.750					

PM

	NORTHBOUND							SOUTHBOUND							EASTBOUND							WESTBOUND							NORTHBOUND2							WESTBOUND2							
	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
4:00 PM	4	0	1	0	5	0	0	2	0	1	0	0	0	0	1	210	3	0	11	0	0	9	372	0	0	1	20	7	0	0	0	0	0	1	0	3	0	0	0	20	2	2	0	3	0	0	5	0	3	686
4:15 PM	2	4	3	0	5	0	0	1	1	0	0	0	0	0	3	201	5	0	17	0	0	4	396	1	0	0	16	8	0	0	0	0	0	1	0	7	0	0	0	18	1	2	0	0	0	0	7	0	2	705
4:30 PM	6	1	2	0	1	0	0	2	1	1	0	0	0	0	1	197	3	0	10	0	0	10	372	1	0	0	27	6	0	2	0	0	0	0	0	10	0	0	0	16	4	2	0	3	0	0	8	0	0	686
4:45 PM	3	4	7	0	0	1	0	1	0	1	0	1	0	0	0	225	7	0	17	0	2	6	351	1	0	0	29	4	1	1	0	1	0	1	0	9	0	0	1	11	1	0	0	1	0	0	4	0	0	691
5:00 PM	3	2	9	0	7	0	0	6	3	0	0	1	0	0	0	220	3	0	20	0	1	9	389	0	0	0	28	4	0	1	0	0	2	0	0	8	0	0	0	19	0	1	0	4	0	0	5	1	1	747
5:15 PM	7	2	4	0	8	1	0	4	0	2	0	1	0	0	0	193	1	0	15	1	1	2	359	2	0	0	29	6	0	0	0	0	2	0	0	15	0	0	0	22	0	0	0	3	0	0	3	0	2	685
5:30 PM	9	6	5	0	8	0	0	5	0	0	0	0	0	2	0	189	3	0	16	0	2	7	343	3	0	1	37	6	0	1	0	0	0	0	0	8	0	0	0	13	4	0	0	5	0	0	6	1	0	680
5:45 PM	5	2	3	0	4	1	0	0	1	0	0	1	0	2	0	191	2	0	20	0	2	6	412	2	0	0	33	6	0	0	0	0	0	1	0	13	0	0	0	19	0	1	0	5	0	0	4	0	1	737
6:00 PM	6	2	2	0	7	0	0	7	1	0	0	1	0	0	0	208	4	0	11	0	1	8	345	1	0	0	31	5	0	0	0	0	1	0	0	11	0	0	0	7	1	0	0	2	0	1	3	1	0	667
6:15 PM	3	1	5	0	2	0	0	2	0	1	0	1	0	0	0	206	5	0	7	0	1	10	355	2	0	0	38	1	0	0	0	0	0	0	0	4	0	0	0	16	3	0	0	4	0	1	4	0	0	672
6:30 PM	1	1	7	0	2	0	0	1	1	0	0	2	0	0	0	177	2	0	20	0	0	10	364	3	0	1	27	5	0	0	0	0	2	0	0	9	0	0	2	10	0	0	0	1	0	0	3	0	2	653
6:45 PM	4	0	3	0	3	0	0	1	0	1	0	1	0	0	2	181	0	0	12	0	1	6	351	1	0	1	14	8	0	0	0	0	1	0	0	8	0	0	0	15	2	0	0	4	0	0	5	1	0	626
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	53	25	51	0	52	3	0	32	8	7	0	9	0	4	7	2398	38	0	176	1	11	87	4409	17	0	4	329	66	1	5	0	2	0	11	0	105	0	0	3	196	18	8	0	35	0	2	57	4	11	8235
APPROACH %'s :	28.80%	13.59%	27.72%	0.00%	28.26%	1.63%	0.00%	53.33%	13.33%	11.67%	0.00%	15.00%	0.00%	6.67%	0.27%	91.14%	1.44%	0.00%	6.69%	0.04%	0.42%	1.77%	89.76%	0.35%	0.00%	0.08%	6.70%	1.34%	5.26%	26.32%	0.00%	10.53%	0.00%	57.89%	0.00%	32.81%	0.00%	0.00%	0.94%	58.13%	5.63%	2.50%	0.00%	32.11%	0.00%	1.83%	52.29%	3.67%	10.09%	
PEAK HR :	05:00 PM - 06:00 PM																																															TOTAL
PEAK HR VOL :	24	12	21	0	27	2	0	15	4	2	0	3	0	4	0	793	9	0	71	1	6	24	1503	7	0	1	127	22	0	2	0	0	0	5	0	44	0	0	0	73	4	2	0	17	0	0	18	2	4	2849
PEAK HR FACTOR :	0.67	0.500	0.583	0.000	0.844	0.500	0.000	0.625	0.333	0.250	0.000	0.750	0.000	0.500	0.000	0.901	0.750	0.000	0.888	0.250	0.750	0.667	0.912	0.583	0.000	0.250	0.858	0.917	0.000	0.500	0.000	0.000	0.000	0.625	0.000	0.733	0.000	0.000	0.000	0.830	0.250	0.500	0.000	0.850	0.000	0.000	0.854	0.750	0.500	0.500	0.953
				0.768							0.700							0.902						0.917							0.583														

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 3/20/2019

HT

AM

NS/EW Streets: Mclean Ave/United Bank Dwy — NORTHBOUND

AM	NL	NT	NR	NU	NL2	NR2	NU2
	0	1	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0
7:00 AM	0	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0
8:00 AM	1	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2
TOTAL VOLUMES :	1	0	1	0	0	0	0
APPROACH %'s :	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%
PEAK HR :	07:45 AM - 08:45 AM						
PEAK HR VOL :	1	0	0	0	0	0	0
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000
				0.250			

NS/EW Streets: Mclean Ave/United Bank Dwy — SOUTHBOUND

AM	SL	ST	SR	SU	SL2	ST2	SR2
	0	1	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	0	0	0
8:00 AM	1	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0
	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	2	0	0	0	1	0	0
APPROACH %'s :	66.67%	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%
PEAK HR VOL :	2	0	0	0	1	0	0
PEAK HR FACTOR :	0.500	0.000	0.000	0.000	0.250	0.000	0.000
				0.375			

NS/EW Streets: Fairfax Blvd/Warwick Ave — EASTBOUND

AM	EL	ET	ER	EU	ET2	ER2	EU2
	1	2	0	0	0	0	0
6:00 AM	0	3	0	0	1	0	0
6:15 AM	0	5	0	0	0	0	0
6:30 AM	0	9	0	0	0	0	0
6:45 AM	0	5	0	0	1	0	0
7:00 AM	0	13	0	0	0	0	0
7:15 AM	0	12	0	0	0	0	0
7:30 AM	0	18	0	0	1	0	0
7:45 AM	0	9	0	0	0	0	0
8:00 AM	0	11	0	0	0	0	0
8:15 AM	0	10	0	0	0	0	0
8:30 AM	0	11	0	0	0	0	0
8:45 AM	0	11	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2
TOTAL VOLUMES :	0	117	0	0	3	0	0
APPROACH %'s :	0.00%	97.50%	0.00%	0.00%	2.50%	0.00%	0.00%
PEAK HR VOL :	0	41	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.932	0.000	0.000	0.000	0.000	0.000
				0.932			

NS/EW Streets: Fairfax Blvd/Warwick Ave — WESTBOUND

AM	WL	WT	WR	WU	WL2	WT2	WU2
	1	2	0	0	0	0	0
6:00 AM	0	3	0	0	0	1	0
6:15 AM	1	4	0	0	0	1	0
6:30 AM	0	1	0	0	0	0	0
6:45 AM	0	8	0	0	0	1	0
7:00 AM	0	5	1	0	0	1	0
7:15 AM	0	1	0	0	0	1	0
7:30 AM	0	5	0	0	0	2	0
7:45 AM	0	13	0	0	0	3	0
8:00 AM	1	11	0	0	0	0	0
8:15 AM	0	8	0	0	0	0	0
8:30 AM	0	6	0	0	0	0	0
8:45 AM	0	10	0	0	0	1	0
	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	2	75	1	0	0	11	0
APPROACH %'s :	2.25%	84.27%	1.12%	0.00%	0.00%	12.36%	0.00%
PEAK HR VOL :	1	38	0	0	0	3	0
PEAK HR FACTOR :	0.250	0.731	0.000	0.000	0.000	0.250	0.000
				0.656			

NORTHBOUND2

AM	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2
	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2
TOTAL VOLUMES :	0	0	0	0	0	0	0
PEAK HR VOL :	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AM	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
	0	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	1	0	0
6:30 AM	1	0	0	0	1	0	0
6:45 AM	0	0	0	0	1	0	0
7:00 AM	0	0	0	0	3	0	0
7:15 AM	1	0	0	0	3	0	0
7:30 AM	0	0	0	0	3	0	0
7:45 AM	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0
8:15 AM	1	0	0	1	1	0	0
8:30 AM	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	2	0	0
	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
TOTAL VOLUMES :	3	0	0	1	18	0	0
APPROACH %'s :	13.64%	0.00%	0.00%	4.55%	81.82%	0.00%	0.00%
PEAK HR VOL :	1	0	0	1	4	0	0
PEAK HR FACTOR :	0.250	0.000	0.000	0.250	0.500	0.000	0.000

WESTBOUND2

AM	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
	0	0	0	0	0	0	0	
6:00 AM	0	0	0	1	0	0	0	9
6:15 AM	0	0	0	0	0	0	0	12
6:30 AM	0	0	0	0	0	0	0	12
6:45 AM	0	0	0	0	1	0	0	17
7:00 AM	0	0	0	0	0	0	0	24
7:15 AM	0	0	0	0	0	0	0	18
7:30 AM	0	0	0	0	0	0	0	29
7:45 AM	0	0	0	0	0	0	0	27
8:00 AM	0	0	0	0	0	0	0	26
8:15 AM	0	0	0	0	1	0	0	22
8:30 AM	0	0	0	0	0	0	0	19
8:45 AM	0	0	0	0	0	0	0	24
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	0	0	1	2	0	0	239
APPROACH %'s :	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	
								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	0	94
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.870
				0.250				

PM

NS/EW Streets: Mclean Ave/United Bank Dwy — NORTHBOUND

PM	NL	NT	NR	NU	NL2	NR2	NU2
	0	1	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0
6:00 PM	0	0	1	0	0	0	0
6:15 PM	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2
TOTAL VOLUMES :	0	1	1	0	0	0	0
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%
PEAK HR :	05:00 PM - 06:00 PM						
PEAK HR VOL :	0	1	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.000	0.000
				0.250			

NS/EW Streets: Mclean Ave/United Bank Dwy — SOUTHBOUND

PM	SL	ST	SR	SU	SL2	ST2	SR2
	0	1	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0
	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	0	0	0	0	0	0	0
PEAK HR VOL :	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NS/EW Streets: Fairfax Blvd/Warwick Ave — EASTBOUND

PM	EL	ET	ER	EU	ET2	ER2	EU2
	1	2	0	0	0	0	0
4:00 PM	0	5	0	0	0	0	0
4:15 PM	0	3	0	0	0	0	0
4:30 PM	0	2	0	0	0	0	0
4:45 PM	0	4	0	0	0	0	0
5:00 PM	0	5	0	0	0	0	0
5:15 PM	0	3	0	0	1	0	0
5:30 PM	0	5	0	0	1	0	0
5:45 PM	0	3	0	0	0	0	0
6:00 PM	0	1	0	0	0	0	0
6:15 PM	0	1	0	0	0	0	0
6:30 PM	0	0	1	0	0	0	0
6:45 PM	0	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2
TOTAL VOLUMES :	0	34	1	0	2	0	0
APPROACH %'s :	0.00%	91.89%	2.70%	0.00%	5.41%	0.00%	0.00%
PEAK HR VOL :	0	16	0	0	2	0	0
PEAK HR FACTOR :	0.000	0.800	0.000	0.000	0.500	0.000	0.000
				0.750			

NS/EW Streets: Fairfax Blvd/Warwick Ave — WESTBOUND

PM	WL	WT	WR	WU	WL2	WT2	WU2
	1	2	0	0	0	0	0
4:00 PM	0	5	0	0	0	0	0
4:15 PM	0	5	0	0	0	1	0
4:30 PM	0	10	0	0	0	1	0
4:45 PM	0	5	0	0	0	1	0
5:00 PM	0	5	0	0	0	0	0
5:15 PM	0	5	0	0	0	0	0
5:30 PM	0	3	0	0	0	1	0
5:45 PM	0	3	0	0	0	0	0
6:00 PM	1	5	0	0	0	1	0
6:15 PM	0	5	0	0	0	0	0
6:30 PM	0	3	0	0	0	1	0
6:45 PM	0	2	0	0	0	0	0
	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	1	56	0	0	0	6	0
APPROACH %'s :	1.59%	88.89%	0.00%	0.00%	0.00%	9.52%	0.00%
PEAK HR VOL :	0	16	0	0	0	1	0
PEAK HR FACTOR :	0.000	0.800	0.000	0.000	0.000	0.250	0.000
				0.850			

NORTHBOUND2

PM	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2
	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2
TOTAL VOLUMES :	0	0	0	0	0	0	0
PEAK HR VOL :	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PM	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	1	0	0
5:00 PM	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0
	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
TOTAL VOLUMES :	1	0	0	0	6	0	0
APPROACH %'s :	14.29%	0.00%	0.00%	0.00%	85.71%	0.00%	0.00%
PEAK HR VOL :	0	0	0	0	3	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.000

WESTBOUND2

PM	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
	0	0	0	0	0	0	0	
4:00 PM	0	0	0	0	0	0	0	11
4:15 PM	0	0	0	0	0	0	0	9
4:30 PM	0	0	0	0	0	0	0	13
4:45 PM	0	0	0	0	0	0	0	12
5:00 PM	0	0	0	0	0	0	0	11
5:15 PM	0	0	0	0	1	0	0	11
5:30 PM	0	1	0	0	0	0	0	12
5:45 PM	0	0	0	0	0	0	0	7
6:00 PM	0	0	0	0	0	0	0	9
6:15 PM	0	0	0	0	0	0	0	7
6:30 PM	0	0	0	0	0	0	0	5
6:45 PM	0	1	0	0	0	0	0	5
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	2	0	0	1	0	0	112
APPROACH %'s :	0.00%	66.67%	0.00%	0.00%	33.33%	0.00%	0.00%	
								TOTAL
PEAK HR VOL :	0	1	0	0	1	0	0	41
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.854
				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 3/20/2019

Bikes

AM

NS/EW Streets:	Mclean Ave/United Bank Dwy							Mclean Ave/United Bank Dwy						
AM	NORTHBOUND							SOUTHBOUND						
	0	1	0	0	0	0	0	0	1	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	3	0	0	0	0	0	0	0	1	0	0	0	0	0
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PEAK HR :	07:45 AM - 08:45 AM													
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
				0.250										

NS/EW Streets:	Fairfax Blvd/Warwick Ave							Fairfax Blvd/Warwick Ave						
AM	EASTBOUND							WESTBOUND						
	1	2	0	0	0	0	0	1	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	6	0	0	0	0	0
APPROACH %'s :								0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PEAK HR VOL :	0	0	0	0	0	0	0	0	4	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000
											0.500			

AM	NORTHBOUND2														WESTBOUND2							
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
																						TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625

PM

PM	NORTHBOUND							SOUTHBOUND						
	0	1	0	0	0	0	0	0	1	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	0	0	0	0	2	0	0	0	1	0	0	0	0	1
APPROACH %'s :	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%
PEAK HR :	05:00 PM - 06:00 PM													
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

PM	EASTBOUND							WESTBOUND						
	1	2	0	0	0	0	0	1	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
4:00 PM	0	0	2	0	0	0	0	0	3	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	2	0	0	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	0	3	4	0	0	0	0	0	5	0	0	0	1	0
APPROACH %'s :	0.00%	42.86%	57.14%	0.00%	0.00%	0.00%	0.00%	0.00%	83.33%	0.00%	0.00%	0.00%	16.67%	0.00%
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	1	0
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000
				0.250							0.250			

PM	NORTHBOUND2														WESTBOUND2							
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	21
APPROACH %'s :								66.67%	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
																						TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	6
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.500
																		0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax

Project ID: 19-11036-005
Date: 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Mclean Ave/United Bank Dwy		Mclean Ave/United Bank Dwy		Fairfax Blvd/Warwick Ave		Fairfax Blvd/Warwick Ave												
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		EAST LEG 2		WEST LEG 2		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	4	1	1	0	0	2	1	0	0	0	0	0	2	1	0	0	0	13
APPROACH %'s :	20.00%	80.00%	50.00%	50.00%			66.67%	33.33%					0.00%	100.00%	100.00%	0.00%			
PEAK HR :	07:45 AM - 08:45 AM																		TOTAL
PEAK HR VOL :	0	2	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	6
PEAK HR FACTOR :		0.250	0.250					0.250						0.250	0.250				
	0.250		0.250				0.250						0.250		0.250				0.500

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		EAST LEG 2		WEST LEG 2		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
4:00 PM	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	3	2	0	0	0	0	3	3	0	0	0	0	0	0	0	0	11
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	2	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
6:00 PM	2	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5
6:15 PM	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	6	6	5	5	0	0	2	1	4	4	0	0	0	2	0	0	0	0	35
APPROACH %'s :	50.00%	50.00%	50.00%	50.00%			66.67%	33.33%	50.00%	50.00%			0.00%	100.00%					
PEAK HR :	05:00 PM - 06:00 PM																		TOTAL
PEAK HR VOL :	2	2	2	2	0	0	2	0	0	0	0	0	0	2	0	0	0	0	12
PEAK HR FACTOR :	0.250	0.250	0.250	0.250			0.500							0.250					
	0.500		0.500				0.500						0.250						0.600

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 3/20/2019

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	3	0	14	0	0	0	0	0	0	0	0	0	1	0	18
6:15 AM	0	0	5	0	12	0	0	0	0	0	0	0	0	0	2	0	19
6:30 AM	0	0	1	0	22	0	0	0	0	0	0	0	0	0	5	0	28
6:45 AM	0	0	2	0	18	0	0	0	0	0	0	0	0	0	9	0	29
7:00 AM	0	2	7	0	34	2	0	0	0	0	0	0	0	0	5	0	50
7:15 AM	0	0	5	0	49	1	0	0	0	0	0	0	1	0	13	0	69
7:30 AM	0	0	8	0	58	1	0	0	0	0	0	0	1	0	11	0	79
7:45 AM	0	1	7	0	66	0	0	0	0	0	0	0	2	0	14	0	90
8:00 AM	0	1	9	0	37	0	0	0	0	0	0	0	3	0	15	0	65
8:15 AM	0	2	6	0	46	0	0	0	0	0	0	0	2	0	17	0	73
8:30 AM	0	1	4	0	31	2	0	0	0	0	0	0	2	0	10	0	50
8:45 AM	0	1	6	0	36	1	0	0	0	0	0	0	0	0	11	0	55
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	63	0	423	7	0	0	0	0	0	0	11	0	113	0	625
APPROACH %'s :	0.00%	11.27%	88.73%	0.00%	98.37%	1.63%	0.00%	0.00%					8.87%	0.00%	91.13%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	5	26	0	180	2	0	0	0	0	0	0	9	0	56	0	278
PEAK HR FACTOR :	0.000	0.625	0.722	0.000	0.682	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.824	0.000	0.772
		0.775				0.689								0.855			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	5	0	12	0	0	0	0	0	0	0	3	0	24	0	44
4:15 PM	0	3	2	0	15	0	0	0	0	0	0	0	4	0	29	0	53
4:30 PM	0	0	4	0	19	0	0	0	0	0	0	0	3	0	31	0	57
4:45 PM	0	1	2	0	14	2	0	0	0	0	0	0	5	0	32	0	56
5:00 PM	0	1	3	0	21	2	0	0	0	0	0	0	9	0	30	0	66
5:15 PM	0	0	0	0	23	1	0	0	0	0	0	0	7	0	50	0	81
5:30 PM	0	1	1	0	29	1	0	0	0	0	0	0	8	0	36	0	76
5:45 PM	0	4	4	0	13	0	0	0	0	0	0	0	6	0	43	1	71
6:00 PM	0	0	3	0	16	2	0	0	0	0	0	0	7	0	41	0	69
6:15 PM	0	1	2	0	18	1	0	0	0	0	0	0	6	0	28	0	56
6:30 PM	0	1	5	0	22	3	0	0	0	0	0	0	7	0	25	0	63
6:45 PM	0	0	4	0	14	2	0	0	0	0	0	0	4	0	34	0	58
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	35	0	216	14	0	0	0	0	0	0	69	0	403	1	750
APPROACH %'s :	0.00%	25.53%	74.47%	0.00%	93.91%	6.09%	0.00%	0.00%					14.59%	0.00%	85.20%	0.21%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	6	8	0	86	4	0	0	0	0	0	0	30	0	159	1	294
PEAK HR FACTOR :	0.000	0.375	0.500	0.000	0.741	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.795	0.250	0.907
		0.438				0.750								0.833			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 3/20/2019

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	3	0	14	0	0	0	0	0	0	0	0	0	1	0	18
6:15 AM	0	0	5	0	12	0	0	0	0	0	0	0	0	0	2	0	19
6:30 AM	0	0	1	0	21	0	0	0	0	0	0	0	0	0	3	0	25
6:45 AM	0	0	2	0	17	0	0	0	0	0	0	0	0	0	8	0	27
7:00 AM	0	2	7	0	33	2	0	0	0	0	0	0	0	0	5	0	49
7:15 AM	0	0	5	0	47	1	0	0	0	0	0	0	1	0	13	0	67
7:30 AM	0	0	8	0	56	1	0	0	0	0	0	0	1	0	9	0	75
7:45 AM	0	1	7	0	61	0	0	0	0	0	0	0	2	0	13	0	84
8:00 AM	0	1	9	0	35	0	0	0	0	0	0	0	3	0	9	0	57
8:15 AM	0	2	6	0	46	0	0	0	0	0	0	0	2	0	14	0	70
8:30 AM	0	1	4	0	31	2	0	0	0	0	0	0	2	0	9	0	49
8:45 AM	0	1	6	0	36	1	0	0	0	0	0	0	0	0	10	0	54
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	8	63	0	409	7	0	0	0	0	0	0	11	0	96	0	594
APPROACH %'s :	0.00%	11.27%	88.73%	0.00%	98.32%	1.68%	0.00%	0.00%					10.28%	0.00%	89.72%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	5	26	0	173	2	0	0	0	0	0	0	9	0	45	0	260
PEAK HR FACTOR :	0.00	0.625	0.722	0.000	0.709	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.804	0.000	0.774
			0.775				0.717								0.844		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	5	0	12	0	0	0	0	0	0	0	3	0	22	0	42
4:15 PM	0	3	2	0	15	0	0	0	0	0	0	0	4	0	28	0	52
4:30 PM	0	0	4	0	19	0	0	0	0	0	0	0	3	0	31	0	57
4:45 PM	0	1	2	0	14	2	0	0	0	0	0	0	5	0	32	0	56
5:00 PM	0	1	3	0	21	2	0	0	0	0	0	0	9	0	29	0	65
5:15 PM	0	0	0	0	23	1	0	0	0	0	0	0	7	0	50	0	81
5:30 PM	0	1	1	0	29	1	0	0	0	0	0	0	8	0	34	0	74
5:45 PM	0	4	4	0	13	0	0	0	0	0	0	0	6	0	43	1	71
6:00 PM	0	0	3	0	16	2	0	0	0	0	0	0	7	0	41	0	69
6:15 PM	0	1	2	0	18	1	0	0	0	0	0	0	6	0	28	0	56
6:30 PM	0	1	5	0	21	3	0	0	0	0	0	0	7	0	25	0	62
6:45 PM	0	0	4	0	14	2	0	0	0	0	0	0	4	0	34	0	58
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	12	35	0	215	14	0	0	0	0	0	0	69	0	397	1	743
APPROACH %'s :	0.00%	25.53%	74.47%	0.00%	93.89%	6.11%	0.00%	0.00%					14.78%	0.00%	85.01%	0.21%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	6	8	0	86	4	0	0	0	0	0	0	30	0	156	1	291
PEAK HR FACTOR :	0.00	0.375	0.500	0.000	0.741	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.000	0.780	0.250	0.898
			0.438				0.750								0.820		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 3/20/2019

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	3
6:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	2
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	4
7:45 AM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	6
8:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	6	0	8
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	14	0	0	0	0	0	0	0	0	0	17	0	31
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	7	0	0	0	0	0	0	0	0	0	11	0	18
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.350	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.563
					0.350								0.458				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	0	0	0	0	0	0	0	0	6	0	7
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.375
													0.375				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 3/20/2019

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
APPROACH %'s :													0.00%	0.00%	100.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :					100.00%	0.00%	0.00%	0.00%									
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
					0.250												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-101
City: Fairfax **Date:** 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	1	0	0	6	1	9
7:30 AM	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	6	1	7
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	2	1	0	0	12	3	18
APPROACH %'s :			66.67%	33.33%			80.00%	20.00%	
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	0	1	0	0	0	6	2	9
PEAK HR FACTOR :			0.250				0.250	0.500	0.321
			0.250				0.286		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	2	2
4:15 PM	0	0	0	2	0	0	2	1	5
4:30 PM	0	0	0	2	0	0	3	1	6
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	2	0	2
5:30 PM	0	0	1	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	1	0	0	2	2	5
6:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	1	5	0	0	9	6	21
APPROACH %'s :			16.67%	83.33%			60.00%	40.00%	
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	0	0	1	0	0	0	2	0	3
PEAK HR FACTOR :			0.250				0.250		0.375
			0.250				0.250		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 3/20/2019

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	4	0	13	0	6	32	0	0	0	11	1	0	67
6:15 AM	0	0	0	0	4	0	21	0	6	24	1	0	0	20	3	0	79
6:30 AM	0	0	1	0	10	0	31	0	12	29	0	0	0	22	3	0	108
6:45 AM	0	0	1	0	5	0	29	0	15	35	3	0	0	28	5	0	121
7:00 AM	2	0	2	0	11	0	32	0	12	45	2	0	0	34	2	0	142
7:15 AM	0	0	0	0	17	0	33	0	7	75	1	0	0	59	6	0	198
7:30 AM	2	1	1	0	9	0	39	0	9	97	4	0	0	71	0	0	233
7:45 AM	2	0	5	0	11	0	30	0	16	134	1	0	0	96	5	0	300
8:00 AM	2	0	5	0	11	0	41	0	10	73	1	0	0	95	12	0	250
8:15 AM	4	0	2	0	9	0	43	0	9	63	1	0	0	83	3	0	217
8:30 AM	0	0	9	0	8	1	31	0	8	91	3	0	0	70	3	0	224
8:45 AM	1	0	3	0	8	0	34	0	8	84	0	0	0	50	3	0	191
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	1	29	0	107	1	377	0	118	782	17	0	0	639	46	0	2130
APPROACH %'s :	30.23%	2.33%	67.44%	0.00%	22.06%	0.21%	77.73%	0.00%	12.87%	85.28%	1.85%	0.00%	0.00%	93.28%	6.72%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	8	0	21	0	39	1	145	0	43	361	6	0	0	344	23	0	991
PEAK HR FACTOR :	0.500	0.000	0.583	0.000	0.886	0.250	0.843	0.000	0.672	0.674	0.500	0.000	0.000	0.896	0.479	0.000	0.826
	0.806				0.889				0.679				0.857				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	1	0	3	0	21	0	24	52	1	0	1	159	11	0	275
4:15 PM	0	0	3	0	6	0	27	0	30	63	0	0	0	147	10	0	286
4:30 PM	1	0	0	0	10	0	33	0	34	69	1	0	0	153	10	0	311
4:45 PM	1	0	0	0	11	0	21	0	28	77	3	0	0	143	11	0	295
5:00 PM	2	0	1	0	9	3	29	0	35	66	2	0	0	149	13	0	309
5:15 PM	3	2	0	0	6	0	30	0	34	76	4	0	0	150	12	0	317
5:30 PM	4	0	3	0	2	0	36	0	31	70	3	0	0	149	15	0	313
5:45 PM	0	1	3	0	5	0	29	0	41	78	2	0	0	168	11	0	338
6:00 PM	4	1	2	0	6	0	31	0	37	69	2	0	1	138	14	0	305
6:15 PM	0	0	0	0	3	0	36	0	36	77	2	0	0	150	8	0	312
6:30 PM	0	0	1	0	4	0	18	0	32	80	2	0	0	151	19	0	307
6:45 PM	1	3	2	0	5	0	23	0	40	58	1	0	0	121	14	0	268
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	8	16	0	70	3	334	0	402	835	23	0	2	1778	148	0	3636
APPROACH %'s :	41.46%	19.51%	39.02%	0.00%	17.20%	0.74%	82.06%	0.00%	31.90%	66.27%	1.83%	0.00%	0.10%	92.22%	7.68%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	9	3	7	0	22	3	124	0	141	290	11	0	0	616	51	0	1277
PEAK HR FACTOR :	0.563	0.375	0.583	0.000	0.611	0.250	0.861	0.000	0.860	0.929	0.688	0.000	0.000	0.917	0.850	0.000	0.945
	0.679				0.909				0.913				0.932				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 3/20/2019

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	4	0	13	0	6	30	0	0	0	11	1	0	65
6:15 AM	0	0	0	0	4	0	21	0	6	24	1	0	0	19	2	0	77
6:30 AM	0	0	1	0	9	0	30	0	10	28	0	0	0	21	3	0	102
6:45 AM	0	0	1	0	5	0	25	0	14	33	3	0	0	26	5	0	112
7:00 AM	1	0	0	0	11	0	32	0	12	45	2	0	0	33	2	0	138
7:15 AM	0	0	0	0	17	0	33	0	7	71	1	0	0	58	5	0	192
7:30 AM	2	1	1	0	8	0	38	0	6	93	3	0	0	71	0	0	223
7:45 AM	2	0	5	0	11	0	29	0	13	133	1	0	0	91	5	0	290
8:00 AM	2	0	5	0	10	0	36	0	8	72	1	0	0	92	12	0	238
8:15 AM	4	0	1	0	9	0	42	0	8	62	1	0	0	79	3	0	209
8:30 AM	0	0	8	0	8	1	28	0	8	88	3	0	0	68	3	0	215
8:45 AM	1	0	3	0	8	0	34	0	8	82	0	0	0	50	3	0	189
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	1	25	0	104	1	361	0	106	761	16	0	0	619	44	0	2050
APPROACH %'s :	31.58%	2.63%	65.79%	0.00%	22.32%	0.21%	77.47%	0.00%	12.00%	86.18%	1.81%	0.00%	0.00%	93.36%	6.64%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	8	0	19	0	38	1	135	0	37	355	6	0	0	330	23	0	952
PEAK HR FACTOR :	0.50	0.000	0.594	0.000	0.864	0.250	0.804	0.000	0.712	0.667	0.500	0.000	0.000	0.897	0.479	0.000	0.821
	0.844				0.853				0.677				0.849				

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	1	1	0	3	0	20	0	24	50	1	0	1	155	11	0	268
4:15 PM	0	0	3	0	6	0	27	0	28	63	0	0	0	146	9	0	282
4:30 PM	1	0	0	0	10	0	31	0	34	65	1	0	0	152	10	0	304
4:45 PM	1	0	0	0	11	0	21	0	27	77	2	0	0	142	11	0	292
5:00 PM	2	0	1	0	8	3	28	0	33	66	2	0	0	148	12	0	303
5:15 PM	3	2	0	0	6	0	29	0	34	75	4	0	0	150	12	0	315
5:30 PM	4	0	3	0	2	0	35	0	31	70	2	0	0	148	15	0	310
5:45 PM	0	1	3	0	5	0	29	0	41	76	2	0	0	167	11	0	335
6:00 PM	4	1	2	0	6	0	31	0	35	68	2	0	1	137	14	0	301
6:15 PM	0	0	0	0	3	0	36	0	36	75	1	0	0	148	8	0	307
6:30 PM	0	0	1	0	4	0	18	0	31	80	2	0	0	151	19	0	306
6:45 PM	1	3	2	0	5	0	22	0	40	57	1	0	0	119	14	0	264
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	8	16	0	69	3	327	0	394	822	20	0	2	1763	146	0	3587
APPROACH %'s :	41.46%	19.51%	39.02%	0.00%	17.29%	0.75%	81.95%	0.00%	31.88%	66.50%	1.62%	0.00%	0.10%	92.26%	7.64%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	9	3	7	0	21	3	121	0	139	287	10	0	0	613	50	0	1263
PEAK HR FACTOR :	0.56	0.375	0.583	0.000	0.656	0.250	0.864	0.000	0.848	0.944	0.625	0.000	0.000	0.918	0.833	0.000	0.943
	0.679				0.929				0.916				0.931				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 3/20/2019

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
6:30 AM	0	0	0	0	1	0	1	0	2	1	0	0	0	1	0	0	6
6:45 AM	0	0	0	0	0	0	4	0	1	2	0	0	0	2	0	0	9
7:00 AM	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	1	1	0	6
7:30 AM	0	0	0	0	1	0	1	0	3	4	1	0	0	0	0	0	10
7:45 AM	0	0	0	0	0	0	1	0	3	1	0	0	0	5	0	0	10
8:00 AM	0	0	0	0	1	0	5	0	2	1	0	0	0	3	0	0	12
8:15 AM	0	0	1	0	0	0	1	0	1	1	0	0	0	4	0	0	8
8:30 AM	0	0	1	0	0	0	3	0	0	3	0	0	0	2	0	0	9
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	4	0	3	0	16	0	12	21	1	0	0	20	2	0	80
APPROACH %'s :	20.00%	0.00%	80.00%	0.00%	15.79%	0.00%	84.21%	0.00%	35.29%	61.76%	2.94%	0.00%	0.00%	90.91%	9.09%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	2	0	1	0	10	0	6	6	0	0	0	14	0	0	39
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.250	0.000	0.500	0.000	0.500	0.500	0.000	0.000	0.000	0.700	0.000	0.000	0.813
	0.500				0.458				0.750				0.700				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	1	0	0	2	0	0	0	4	0	0	7
4:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	1	1	0	4
4:30 PM	0	0	0	0	0	0	2	0	0	4	0	0	0	1	0	0	7
4:45 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	3
5:00 PM	0	0	0	0	1	0	1	0	2	0	0	0	0	1	1	0	6
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
6:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	4
6:15 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	2	0	0	5
6:30 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
6:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1	0	7	0	8	13	3	0	0	15	2	0	49
APPROACH %'s :					12.50%	0.00%	87.50%	0.00%	33.33%	54.17%	12.50%	0.00%	0.00%	88.24%	11.76%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	0	3	0	2	3	1	0	0	3	1	0	14
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.250	0.000	0.750	0.000	0.250	0.375	0.250	0.000	0.000	0.750	0.250	0.000	0.583
					0.500				0.750				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 3/20/2019

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	3	1	0	0	0	0	0	0	1	0	0	5
APPROACH %'s :					0.00%	75.00%	25.00%	0.00%					0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
						0.250											

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	1	0	0	2	1	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%					
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
										0.250							

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-201
City: Fairfax **Date:** 3/20/2019

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
6:00 AM	0	0	0	0	0	4	0	0	4
6:15 AM	0	0	0	0	0	2	0	0	2
6:30 AM	0	0	0	0	0	3	0	0	3
6:45 AM	0	0	0	0	0	1	0	0	1
7:00 AM	0	0	0	0	0	4	0	0	4
7:15 AM	0	0	0	0	0	2	0	0	2
7:30 AM	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	1	1	0	0	2
8:15 AM	0	0	0	0	0	2	0	0	2
8:30 AM	0	1	1	1	1	2	0	1	7
8:45 AM	0	0	0	0	0	1	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	1	1	2	25	0	1	31
APPROACH %'s :	0.00%	100.00%	50.00%	50.00%	7.41%	92.59%	0.00%	100.00%	
PEAK HR :	**07:45 AM - 08:45 AM**								TOTAL
PEAK HR VOL :	0	1	1	1	2	6	0	1	12
PEAK HR FACTOR :		0.250	0.250	0.250	0.500	0.750		0.250	0.429
		0.250	0.250		0.667		0.250		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	2	0	0	0	2
4:15 PM	0	0	0	0	3	1	0	0	4
4:30 PM	0	0	0	1	2	1	0	0	4
4:45 PM	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	2	0	0	2
5:15 PM	0	0	1	0	2	2	0	0	5
5:30 PM	0	0	1	0	2	2	0	0	5
5:45 PM	0	0	0	0	2	0	0	0	2
6:00 PM	0	0	0	0	2	0	0	0	2
6:15 PM	0	0	0	0	3	1	0	0	4
6:30 PM	0	0	0	2	1	2	0	0	5
6:45 PM	0	0	0	0	3	4	0	0	7
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	2	3	22	16	0	0	43
APPROACH %'s :			40.00%	60.00%	57.89%	42.11%			
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	0	0	2	0	6	6	0	0	14
PEAK HR FACTOR :			0.500		0.750	0.750			0.700
			0.500		0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 2019-03-23

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	2	187	15	4	57	220	5	1	9	6	1	0	12	4	68	0	591
11:15 AM	3	206	13	7	64	218	7	0	10	6	5	0	20	4	60	0	623
11:30 AM	2	177	6	1	53	222	11	1	5	9	6	0	17	4	60	0	574
11:45 AM	1	198	11	2	81	213	9	2	6	11	11	0	16	12	53	0	626
12:00 PM	2	164	12	2	52	227	14	0	9	10	2	0	14	8	71	0	587
12:15 PM	5	184	14	6	61	223	8	0	9	6	5	0	14	6	56	0	597
12:30 PM	1	170	14	3	53	229	6	0	6	3	3	0	18	4	106	0	616
12:45 PM	3	174	12	3	71	256	6	0	8	2	3	0	14	7	66	1	626
1:00 PM	4	227	10	4	52	232	9	1	5	2	6	0	11	12	69	0	644
1:15 PM	1	223	19	3	59	267	9	2	8	4	2	0	23	6	61	0	687
1:30 PM	2	153	10	3	71	282	6	1	6	9	3	0	11	10	80	0	647
1:45 PM	6	205	5	2	74	266	8	1	6	8	3	0	13	11	82	0	690
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	32	2268	141	40	748	2855	98	9	87	76	50	0	183	88	832	1	7508
APPROACH %'s :	1.29%	91.41%	5.68%	1.61%	20.16%	76.95%	2.64%	0.24%	40.85%	35.68%	23.47%	0.00%	16.58%	7.97%	75.36%	0.09%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	13	808	44	12	256	1047	32	5	25	23	14	0	58	39	292	0	2668
PEAK HR FACTOR :	0.542	0.890	0.579	0.750	0.865	0.928	0.889	0.625	0.781	0.639	0.583	0.000	0.630	0.813	0.890	0.000	0.967
	0.891				0.931				0.861				0.917				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 2019-03-23

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	2	186	15	4	57	214	5	1	9	6	1	0	11	4	67	0	582
11:15 AM	3	201	12	7	64	214	7	0	10	6	5	0	20	4	60	0	613
11:30 AM	1	175	6	1	51	220	11	1	5	9	6	0	16	4	58	0	564
11:45 AM	1	196	11	2	81	209	9	2	6	11	10	0	16	12	52	0	618
12:00 PM	2	161	12	2	51	225	13	0	9	10	2	0	14	8	69	0	578
12:15 PM	5	183	14	6	61	222	8	0	9	6	5	0	14	6	54	0	593
12:30 PM	1	168	13	3	52	227	6	0	6	3	3	0	18	4	104	0	608
12:45 PM	3	171	11	3	71	252	6	0	8	2	3	0	13	7	66	1	617
1:00 PM	4	225	10	4	52	228	9	1	5	2	6	0	11	12	67	0	636
1:15 PM	1	223	19	3	58	263	9	2	8	4	2	0	23	6	60	0	681
1:30 PM	2	150	9	3	69	275	6	1	6	9	3	0	11	10	80	0	634
1:45 PM	6	200	5	2	72	262	8	1	6	8	3	0	12	11	82	0	678
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	31	2239	137	40	739	2811	97	9	87	76	49	0	179	88	819	1	7402
APPROACH %'s :	1.27%	91.50%	5.60%	1.63%	20.21%	76.89%	2.65%	0.25%	41.04%	35.85%	23.11%	0.00%	16.47%	8.10%	75.34%	0.09%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	13	798	43	12	251	1028	32	5	25	23	14	0	57	39	289	0	2629
PEAK HR FACTOR :	0.54	0.887	0.566	0.750	0.872	0.935	0.889	0.625	0.781	0.639	0.583	0.000	0.620	0.813	0.881	0.000	0.965
		0.880				0.937				0.861				0.917			

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 2019-03-23

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	1	0	0	0	6	0	0	0	0	0	0	1	0	1	0	9
11:15 AM	0	5	1	0	0	4	0	0	0	0	0	0	0	0	0	0	10
11:30 AM	1	2	0	0	2	2	0	0	0	0	0	0	1	0	2	0	10
11:45 AM	0	2	0	0	0	4	0	0	0	0	1	0	0	0	1	0	8
12:00 PM	0	3	0	0	1	2	1	0	0	0	0	0	0	0	2	0	9
12:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	4
12:30 PM	0	2	1	0	1	2	0	0	0	0	0	0	0	0	2	0	8
12:45 PM	0	3	1	0	0	4	0	0	0	0	0	0	1	0	0	0	9
1:00 PM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	2	0	8
1:15 PM	0	0	0	0	1	4	0	0	0	0	0	0	0	0	1	0	6
1:30 PM	0	3	1	0	2	7	0	0	0	0	0	0	0	0	0	0	13
1:45 PM	0	5	0	0	2	4	0	0	0	0	0	0	1	0	0	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	29	4	0	9	44	1	0	0	0	1	0	4	0	13	0	106
APPROACH %'s :	2.94%	85.29%	11.76%	0.00%	16.67%	81.48%	1.85%	0.00%	0.00%	0.00%	100.00%	0.00%	23.53%	0.00%	76.47%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	10	1	0	5	19	0	0	0	0	0	0	1	0	3	0	39
PEAK HR FACTOR :	0.00	0.500	0.250	0.000	0.625	0.679	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.375	0.000	0.750
		0.550				0.667								0.500			

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-001
Date: 2019-03-23

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2.5	0.5	0	1	2	0	0	0	1	0	0	0.3	0.3	1.3	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-001
City: Fairfax **Date:** 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	1
11:45 AM	0	0	2	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	1	2	0	0	0	0	0	3
APPROACH %'s :	0.00%	100.00%	100.00%	0.00%					
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :									

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 2019-03-23

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	193	0	0	0	229	3	0	0	0	4	0	0	0	0	0	429
11:15 AM	0	209	0	0	0	243	0	0	0	0	0	0	0	0	0	0	452
11:30 AM	0	199	0	0	0	248	0	0	0	0	3	0	0	0	0	0	450
11:45 AM	0	206	0	0	0	243	1	0	0	0	1	0	0	0	0	0	451
12:00 PM	0	183	0	0	0	247	1	0	0	0	5	0	0	0	0	0	436
12:15 PM	0	207	0	0	0	232	2	0	0	0	3	0	0	0	0	0	444
12:30 PM	0	175	0	0	0	261	0	0	0	0	3	0	0	0	0	0	439
12:45 PM	0	195	0	0	0	270	2	0	0	0	6	0	0	0	0	0	473
1:00 PM	0	248	0	0	0	242	2	0	0	0	4	0	0	0	0	0	496
1:15 PM	0	245	0	0	0	286	3	0	0	0	1	0	0	0	0	0	535
1:30 PM	0	173	0	0	0	296	0	0	0	0	1	0	0	0	0	0	470
1:45 PM	0	229	0	0	0	292	0	0	0	0	2	0	0	0	0	0	523
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2462	0	0	0	3089	14	0	0	0	33	0	0	0	0	0	5598
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.55%	0.45%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	895	0	0	0	1116	5	0	0	0	8	0	0	0	0	0	2024
PEAK HR FACTOR :	0.000	0.902	0.000	0.000	0.000	0.943	0.417	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.946
		0.902				0.947				0.500							

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 2019-03-23

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	193	0	0	0	223	3	0	0	0	3	0	0	0	0	0	422
11:15 AM	0	202	0	0	0	239	0	0	0	0	0	0	0	0	0	0	441
11:30 AM	0	196	0	0	0	245	0	0	0	0	3	0	0	0	0	0	444
11:45 AM	0	203	0	0	0	238	1	0	0	0	1	0	0	0	0	0	443
12:00 PM	0	180	0	0	0	244	1	0	0	0	5	0	0	0	0	0	430
12:15 PM	0	207	0	0	0	231	2	0	0	0	3	0	0	0	0	0	443
12:30 PM	0	172	0	0	0	259	0	0	0	0	3	0	0	0	0	0	434
12:45 PM	0	191	0	0	0	266	2	0	0	0	6	0	0	0	0	0	465
1:00 PM	0	246	0	0	0	238	2	0	0	0	4	0	0	0	0	0	490
1:15 PM	0	245	0	0	0	282	3	0	0	0	1	0	0	0	0	0	531
1:30 PM	0	169	0	0	0	290	0	0	0	0	1	0	0	0	0	0	460
1:45 PM	0	223	0	0	0	286	0	0	0	0	1	0	0	0	0	0	510
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2427	0	0	0	3041	14	0	0	0	31	0	0	0	0	0	5513
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.54%	0.46%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	883	0	0	0	1096	5	0	0	0	7	0	0	0	0	0	1991
PEAK HR FACTOR :	0.00	0.897	0.000	0.000	0.000	0.945	0.417	0.000	0.000	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.937
		0.897				0.949				0.438							

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 2019-03-23

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	6	0	0	0	0	1	0	0	0	0	0	7
11:15 AM	0	7	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11
11:30 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
11:45 AM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8
12:00 PM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6
12:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
12:45 PM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8
1:00 PM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6
1:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
1:30 PM	0	4	0	0	0	6	0	0	0	0	0	0	0	0	0	0	10
1:45 PM	0	6	0	0	0	6	0	0	0	0	1	0	0	0	0	0	13
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	35	0	0	0	48	0	0	0	0	2	0	0	0	0	0	85
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%					
PEAK HR :	**01:00 PM - 02:00 PM**																TOTAL
PEAK HR VOL :	0	12	0	0	0	20	0	0	0	0	1	0	0	0	0	0	33
PEAK HR FACTOR :	0.00	0.500	0.000	0.000	0.000	0.833	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.635
		0.500				0.833				0.250							

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Control: 1-Way Stop (EB)

Project ID: 19-11036-002
Date: 2019-03-23

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Orchard St				Orchard St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	2	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Orchard St
City: Fairfax
Project ID: 19-11036-002
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Orchard St		Orchard St		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	0	0	0	0	1	1
11:15 AM	0	0	0	0	0	0	1	0	1
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	1	0	0	1	2	4
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	2	0	2
1:15 PM	0	0	0	0	0	0	2	0	2
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	1	0	0	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	0	1	0	0	6	3	11
APPROACH %'s :	100.00%	0.00%	0.00%	100.00%			66.67%	33.33%	
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	1	0	0	0	0	0	4	0	5
PEAK HR FACTOR :	0.250						0.500		0.625
	0.250						0.500		

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 2019-03-23

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	20	108	13	0	32	126	76	3	67	171	5	0	25	176	16	3	841
11:15 AM	20	102	20	0	22	99	109	4	80	148	4	1	23	171	20	2	825
11:30 AM	31	132	19	0	29	141	89	3	59	208	12	0	17	182	14	8	944
11:45 AM	22	115	17	0	30	123	74	0	63	175	8	0	16	167	22	11	843
12:00 PM	30	117	35	0	57	116	86	2	63	225	14	0	17	216	12	3	993
12:15 PM	33	122	22	0	27	122	87	1	63	215	8	0	13	204	13	7	937
12:30 PM	20	98	18	0	40	134	83	3	50	208	6	0	19	213	19	6	917
12:45 PM	23	117	35	0	36	132	114	3	64	207	15	2	24	196	22	6	996
1:00 PM	24	164	22	0	26	127	79	2	65	212	7	0	15	204	20	4	971
1:15 PM	20	165	21	0	39	152	103	1	55	212	7	0	16	230	12	4	1037
1:30 PM	20	95	22	0	44	145	105	3	60	223	8	0	18	191	18	4	956
1:45 PM	14	123	29	0	42	173	71	3	65	233	1	1	17	213	26	8	1019
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	277	1458	273	0	424	1590	1076	28	754	2437	95	4	220	2363	214	66	11279
APPROACH %'s :	13.79%	72.61%	13.60%	0.00%	13.60%	50.99%	34.51%	0.90%	22.92%	74.07%	2.89%	0.12%	7.68%	82.54%	7.47%	2.31%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	78	547	94	0	151	597	358	9	245	880	23	1	66	838	76	20	3983
PEAK HR FACTOR :	0.813	0.829	0.810	0.000	0.858	0.863	0.852	0.750	0.942	0.944	0.719	0.250	0.917	0.911	0.731	0.625	0.960
	0.856				0.939				0.958				0.947				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 2019-03-23

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	20	108	13	0	30	124	73	3	67	169	5	0	25	175	16	3	831
11:15 AM	20	101	20	0	21	99	107	4	78	146	4	1	22	166	15	2	806
11:30 AM	30	131	19	0	27	139	88	3	59	207	12	0	17	181	13	8	934
11:45 AM	22	113	16	0	27	122	73	0	63	173	8	0	16	166	21	11	831
12:00 PM	30	115	35	0	55	115	86	2	63	222	14	0	17	213	12	3	982
12:15 PM	32	122	21	0	26	122	87	1	63	212	8	0	13	200	13	7	927
12:30 PM	20	97	18	0	39	134	82	3	50	207	6	0	19	212	17	6	910
12:45 PM	23	115	34	0	35	130	112	3	64	204	15	2	23	196	20	6	982
1:00 PM	24	163	21	0	23	127	79	2	64	211	6	0	15	203	20	4	962
1:15 PM	20	165	21	0	35	152	103	1	55	211	7	0	16	226	12	4	1028
1:30 PM	20	94	22	0	41	144	103	3	60	220	8	0	18	190	15	4	942
1:45 PM	14	120	29	0	39	171	70	3	65	233	1	1	17	213	23	8	1007
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	275	1444	269	0	398	1579	1063	28	751	2415	94	4	218	2341	197	66	11142
APPROACH %'s :	13.83%	72.64%	13.53%	0.00%	12.97%	51.47%	34.65%	0.91%	23.01%	73.99%	2.88%	0.12%	7.73%	82.96%	6.98%	2.34%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	78	542	93	0	138	594	355	9	244	875	22	1	66	832	70	20	3939
PEAK HR FACTOR :	0.81	0.821	0.802	0.000	0.841	0.868	0.862	0.750	0.938	0.939	0.688	0.250	0.917	0.920	0.761	0.625	0.958
		0.857				0.942				0.952				0.946			

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 2019-03-23

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	2	2	3	0	0	2	0	0	0	1	0	0	10
11:15 AM	0	1	0	0	1	0	2	0	2	2	0	0	1	5	5	0	19
11:30 AM	1	1	0	0	2	2	1	0	0	1	0	0	0	1	1	0	10
11:45 AM	0	2	1	0	3	1	1	0	0	2	0	0	0	1	1	0	12
12:00 PM	0	2	0	0	2	1	0	0	0	3	0	0	0	3	0	0	11
12:15 PM	1	0	1	0	1	0	0	0	0	3	0	0	0	4	0	0	10
12:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	1	2	0	7
12:45 PM	0	2	1	0	1	2	2	0	0	3	0	0	1	0	2	0	14
1:00 PM	0	1	1	0	3	0	0	0	1	1	1	0	0	1	0	0	9
1:15 PM	0	0	0	0	4	0	0	0	0	1	0	0	0	4	0	0	9
1:30 PM	0	1	0	0	3	1	2	0	0	3	0	0	0	1	3	0	14
1:45 PM	0	3	0	0	3	2	1	0	0	0	0	0	0	0	3	0	12
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	14	4	0	26	11	13	0	3	22	1	0	2	22	17	0	137
APPROACH %'s :	10.00%	70.00%	20.00%	0.00%	52.00%	22.00%	26.00%	0.00%	11.54%	84.62%	3.85%	0.00%	4.88%	53.66%	41.46%	0.00%	
PEAK HR :	**01:00 PM - 02:00 PM**																TOTAL
PEAK HR VOL :	0	5	1	0	13	3	3	0	1	5	1	0	0	6	6	0	44
PEAK HR FACTOR :	0.00	0.417	0.250	0.000	0.813	0.375	0.375	0.000	0.250	0.417	0.250	0.000	0.000	0.375	0.500	0.000	0.786
		0.500				0.792				0.583				0.750			

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax
Control: Signalized

Project ID: 19-11036-003
Date: 2019-03-23

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1.5	1	0	1	1	1	0	1	1.5	0.5	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	0.00%	100.00%	0.00%									
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Fairfax Blvd
City: Fairfax

Project ID: 19-11036-003
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Fairfax Blvd		Fairfax Blvd						
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	2	2	0	0	1	0	2	0	0	7
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
12:30 PM	2	6	0	0	1	0	4	0	0	0	0	0	13
12:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
1:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	1	0	1	0	0	1	0	3
1:45 PM	0	0	1	0	3	0	0	0	0	0	1	0	5
	EB	WB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	3	9	1	2	9	2	4	2	0	2	2	0	36
APPROACH %'s :	25.00%	75.00%	33.33%	66.67%	81.82%	18.18%	66.67%	33.33%	0.00%	100.00%	100.00%	0.00%	
PEAK HR :	**01:00 PM - 02:00 PM**												TOTAL
PEAK HR VOL :	1	0	1	0	3	1	0	1	0	0	2	0	9
PEAK HR FACTOR :	0.250		0.250		0.250	0.250		0.250			0.500		0.450
	0.250		0.250		0.333		0.250				0.500		

National Data & Surveying Services Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 2019-03-23

Total

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	2	0	0	0	1	0	0	235	0	0	0	277	1	0	516
11:15 AM	0	0	2	0	0	0	3	0	0	233	0	0	0	270	2	0	510
11:30 AM	0	0	1	0	0	0	8	0	0	276	0	0	0	316	1	0	602
11:45 AM	0	0	1	0	0	0	3	0	0	251	1	0	0	260	1	0	517
12:00 PM	0	0	4	0	0	0	4	0	0	292	0	0	0	323	2	0	625
12:15 PM	0	0	1	0	0	0	1	0	0	288	0	0	0	313	0	0	603
12:30 PM	0	0	1	0	0	0	6	0	0	272	0	0	0	332	1	0	612
12:45 PM	0	0	8	0	0	0	2	0	0	267	1	0	0	329	2	0	609
1:00 PM	0	0	6	0	0	0	3	0	0	281	2	0	0	316	3	0	611
1:15 PM	0	0	1	0	0	0	4	0	0	270	1	0	0	342	2	0	620
1:30 PM	0	0	3	0	0	0	2	0	0	285	0	0	0	342	0	0	632
1:45 PM	0	0	1	0	0	0	3	0	0	303	0	0	0	289	2	0	598
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	31	0	0	0	40	0	0	3253	5	0	0	3709	17	0	7055
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.85%	0.15%	0.00%	0.00%	99.54%	0.46%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	11	0	0	0	12	0	0	1139	3	0	0	1289	7	0	2461
PEAK HR FACTOR :	0.000	0.000	0.458	0.000	0.000	0.000	0.750	0.000	0.000	0.940	0.375	0.000	0.000	0.942	0.583	0.000	0.973
	0.458				0.750				0.942				0.942				

National Data & Surveying Services Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 2019-03-23

Cars

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	2	0	0	0	1	0	0	233	0	0	0	273	1	0	510
11:15 AM	0	0	2	0	0	0	3	0	0	229	0	0	0	262	2	0	498
11:30 AM	0	0	1	0	0	0	8	0	0	275	0	0	0	314	1	0	599
11:45 AM	0	0	1	0	0	0	3	0	0	249	1	0	0	258	1	0	513
12:00 PM	0	0	4	0	0	0	4	0	0	289	0	0	0	320	2	0	619
12:15 PM	0	0	1	0	0	0	1	0	0	284	0	0	0	309	0	0	595
12:30 PM	0	0	1	0	0	0	6	0	0	271	0	0	0	328	1	0	607
12:45 PM	0	0	8	0	0	0	2	0	0	265	1	0	0	326	2	0	604
1:00 PM	0	0	6	0	0	0	3	0	0	278	2	0	0	315	3	0	607
1:15 PM	0	0	1	0	0	0	4	0	0	269	1	0	0	338	2	0	615
1:30 PM	0	0	3	0	0	0	2	0	0	283	0	0	0	339	0	0	627
1:45 PM	0	0	1	0	0	0	3	0	0	302	0	0	0	288	2	0	596
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	31	0	0	0	40	0	0	3227	5	0	0	3670	17	0	6990
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	99.85%	0.15%	0.00%	0.00%	99.54%	0.46%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	11	0	0	0	12	0	0	1132	3	0	0	1280	7	0	2445
PEAK HR FACTOR :	0.00	0.000	0.458	0.000	0.000	0.000	0.750	0.000	0.000	0.937	0.375	0.000	0.000	0.944	0.583	0.000	0.975
			0.458				0.750				0.940				0.946		

National Data & Surveying Services Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 2019-03-23

HT

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	0	6
11:15 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	8	0	0	12
11:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
12:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	6
12:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	0	8
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
12:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
1:00 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0	4
1:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	5
1:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
1:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	26	0	0	0	39	0	0	65
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	7	0	0	0	9	0	0	16
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.563	0.000	0.000	0.800
									0.583				0.563				

National Data & Surveying Services Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Control: 1-Way Stop (NB)

Project ID: 19-11036-004
Date: 2019-03-23

Bikes

NS/EW Streets:	Farr Ave				Farr Ave				Fairfax Blvd				Fairfax Blvd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
APPROACH %'s :													0.00%	100.00%	0.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Farr Ave & Fairfax Blvd
City: Fairfax
Project ID: 19-11036-004
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Farr Ave		Farr Ave		Fairfax Blvd		Fairfax Blvd		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	1	0	1	0	0	0	0	2
11:15 AM	0	3	0	0	0	0	0	0	3
11:30 AM	0	1	0	0	0	0	0	0	1
11:45 AM	0	1	0	0	0	0	0	0	1
12:00 PM	0	2	0	0	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	1
12:45 PM	0	4	0	1	0	0	0	0	5
1:00 PM	3	0	1	0	0	0	0	0	4
1:15 PM	2	0	0	0	0	0	0	0	2
1:30 PM	0	0	1	0	0	0	0	0	1
1:45 PM	0	0	1	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	5	12	4	2	0	0	0	0	23
APPROACH %'s :	29.41%	70.59%	66.67%	33.33%					
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	5	0	3	0	0	0	0	0	8
PEAK HR FACTOR :	0.417		0.750						0.500
	0.417		0.750						

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 2019-03-23

Total

NOON

NS/EW Streets: Mclean Ave/United Bank Dwy — NORTHBOUND

	NL	NT	NR	NU	NL2	NR2	NU2
Lanes	0	1	0	0	0	0	0
11:00 AM	3	0	6	0	2	0	0
11:15 AM	2	1	6	0	0	0	0
11:30 AM	6	0	3	0	1	0	0
11:45 AM	5	0	3	0	1	0	0
12:00 PM	3	1	5	0	1	0	0
12:15 PM	3	2	5	0	0	0	0
12:30 PM	4	2	7	0	1	0	0
12:45 PM	2	2	1	0	0	3	0
1:00 PM	3	1	4	0	2	0	0
1:15 PM	4	0	5	0	0	1	0
1:30 PM	2	3	5	0	1	0	0
1:45 PM	5	0	5	0	2	0	0
TOTAL VOLUMES :	42	12	55	0	11	4	0
APPROACH %'s :	33.87%	9.68%	44.35%	0.00%	8.87%	3.23%	0.00%
PEAK HR :	01:00 PM - 02:00 PM						
PEAK HR VOL :	14	4	19	0	5	1	0
PEAK HR FACTOR :	0.700	0.333	0.950	0.000	0.625	0.250	0.000
				0.896			

Mclean Ave/United Bank Dwy — SOUTHBOUND

	SL	ST	SR	SU	SL2	ST2	SR2
Lanes	0	1	0	0	0	0	0
11:00 AM	2	1	1	0	0	0	1
11:15 AM	3	0	1	0	0	0	0
11:30 AM	3	0	1	0	1	0	0
11:45 AM	2	1	0	0	1	0	0
12:00 PM	1	1	0	0	1	0	0
12:15 PM	1	2	1	0	0	0	2
12:30 PM	0	0	0	0	1	0	0
12:45 PM	1	1	1	0	1	0	1
1:00 PM	0	0	0	0	0	0	1
1:15 PM	3	0	2	0	1	0	0
1:30 PM	4	0	1	0	1	0	1
1:45 PM	1	1	1	0	1	0	0
TOTAL VOLUMES :	21	7	9	0	8	0	6
APPROACH %'s :	41.18%	13.73%	17.65%	0.00%	15.69%	0.00%	11.76%
PEAK HR VOL :	8	1	4	0	3	0	2
PEAK HR FACTOR :	0.500	0.250	0.500	0.000	0.750	0.000	0.500
				0.643			

Fairfax Blvd/Warwick Ave — EASTBOUND

	EL	ET	ER	EU	ET2	ER2	EU2
Lanes	1	2	0	0	0	0	0
11:00 AM	0	217	4	0	14	0	1
11:15 AM	2	218	3	0	21	2	0
11:30 AM	0	244	5	0	19	0	0
11:45 AM	2	223	4	0	11	0	1
12:00 PM	0	284	9	0	23	0	2
12:15 PM	2	267	6	0	22	1	1
12:30 PM	2	248	3	0	15	0	2
12:45 PM	0	258	4	1	18	0	1
1:00 PM	0	261	1	0	15	0	0
1:15 PM	3	238	5	0	28	0	1
1:30 PM	3	271	4	0	16	0	1
1:45 PM	0	274	4	0	18	1	0
TOTAL VOLUMES :	14	3003	52	1	220	4	10
APPROACH %'s :	0.42%	90.89%	1.57%	0.03%	6.66%	0.12%	0.30%
PEAK HR VOL :	6	1044	14	0	77	1	2
PEAK HR FACTOR :	0.500	0.953	0.700	0.000	0.688	0.250	0.500
				0.963			

Fairfax Blvd/Warwick Ave — WESTBOUND

	WL	WT	WR	WU	WL2	WT2	WU2
Lanes	1	2	0	0	0	0	0
11:00 AM	4	255	2	0	0	15	4
11:15 AM	7	247	0	1	1	6	5
11:30 AM	2	310	0	0	0	6	11
11:45 AM	0	236	0	0	1	14	5
12:00 PM	4	298	2	2	0	12	9
12:15 PM	1	295	0	0	2	7	5
12:30 PM	5	300	2	0	0	17	8
12:45 PM	2	307	0	2	0	11	7
1:00 PM	3	298	0	2	0	8	12
1:15 PM	5	324	1	0	0	17	2
1:30 PM	4	311	4	0	0	15	5
1:45 PM	2	273	0	0	0	12	8
TOTAL VOLUMES :	39	3454	11	7	4	140	81
APPROACH %'s :	1.04%	92.45%	0.29%	0.19%	0.11%	3.75%	2.17%
PEAK HR VOL :	14	1206	5	2	0	52	27
PEAK HR FACTOR :	0.700	0.931	0.313	0.250	0.000	0.765	0.563
				0.936			

NORTHBOUND2

	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2
Lanes	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	2	0	1	0	2	0
11:45 AM	0	0	0	0	0	1	0
12:00 PM	0	0	0	0	0	1	0
12:15 PM	0	0	0	1	0	2	0
12:30 PM	0	1	0	0	0	0	0
12:45 PM	0	2	0	0	0	0	0
1:00 PM	0	0	0	0	0	1	0
1:15 PM	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0
TOTAL VOLUMES :	0	5	0	2	0	7	0
APPROACH %'s :	0.00%	35.71%	0.00%	14.29%	0.00%	50.00%	0.00%
PEAK HR VOL :	0	0	0	0	0	1	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000
				0.250			

EASTBOUND2

	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
Lanes	0	0	0	0	0	0	0
11:00 AM	3	0	0	0	17	0	1
11:15 AM	7	0	0	0	10	0	0
11:30 AM	6	0	0	0	9	0	1
11:45 AM	4	0	0	2	12	2	1
12:00 PM	4	0	0	0	8	0	0
12:15 PM	5	0	0	0	13	1	0
12:30 PM	4	0	0	0	12	0	0
12:45 PM	9	0	0	0	11	0	1
1:00 PM	7	0	0	0	8	0	0
1:15 PM	6	0	0	1	19	0	0
1:30 PM	3	0	0	0	21	0	1
1:45 PM	3	0	0	0	12	0	1
TOTAL VOLUMES :	61	0	0	3	152	3	6
APPROACH %'s :	27.11%	0.00%	0.00%	1.33%	67.56%	1.33%	2.67%
PEAK HR VOL :	19	0	0	1	60	0	2
PEAK HR FACTOR :	0.679	0.000	0.000	0.250	0.714	0.000	0.500

WESTBOUND2

	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2
Lanes	0	0	0	0	0	0	0
11:00 AM	0	2	0	0	5	0	2
11:15 AM	1	1	0	0	5	2	1
11:30 AM	0	6	0	1	4	0	4
11:45 AM	0	2	0	0	10	0	0
12:00 PM	1	4	0	0	7	0	0
12:15 PM	0	2	0	1	8	1	1
12:30 PM	1	4	0	0	7	0	0
12:45 PM	0	2	0	0	9	0	1
1:00 PM	0	1	0	0	3	0	2
1:15 PM	1	1	0	0	11	0	0
1:30 PM	0	3	0	0	4	0	0
1:45 PM	0	2	0	0	6	1	1
TOTAL VOLUMES :	4	30	0	2	79	4	12
APPROACH %'s :	3.05%	22.90%	0.00%	1.53%	60.31%	3.05%	9.16%
PEAK HR VOL :	1	7	0	0	24	1	3
PEAK HR FACTOR :	0.250	0.583	0.000	0.000	0.545	0.250	0.375
				0.692			

	TOTAL
11:00 AM	562
11:15 AM	553
11:30 AM	648
11:45 AM	544
12:00 PM	683
12:15 PM	660
12:30 PM	646
12:45 PM	659
1:00 PM	633
1:15 PM	679
1:30 PM	684
1:45 PM	634
TOTAL VOLUMES :	7585
PEAK HR VOL :	2630
PEAK HR FACTOR :	0.961

National Data & Surveying Services Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 2019-03-23

Cars

NS/EW Streets:	Mclean Ave/United Bank Dwy							Mclean Ave/United Bank Dwy						
NOON	NORTHBOUND							SOUTHBOUND						
	0	1	0	0	0	0	0	0	1	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
11:00 AM	3	0	6	0	2	0	0	2	1	1	0	0	0	1
11:15 AM	2	1	6	0	0	0	0	3	0	1	0	0	0	0
11:30 AM	6	0	3	0	1	0	0	3	0	1	0	1	0	0
11:45 AM	5	0	3	0	1	0	0	2	1	0	0	1	0	0
12:00 PM	3	1	5	0	1	0	0	1	1	0	0	1	0	0
12:15 PM	3	2	5	0	0	0	0	1	2	1	0	0	0	2
12:30 PM	4	2	7	0	1	0	0	0	0	0	0	1	0	0
12:45 PM	2	2	0	0	0	2	0	1	1	1	0	1	0	1
1:00 PM	3	1	4	0	2	0	0	0	0	0	0	0	0	1
1:15 PM	4	0	5	0	0	1	0	3	0	2	0	1	0	0
1:30 PM	2	3	5	0	1	0	0	4	0	1	0	1	0	1
1:45 PM	5	0	5	0	2	0	0	1	1	1	0	1	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	42	12	54	0	11	3	0	21	7	9	0	8	0	6
APPROACH %'s :	34.43%	9.84%	44.26%	0.00%	9.02%	2.46%	0.00%	41.18%	13.73%	17.65%	0.00%	15.69%	0.00%	11.76%
PEAK HR :	01:00 PM - 02:00 PM													
PEAK HR VOL :	14	4	19	0	5	1	0	8	1	4	0	3	0	2
PEAK HR FACTOR :	0.70	0.333	0.950	0.000	0.625	0.250	0.000	0.500	0.250	0.500	0.000	0.750	0.000	0.500
				0.896							0.643			

NS/EW Streets:	Fairfax Blvd/Warwick Ave							Fairfax Blvd/Warwick Ave						
NOON	EASTBOUND							WESTBOUND						
	1	2	0	0	0	0	0	1	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
11:00 AM	0	216	4	0	14	0	1	4	250	2	0	0	15	4
11:15 AM	2	216	3	0	21	2	0	7	242	0	1	1	6	5
11:30 AM	0	243	5	0	19	0	0	2	306	0	0	0	6	11
11:45 AM	2	221	4	0	11	0	1	0	234	0	0	1	14	5
12:00 PM	0	281	9	0	23	0	2	4	296	1	2	0	12	9
12:15 PM	2	264	6	0	22	1	1	1	292	0	0	2	7	5
12:30 PM	2	247	3	0	15	0	2	5	296	2	0	0	17	8
12:45 PM	0	256	4	1	18	0	1	2	305	0	2	0	11	7
1:00 PM	0	259	1	0	15	0	0	3	297	0	2	0	8	12
1:15 PM	3	238	5	0	28	0	1	5	321	1	0	0	17	2
1:30 PM	3	268	4	0	16	0	1	4	308	4	0	0	15	5
1:45 PM	0	273	4	0	18	1	0	2	273	0	0	0	12	8
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	14	2982	52	1	220	4	10	39	3420	10	7	4	140	81
APPROACH %'s :	0.43%	90.83%	1.58%	0.03%	6.70%	0.12%	0.30%	1.05%	92.41%	0.27%	0.19%	0.11%	3.78%	2.19%
PEAK HR VOL :	6	1038	14	0	77	1	2	14	1199	5	2	0	52	27
PEAK HR FACTOR :	0.500	0.951	0.700	0.000	0.688	0.250	0.500	0.700	0.934	0.313	0.250	0.000	0.765	0.563
				0.961							0.939			

NS/EW Streets:														
NOON	NORTHBOUND2													
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
11:00 AM	0	0	0	0	0	0	0	3	0	0	0	16	0	1
11:15 AM	0	0	0	0	0	0	0	7	0	0	0	9	0	0
11:30 AM	0	2	0	1	0	2	0	6	0	0	0	9	0	1
11:45 AM	0	0	0	0	0	1	0	4	0	0	2	12	2	1
12:00 PM	0	0	0	0	0	1	0	4	0	0	0	8	0	0
12:15 PM	0	0	0	1	0	2	0	5	0	0	0	12	1	0
12:30 PM	0	1	0	0	0	0	0	4	0	0	0	12	0	0
12:45 PM	0	2	0	0	0	0	0	9	0	0	0	11	0	1
1:00 PM	0	0	0	0	0	1	0	7	0	0	0	7	0	0
1:15 PM	0	0	0	0	0	0	0	6	0	0	1	18	0	0
1:30 PM	0	0	0	0	0	0	0	3	0	0	0	21	0	1
1:45 PM	0	0	0	0	0	0	0	3	0	0	0	12	0	1
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
TOTAL VOLUMES :	0	5	0	2	0	7	0	61	0	0	3	147	3	6
APPROACH %'s :	0.00%	35.71%	0.00%	14.29%	0.00%	50.00%	0.00%	27.73%	0.00%	0.00%	1.36%	66.82%	1.36%	2.73%
PEAK HR VOL :	0	0	0	0	0	1	0	19	0	0	1	58	0	2
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.679	0.000	0.000	0.250	0.690	0.000	0.500
				0.250										

NS/EW Streets:								
NOON	WESTBOUND2							
	0	0	0	0	0	0	0	
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
11:00 AM	0	2	0	0	5	0	2	555
11:15 AM	1	1	0	0	4	2	1	544
11:30 AM	0	6	0	1	4	0	4	643
11:45 AM	0	2	0	0	10	0	0	540
12:00 PM	1	4	0	0	7	0	0	677
12:15 PM	0	2	0	1	7	1	1	652
12:30 PM	1	4	0	0	7	0	0	641
12:45 PM	0	2	0	0	8	0	1	652
1:00 PM	0	1	0	0	3	0	2	629
1:15 PM	1	1	0	0	10	0	0	674
1:30 PM	0	3	0	0	4	0	0	678
1:45 PM	0	2	0	0	5	1	1	632
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	4	30	0	2	74	4	12	7517
APPROACH %'s :	3.17%	23.81%	0.00%	1.59%	58.73%	3.17%	9.52%	
PEAK HR :								TOTAL
PEAK HR VOL :	1	7	0	0	22	1	3	2613
PEAK HR FACTOR :	0.250	0.583	0.000	0.000	0.550	0.250	0.375	0.963
				0.708				

National Data & Surveying Services **Intersection Turning Movement Count**

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 2019-03-23

HT

NS/EW Streets:	Mclean Ave/United Bank Dwy							Mclean Ave/United Bank Dwy						
NOON	NORTHBOUND							SOUTHBOUND						
	0	1	0	0	0	0	0	0	1	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	0	0	1	0	0	1	0	0	0	0	0	0	0	0
APPROACH %'s :	0.00%	0.00%	50.00%	0.00%	0.00%	50.00%	0.00%							
PEAK HR :	01:00 PM - 02:00 PM													
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NS/EW Streets:	Fairfax Blvd/Warwick Ave							Fairfax Blvd/Warwick Ave						
NOON	EASTBOUND							WESTBOUND						
	1	2	0	0	0	0	0	1	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
11:00 AM	0	1	0	0	0	0	0	0	5	0	0	0	0	0
11:15 AM	0	2	0	0	0	0	0	0	5	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	4	0	0	0	0	0
11:45 AM	0	2	0	0	0	0	0	0	2	0	0	0	0	0
12:00 PM	0	3	0	0	0	0	0	0	2	1	0	0	0	0
12:15 PM	0	3	0	0	0	0	0	0	3	0	0	0	0	0
12:30 PM	0	1	0	0	0	0	0	0	4	0	0	0	0	0
12:45 PM	0	2	0	0	0	0	0	0	2	0	0	0	0	0
1:00 PM	0	2	0	0	0	0	0	0	1	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	3	0	0	0	0	0
1:30 PM	0	3	0	0	0	0	0	0	3	0	0	0	0	0
1:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	0	21	0	0	0	0	0	0	34	1	0	0	0	0
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	97.14%	2.86%	0.00%	0.00%	0.00%	0.00%
PEAK HR VOL :	0	6	0	0	0	0	0	0	7	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.000	0.000	0.000	0.000	0.000
				0.500							0.583			

NS/EW Streets:														
NOON	NORTHBOUND2													
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	5	0	0
APPROACH %'s :								0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	2	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000

NS/EW Streets:								
NOON	WESTBOUND2							
	0	0	0	0	0	0	0	
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
11:00 AM	0	0	0	0	0	0	0	7
11:15 AM	0	0	0	0	1	0	0	9
11:30 AM	0	0	0	0	0	0	0	5
11:45 AM	0	0	0	0	0	0	0	4
12:00 PM	0	0	0	0	0	0	0	6
12:15 PM	0	0	0	0	1	0	0	8
12:30 PM	0	0	0	0	0	0	0	5
12:45 PM	0	0	0	0	1	0	0	7
1:00 PM	0	0	0	0	0	0	0	4
1:15 PM	0	0	0	0	1	0	0	5
1:30 PM	0	0	0	0	0	0	0	6
1:45 PM	0	0	0	0	1	0	0	2
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	5	0	0	68
APPROACH %'s :	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
								TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	17
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.708
				0.500				

National Data & Surveying Services Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax
Control: Signalized

Project ID: 19-11036-005
Date: 2019-03-23

Bikes

NS/EW Streets:	Mclean Ave/United Bank Dwy							Mclean Ave/United Bank Dwy						
NOON	NORTHBOUND							SOUTHBOUND						
	0	1	0	0	0	0	0	0	1	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NL2	NR2	NU2	SL	ST	SR	SU	SL2	ST2	SR2
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :														
PEAK HR :	01:00 PM - 02:00 PM													
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NS/EW Streets:	Fairfax Blvd/Warwick Ave							Fairfax Blvd/Warwick Ave						
NOON	EASTBOUND							WESTBOUND						
	1	2	0	0	0	0	0	1	2	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EL	ET	ER	EU	ET2	ER2	EU2	WL	WT	WR	WU	WL2	WT2	WU2
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	1	0	0	0	0	0
APPROACH %'s :								0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NS/EW Streets:														
NOON	NORTHBOUND2													
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N2L	N2R	N2U	N2L2	N2T2	N2R2	N2U2	E2T	E2R	E2U	E2L2	E2T2	E2R2	E2U2
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :														
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NS/EW Streets:								
NOON	WESTBOUND2							
	0	0	0	0	0	0	0	
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
11:00 AM	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0
	W2L	W2T	W2U	W2L2	W2T2	W2R2	W2U2	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	1
APPROACH %'s :								
								TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Mclean Ave/United Bank Dwy & Fairfax Blvd/Warwick Ave
City: Fairfax

Project ID: 19-11036-005
Date: 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Mclean Ave/United Bank Dwy		Mclean Ave/United Bank Dwy		Fairfax Blvd/Warwick Ave		Fairfax Blvd/Warwick Ave										
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		EAST LEG 2		WEST LEG 2		SCRAMBLE (NE/SW)		SCRAMBLE (NW/SE)		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
11:00 AM	0	1	2	1	0	0	1	1	0	1	0	1	0	0	0	0	0	0	8
11:15 AM	0	4	2	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	9
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
11:45 AM	0	1	0	2	0	0	0	0	0	2	0	0	0	1	0	0	0	0	6
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	3
12:30 PM	3	0	2	0	0	0	0	1	2	1	1	0	0	0	0	0	0	0	10
12:45 PM	0	6	0	2	0	0	1	0	0	1	0	1	0	6	0	0	0	6	23
1:00 PM	1	0	1	0	0	0	2	0	1	0	1	0	0	0	0	0	0	0	6
1:15 PM	2	0	0	0	0	0	0	2	0	0	0	0	2	0	2	0	0	0	8
1:30 PM	0	0	1	1	0	0	2	0	0	0	0	0	1	0	0	0	0	0	5
1:45 PM	0	0	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	4
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	NB	SB	NB	SB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	6	13	9	7	0	0	8	5	7	5	3	2	3	8	2	0	0	7	85
APPROACH %'s :	31.58%	68.42%	56.25%	43.75%			61.54%	38.46%	58.33%	41.67%	60.00%	40.00%	15.00%	40.00%	100.00%	0.00%	0.00%	100.00%	
PEAK HR :	01:00 PM - 02:00 PM																		TOTAL
PEAK HR VOL :	3	0	3	1	0	0	4	3	2	0	2	0	3	0	2	0	0	0	23
PEAK HR FACTOR :	0.375		0.750	0.250			0.500	0.375	0.500		0.500		0.375		0.250				0.719
	0.375		0.500				0.875		0.500		0.500		0.375		0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 2019-03-23

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	1	0	15	1	0	0	0	0	0	0	3	0	8	0	28
11:15 AM	0	0	2	0	21	1	0	0	0	0	0	0	3	0	11	0	38
11:30 AM	0	1	5	0	13	2	0	0	0	0	0	0	2	0	15	0	38
11:45 AM	0	0	5	0	23	1	0	0	0	0	0	0	3	0	19	0	51
12:00 PM	0	2	4	0	17	1	0	0	0	0	0	0	5	0	19	0	48
12:15 PM	0	2	6	0	14	1	0	0	0	0	0	0	5	0	14	0	42
12:30 PM	0	0	1	0	11	1	0	0	0	0	0	0	3	0	8	0	24
12:45 PM	0	1	3	0	10	0	0	0	0	0	0	0	2	0	14	0	30
1:00 PM	0	0	3	0	10	1	0	0	0	0	0	0	3	0	22	0	39
1:15 PM	0	0	5	0	9	2	0	0	0	0	0	0	2	0	14	0	32
1:30 PM	0	0	1	0	17	1	0	0	0	0	0	0	4	0	14	0	37
1:45 PM	0	0	1	0	16	1	0	0	0	0	0	0	8	0	17	0	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	37	0	176	13	0	0	0	0	0	0	43	0	175	0	450
APPROACH %'s :	0.00%	13.95%	86.05%	0.00%	93.12%	6.88%	0.00%	0.00%					19.72%	0.00%	80.28%	0.00%	
PEAK HR :	**01:00 PM - 02:00 PM**																TOTAL
PEAK HR VOL :	0	0	10	0	52	5	0	0	0	0	0	0	17	0	67	0	151
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.765	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.531	0.000	0.761	0.000	0.878
			0.500				0.792								0.840		

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 2019-03-23

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	1	0	15	1	0	0	0	0	0	0	3	0	8	0	28
11:15 AM	0	0	2	0	21	1	0	0	0	0	0	0	3	0	11	0	38
11:30 AM	0	1	5	0	13	2	0	0	0	0	0	0	2	0	14	0	37
11:45 AM	0	0	4	0	23	0	0	0	0	0	0	0	3	0	19	0	49
12:00 PM	0	2	4	0	17	1	0	0	0	0	0	0	5	0	18	0	47
12:15 PM	0	2	6	0	14	1	0	0	0	0	0	0	5	0	14	0	42
12:30 PM	0	0	1	0	11	1	0	0	0	0	0	0	3	0	8	0	24
12:45 PM	0	1	3	0	10	0	0	0	0	0	0	0	2	0	14	0	30
1:00 PM	0	0	3	0	10	1	0	0	0	0	0	0	3	0	22	0	39
1:15 PM	0	0	5	0	9	2	0	0	0	0	0	0	2	0	14	0	32
1:30 PM	0	0	1	0	17	1	0	0	0	0	0	0	4	0	14	0	37
1:45 PM	0	0	1	0	16	1	0	0	0	0	0	0	8	0	17	0	43
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	6	36	0	176	12	0	0	0	0	0	0	43	0	173	0	446
APPROACH %'s :	0.00%	14.29%	85.71%	0.00%	93.62%	6.38%	0.00%	0.00%					19.91%	0.00%	80.09%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	10	0	52	5	0	0	0	0	0	0	17	0	67	0	151
PEAK HR FACTOR :	0.00	0.000	0.500	0.000	0.765	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.531	0.000	0.761	0.000	0.878
			0.500				0.792								0.840		

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 2019-03-23

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	4
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-101
Date: 2019-03-23

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
APPROACH %'s :																	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-101
City: Fairfax **Date:** 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	2	1	0	0	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	1	0	0	0	0	1
1:30 PM	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	1	0	0	0	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	3	2	0	0	0	0	5
APPROACH %'s :			60.00%	40.00%					
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	0	0	1	1	0	0	0	0	2
PEAK HR FACTOR :			0.250	0.250					0.500
			0.500						

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 2019-03-23

Total

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	1	1	0	0	7	0	27	0	24	49	0	0	0	64	2	0	175
11:15 AM	0	0	2	0	4	0	32	0	19	62	1	0	0	44	4	0	168
11:30 AM	0	0	0	0	4	0	28	0	17	57	0	0	0	57	5	0	168
11:45 AM	0	1	3	0	7	0	29	0	20	81	2	0	0	48	5	0	196
12:00 PM	1	0	1	0	4	0	32	0	23	44	0	0	0	64	12	0	181
12:15 PM	1	0	4	0	4	0	20	0	24	60	4	0	0	56	2	0	175
12:30 PM	1	0	1	0	10	0	32	0	21	46	3	0	0	89	7	0	210
12:45 PM	1	0	0	0	2	0	23	0	20	59	2	0	0	70	6	1	184
1:00 PM	4	0	2	0	3	0	15	0	16	47	3	0	0	68	7	0	165
1:15 PM	3	0	0	0	9	0	25	0	37	46	2	0	0	62	6	0	190
1:30 PM	1	0	2	0	7	0	28	0	18	69	1	0	0	74	7	0	207
1:45 PM	0	1	0	0	1	0	21	0	19	69	1	0	0	83	2	0	197
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	3	15	0	62	0	312	0	258	689	19	0	0	779	65	1	2216
APPROACH %'s :	41.94%	9.68%	48.39%	0.00%	16.58%	0.00%	83.42%	0.00%	26.71%	71.33%	1.97%	0.00%	0.00%	92.19%	7.69%	0.12%	
PEAK HR :	**01:00 PM - 02:00 PM**																TOTAL
PEAK HR VOL :	8	1	4	0	20	0	89	0	90	231	7	0	0	287	22	0	759
PEAK HR FACTOR :	0.500	0.250	0.500	0.000	0.556	0.000	0.795	0.000	0.608	0.837	0.583	0.000	0.000	0.864	0.786	0.000	0.917
	0.542				0.779				0.921				0.909				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 2019-03-23

Cars

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	1	1	0	0	7	0	27	0	24	49	0	0	0	62	2	0	173
11:15 AM	0	0	2	0	4	0	32	0	19	61	1	0	0	44	4	0	167
11:30 AM	0	0	0	0	4	0	27	0	16	56	0	0	0	56	5	0	164
11:45 AM	0	1	3	0	7	0	29	0	20	81	2	0	0	46	5	0	194
12:00 PM	1	0	1	0	4	0	32	0	23	43	0	0	0	62	12	0	178
12:15 PM	1	0	4	0	4	0	20	0	24	60	4	0	0	56	2	0	175
12:30 PM	1	0	1	0	10	0	32	0	21	44	3	0	0	86	7	0	205
12:45 PM	1	0	0	0	2	0	23	0	19	59	2	0	0	68	6	1	181
1:00 PM	4	0	2	0	3	0	15	0	16	47	3	0	0	67	7	0	164
1:15 PM	2	0	0	0	8	0	25	0	37	45	2	0	0	61	6	0	186
1:30 PM	1	0	2	0	7	0	28	0	18	66	1	0	0	74	7	0	204
1:45 PM	0	1	0	0	1	0	21	0	19	67	1	0	0	82	2	0	194
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	12	3	15	0	61	0	311	0	256	678	19	0	0	764	65	1	2185
APPROACH %'s :	40.00%	10.00%	50.00%	0.00%	16.40%	0.00%	83.60%	0.00%	26.86%	71.14%	1.99%	0.00%	0.00%	92.05%	7.83%	0.12%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	7	1	4	0	19	0	89	0	90	225	7	0	0	284	22	0	748
PEAK HR FACTOR :	0.44	0.250	0.500	0.000	0.594	0.000	0.795	0.000	0.608	0.840	0.583	0.000	0.000	0.866	0.786	0.000	0.917
	0.500				0.771				0.925				0.911				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 2019-03-23

HT

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	4
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	5
12:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	3
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
1:15 PM	1	0	0	0	1	0	0	0	0	1	0	0	0	1	0	0	4
1:30 PM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
1:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	1	0	1	0	2	11	0	0	0	15	0	0	31
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	15.38%	84.62%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	1	0	0	0	1	0	0	0	0	6	0	0	0	3	0	0	11
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.688
	0.250				0.250				0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr
City: Fairfax
Control: Signalized

Project ID: 19-11036-201
Date: 2019-03-23

Bikes

NS/EW Streets:	Chain Bridge Rd				Chain Bridge Rd				Eaton Pl/Oak Pl/Assembly Dr				Eaton Pl/Oak Pl/Assembly Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0.5	1	0.5	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%									
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Chain Bridge Rd & Eaton Pl/Oak Pl/Assembly Dr **Project ID:** 19-11036-201
City: Fairfax **Date:** 2019-03-23

Pedestrians (Crosswalks)

NS/EW Streets:	Chain Bridge Rd		Chain Bridge Rd		Eaton Pl/Oak Pl/Assembly Dr		Eaton Pl/Oak Pl/Assembly Dr		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	0	1	1	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	3	0	2	0	0	5
11:45 AM	0	0	2	0	1	0	0	0	3
12:00 PM	0	0	0	0	0	2	0	0	2
12:15 PM	1	0	1	1	0	1	0	0	4
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	1	0	0	1
1:00 PM	0	0	0	0	2	0	0	0	2
1:15 PM	0	0	0	0	2	0	0	0	2
1:30 PM	0	0	0	0	0	1	0	0	1
1:45 PM	0	0	0	0	3	0	0	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	3	4	9	8	0	0	25
APPROACH %'s :	100.00%	0.00%	42.86%	57.14%	52.94%	47.06%			
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	7	1	0	0	8
PEAK HR FACTOR :					0.583	0.250			0.667
					0.667				

Appendix C

Northfax Development Trip Generation Comparison Documentation

GOROVE SLADE
Transportation Planners and Engineers

TECHNICAL MEMORANDUM

To:	Wendy Block Sanford	Transportation Director, City of Fairfax
CC:	Russell Rosenberger	Madison Homes, Inc.
	Andrew Rosenberger	Madison Homes, Inc.
	Steve Marker	Brightview Senior Living
	Kathryn Taylor	Walsh, Colucci, Lubeley & Walsh, P.C.
	Lynne Strobel	Walsh, Colucci, Lubeley & Walsh, P.C.
From:	Steven Matthew Dauterman, EIT, RSP1	Gorove Slade Associates Inc.
	Niraja Chandrapu, PE, PTOE	Gorove Slade Associates Inc.
	Chad Baird	Gorove Slade Associates Inc.
Date:	April 22, 2020	
Subject:	Northfax Development – By-Right v. Proposed Development Program Trip Generation	

Introduction

This memorandum presents a trip generation comparison of the proposed development program of the Northfax property against a by-right development program.

Background

The Northfax development would be generally located in the northwest quadrant of the intersection of Route 123 and Fairfax Boulevard (Rte. 29/50). The proposed redevelopment of the site would require a rezoning of the property. The parcels fronting Fairfax Boulevard and Chain Bridge Road are currently zoned CR (Commercial Retail District), while the interior parcels along Orchard Street are zoned RM (Residential Medium); the Applicant is proposing to rezone the subject property from the CR and RM districts to a PD-M (Planned Development Mixed Use) district.

By-Right Program

The approximately 11.46-acre Northfax site is comprised of 17 parcels of land, located within the City of Fairfax. Currently, the parcels fronting Fairfax Boulevard and Chain Bridge Road are generally zoned CR (Commercial Retail District) with the interior parcels along Orchard Street being zoned RM (Residential Medium). Of the entire site, approximately 4 acres are zoned CR and approximately 7.3 acres are zoned RM.

Per the City's Zoning Ordinance, Commercial Retail zoning permits an allowable building coverage of 60%, a maximum building of height of 5 stores, and is intended for commercial and supporting retail uses (Section 3.6.2). CR zoning permits fast food restaurant (without drive-thru), medical office, and supermarket type uses, in addition to general retail and office. Given the conditions of the site, it is possible that a 5-story building could be constructed on the property and may be comprise of ground-floor retail (including a fast food restaurant) with office space above. Based on the size of the property and the allowable building coverage, the site could be constructed to include approximately 94.5 kSF of retail space and 378 kSF office space.

Per the City's Zoning Ordinance, Residential Medium zoning permits single-family detached homes (SFDH) with a minimum lot area of 7,500 SF (Section 3.6.1). Based on the minimum lot area, an approximate total of 42 SFDH could be developed by right.

In order to calculate the trips generated by a by-right development program, peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, 10th Edition. As illustrated in Table 1. Of note, no pass-by or internal trips reductions were assumed.

Table 1: By-Right Site Trip Generation (ITE 10: Peak Hour of the Adjacent Street)

Land Use	ITE Code	Size	Weekday							Weekend			
			AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Sat Daily
			In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
Single-Family Detached Housing	210	42 DU	9	26	35	28	16	44	468	29	24	53	434
General Office Building	710	378 ksf of GFA	329	53	382	64	339	403	3,854	108	92	200	835
Shopping Center	820	91.5 kSF of GLA	53	33	86	168	181	349	3,454	214	198	412	4,220
Fast-Food Restaurant without Drive-Thru Window	933	3 KSF of GFA	66	44	110	43	42	85	1039	80	84	164	2088
By-Right Trips			**457**	**156**	**613**	**303**	**578**	**881**	**8,815**	**431**	**398**	**829**	**7,577**

Proposed Program

The Northfax development is anticipated to be developed in two phases. Phase 1 is anticipated to be complete by 2023, and Phase 2 is anticipated to be complete by 2027. Phase 1 is planned to consist of 56 multi-family residential units and a 200-unit senior living (independent living and assisted living) facility. The current application for the site only pertains to Phase 1.

The current plans for Phase 2 anticipate approximately 25,000 square feet of commercial use (including retail space, office space, and restaurants) with approximately 180 residential dwelling units on the upper floors and a 140-room capacity hotel. A separate application would be submitted for Phase 2; as such, the Phase 2 portion of the development described herein is for transportation planning purposes and is subject to change with the future application. At the time that actual uses are selected, the trip generation analysis will be updated.

In order to calculate the trips generated by the proposed development program, peak hour trip generation is calculated based on the methodology outlined in the Institute of Transportation Engineers' (ITE's) Trip Generation Manual, 10th Edition. As illustrated in Table 2. Of note, no pass-by or internal trips reductions were assumed.

Table 2: Proposed Site Trip Generation (ITE 10: Peak Hour of the Adjacent Street)

Land Use	ITE LUC	Size	AM PEAK HOUR			PM PEAK HOUR			DAILY	SAT PEAK HOUR			SATURDAY DAILY
			IN	OUT	TOTAL	IN	OUT	TOTAL	TOTAL	IN	OUT	TOTAL	TOTAL
Existing (to be removed)													
Single-Family Detached Homes	210	2 DU	0	1	1	1	1	2	19	1	1	2	19
Total Existing Trips (To Be Removed)			**0**	**1**	**1**	**1**	**1**	**2**	**19**	**1**	**1**	**2**	**19**
PHASE 1													
Multi-Family Housing (Low-Rise)	220	56 DU	6	21	27	22	13	35	383	21	18	39	263
Continuing Care	255	200 Units	18	10	28	12	20	32	480	23	21	44	406
Total Phase 1 Development Trips (without Reductions)			**24**	**31**	**55**	**34**	**33**	**67**	**863**	**44**	**39**	**83**	**669**
Proposed New External Trips Under Phase 1 (Proposed Phase 1 Trips - Existing Trips)			**24**	**30**	**54**	**33**	**32**	**65**	**844**	**43**	**38**	**81**	**650**
PHASE 2													
Multi-Family Housing (Mid-Rise)	221	180 DU	16	45	61	48	30	78	979	39	40	79	884
Hotel	310	140 Rooms	38	27	65	40	39	79	1,170	56	45	101	1,147
Quality Restaurant	931	8 kSF	3	3	6	42	20	62	671	50	35	85	720
High-Turnover (Sit-Down) Restaurant	932	5 kSF	27	23	50	30	19	49	561	29	27	56	612
General Office Building	710	10 kSF	31	5	36	2	11	13	114	3	2	5	22
Shopping Center[2]	820	2 kSF	1	1	2	4	4	8	76	5	4	9	92
Total Phase 2 Development Trips (without Reductions)			**116**	**104**	**220**	**166**	**123**	**289**	**3,571**	**182**	**153**	**335**	**3,477**
Total Phase 1 + Phase 2 Development Trips (without Reductions)			**140**	**135**	**275**	**200**	**156**	**356**	**4,434**	**226**	**192**	**418**	**4,146**
Proposed New External Trips at Ultimate Build-Out (Proposed Total Development Trips - Existing Trips)			**140**	**134**	**274**	**199**	**155**	**354**	**4,415**	**225**	**191**	**416**	**4,127**

Notes:

1. Internal capture between residential (multifamily) and non-residential uses (shopping center , quality restaurant, high turnover (sit-down) restaurant, and general office buidling) was based on a minimum of 5% for AM, PM and SAT peak hour trips.

2. For Shopping Center, the rates have been used as 2,000 sft of retail falls outside the data range.

A comparison of the proposed and by-right site trip generation is presented in Table 3.

Table 3: Proposed vs By Right Site Trip Generation Comparison

	------ Weekday ------							------ Weekend ------			
	AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Sat Daily
	In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
By-Right Trips	457	156	613	303	578	881	8,815	431	398	829	7,577
Proposed Development	140	134	274	199	155	354	4,415	225	191	416	4,127
Delta	**-317**	**-22**	**-339**	**-104**	**-423**	**-527**	**-4,400**	**-206**	**-207**	**-413**	**-3,450**

As can be seen in Table 3 above, the proposed development program for the Northfax site would generate less trips than allowable by-right with the current zoning.

Appendix D

Background Development Trip Generation

Memorandum

To: Wendy Block Sanford
Transportation Director
City of Fairfax, Virginia

Date: September 19, 2016

Project #: 38509.00

From: Daniel Lovas, PE
Senior Transportation Engineer

Re: Northfax University Drive Extension Traffic Evaluation
Fairfax, Virginia

Executive Summary

VHB completed a traffic study to evaluate the proposed University Drive extension between Fairfax Boulevard (Route 50) and Eaton Place, which is proposed to improve circulation in the Northfax region of the City of Fairfax. Rinker Design Associates produced a roadway layout concept for the University Drive extension, which provided the basis for developing traffic volume forecasts and completing the traffic analyses.

Traffic forecasts for the study are based on existing traffic volume data and a holistic understanding of traffic patterns in the study area. However, the traffic forecasting approach isn't designed to account for driver behavior in saturated traffic conditions. Drivers will seek routes to minimize delay and shorten travel times, incentivizing some drivers to follow new travel patterns. Future land use approvals will influence individual driver decisions and contribute to long-term equilibrium in traffic patterns for the study area.

Traffic forecasts indicate that peak period traffic volumes will generally decrease on Chain Bridge Road and increase on Eaton Place and University Drive. Peak hour traffic volume data for University Drive corridor, south of Fairfax Boulevard, indicates that traffic activity currently operates well below the roadway's vehicular capacity. The maximum vehicular capacity for roadways of similar functional class to University Drive is approximately 17,000-18,000 vehicles per day. Table 1 summarizes the traffic volume forecasts for University Drive, south of Fairfax Boulevard, under the Baseline and University Drive extension project conditions. The traffic volume diversion estimates for University Drive indicate an approximately 15-25 percent increase in overall traffic activity, which is equivalent to 1,000-1,500 additional vehicles per day or approximately one additional vehicle per minute in each direction during peak periods. This increase remains well within the road's maximum operational capacity.

Table 1: Peak Hour Traffic Volume on University Drive, south of Fairfax Boulevard

	2018 Baseline Condition		2018 University Drive Extension Condition		Traffic Volume Increase	
Direction	**Weekday AM Peak**	**Weekday PM Peak**	**Weekday AM Peak**	**Weekday PM Peak**	**Weekday AM Peak**	**Weekday PM Peak**
Northbound	369	392	433	456	+64	+63
Southbound	118	324	198	382	+80	+58
Total	487	716	631	838	+144	+121

Based on the traffic volume forecasts and intersection lane geometry, the planned Eaton Place/University Drive intersection will not meet minimum thresholds for a traffic signal. Future development and evolving traffic patterns will influence the ultimate traffic volume conditions in the study area. Additional traffic signal warrant analyses may be appropriate for the planned intersection in the future. For the purposes of the traffic evaluation, this intersection was analyzed as an unsignalized intersection with Stop sign control on University Drive.

The traffic operations analysis indicates that traffic along the Eaton Place and University Drive corridors, north of Fairfax Boulevard, will experience significant delay and queuing, particularly during the weekday evening peak period. Intersection capacity constraints at the Chain Bridge Road/Eaton Place intersection will contribute to elevated congestion for traffic using the planned University Drive extension.

The City of Fairfax has previously optimized traffic signal timings in the study area and additional timing modifications at the Chain Bridge Road/Eaton Place intersection will not provide significant improvement on the Eaton Place and University Drive corridors. Significant intersection modifications to provide additional capacity at Chain Bridge Road/Eaton Place intersection are necessary to improve overall operations on Eaton Place and the planned University Drive extension and reduce anticipated future congestion.

Introduction

The City of Fairfax, Virginia is in the process of planning for redevelopment to revitalize Fairfax Boulevard (Route 29/50) in the Northfax area near the intersection of Fairfax Boulevard and Chain Bridge Road (Route 123). Land uses in the Northfax area are traditionally suburban, characterized by strip shopping centers and low-density commercial uses. Increased developer interest in higher-density land uses in Northfax have led the city to assess transportation options to provide adequate access to future development and support overall regional transportation.

As part of this planning effort, the City of Fairfax is assessing the potential benefits of extending University Drive between Fairfax Boulevard and Eaton Place. An extension of University Drive could provide a more direct route for drivers traveling between the city center, Northfax area, and I-66 linking drives to the regional freeway system.

VHB has conducted a traffic operations evaluation of the potential roadway extension. The purpose of this evaluation is to provide a planning-level forecast of future traffic volumes and identify potential benefits and issues associated with the roadway extension. VHB has previously conducted traffic evaluations of the adequacy of the roadway network in the Northfax area, and the available data and analysis were used as a basis for evaluation of the potential roadway extension. VHB has prepared this memorandum to summarize the methodology and findings of the evaluation.

Study Area

The study area includes the key roadways and signalized intersections surrounding the Northfax development site, where the University. Drive extension would be constructed. The primary roadways included in the evaluation include Fairfax Boulevard (Route 29/50), Chain Bridge Road (Route 123), Eaton Place, and University Drive. A site location map showing the study area intersection locations is provided in Figure 1.

Figure 1
Study Area Map

Roadway and Intersection Network

The existing roadway network includes a combination of state routes providing regional access to the City of Fairfax and local roadways that provide local access to neighborhoods, employers, and other land uses in the city. The primary roadways comprising the study area include the following:

- *Fairfax Boulevard (Route 29/50)* is a four to six-lane divided arterial highway and major commuter route providing east-west connectivity between the city, neighboring communities, and several other major highways. The posted speed limit on Fairfax Boulevard is 35 miles per hour.
- *Chain Bridge Road (Route 123)* is a four to six-lane wide divided arterial highway providing generally north-south regional access to the City of Fairfax and direct access from Northfax to the city center and I-66. Chain Bridge Road transitions to a two-lane cross-section approximately 600 feet south of Fairfax Boulevard and maintains this configuration to the city center. The posted speed limit on Chain Bridge Road is 25 miles per hour south of Fairfax Boulevard and 30 mph north of Fairfax Boulevard.
- *Eaton Place* is a four-lane undivided east-west local collector roadway that connects Fairfax Boulevard (Route 50) to Chain Bridge Road (Route 123) and provides access to commercial and office properties in the Northfax area. The posted speed limit on Eaton Place is 25 miles per hour.
- *University Drive* is a two-lane undivided local roadway providing direct north-south access between Fairfax Boulevard (Route 50) and the city center.

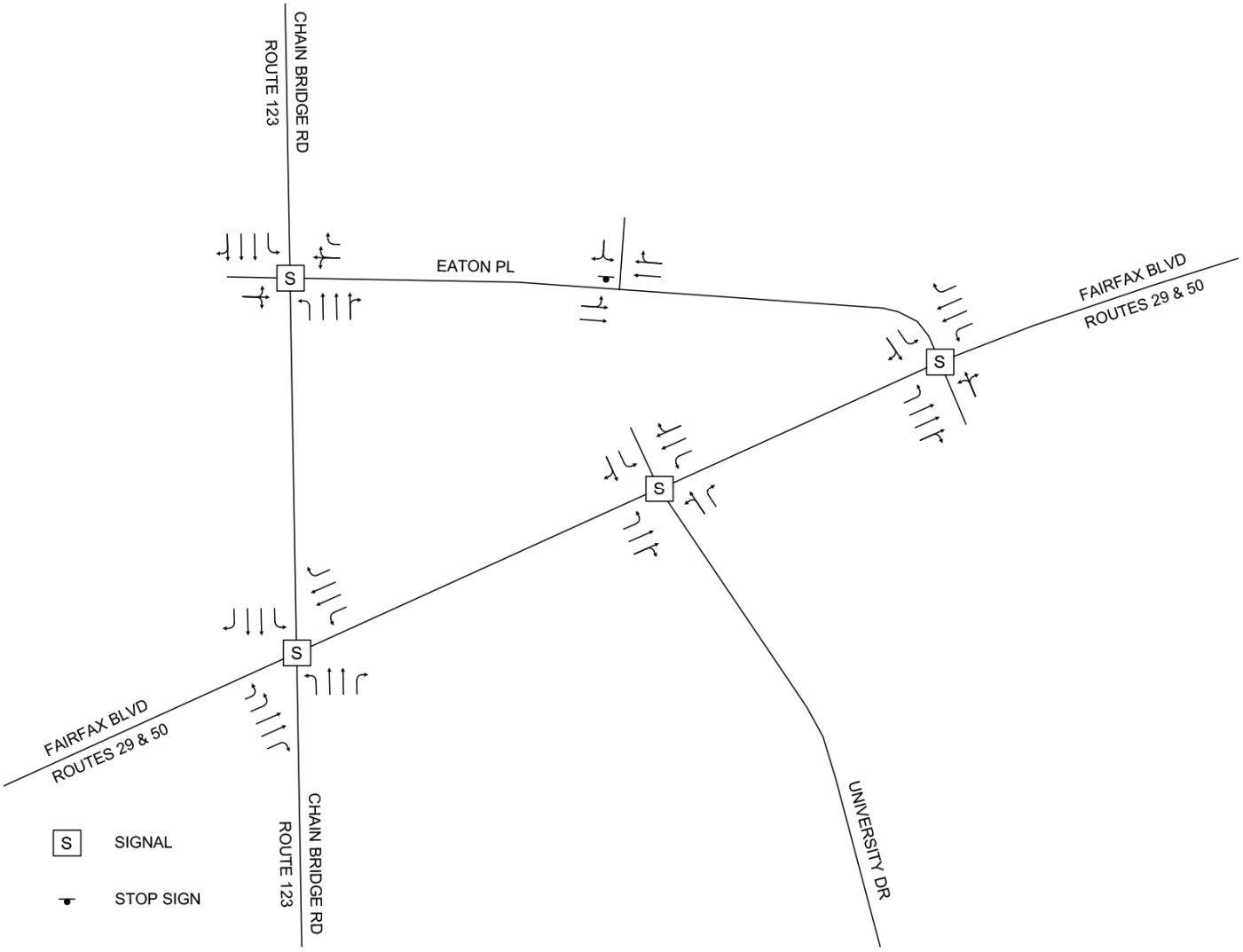
The Northfax study area includes a total of four existing intersections and one planned new intersection. All of the existing intersections are controlled by traffic signals. The following is a summary of the intersections included in the traffic evaluation:

- Fairfax Boulevard at Chain Bridge Road
- Fairfax Boulevard at University Drive
- Fairfax Boulevard at Eaton Place
- Chain Bridge Road at Eaton Place
- Eaton Place at University Drive extension (planned intersection)

Figure 2 summarizes the existing lane geometry at each of the study area intersections. The lane geometry at the planned Eaton Place/University Drive intersection, as well as the proposed University Drive north leg connection at Fairfax Boulevard, is based on preliminary concept plans for the University Drive extension by Rinker Design Associates for the city.

Figure 2

Existing Northfax Lane Geometry and Traffic Control



Planned Future Conditions

The purpose of the traffic evaluation is to analyze future traffic conditions at the Northfax study area intersections with and without the potential University Drive extension. A planning horizon of 2018 was selected for the potential roadway extensions and VHB used previous analysis data and information to develop baseline traffic volumes for the network.

VHB previously evaluated traffic operations in the Northfax study area and summarized the results of this traffic operations evaluation in the Northfax Road Improvements Traffic Analysis report, revised on September 4, 2014. The Future Build condition from the previous traffic evaluation, including planned development that is likely to be

constructed before the 2018 planning horizon. The 2014 study identified the following development projects that are included in the future conditions analysis:

- The former Home Depot Expo; a Wal-Mart store at the intersection of Lee Highway and Jermantown Road
- AutoZone/ Convenience Store/ Walgreens; a mix of retail stores at the intersection of Fairfax Boulevard, Lee Highway, and Main Street
- Boulevard Marketplace; a retail development along Fairfax Boulevard just west of Plantation Parkway

Baseline Traffic Volume Forecasts

The 2018 Baseline traffic volume forecasts for the University Drive extension study are based on the Future Build condition traffic volume projections developed in the 2014 Northfax Road Improvement Traffic Analysis study. Previous traffic forecasts for the study area applied separate growth rates, ranging from 0.36-1.40 percent, to various study area roadways. For the purposes of this evaluation, a unified annual growth rate of one percent was applied to the previous study's future traffic volume projections at all intersections to develop the 2018 Baseline traffic volume forecasts. Figures 3 and 4 summarize the 2018 Baseline traffic volume forecasts for the four existing intersections included in the study area.

Figure 3
2018 Baseline Weekday Morning Peak Hour Traffic Volumes

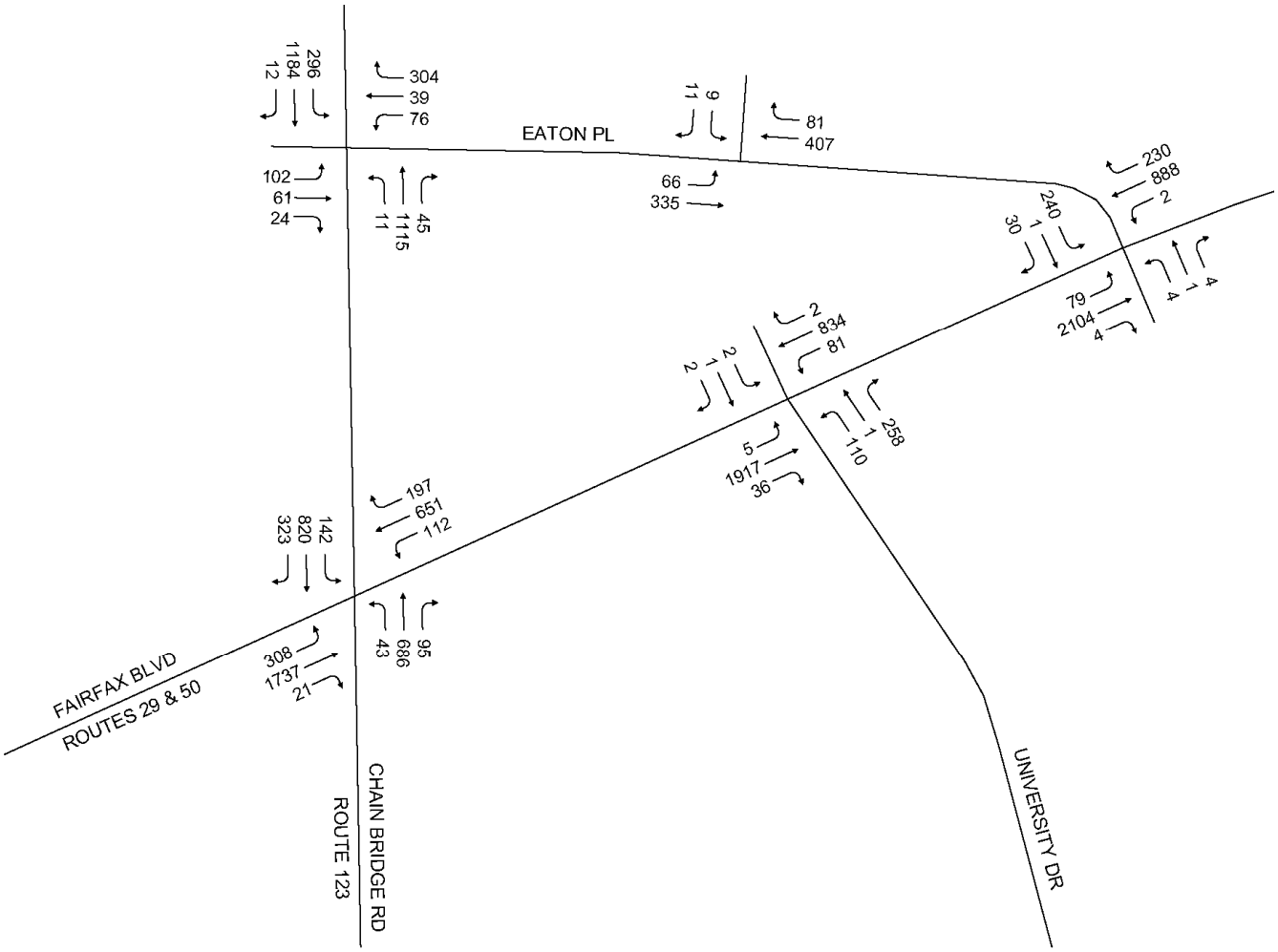
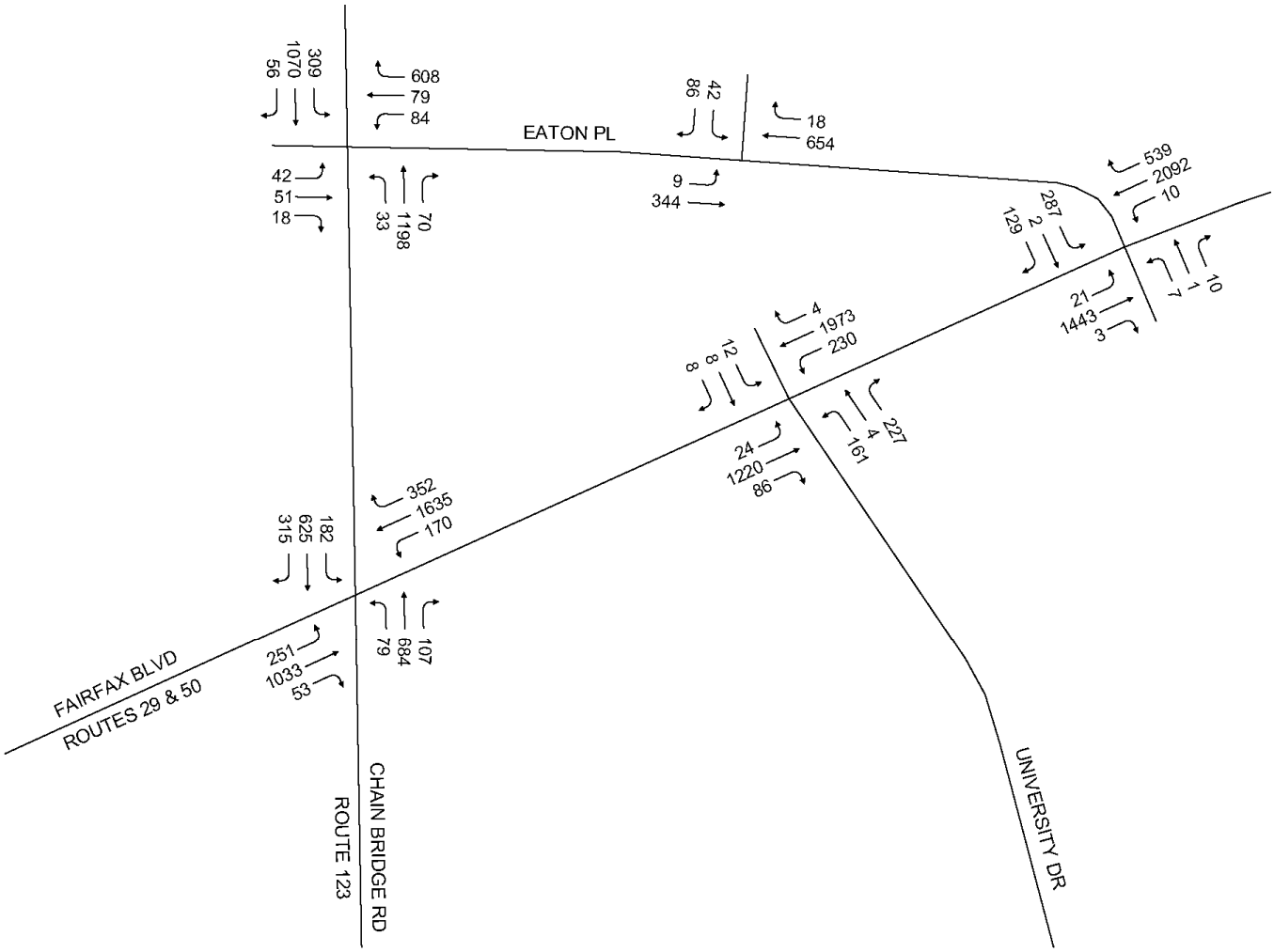


Figure 4
2018 Baseline Weekday Evening Peak Hour Traffic Volumes



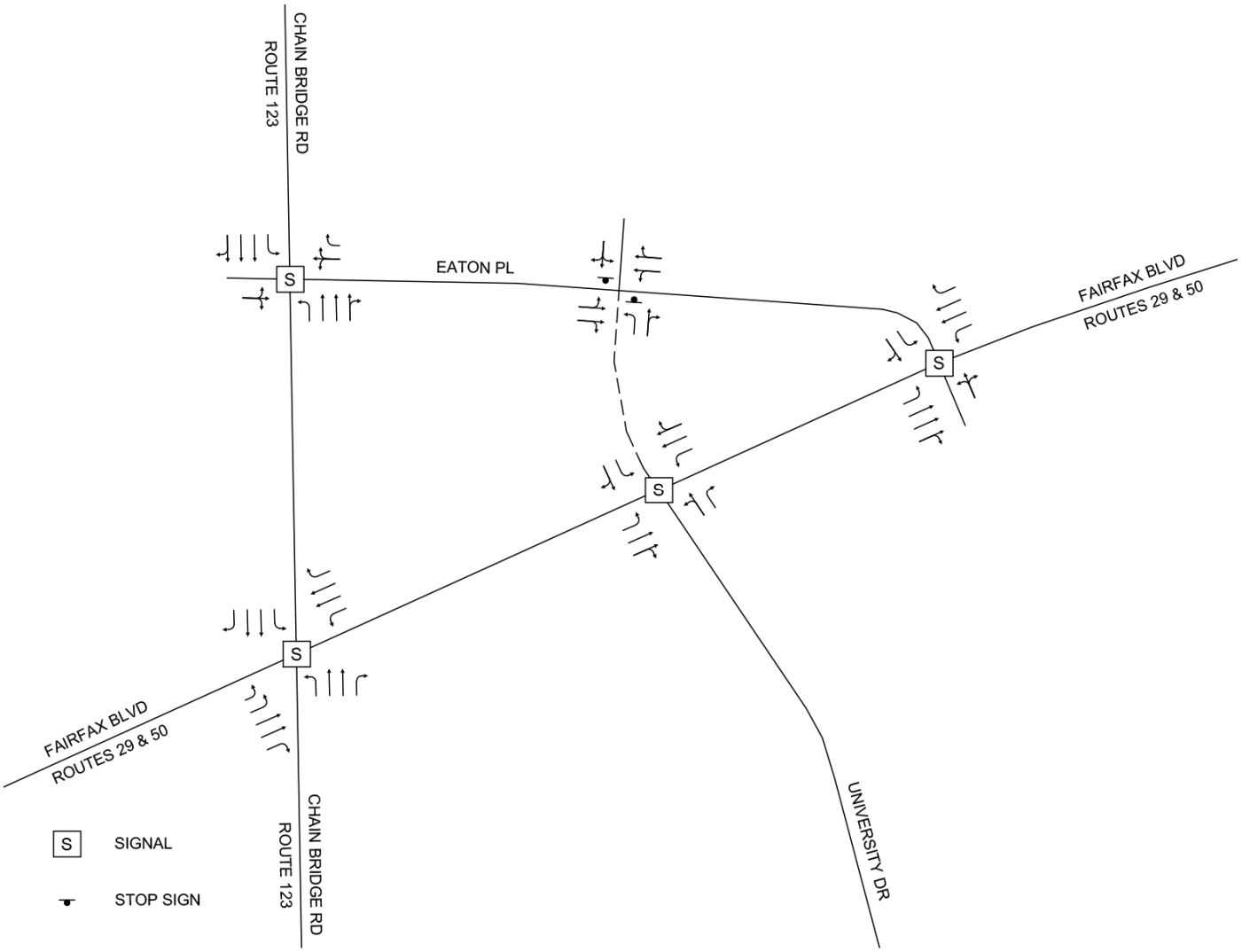
The Northfax site is the subject of preliminary planning for redevelopment with higher-density commercial and residential land uses. However, the planning, design, and permitting schedules for Northfax redevelopment are likely to exceed the 2018 planning horizon, and the purpose of this study is to evaluate the planned University Drive extension's impact on area traffic operations prior to Northfax redevelopment. Therefore, no additional planned development was identified for inclusion in the 2018 Baseline traffic volume forecasts.

University Drive Extension Plan

Based on roadway plans produced for the University Drive extension, the planned roadway would be constructed along an alignment from the north side of the Fairfax Boulevard/University Drive intersection to a new intersection on Eaton Place opposite an existing WillowWood Plaza driveway. The planned roadway alignment travels through portions of the existing Fairfax Shopping Center and car dealership properties and would support potential future redevelopment of these properties. A copy of the preliminary concept plan for the University Drive extension prepared by Rinker Design Associates is included in the Appendix. Figure 5 summarizes the anticipated future lane

geometry and traffic control at the study intersections after constructing the University Drive extension. The University Drive extension concept developed by Rinker Design Associates provides the planned lane geometry for University Drive, and traffic control for the planned Eaton Place/University Drive intersection is assumed to be Stop sign control on the University Drive approach to the intersection.

Figure 5
Future Northfax Lane Geometry and Traffic Control



Future Roadway Extension Traffic Volume Forecasts

The 2018 Future Roadway Extension traffic volume forecasts were developed to account for potential traffic diversions associated with the completion of the University Drive extension between Fairfax Boulevard and Eaton Place. The planned roadway extension is anticipated to attract traffic from several other existing in the study area.

VHB primarily relied on engineering judgement based on our understanding of the study area developed through multiple traffic evaluations in this area to develop the traffic diversion forecasts. VHB evaluated the existing traffic

patterns and compared peak period travel times in the study area to develop traffic diversion forecasts on study area roadways. Regional travel demand model data and analysis runs were not available for this evaluation.

There are two primary categories of traffic volume diversions that the University Drive extension is likely to enable: traffic diversions between University Drive and Chain Bridge Road and traffic diversions between Chain Bridge Road/Fairfax Boulevard and Eaton Place. The following sections summarize the anticipated proportion of traffic volume diversions.

Diversions between University Drive and Chain Bridge Road

Some north-south traffic that currently uses either Fairfax Boulevard or Eaton Place to travel between University Drive and Chain Bridge Road is likely to divert to the University Drive extension. The University Drive extension is likely to provide a more direct route for some of the traffic using these roadways. The following is a summary of the level of anticipated traffic diversions between University Drive and Chain Bridge Road:

- 50% of the northbound left turn traffic from University Drive to Fairfax Boulevard will divert to the northbound through on University Drive (to the planned extension), left on Eaton Place, and right on Chain Bridge Road
- 50% of eastbound right turn traffic from Fairfax Boulevard to University Drive will be diverted left from Chain Bridge Road at Eaton Place, right on University Drive (extension), and cross Fairfax Boulevard to continue south
- 2% of the northbound right turn traffic from University Drive to Fairfax Boulevard will divert to the northbound through on University Drive (to the planned extension), left on Eaton Place, and right on Chain Bridge Road
- 2% of the westbound left turn traffic from Fairfax Boulevard to University Drive will be diverted left from Chain Bridge Road at Eaton Place, right on University Drive (extension), and cross Fairfax Boulevard to continue south
- 10% of northbound through traffic on Chain Bridge Road at Fairfax Boulevard will divert to the northbound through on University Drive at Fairfax Boulevard, left on Eaton Place, and right on Chain Bridge Road
- 10% of southbound through traffic on Chain Bridge Road at Fairfax Boulevard will be diverted left from Chain Bridge Road to Eaton Place, right on University Drive (extension), and southbound through at Fairfax Boulevard to continue south

The University Drive extension will provide a more direct and attractive route for some traffic to use University Drive to travel between Fairfax Boulevard and the Old Town district of the city. This project is likely contribute to increased traffic diverted from Chain Bridge Road to University Drive south of Fairfax Boulevard. Table 2 summarizes the projected peak hour traffic diversions to University Drive, south of Fairfax Boulevard.

Table 2: Future Traffic Diversions to University Drive, south of Fairfax Boulevard

	Traffic Volume Increase		
Time Period	**Northbound**	**Southbound**	**Total**
Weekday AM Peak	64	80	144
Weekday PM Peak	63	58	121

South of Fairfax Boulevard, University Drive is a two-lane urban collector street. Daily traffic volume data for University Drive, south of Fairfax Boulevard, collected by the Virginia Department of Transportation[1] in 2014 indicates an average daily traffic volume of 6,100 vehicles per day. This level of traffic activity is well within the operational capacity for a two-lane collector roadway, which can approach approximately 17,000-18,000 vehicles per day at maximum capacity.

The additional traffic projected on University Drive represents an increase of approximately 1,000-1,500 daily vehicle trips on the corridor, which represents an approximately 15-25 percent increase in daily traffic volume or approximately one additional vehicle per minute in each direction during peak periods. A significant proportion of the traffic increase is comprised of traffic diverted to University Drive from the Chain Bridge Road (Route 123) corridor, which will contribute to some reduction in vehicle delay and congestion on Chain Bridge Road. The projected peak hour and daily traffic volumes on University Drive remain well below the roadway's operational capacity.

Diversions between Chain Bridge Road/Fairfax Boulevard and Eaton Place

Traffic originating from or destined to land uses on Eaton Place currently access Eaton Place directly from Chain Bridge Road or Fairfax Boulevard. The planned University Drive extension will provide a more direct route between both Chain Bridge Road and Fairfax Boulevard and some land uses on Eaton Place. The following is a summary of the anticipated traffic diversions between Chain Bridge Road or Fairfax Boulevard and Easton Place:

- 40% of northbound right turn traffic from Chain Bridge Road to Eaton Place will be diverted proportionally from Chain Bridge Road and Fairfax Boulevard, travel east along Fairfax Boulevard to the eastbound left at University Drive (extension), and turn right and left (equally) at Eaton Place
- 40% of westbound left turn traffic from Eaton Place to Chain Bridge Road will be diverted onto University Drive (extension), right onto Fairfax Boulevard, and allocated proportionally to Chain Bridge Road and Fairfax Boulevard
- 20% of eastbound left turn traffic from Fairfax Boulevard onto Eaton Place will divert to the eastbound left onto University Drive (extension) and right on Eaton Place.
- 20% of southbound right turn traffic from Eaton Place to Fairfax Boulevard will divert to the westbound left from Eaton Place onto University Drive (extension) and southbound right onto Fairfax Boulevard

Figures 6 and 7 summarize the anticipated traffic volume diversions described above. These figures include positive and negative values, which represent increasing or decreasing traffic volume forecasts at specific intersection movements.

[1] Virginia Department of Transportation Daily Traffic Volume Estimates, Special Locality Report 151, City of Fairfax; 2014. http://www.virginiadot.org/info/resources/Traffic_2014/AADT_151_Fairfax_2014.pdf

Figure 6
University Drive Extension Weekday Morning Peak Hour Traffic Volume Diversions

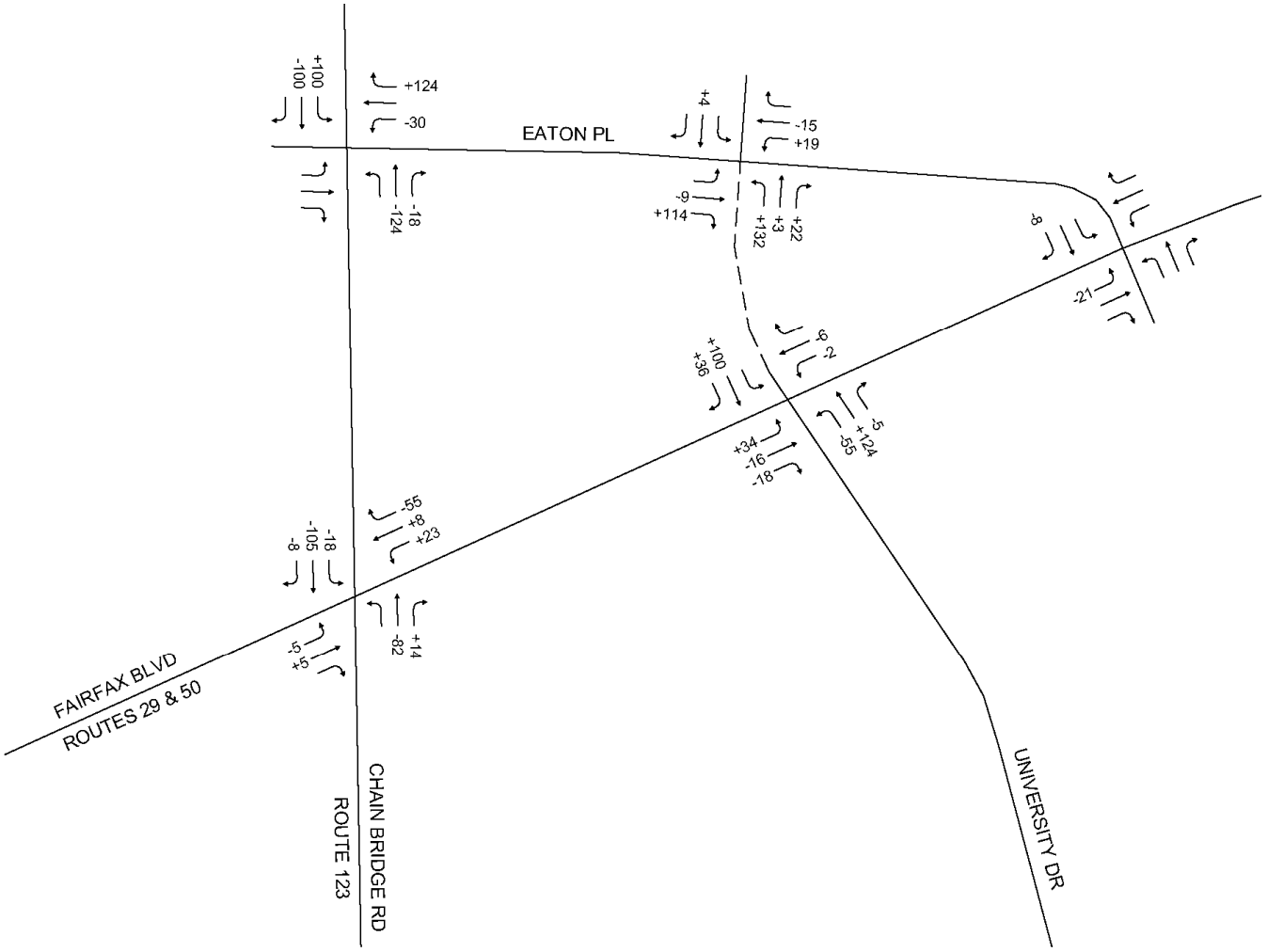
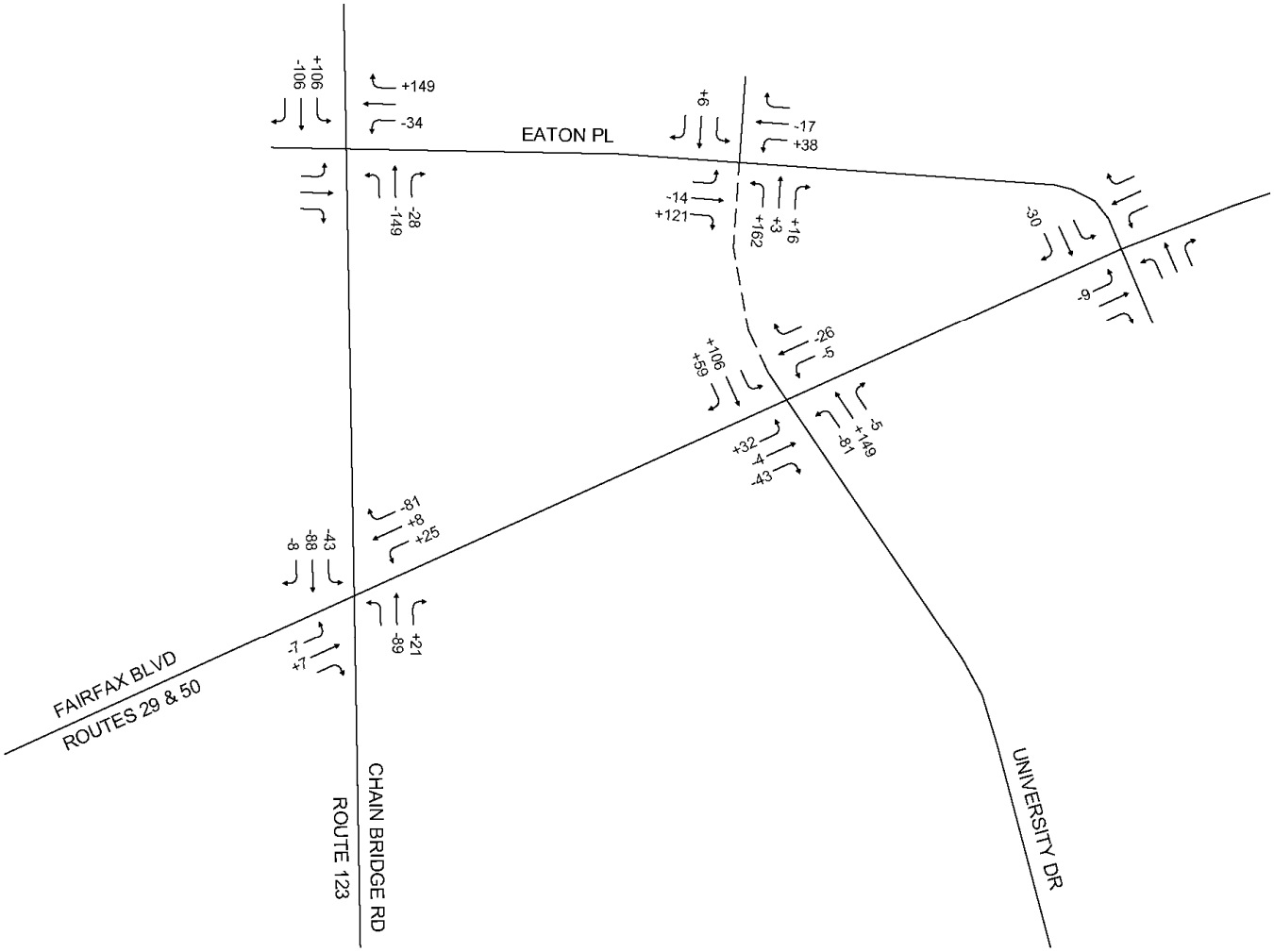


Figure 7
University Drive Extension Weekday Evening Peak Hour Traffic Volume Diversions



2018 Roadway Extension Traffic Volumes

The weekday morning and evening peak hour traffic volume diversions were applied to the 2018 Baseline peak hour traffic volumes to calculate the 2018 Roadway Extension peak hour traffic volumes. Figures 8 and 9 summarize the 2018 Roadway Extension peak hour traffic volumes.

Figure 8

2018 Roadway Extension Weekday Morning Peak Hour Traffic Volumes

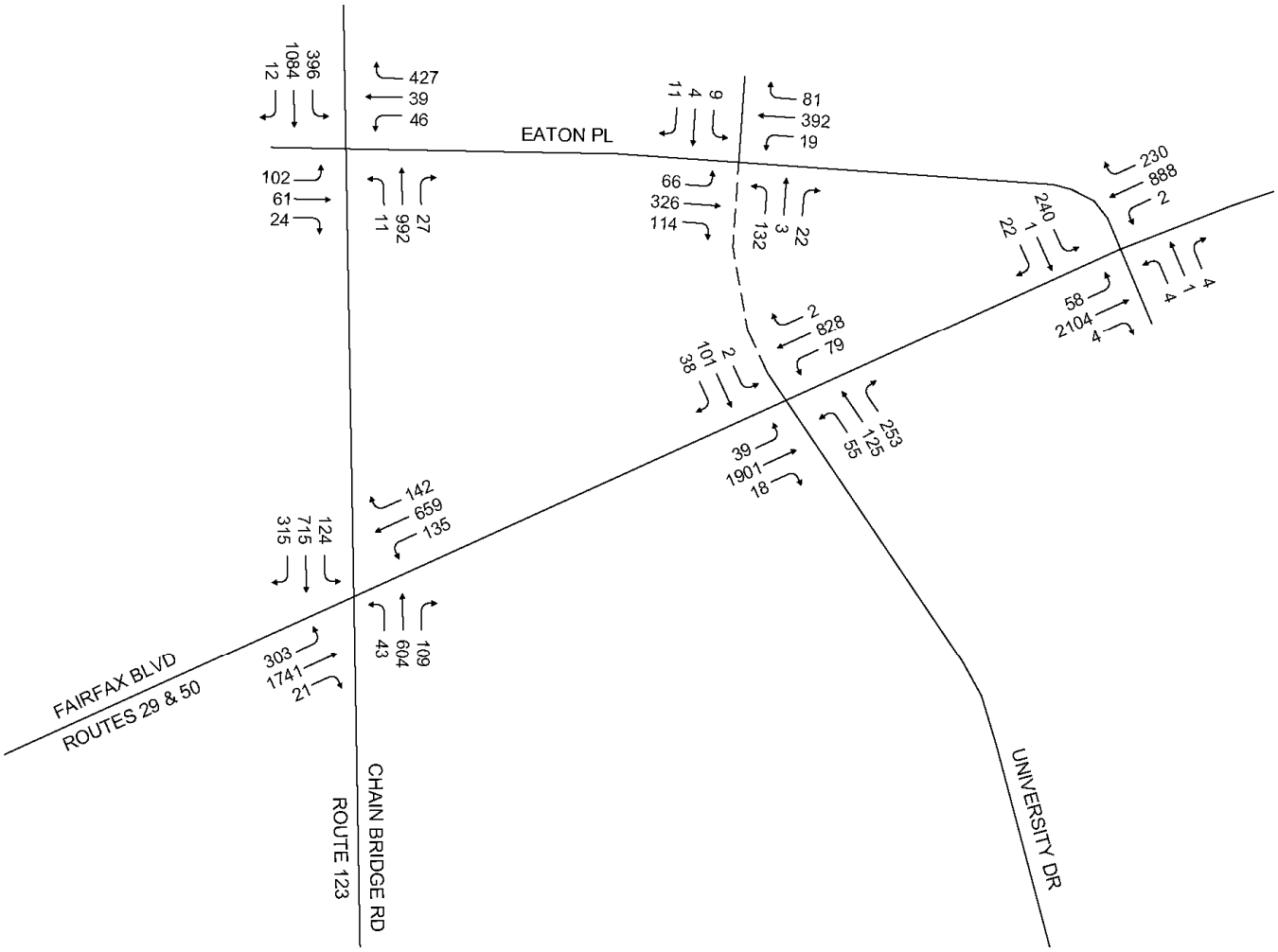
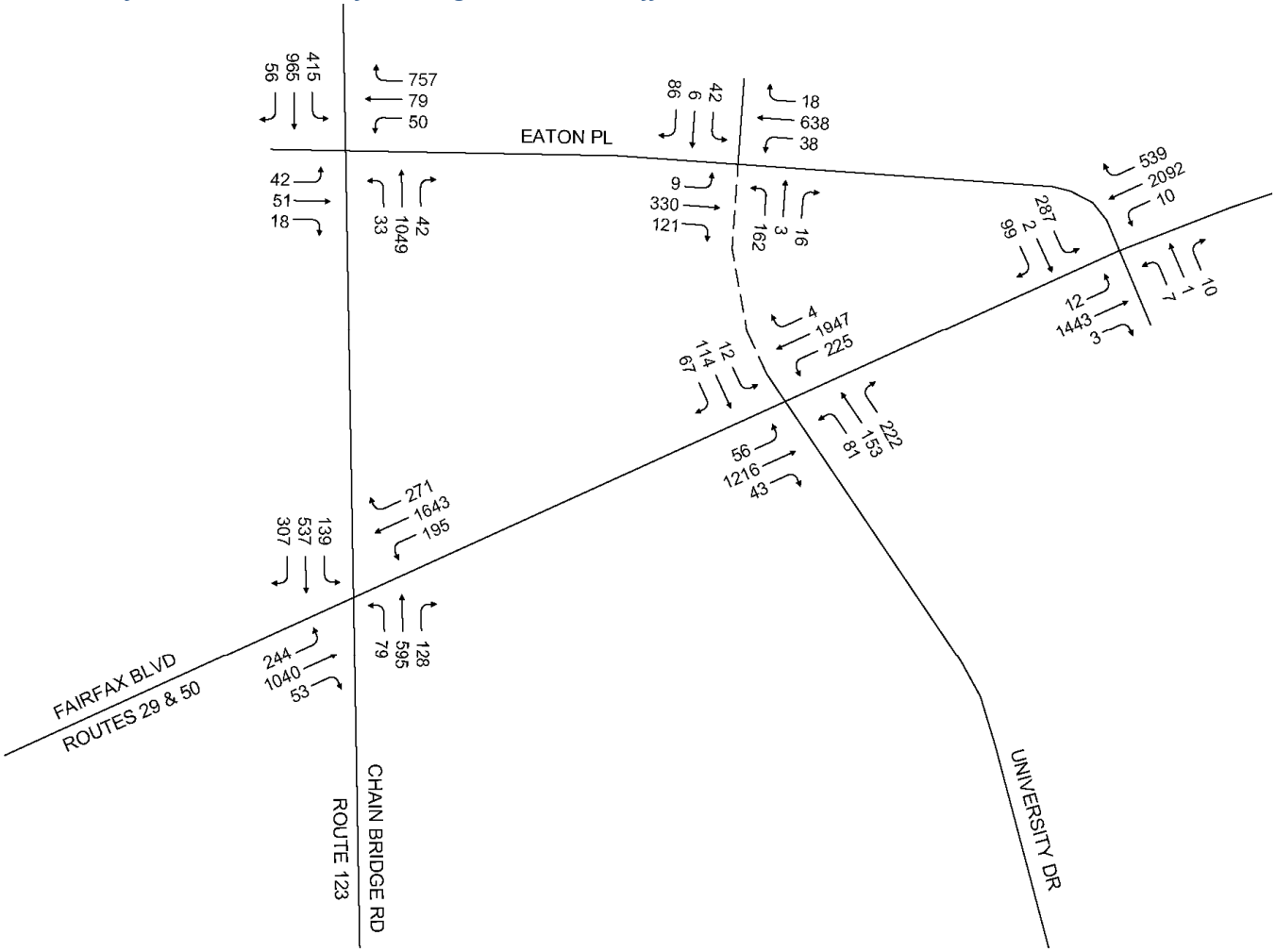


Figure 9
2018 Roadway Extension Weekday Evening Peak Hour Traffic Volumes



Planned Traffic Control

The Manual on Uniform Traffic Control Devices (MUTCD)[2] provides traffic signal warrant guidelines that represent the minimum standards to install a new traffic signal at an intersection. The Peak Hour traffic signal warrant thresholds were applied to the traffic volume projections for the planned Eaton Place/University Drive intersection. Based on the traffic volume forecasts and planned intersection lane geometry, the Eaton Place/University Drive intersection will not meet the minimum Peak Hour warrant thresholds for a traffic signal. This finding confirms that two-way Stop control is appropriate for the planned intersection.

Future land use development and traffic control strategies will influence traffic volumes in the study area. Additional analysis of the planned intersection's traffic control may be appropriate and should be conducted based on updated traffic volume projections for the intersection or actual traffic volumes after implementation.

[2] *Manual on Uniform Traffic Control Devices for Streets and Highways*, Federal Highway Administration, Washington, D.C. 2009

Future Conditions Intersection Capacity Analysis

The 2018 Baseline and 2018 Roadway Extension peak hour traffic volumes were used to analyze the capacity of the five study-area intersections. Consistent with traffic analysis methodology used by VHB for previous Northfax traffic studies, the VISSIM analysis model was used to analyze traffic operations in this evaluation.

The VISSIM traffic micro-simulation model provides a comprehensive tool for traffic analysis of high-volume urban and suburban roadway networks. VISSIM is a powerful microscopic, time-step, and driver behavior based traffic simulation model that uses a psycho-physical driver behavior model for each vehicle in the system. VISSIM is capable of modeling high-volume and high-speed traffic volume conditions, including the movements of variety users, including automobiles, trucks, bicycles, and pedestrians on a detailed network of streets.

Unlike static traffic analysis methodologies and tools, a microsimulation model like VISSIM is designed to accurately evaluate traffic network operations at a system level, including a range of driver behaviors and the influences of vehicle interactions and congestion on adjacent intersections. Static intersection-based traffic analysis tools evaluate intersection operations in isolation and cannot reflect the effects of upstream and downstream operations along a roadway corridor.

After initial coding of the network, multiple runs of the existing conditions VISSIM model with varying random seeds were conducted to introduce variation to vehicle loadings and the vehicle arrivals within the simulation environment. Calibration of the existing conditions VISSIM model was conducted and some model settings were adjusted during previous studies of the Northfax study area by VHB to provide accurate and realistic model operations. VHB retained the settings from previous VISSIM modeling for the Northfax study area in the University Drive extension evaluation. The analysis maintains existing traffic signal timing and phasing settings for both the 2018 Baseline and 2018 Roadway Extension conditions.

The output from the VISSIM model provides results indicating the level of service for each intersection in the study area. Level of Service (LOS) is a qualitative assessment of vehicle mobility along a roadway or through an intersection, and represents a metric of traffic performance and roadway/intersection capacity. LOS is represented by a rating designation between ''A'' and ''F'', with ''A'' representing little or no delay and ''F'' representing extreme congestion. For signalized intersections, the prevailing LOS depends on a number of factors including the approach green per cycle (g/ C) ratio, volume to capacity (v/ c) ratio and traffic progression. For two-way stop controlled intersections, the LOS depends primarily on the availability of gaps in the mainline traffic stream for side-street vehicles. The level of service for each type of intersection is defined in terms of control delay, which includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table 3 summarizes the LOS thresholds defined in the Highway Capacity Manual (HCM)[3] for evaluating intersection operational performance.

[3] Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2010

Table 3: Level of Service Thresholds

Level of Service	HCM Methodology (average control delay per vehicle in seconds)	
	Unsignalized Intersections	Signalized Intersections
A	< 10	< 10
B	10-15	10-20
C	15-25	20-35
D	25-35	35-55
E	35-50	55-80
F	> 50	> 80

Additionally, the VISSIM model provides vehicle queuing results for individual movements at each intersection based on dynamic simulation of vehicle progression between adjacent intersections. This evaluation focuses on the maximum queue results for each approach to the study intersections.

Capacity Analysis Results

The LOS for all intersections in the study area was determined based on these threshold values and the vehicular delays from the VISSIM microsimulation model. The traffic analysis LOS results are summarized in Table 4 and maximum queuing results are summarized in Table 5. Detailed summary tables including control delay, levels-of-service, and maximum vehicular queuing are included in the Appendix.

Table 4: Overall Intersection Level of Service Summary

Location	Time Period	2018 Baseline Condition		2018 Roadway Extension Condition	
		Delay (sec)	LOS	Delay (sec)	LOS
Fairfax Boulevard at Chain Bridge Road	Weekday AM Peak Hour	52.0	D	47.4	D
	Weekday PM Peak Hour	57.2	E	60.3	E
Fairfax Boulevard at University Drive	Weekday AM Peak Hour	11.9	B	18.9	B
	Weekday PM Peak Hour	16.1	B	45.3	D
Fairfax Boulevard at Eaton Place	Weekday AM Peak Hour	12.9	B	14.1	B
	Weekday PM Peak Hour	17.9	B	28.3	C
Chain Bridge Road at Eaton Place/Oak Lane	Weekday AM Peak Hour	66.4	E	56.3	E
	Weekday PM Peak Hour	87.5	F	87.4	F
Eaton Place at University Drive	Weekday AM Peak Hour	n/a	n/a	0.6	A
	Weekday PM Peak Hour	n/a	n/a	107.7	F

Table 5: Vehicle Queuing Summary

Location	Time Period	2018 Baseline Condition		2018 Roadway Extension Condition	
		Movement	Maximum Queue (feet)	Movement	Maximum Queue (feet)
Fairfax Boulevard at Chain Bridge Road	Weekday AM Peak Hour	EB T	975	EB T	1,006
		WB T	310	WB T	311
		NB T	1,012	NB T	715
		SB T	1,065	SB T	845
	Weekday PM Peak Hour	EB T	575	EB T	992
		WB T	1,133	WB T	1,123
		NB T	1,207	NB T	1,110
		SB T	1,154	SB T	1,037
Fairfax Boulevard at University Drive	Weekday AM Peak Hour	EB T	376	EB T	470
		WB T	161	WB T	312
		NB LT	471	NB LT	554
		SB L	21	SB T	277
	Weekday PM Peak Hour	EB T	372	EB L	1,098
		WB T	675	WB T	913
		NB LT	644	NB LT	710
		SB T	51	SB T	308
Fairfax Boulevard at Eaton Place	Weekday AM Peak Hour	EB T	605	EB T	834
		WB T	254	WB T	212
		NB LTR	28	NB LTR	28
		SB L	401	SB L	382
	Weekday PM Peak Hour	EB T	189	EB T	107
		WB T	921	WB T	1,376
		NB LTR	44	NB LTR	44
		SB L	729	SB L	480

Notes: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = Left Turn, T = Through, and R = Right Turn

Table 5: (cont.): Vehicle Queuing Summary

Location	Time Period	2018 Baseline Condition		2018 Roadway Extension Condition	
		Movement	Maximum Queue (feet)	Movement	Maximum Queue (feet)
Chain Bridge Road at Eaton Place/Oak Lane	Weekday AM Peak Hour	EB LTR	307	EB LTR	307
		WB LTR	410	WB LTR	406
		NB TR	554	NB TR	546
		SB T	588	SB L	496
	Weekday PM Peak Hour	EB LTR	263	EB LTR	285
		WB LTR	1,442	WB LTR	1,212
		NB TR	633	NB TR	549
		SB T	591	SB L	626
Eaton Place at University Drive	Weekday AM Peak Hour	n/a	n/a	EB LTR	18
		n/a	n/a	WB LTR	0
		n/a	n/a	NB T	25
		n/a	n/a	SB T	0
	Weekday PM Peak Hour	n/a	n/a	EB LTR	33
		n/a	n/a	WB LTR	698
		n/a	n/a	NB T	667
		n/a	n/a	SB T	73

Notes: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = Left Turn, T = Through, and R = Right Turn

The capacity analysis results indicate that the forecasted 2018 traffic volume forecasts for the roadway extension are anticipated to operate at similar or better LOS than the 2018 Baseline traffic volumes at all intersections during the weekday morning peak hour. The Eaton Place/University Drive intersection is expected to operate at LOS A during the weekday morning peak hour under the 2018 Roadway Extension condition. Queuing results for the weekday morning peak hour indicate that the 2018 Roadway Extension condition is likely to produce similar queuing levels to the 2018 Baseline condition, and may improve some localized queues, most notably on Chain Bridge Road at Fairfax Boulevard.

During the weekday evening peak hour, both of the existing intersections on Chain Bridge Road operate at LOS E or F under the 2018 Baseline conditions, which exceeds the city's standards for intersection performance. The LOS results indicate that several intersections are anticipated to experience significant increases in delay between the 2018 Baseline and 2018 Roadway Extension conditions. Vehicular delay is anticipated to increase significantly at three of the existing intersections and the planned Eaton Place/University Drive intersection is expected to operate at LOS F.

The maximum queuing results indicate that significant vehicular queuing on the westbound Eaton Place approach to Chain Bridge Road is present during the weekday evening peak hour under 2018 Baseline conditions. This queue is expected to extend well beyond the planned Eaton Place/University Drive intersection under the 2018 Roadway Extension condition, which will significantly impede traffic progression from northbound University Drive onto

westbound Eaton Place. The northbound queue on University Drive approaching Eaton Place is expected to extend the full length of the University Drive extension to Fairfax Boulevard and increase overall delay and congestion at the Fairfax Boulevard/University Drive intersection. Maximum queues at several intersections on Fairfax Boulevard are likely to exceed the available turning lane storage lengths, resulting in impacts to overall traffic progression during peak periods.

Traffic Signal Timing Modifications

The study indicates that traffic volume on Eaton Place will increase as a result of the University Drive extension project. Based on the initial capacity analysis results, VHB evaluated traffic signal timing modifications for the Chain Bridge Road/Eaton Place intersection during the weekday evening peak hour to improve overall traffic progression on Eaton Place and the University Drive extension. The traffic signal timing modifications involve transferring green time from Chain Bridge Road to the Eaton Place westbound approach to help improve vehicular progression and minimize queues on Eaton Place. However, increased traffic signal green time for Eaton Place will come at the expense of green time and vehicle progression on the currently congested Chain Bridge Road.

VHB performed an additional VISSIM analysis scenario based on the evening peak traffic signal timing modifications at this intersection. The results of this additional analysis scenario are included in Tables 6 and 7.

Table 6: Overall Intersection Level of Service Summary with Signal Timing Modifications

Location	Time Period	2018 Baseline Condition		2018 Roadway Extension Condition		2018 Roadway Extension with Signal Re-timing	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Fairfax Boulevard at Chain Bridge Road	Weekday PM Peak Hour	57.2	E	60.3	E	57.0	E
Fairfax Boulevard at University Drive	Weekday PM Peak Hour	16.1	B	45.3	D	32.0	C
Fairfax Boulevard at Eaton Place	Weekday PM Peak Hour	17.9	B	28.3	C	17.9	B
Chain Bridge Road at Eaton Place/Oak Lane	Weekday PM Peak Hour	87.5	F	87.4	F	81.1	F
Eaton Place at University Drive	Weekday PM Peak Hour	n/a	n/a	107.7	F	47.1	E

Table 7: Vehicle Queuing Summary with Signal Timing Modifications

Location	Time Period	2018 Baseline Condition		2018 Roadway Extension Condition		2018 Roadway Extension with Signal Re-timing	
		Movement	Maximum Queue (feet)	Movement	Maximum Queue (feet)	Movement	Maximum Queue (feet)
Fairfax Boulevard at Chain Bridge Road	Weekday PM Peak Hour	EB T	575	EB T	992	EB T	606
		WB T	1,133	WB T	1,123	WB T	1,120
		NB T	1,207	NB T	1,110	NB T	1,163
		SB T	1,154	SB T	1,037	SB T	984
Fairfax Boulevard at University Drive	Weekday PM Peak Hour	EB T	372	EB L	1,098	EB L	330
		WB T	675	WB T	913	WB T	906
		NB LT	644	NB LT	710	NB LT	719
		SB T	51	SB T	308	SB T	345
Fairfax Boulevard at Eaton Place	Weekday PM Peak Hour	EB T	189	EB T	107	EB T	120
		WB T	921	WB T	1,376	WB T	921
		NB LTR	44	NB LTR	44	NB LTR	44
		SB L	729	SB L	480	SB L	502
Chain Bridge Road at Eaton Place/Oak Lane	Weekday PM Peak Hour	EB LTR	263	EB LTR	285	EB LTR	269
		WB LTR	1,442	WB LTR	1,212	WB LTR	1,210
		NB TR	633	NB TR	549	NB L	865
		SB T	591	SB L	626	SB L	751
Eaton Place at University Drive	Weekday PM Peak Hour	n/a	n/a	EB LTR	33	EB LTR	13
		n/a	n/a	WB LTR	698	WB LTR	398
		n/a	n/a	NB LT	667	NB LT	550
		n/a	n/a	SB LTR	73	SB LTR	66

Notes: EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, L = Left Turn, T = Through, and R = Right Turn

The results in Tables 6 and 7 indicate that traffic signal timing modifications at the Chain Bridge Road/Eaton Place intersection could reduce the overall weekday evening peak hour delay and congestion anticipated under the 2018 Roadway Extension condition. With the traffic signal timing modifications, overall LOS at all existing intersections is projected to remain similar to 2018 Baseline condition. The planned Eaton Place/University Drive intersection is projected to operate at overall LOS E.

The vehicle queuing results indicate that the traffic signal timing modifications could mitigate weekday evening peak period queues on Eaton Place, University Drive, and Fairfax Boulevard below the levels projected for the 2018 Roadway Extension condition. By providing additional green time for Eaton Place traffic to progress onto Chain

Bridge Road, additional roadway capacity is provided for traffic using the University Drive extension to progress onto Eaton Place. However, most queue results remain similar to 2018 Baseline conditions, suggesting that the University Drive extension is likely to provide minimal improvement for other study intersections. As a consequence of the transfer of green time from Chain Bridge Road to Eaton Place, the northbound and southbound queues on Chain Bridge Road at Eaton Place are projected to increase. Additionally, the projected northbound queue on University Drive at Eaton Place is still anticipated to approach the full length of the street segment to Fairfax Boulevard. The City of Fairfax has completed previous traffic signal timing optimization studies for this area that suggest any signal timing modifications reducing green time on Chain Bridge Road are unacceptable.

Conclusion

Review of the projected intersection delay and queuing results, as well as the visual microsimulation output, indicate that both Eaton Place and University Drive will operate at or beyond saturated conditions during the 2018 Roadway Extension weekday evening peak period, exceeding the capacity of multiple intersections. The signal timings at the Chain Bridge Road/Eaton Place intersection do not provide sufficient green time for vehicles to progress from both Eaton Place and University Drive onto Chain Bridge Road. As a result, the mounting vehicular queues are anticipated to exacerbate congested conditions on Eaton Place and University Drive extension, north of Fairfax Boulevard. The traffic volume diversion estimates for University Drive, south of Fairfax Boulevard, indicate an approximately 15-25 percent increase in overall traffic volume, which remains well within the road's operational capacity and will provide some relief on the more congested Chain Bridge Road (Route 123).

The findings suggest that the ability of the University Drive extension to reduce vehicular delay and traffic congestion at other study area intersections is limited. While the planned roadway extension project may provide modest queuing improvements at some locations, such as the Fairfax Boulevard/Chain Bridge Road intersection, the project will not significantly improve traffic operations at any intersections and is likely to contribute to elevated peak period delay and queuing on Fairfax Boulevard, Eaton Place and University Drive, north of Fairfax Boulevard. Operational measures to minimize congestion on Eaton Place and University Drive would result in increased traffic queuing and congestion on Chain Bride Road (Route 123). Overall, the project will likely strain the limited roadway capacity on Eaton Place and contribute to persistent traffic congestion on the University Drive extension during the weekday evening peak period.

The City of Fairfax has already optimized traffic signal timings in the study area and timing modifications at the Chain Bridge Road/Eaton Place intersection will not provide complete improvement on the Eaton Place and University Drive corridors. Significant intersection modifications to provide additional capacity at Chain Bridge Road/Eaton Place intersection are necessary to improve overall operations on Eaton Place and the planned University Drive extension and reduce anticipated future congestion.

Future land use approvals and traffic management strategies will influence individual driver decisions and overall traffic volume. To avoid significant congestion, some of traffic forecasted to divert to University Drive will likely seek other routes to avoid long queues and will contribute to long-term equilibrium in traffic patterns for the study area. The long-term traffic balancing activity will moderate increases in traffic volume on Eaton Place and University Drive, but will also reduce the level of improvement in traffic operations at other intersections in the Northfax study area.

Northfax East Roadway Project
(University Drive Extension)

VDOT Project No.: U000-151-198
UPC: 109309
Federal Project: STP-5A01(763)

Public Hearing
Sept. 25, 2018

Public Hearing Objectives

- Project Overview & Design Presentation
- Discuss Right of Way Phase Process
- Answer Questions
- Invite Public Comment

Project Timeline

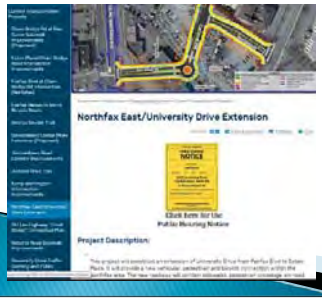
- July – Sept, 2015: Three City Council meetings to discuss Smart Scale (formerly HB2) process and potential projects
- September 29, 2015: Council adopted Resolution to approve the City's submission to VDOT
- June 24, 2016: VDOT approved City's SmartScale application
- November 1, 2016: Public Outreach Meeting
- November, 2016:– May, 2017: Five City Council Meetings to discuss project and potential modifications
- June 13, 2017: Public Hearing and Council Action to Proceed with the project with an updated project design
- September 25, 2018: Design Public Hearing on 60% Plans

Public Hearing

- The Public Hearing is an opportunity for the project team to present the project to a public audience at the 60% stage
- Individuals have the opportunity to have their comments and questions recorded verbally or in writing
- All comments are recorded and entered into the Hearing record
- The record is held open for 10 days after the hearing for additional written comments to be submitted
- Staff will compile comments and address any outstanding issues prior to finalizing the plans
- Staff will provide responses to comments provided at the Public Hearing and note any changes in the plans

Public Hearing Notification

- Two notices in the newspaper
- Letters to adjacent property owners
- Posting of notice in the project area
- Emails to property owners
- Posting on project website



City of Fairfax, Virginia
10455 Armstrong Street • Fairfax, VA 22030-3630
703-385-7810 • www.fairfaxva.gov

NEW ROADWAY IN NORTHFAX (UNIVERSITY DRIVE EXTENSION PROJECT)
CITY OF FAIRFAX PUBLIC HEARING
SEPTEMBER 25, 2018, 7:00 PM
City Council Chambers
10455 Armstrong Street, Fairfax, VA 22030

Find out about the proposed new roadway in the Northfax area between Fairfax Boulevard and Eaton Place just north of University Drive in the City of Fairfax. The project length is approximately 830 feet and involves construction of a new road, a mini roundabout, turn lanes, some on-street parking, bicycle and pedestrian accommodations, traffic signal modifications, drainage improvements and landscaping.

Pursuant with the National Environmental Policy Act (NEPA) and 23 CFR 771, a Categorical Exclusion was prepared to evaluate potential environmental impacts. In compliance with the National Historic Preservation Act, Section 106 and 36 CFR Part 800, information concerning the potential effects of the proposed improvements on properties listed in or eligible for listing in the National Register of Historic Places is included with the NEPA documentation.

Review project plans, information about property impacts, right of way policies, the tentative construction schedule and environmental documents at the hearing. This information will also be available 90 days prior to the public hearing at 10455 Armstrong Street, Room 200, Fairfax, VA 22030.

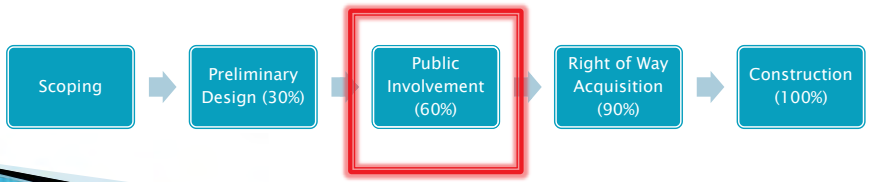
Give your written or oral comments at the hearing or submit them by Wednesday, October 10, 2018 to Wendy Sanford at the City of Fairfax Public Works Department, 10455 Armstrong Street, Room 200, Fairfax, Virginia 22030 or wendy.sanford@fairfaxva.gov.

The City of Fairfax ensures nondiscrimination and equal employment in all programs and activities in accordance with Title VI and Title VII of the Civil Rights Act of 1964. All City government offices can be contacted by dialing 711 for TTY service.

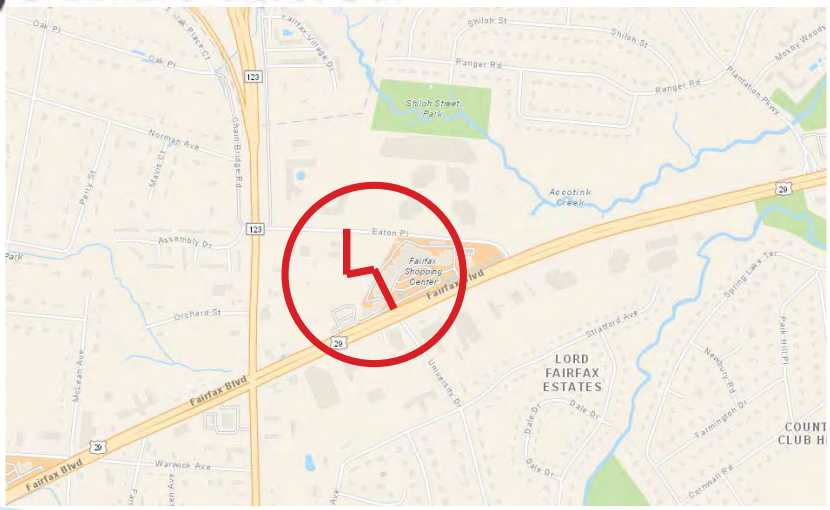
VDOT Project: U000-131-198
UPC: 109309

Project Status

- Design advanced to Public Hearing Phase Plans – 60% Complete
  - Roadway and Drainage Design
  - Establish Roundabout Criteria and Design
  - Bicycle and Pedestrian Accommodation Design
  - Landscaping and Aesthetics
  - Environmental Studies and National Environmental Policy Act (NEPA) Doc.
    - Categorical Exclusion (CE) Complete with FHWA Concurrence



Project Location



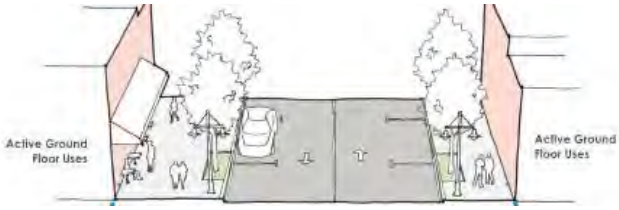
Project Objectives

- Improve Connectivity
  - Divide existing "Mega-Block" within the Northfax development area
- Reduce Congestion
  - Reduce traffic volumes at existing Fairfax Blvd – Chain Bridge Road Intersection
  - Provide alternate route from University Drive, south of Fairfax Blvd, to Eaton Place and beyond
- Promote Multimodal Travel
  - Implement City's "Active Street" corridor initiative
  - Bicycle and Pedestrian accommodations with landscaping and lighting

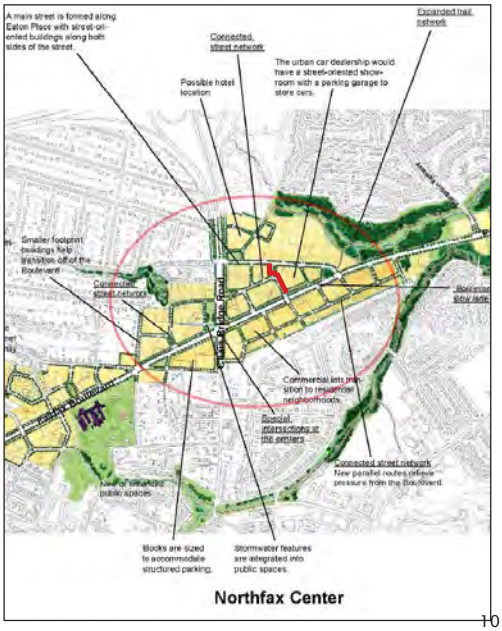
Project Description

- New north-south roadway within the Northfax Area to connect University Drive at Fairfax Blvd to Eaton Place while providing infrastructure for future Northfax Redevelopment.
- Typical section varies from a three-lane configuration with center turn lane to a two-lane section with on-street parking, based on City's "Active Street" concept
- Mini-roundabout promotes lower speeds and reduces conflict points
- Shared-use path and landscaping treatments promote green, active streets
- Turn lanes and traffic signal upgrades to aid in congestion management
- Stub road for future western connection of proposed improvements to Chain Bridge Road

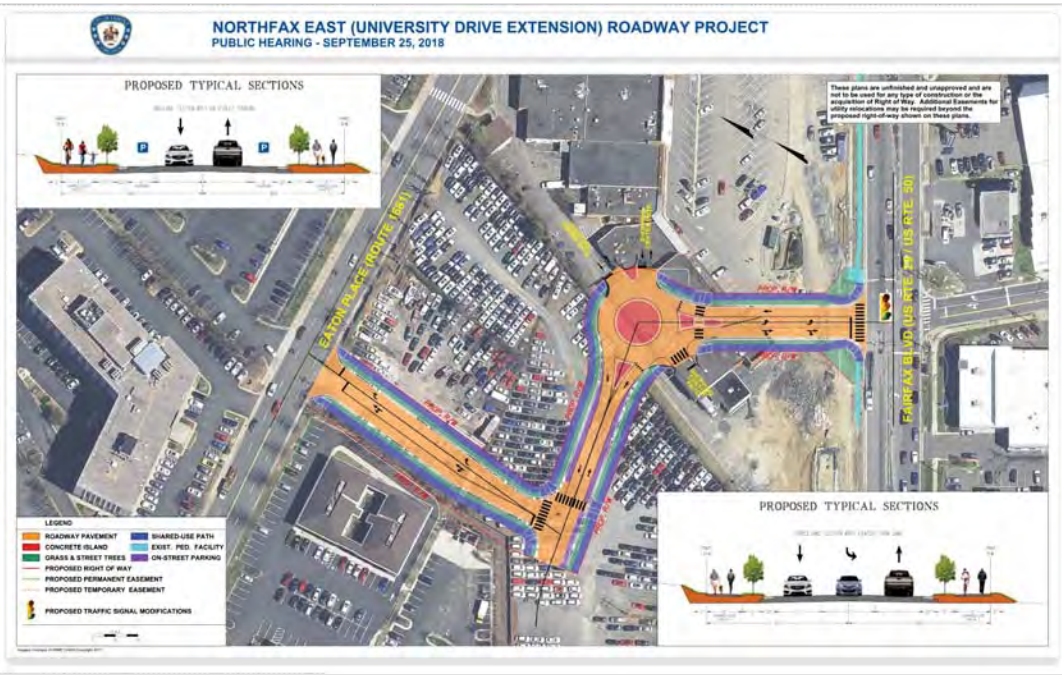
City Comprehensive Plan & Vision



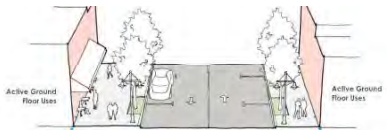
Active Streets Concept

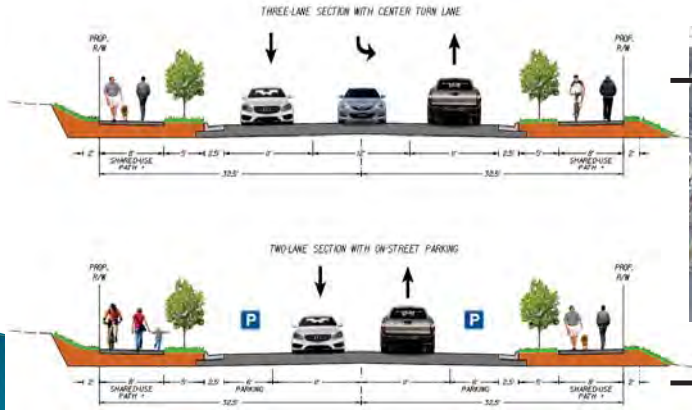


Northfax Center



Typical Sections





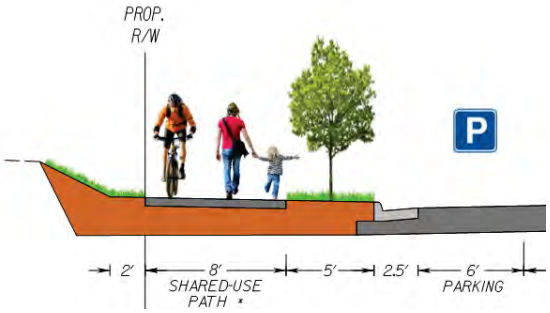
Mini-Roundabout

Proposed Northfax East Mini-Roundabout

Recently Completed Mini-Roundabout

Park St. & Locust St., Vienna, VA

Shared-Use Path & Landscaping



- Shared-Use Path Facilities
  - An 8' wide path, similar to a sidewalk, intended for use by pedestrians and cyclists
  - Provided on both sides of corridor with marked road crossings connects Fairfax Blvd to Eaton Pl.
  - Connects to and continues Fairfax Blvd Sidewalks
- Landscaping
  - A combination of street trees, grasses, and low-growth shrubs coordinated with surrounding City streetscapes
    - Grasses, Perennials, Ornamental Shrubs, Flowering & Shade Trees typical of Fairfax corridors
  - No trees or vegetation located on site today
  - Potential for additional landscaping outside of proposed right of way with future private development

Intersection Configurations

Intersection Turning Movements – Northfax East Roadway at Eaton Place

Right of Way Acquisition

- Five Impacted Properties
- Right of Way and Easements Required
  - Project designed to minimize impacts to properties and maximize potential development opportunities

Acquisition Process

- Incorporate Public Hearing and property owner feedback into design
- Develop Right of Way Plans for VDOT review & authorization
- Title research, appraisals, and property valuation
- Offer letters presented to affected property owners
- Property owner meetings to negotiate final terms for acquisition
- Execute acquisition documents, close on the property, distribute compensation

Project Schedule

- Public Hearing: September 25, 2018
- Right of Way Acquisition & Utility Relocation: Summer 2019
- Advertise for Construction: Spring 2021
- Construction: Fall 2021

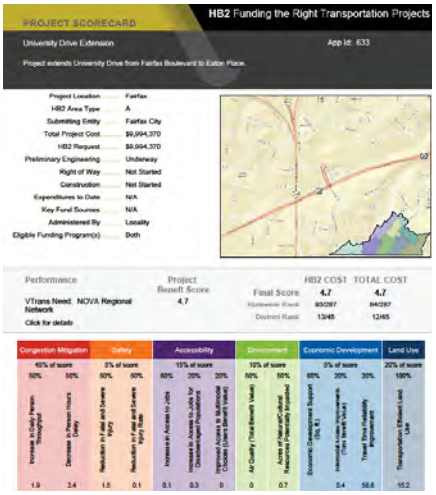
Project Budget

Project Estimates

Engineering (PE)	$ 259,000
Right of Way & Utilities (RW)	$ 7,343,000
Construction (CN)	$ 2,392,000
Total	**$ 9,994,000**

Project Funding

- 100% Federally Funded (HB2 – SmartScale)
  - Successful 2016 VDOT SmartScale Application by City to Secure Funding



Questions / Comments?

Contact information provided in project handout.
Comments must be received by October 10, 2018 to be included in Public Hearing Record.

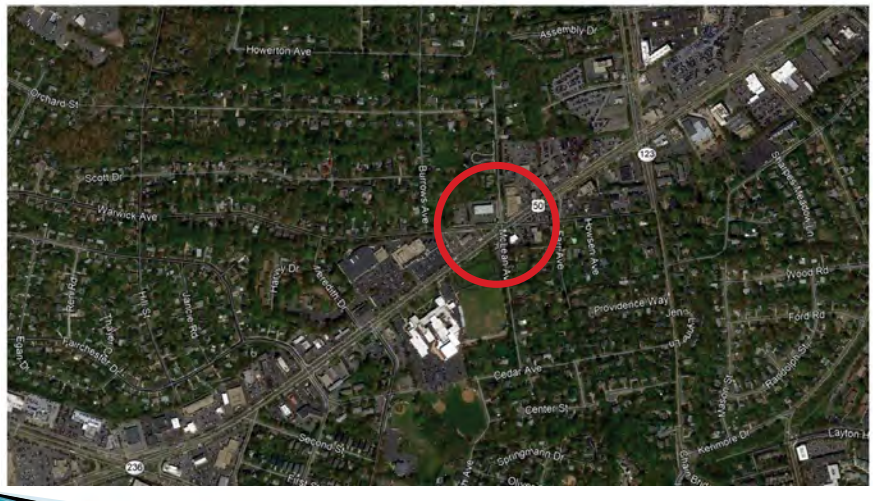
Fairfax Blvd. and Warwick Ave./McLean Ave. Intersection Improvements

City Council Work Session
May 8, 2018

Tonight's Agenda

- Project Overview by Staff
- Presentation of Improvement Alternatives
- City Council Discussion
- Discussion of Next Steps
- Public Outreach Overview

Site Location Map



Existing Intersection

- Six-legged intersection with five distinct signal phases
  - VDOT/MUTCD Compliance
  - Approx. 20 seconds of lost time per signal cycle
- Large imbalance in volumes
  - Fairfax Blvd. 36,000 ADT and 2,200 peak hour trips
  - McLean Ave. 115 peak hour trips/Warwick Ave. 175 peak hour trips.
  - Low mainline lefts (20 in any peak hour)
- Long delays/queuing in peak hours
  - Eastbound traffic blocks Warwick Avenue

Existing Intersection

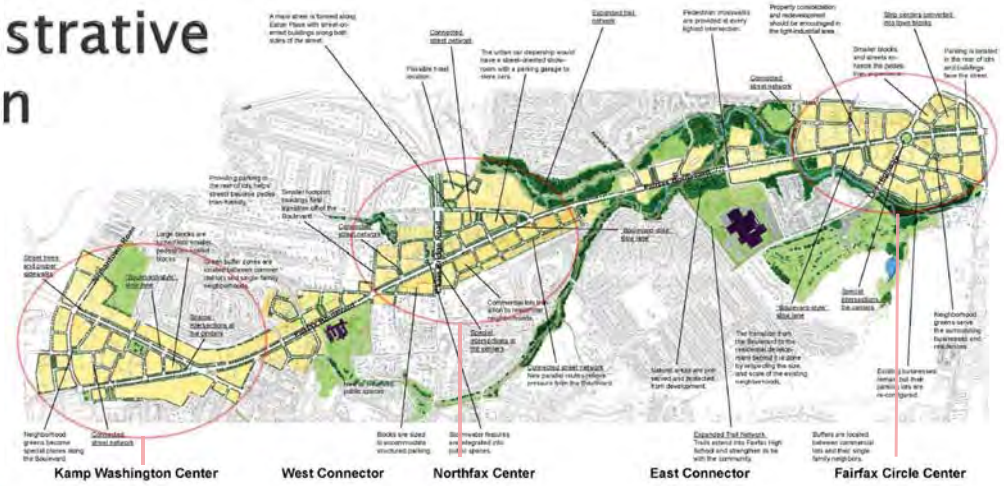
- Few pedestrian accommodations
- Significant crash history
  - 34 crashes at the intersection from 2011-2017
- Unconstrained commercial access points
  - More than 10 access points within 300' of intersection

Existing Intersection

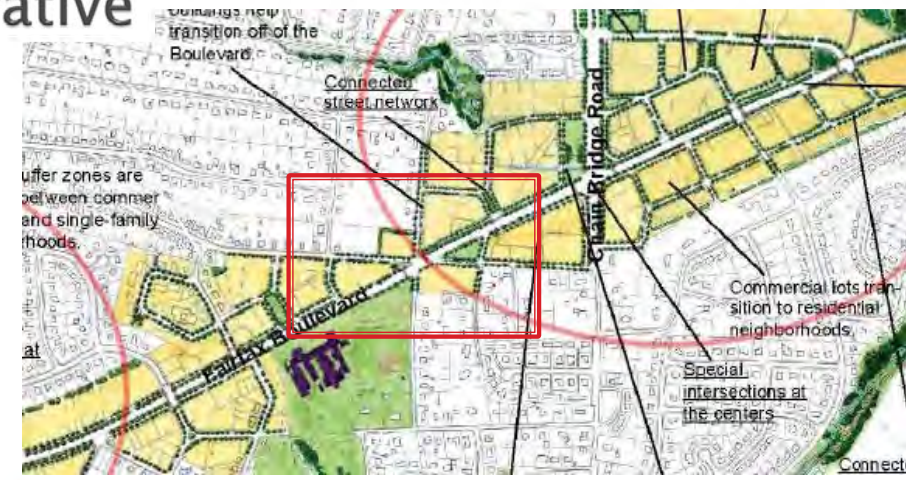
Project Timeline

- February 13, 2108 (CC work session): Discuss Smart Scale process and potential projects. Fairfax Blvd. and Warwick Ave./McLean Ave. included on list
- **May 8, 2018 (CC work session): Review/recommendation of improvement alternatives**
- May 24, 2018: Public Outreach Meeting to present the project/proposed improvements
- June 1, 2018: Smart Scale Pre-Application Due

Fairfax Boulevard Vision and Summary Illustrative Plan



Fairfax Boulevard Vision and Summary Illustrative Plan



Surrounding Area/Development

- CUE Bus Route along Warwick Ave.
  - CUE Transit Development Plan (TDP) recommended re-routing CUE to Fairfax Boulevard.
- Northfax
- I-66 Construction
- Future Development
  - Paul VI potential re-development
  - Brown's Mazda potential redevelopment
  - American Legion potential redevelopment

Project Goals

- Improve Traffic Flow and Safety
  - Reduce delay/queuing
  - Reduce intersection legs/traffic signal phases
  - Reduce conflict points
- Improve multi-modal mobility
- Protect adjacent neighborhoods
- Preserve redevelopment potential

Options Considered

- Started with 11 Options
  - Eliminate intersection legs
  - Change two way flow at certain intersection legs
  - Eliminate traffic signal
  - Convert intersection to roundabout
- Many Options Eliminated
  - Lack of operational benefits
  - Loss of access to roads/businesses
  - Perceived or actual negative impact to neighborhoods
  - Right-of-way impacts

Preferred Alternative: Option 1

Preferred Alternative: Option 1

- Realigns the intersection (squares it up)
  - Reduces pedestrian crossing distance
  - Reduces lost time (and therefore delay/queue)
  - Reduces conflict points/confusion
- Maintains majority of access
  - SB McLean Avenue could use Burrows (22 AM/19 PM)
  - WB Warwick could use Farr or Chain Bridge Road to Fairfax (26 AM/34 PM)

Alternative Option 2

FAIRFAX BLVD / WARWICK AVE / MCLEAN AVE - OPTION 2

INTERSECTION IMPROVEMENTS - CITY OF FAIRFAX, VIRGINIA - May 1, 2018

Improvement Option #2

- Provides slip right turn for southbound McLean Ave.
- This movement would be stopped at Warwick Ave. and then be able to access the signal

Improvement Option #3

FAIRFAX BLVD / WARWICK AVE / MCLEAN AVE - OPTION 3

INTERSECTION IMPROVEMENTS - CITY OF FAIRFAX, VIRGINIA - May 1, 2018

Improvement Option #3

- Provides un-signalized right-in/right-out access to McLean

Improvement Option #4

Improvement Option #4

- Provides on-street parking on McLean, improving safety/operations within functional area of intersection

Next Steps

- May 24, 2018: Public Outreach Meeting
- June 1, 2018: Smart Scale Pre-Application Due to VDOT
- Mid-June, 2018: Council and community re-engagement
- July, 2018: City Council Resolution of Support for Application
- August 1, 2018: Smart Scale Final Application Due to VDOT

FAIRFAX BOULEVARD AND FARR AVENUE

CITY OF FAIRFAX, VIRGINIA

Signal Justification Report (SJR)
IIM-TE-387.0

July 22, 2018

Prepared for:

The City of Fairfax

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Contact: Steve Schmidt, PE, PTOE

1001 Boulders Parkway, Suite 300 • Richmond, VA 23225
(804) 200-6500 phone • (804) 560-1436 fax
www.timmons.com

1 INTRODUCTION

In order to comprehensively address the introduction of new traffic signals on facilities included in the Arterial Preservation Network, VDOT initiated the Signal Justification Report (SJR) policies and procedures. The goal of the SJR process is to investigate intersection alternatives for the study location and determine the most appropriate solution.

This report presents the findings of the signal justification and intersection alternatives analysis for the intersection of US Route 50/29 (Fairfax Boulevard)/Farr Avenue in the City of Fairfax, Virginia.

This report was prepared in support of the City of Fairfax's (City) Smart Scale application for the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection.

1.1 BACKGROUND

The City of Fairfax is submitting a Smart Scale application for improvement to the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection. The intersection is a signalized, six-legged, skewed intersection with a history of crashes and capacity issues. The proposed improvements include reducing the number of intersection legs from six to four and realigning several of the approaches to a more standard intersection angle. With the improvements, Warwick Avenue to the east of the intersection will be removed from the signal and access will be restricted to right-in/right-out only. A schematic of the proposed plans is included in Appendix A.

As a result, all existing left turns in/out of Warwick will be rerouted to the Fairfax Boulevard/Farr Avenue intersection. Under existing conditions, this intersection is an unsignalized, full access intersection with Farr Avenue on the southern side and a commercial entrance (Brown's Auto) forming the fourth (northern) leg of the intersection.

Further, the City is planning to extend Farr Avenue (FY 2019 funding) to the north through the Brown's Auto site and connect with Orchard Street to the north. This extension will be in place prior to the improvements associated with the Smart Scale application. With the re-routing of the existing traffic and the future extension, the unsignalized intersection will not have adequate capacity for the side street traffic to enter/exit off Fairfax Boulevard.

It is important to note that the City maintains the roadways and traffic signals within the City limits and therefore this intersection would not typically be subjected to VDOT review for traffic signalization. However, since the traffic signal is proposed in conjunction with a Smart Scale application, a SJR is required.

This analysis looks at existing conditions and future conditions with the Smart Scale improvements. Based on the Smart Scale funding timeline and the project schedule included with the Smart Scale application, it is anticipated the improvements would be complete by 2027. Therefore, this analysis looks at future conditions in 2027.

1.2 SITE LOCATION AND STUDY AREA

The US Route 50/29 (Fairfax Boulevard)/Farr Avenue intersection is located in the City of Fairfax, approximately 550' east of the signalized Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection.

At this location, Fairfax Boulevard is a 4-lane undivided roadway with a posted speed limit of 35 mph. Fairfax Boulevard is functionally classified as a principal arterial roadway in this area and carries approximately 36,000 vehicles per day through the study intersection.

South of Fairfax Boulevard, Farr Avenue is a two-lane undivided local street with no posted speed limit and provides access to residential and commercial properties. As noted above, with the intersection improvements to the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection, access to Warwick Avenue to the east will be restricted to right-in/right-out only. It is anticipated that existing left-in/left-out traffic will be redistributed to the Fairfax Boulevard/Farr Avenue intersection.

Further, the City is planning to extend Farr Avenue (FY 2019 funding) to the north through the Brown's Auto site and connect with Orchard Street to the north. This extension will be in place prior to the improvements associated with the Smart Scale application. With the re-routing of the existing traffic and the future extension, the unsignalized intersection will not have adequate capacity for the side street traffic to enter/exit off Fairfax Boulevard.

1.3 STUDY PARAMETERS

In order to satisfy the requirements of VDOT IIM-TE-387.0, the following steps were taken to complete the signal justification and intersection alternatives analysis:

1. Data Collection – AM (6:00-9:00 AM) and PM (4:00-7:00 PM) peak hour directional turning movement (DTM) counts were collected at the US Route 50/29 (Fairfax Boulevard)/Farr Avenue intersection (and other adjacent intersections) on Thursday, April 5, 2018.

2. Existing Conditions Analysis – Using the existing volumes and intersection geometry, Timmons Group completed an existing conditions analysis of the study intersection to serve as the baseline for comparison of the alternative intersection geometries.

3. Future Traffic Projections – Timmons Group utilized a background traffic growth rate, redistributed traffic from the extension of Farr Avenue, and redistributed traffic from the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection to develop opening year (2027) traffic projections.

4. Intersection Alternatives Screening – Timmons Group utilized the VDOT Junction Screening Tool (VJuST) spreadsheet to identify potential/appropriate intersection alternatives for the study intersection.

5. Intersection Alternatives Analysis – Based on the results of the VJuST screening process, four (4) alternatives were selected and subsequently considered/analyzed.

2 ANALYSIS OF EXISTING CONDITIONS

Level of service calculations for the Fairfax Boulevard/Farr Avenue intersection were performed using SYNCHRO Version 9.2 to calculate delay based on techniques outlined in the 2000 Highway Capacity Manual. The study intersection was analyzed using the existing AM (8:00 – 9:00) and PM (5:00 – 6:00 PM) peak hour volumes and the existing geometry.

2.1 EXISTING TRAFFIC VOLUMES

Existing count data was obtained from the directional turning movement (DTM) count at the intersection which was collected on Thursday April 5, 2018. The DTM counts included heavy vehicles by movement and pedestrian counts.

The 2018 existing peak hour volumes are summarized in Table 2-1. The complete count data is provided in Appendix .

Table 2-1: 2018 Existing Volumes
Fairfax Boulevard/Farr Avenue

Time	MINOR SREET						MAJOR SREET					
	Farr Avenue - NB			Commercial Entrance			Fairfax Boulevard - EB			Fairfax Boulevard - WB		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
06:00-07:00	1	0	3	0	0	1	0	1324	1	3	274	1
07:00-08:00	0	2	5	2	0	1	0	1539	0	11	522	3
08:00-09:00	1	0	4	1	0	3	2	1601	1	65	713	3
16:00 - 17:00	0	0	10	4	0	4	0	914	1	43	1531	0
17:00 - 18:00	1	0	9	6	0	8	0	935	2	32	1523	3
18:00 - 19:00	1	0	10	5	0	4	0	782	1	51	1549	3

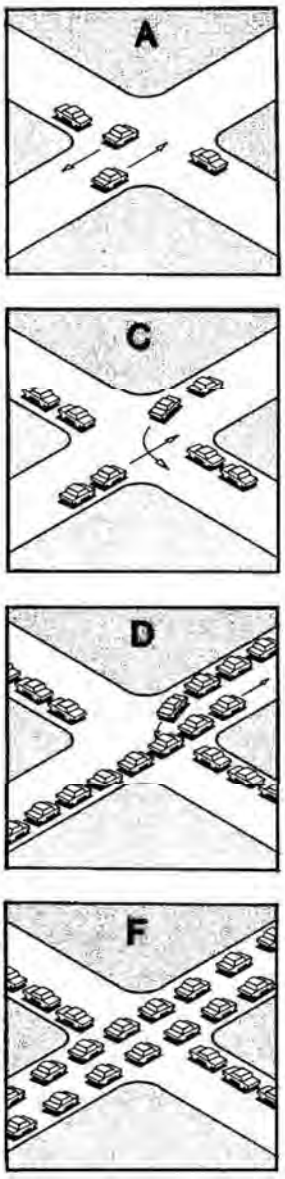
2.2 CAPACITY ANALYSES

Capacity analysis allows traffic engineers to determine the impacts of traffic on the surrounding roadway network. The Highway Capacity Manual methodologies govern how the capacity analyses are conducted and how the results are interpreted. Levels of service (LOS) are determined for each part of the roadway network, with LOS A through D representing acceptable results and LOS E and F representing unacceptable results. Table 2-2 shows in detail how each of these levels of service are interpreted.

Table 2-2: Level of Service Definitions

Level of Service	Roadway Segments or Controlled Access Highways	Intersections
A	Free flow, low traffic density.	No vehicle waits longer than one signal indication.
B	Delay is not unreasonable, stable traffic flow.	On a rare occasion motorists wait through more than one signal indication.
C	Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists.	Intermittently drivers wait through more than one signal indication, and occasionally backups may develop behind left turning vehicles, traffic flow still stable and acceptable.
D	Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, thus preventing excessive backups.	Delays at intersections may become extensive with some, especially left-turning vehicles waiting two or more signal indications, but enough cycles with lower demand occur to permit periodic clearance, thus preventing excessive backups.
E	Actual capacity of the roadway invloves delay to all motorists due to congestion.	Very long queues may create lengthly delays, especially for left-turning vehicles.
F	Forced flow with demand volumes greater than capacity resulting in complete congestion. Volumes drop to zero in extreme cases.	Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a storage ares during part or all of an hour.

SOURCE: *"A Policy on Design of Design of Urban Highways and Arterial Streets"* - AASHTO, 1973 based upon material published in *"Highway Capacity Manual"*, National Academy of Sciences, 1965.



For both unsignalized and signalized intersections, level of service is defined in terms of delay, a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Table 2-3 summarizes the delay associated with each LOS category:

Table 2-3: Unsignalized and Signalized Intersection Level of Service Criteria

Signalized Intersections		Unsignalized Intersections	
Level of Service	Control Delay per Vehicle (sec/veh)	Level of Service	Average Control Delay (sec/veh)
A	≤ 10	A	0 to 10
B	> 10 to ≤ 20	B	> 10 to ≤ 15
C	> 20 to ≤ 35	C	> 15 to ≤ 25
D	> 35 to ≤ 55	D	> 25 to ≤ 35
E	> 55 to ≤ 80	E	> 35 to ≤ 50
F	> 80	F	> 50

Source: Exhibit 16-2 and Exhibit 17-2 from TRB's "Highway Capacity Manual 2000"

In addition to level of service and control delay, the volume to capacity (v/c) ratio was also utilized in this report. The v/c ratio is a measure that reflects mobility and quality of travel along a roadway or at an intersection; it compares roadway demand (vehicle volumes) with roadway supply (carrying capacity). Table 2-4 summarizes the v/c ratio threshold descriptions:

Table 2-4: V/C Ratio Descriptions

Volume to Capacity (V/C) Ratio	Assessment
< 0.85	Intersection is operating under capacity. Excessive delays are not experienced.
0.85 – 0.95	Intersection is operating near its capacity. Higher delays may be expected, but continuously increasing queues should not occur.
0.95 – 1.00	Unstable flow results in a wide range of delay. Intersection improvements will be required soon to avoid excessive delays.
> 1.00	The demand exceeds the available capacity of the intersection. Excessive delays and queuing are anticipated.

Source: "Signalized Intersections: Informational Guide" – FHWA-HRT-04-091, 2004

The study intersection of Fairfax Boulevard/Farr Avenue was analyzed using the 2018 existing volumes shown in Table 2-1. The unsignalized intersection was analyzed using SYNCHRO Version 9.2 based on 2000 HCM methodologies with the following assumptions:

- 12-foot lane widths;
- No parking activity or bus stops;
- Peak hour factor (PHF) by total intersection as determined from the DTM counts, with a minimum PHF of 0.92; and
- Heavy vehicle (HV) percentages as determined from the DTM counts and available data.

2.3 2018 EXISTING VOLUMES (SYNCHRO)

Table 2-5 summarizes the 2018 existing intersection LOS, delay, v/c ratio, and queues based on the 2018 existing traffic volumes shown on Table 2-1 and the existing intersection geometry and traffic controls. The corresponding SYNCHRO worksheets are included in Appendix C.

At the unsignalized intersection of Fairfax Boulevard and Farr Avenue, the mainline left turn movements on Fairfax Boulevard operate at LOS C and B during the AM and PM peak hours, respectively. The northbound approach of Farr Avenue operates at LOS E during the AM peak hour and at LOS C during the PM peak hour. The southbound commercial entrance approach operates at LOS D and F during the AM and PM peak hours, respectively. There are no movements or approaches that operate with a v/c ratio above 0.48 during the AM peak or above 0.62 during the PM peak.

As indicated in Table 2-5, for the westbound left movement, the available turn lane storage (75') is not sufficient to accommodate the maximum queue length (83') during the PM peak hour.

Table 2-5: Intersection Level of Service, Delay, Queue, and V/C Ratio Summary
2018 Existing Traffic and Existing Geometry

Intersection and Type of Control	Movement and Approach	Number of Lanes	Turn Lane Storage (ft)	AM PEAK HOUR					PM PEAK HOUR				
				Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio
1. Fairfax Boulevard (EB-WB) at	EB Thru-Left	1		0.1	A	0	25	0.00	0.0	A	0	1	0.00
Farr Avenue (NB)/	EB Thru-Right	1		†	†	†	†	0.48	†	†	†	4	0.29
Commercial Entrance (SB)	*EB Approach*			*†*	*†*	--	--	--	*†*	*†*	--	--	--
Unsignalized	WB Left	1	75	16.2	C	15	83	0.17	10.6	B	4	41	0.05
	WB Thru	1		†	†	†	111	0.29	†	†	†	†	0.62
	WB Thru-Right	1		†	†	†	68	0.14	†	†	†	†	0.31
	WB Approach			*1.3*	*A*	--	--	--	*†*	*†*	--	--	--
	NB L-T-R	1		46.3	E	4	20	0.05	20.0	C	3	20	0.04
	NB Approach			*46.3*	*E*	--	--	--	*20.0*	*C*	--	--	--
	SB L-T-R	1		27.0	D	2	20	0.02	92.9	F	22	49	0.26
	SB Approach			*27.0*	*D*	--	--	--	*92.9*	*F*	--	--	--

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

3 2027 TRAFFIC PROJECTIONS

Opening year (2027) traffic projections were based on the existing traffic counts, a background traffic growth rate, traffic from the extension of Farr Avenue, and redistributed traffic from the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection.

3.1 BACKGROUND GROWTH RATE

According to the historic VDOT traffic counts, traffic along this section of Fairfax Boulevard has increased over the last three years from 35,000 vehicles per day (2015) to 36,000 vehicles per day (2017). This growth equates to an annual growth rate of 1.42%.

To be conservative, a 1.5% annual growth rate (compounded annually) was applied to all movements at the study intersection.

3.2 FARR AVENUE EXTENSION TRAFFIC

The extension of Farr Avenue will connect Fairfax Boulevard to the south with Orchard Street and Chain Bridge Route (Route 123) to the north. The extension will also provide access to commercial properties along its alignment and is anticipated to result in the redevelopment of those parcels. It is anticipated that up to 25% of traffic that currently makes an eastbound left or southbound right at the Fairfax Boulevard/Chain Bridge Road intersection will be redistributed to use the Orchard Street/Farr Avenue connection.

3.3 REDISTRIBUTED TRAFFIC FROM WARWICK AVENUE

With the improvements at the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection, Warwick Avenue to the east of the intersection will be removed from the signal and access will be restricted to right-in/right-out only. As a result, all existing left turns in/out of Warwick will be rerouted to the Fairfax Boulevard/Farr Avenue intersection.

3.4 2027 Total TRAFFIC FORECASTS

The growth rate detailed above was applied to the existing traffic shown on Table 2-1 and was the summed with the Farr Avenue Extension traffic and the redistributed traffic from Warwick Avenue to yield the 2027 Total Traffic Forecasts. These forecasts are show on Table 3-1.

Table 3-1: 2027 Total Traffic Forecasts

Time	MINOR SREET						MAJOR SREET					
	Farr Avenue - NB			Farr Avenue - SB			Fairfax Boulevard - EB			Fairfax Boulevard - WB		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
06:00-07:00	15	0	3	0	0	24	26	1513	1	11	314	1
07:00-08:00	31	2	5	2	0	39	51	1759	0	22	598	3
08:00-09:00	30	0	4	1	0	75	76	1831	1	98	815	3
16:00 - 17:00	14	0	10	4	0	79	53	1045	1	54	1750	0
17:00 - 18:00	55	0	9	7	0	84	55	1069	2	43	1741	3
18:00 - 19:00	25	0	11	5	0	74	34	894	1	77	1772	3

3.5 2027 CAPACITY ANALYSIS

Table 3-2 summarizes the 2027 existing intersection LOS, delay, v/c ratio, and queues based on the 2027 existing traffic volumes shown on Table 3-1 and the existing intersection geometry and traffic controls with the addition of an eastbound left turn lane. The corresponding SYNCHRO worksheets are included in Appendix D.

At shown in Table 3-2, with the background growth and redistributed traffic, the mainline left turn movements on Fairfax Boulevard operate at LOS C and B during the AM and PM peak hours, respectively. The northbound approach of Farr Avenue operates at LOS F during both peak hours with a calculated delay that exceeds the limitations of the software. The southbound Farr Avenue approach operates at LOS C and F during the AM and PM peak hours, respectively. The northbound approach has a v/c ratio above 5.0 in both peak hours which indicates the movement is well beyond capacity. The southbound approach has a v/c ratio of 1.01 in the PM peak hour; all other v/c ratios are less than 1.0.

As indicated in Table 2-5, for the eastbound and westbound left movement, the available turn lane storage (75') is not sufficient to accommodate the maximum queue length during one of the peak hours. Further the maximum queue on the northbound approach is 322' which would spill back into Warwick Avenue.

The analysis indicates that intersection of Fairfax Boulevard/Farr Avenue does not have adequate capacity as an unsignalized intersection.

Table 3-2: Intersection Level of Service, Delay, Queue, and V/C Ratio Summary
2027 Total Traffic and Existing Geometry

Intersection and Type of Control	Movement and Approach	Number of Lanes	Turn Lane Storage (ft)	AM PEAK HOUR					PM PEAK HOUR				
				Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio
1. Fairfax Boulevard (EB-WB) at	EB Left	1	75	10.0	A	8	63	0.10	18.0	C	15	97	0.17
Farr Avenue (NB)/	EB Thru	1		†	†	†	49	0.73	†	†	†	2	0.44
Commercial Entrance (SB)	EB Thru-Right	1		†	†	†	49	0.37	†	†	†	2	0.22
Unsignalized	*EB Approach*			*0.4*	*A*	--	--	--	*0.9*	*A*	--	--	--
	WB Left	1	75	21.7	C	33	100	0.32	11.5	B	6	50	0.08
	WB Thru	1		†	†	†	486	0.33	†	†	†	4	0.71
	WB Thru-Right	1		†	†	†	456	0.16	†	†	†	4	0.36
	WB Approach			*2.3*	*A*	--	--	--	*0.3*	*A*	--	--	--
	NB L-T-R	1		Err	F	Err	318	5.19	Err	F	Err	322	5.03
	NB Approach			*Err*	*F*	--	--	--	*Err*	*F*	--	--	--
	SB L-T-R	1		15.3	C	17	133	0.18	178.5	F	151	295	1.01
	SB Approach			*15.3*	*C*	--	--	--	*178.5*	*F*	--	--	--

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

† SYNCHRO does not provide level of service or delay for unsignalized movements with no conflicting volumes.

Err indicates calculated delay exceeds the limitations of the software.

4 ALTERNATIVE INTERSECTION OPTIONS

Consistent with the requirements of VDOT IIM-TE-387.0, a review of potential alternative intersection options for the Fairfax Boulevard/Farr Avenue intersection was completed. The VDOT Junction Screening Tool (VJuST) was utilized to provide a high-level screening of possible options and remove any alternatives that are not compatible with the study intersection conditions. Four (4) intersection types were recommended for further analysis:

1. Conventional Signalized Intersection
2. Center Turn Overpass Intersection
3. Quadrant Roadway Intersection
4. Roundabout

The following sections discuss the four (4) recommended intersection types from the VJuST tool. A copy of the completed VJuST spreadsheet can be found in Appendix E.

4.1 CONVENTIONAL SIGNALIZED INTERSECTION

According to the VJuST tool, a conventional signalized intersection scores well in v/c ratio (0.68) but has a higher weighted conflict point result than the other options. In addition to the increased capacity, the primary benefit to a conventional signalized intersection at this location is the limited right-of-way impacts up and downstream of the intersection.

This section of Fairfax Boulevard has commercial properties lining both sides of the street with parking immediately adjacent to the back of curb/sidewalk.

A SYNCHRO analysis was completed to determine the capacity of a conventional signalized intersection. The analysis worksheets are included in Appendix F and the results are summarized in Table 4-1. The analysis utilized the existing cycle lengths in the corridor (190 seconds in the AM peak hour and 220 seconds in the PM peak hour.)

As shown in Table 4-1, the overall intersection would operate at LOC C and LOS B in the AM and PM peak hours, respectively. The mainline through movements would operate at LOS A or B in both peak hours.

The mainline lefts and side street approaches would operate at LOS F in both peak hours, but it is important to note that the delay is less than one cycle length. For example, the westbound left in the AM peak hour has an average delay of 97.1 seconds per vehicle. However, the overall cycle length is 190 seconds. On average, all westbound left traffic would clear the intersection within one cycle. The same is true for the eastbound lefts and side street approaches. The high delay is due to the high cycle length and is not indicative of the capacity of the signal.

Further, the v/c ratios for all approaches are 0.76 or lower which indicates the signal has adequate capacity for the projected traffic.

The eastbound and westbound left queues do spill back out of the available storage and may block through traffic on occasion. Again, this is due primarily to the high cycle length. It is recommended that the corridor be re-timed in 2027 to determine if a lower cycle length can be utilized.

Table 4-1: Total Traffic 2027 – Conventional Signalized Intersection

Intersection and Type of Control	Movement and Approach	Number of Lanes	Turn Lane Storage (ft)	AM PEAK HOUR					PM PEAK HOUR				
				Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio	Delay [1] (sec/veh)	LOS [1]	HCS 95th Percentile Queue Length (ft)	SimTraffic Maximum Queue Length (ft)	V/C Ratio
1. Fairfax Boulevard (EB-WB) at	EB Left	1	75	96.7	F	160	373	0.64	108.4	F	139	148	0.57
Farr Avenue (NB)/	EB Thru	1		19.4	B	890	502	0.76	8.1	A	300	278	0.40
Commercial Entrance (SB)	EB Thru-Right	1		19.4	B	890	490	0.76	8.1	A	300	246	0.40
Signalized	*EB Approach*			*22.5*	*C*	--	--	--	*12.9*	*B*	--	--	--
	WB Left	1	75	97.1	F	193	99	0.68	125.7	F	119	99	0.66
	WB Thru	1		9.8	A	232	354	0.34	13.7	B	747	557	0.67
	WB Thru-Right	1		9.8	A	232	336	0.34	13.7	B	747	503	0.67
	WB Approach			*19.2*	*B*	--	--	--	*16.4*	*B*	--	--	--
	NB L-T-R	1		78.7	E	7	92	0.03	95.8	F	27	156	0.08
	NB Approach			*78.7*	*E*	--	--	--	*95.8*	*F*	--	--	--
	SB L-T-R	1		78.9	E	59	65	0.05	95.1	F	78	117	0.10
	SB Approach			*78.9*	*E*	--	--	--	*95.1*	*F*	--	--	--
	Overall			23.6	C	--	--	--	19.1	B	--	--	--

[1] *Overall intersection LOS and delay reported for signalized intersections and roundabouts only.*

4.2 Center Turn Overpass Intersection

The second option returned by the VJuST tool was a center turn overpass intersection. This intersection is characterized by all four left-turn movements are relocated to a grade-separated intersection using narrow ramps within the median. The left-turn traffic would then descend back to ground level and merge with through traffic. The removal of the left turns allows both signals to operate under two-phase operations.

Fairfax Boulevard has a narrow median that cannot accommodate the ramps and there is insufficient right-of-way to allow for widening (see description of the corridor above). Further the cost of this option would greatly exceed the cost of a conventional signalized intersection.

A center turn overpass intersection configuration is unsuitable for this intersection.

4.3 Quadrant Roadway Intersection

The third option returned by the VJuST tool was a quadrant roadway intersection. This intersection reroutes all four left turns onto a connector roadway in one quadrant which allows the main intersection to operate under two-phase operations.

This option requires a significant amount of right-of-way for the connector road. Given the commercial development in the corridor, the cost of obtaining the necessary right-of-way would be exceedingly high. Further, this intersection would be detrimental to the character of the corridor and Fairfax City.

A quadrant roadway intersection configuration is unsuitable for this intersection.

4.4 ROUNDABOUT

VDOT policy, per the *Road Design Manual, Appendix F*, recognizes that roundabouts are capable of handling traffic volumes/flows better than other intersections types in both urban, suburban, and rural environments, and on high- and low-speed facilities. This being noted, a roundabout is to be considered when a project includes improving or constructing new intersections.

Given the character of Fairfax Boulevard and the 36,000 average daily traffic volume, a roundabout at this intersection would need to be two-lanes. As indicated above, there is limited right-of-way and the construction of a two-lane roundabout would be detrimental to the neighboring businesses and the character of the corridor.

Further, roundabouts operate best when there is a more balanced flow between the mainline and side streets. In this case, Fairfax Boulevard carries more than 18 times the traffic of Farr Avenue in the PM peak hour. The mainline movements are so heavy that there would not be any gaps for the Farr Avenue traffic to enter the intersection.

Further the cost of the right-of-way and construction of a roundabout would far exceed the cost of a conventional signalized intersection.

A roundabout configuration is unsuitable for this intersection.

5 CONCLUSIONS

In order to comprehensively address the introduction of new traffic signals on facilities included in the Arterial Preservation Network, VDOT initiated the Signal Justification Report (SJR) policies and procedures. The goal of the SJR process is to investigate intersection alternatives for the study location and determine the most appropriate solution.

This report presents the findings of the signal justification and intersection alternatives analysis for the intersection of Fairfax Boulevard and Farr Avenue in the City of Fairfax, VA.

The City of Fairfax is submitting a Smart Scale application for improvement to the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection. With the improvements, Warwick Avenue to the east of the intersection will be removed from the signal and access will be restricted to right-in/right-out only.

As a result, all existing left turns in/out of Warwick will be rerouted to the Fairfax Boulevard/Farr Avenue intersection. Under existing conditions, this intersection is an unsignalized, full access intersection with Farr Avenue on the southern side and a commercial entrance (Brown's Auto) forming the fourth (northern) leg of the intersection.

Further, the City is planning to extend Farr Avenue (FY 2019 funding) to the north through the Brown's Auto site and connect with Orchard Street to the north. This extension will be in place prior to the improvements associated with the Smart Scale application. With the re-routing of the existing traffic and the future extension, the unsignalized intersection will not have adequate capacity for the side street traffic to enter/exit off Fairfax Boulevard.

It is important to note that the City maintains the roadways and traffic signals within the City limits and therefore this intersection would not typically be subjected to VDOT review for traffic signalization. However, since the traffic signal is proposed in conjunction with a Smart Scale application, a SJR is required.

5.1 KEY FINDINGS

Under existing conditions, the side street approaches to the Fairfax Boulevard/Farr Avenue intersection operate at LOS E or F in at least one of the peak hours.

With the background growth and redistributed traffic from Warwick Avenue and Farr Avenue extension, the side street approaches would operate at LOS F in both peak hours with a calculated delay that exceeds the limitations of the software, v/c ratios over 5.0, and queues that extend through the available storage and/or block adjacent intersections.

Under future conditions. the analysis indicates that intersection of Fairfax Boulevard/Farr Avenue does not have adequate capacity as an unsignalized intersection.

Consistent with the requirements of VDOT IIM-TE-387.0, a review of potential alternative intersection options for the Fairfax Boulevard/Farr Avenue intersection was completed using the VJuST tool. This review culminated in the selection of the following four (4) potential intersection alternatives:

1. Conventional Signalized Intersection
2. Center Turn Overpass Intersection
3. Quadrant Roadway Intersection
4. Roundabout

As detailed above, the Center Turn Overpass Intersection and Quadrant Roadway Intersection are not suitable alternatives for this intersection due to a lack of right-of-way and/or median width.

A roundabout is also not suitable given the disparity in traffic flows and the right-of-way impacts to neighboring commercial uses.

A conventional signalized intersection would have limited right-of-way impacts up and adequate capacity to accommodate the future traffic volumes. As discussed above, the conventional signalized intersection would operate at an overall LOS C and B in the AM and PM peak hours, respectively. The mainline through movements would operate at LOS A or B in both peak hours. Further, the v/c ratios for all approaches are 0.76 or lower which indicates the signal has adequate capacity for the projected traffic.

5.2 RECOMMENDATIONS

In order to accommodate the projected increased traffic volumes associated with the improvements at the Fairfax Boulevard/Warwick Avenue/McLean Avenue intersection and the extension of Farr Avenue, the installation of a conventional signalized intersection is recommended at the Fairfax Boulevard/Farr Avenue intersection. As shown in the analysis, a conventional traffic signal would provide adequate operational benefits to the proposed development without harming the arterial through movement on Fairfax Boulevard.

ADJACENT STREET TRAFFIC DATA
CURRENT WITH 9th Ed.

Land Use	ITE Code	Amt	Units	------ Weekday ------							------ Weekend ------			
				AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Daily
				In	Out	**Total**	In	Out	**Total**	**Total**	In	Out	**Total**	**Total**
Retail														
Shopping Center	820	48	kSF	62	38	**100**	177	191	**368**	**4,226**	284	261	**545**	**5,835**
Retail Total				**62**	**38**	**100**	**177**	**191**	**368**	**4,226**	**284**	**261**	**545**	**5,835**
TOTAL PROPOSED TRIPS				**62**	**38**	**100**	**177**	**191**	**368**	**4,226**	**284**	**261**	**545**	**5,835**

ATTACHMENT 6

WELLS + ASSOCIATES

MEMORANDUM

1420 Spring Hill Road
Suite 610
Tysons, Virginia 22102
703-917-6620
703-917-0739 FAX

www.mjwells.com

To: Nathan Bath
Regency Centers

From: William F. Johnson, P.E.
August W. Steinhilber

Re: Fairfax Shopping Center Special Exceptions
City of Fairfax, Virginia

Subject: Trip Generation

Date: December 21, 2016

This memorandum provides the results of a trip generation analysis performed for the Fairfax Shopping Center site located in the City of Fairfax, Virginia. The site is specifically located north of Fairfax Boulevard (Route 29/50), south of Eaton Place, and east of Chain Bridge Road (Route 123). The site is currently developed by-right with a strip retail shopping center along with a restaurant pad use. The total approved by-right gross floor area (GFA) for the center is approximately 82,268 square feet (SF). Access to the site is currently provided via four curb cuts along Fairfax Boulevard: one full movement signalized intersection opposite University Drive, one full movement unsignalized median break, and two right-in/right-out entrances.

Regency Centers plans to raze and redevelop the site as a retail center consisting of up to approximately 48,200 gross SF. This proposed redevelopment represents a substantial decrease of the currently approved by-right GFA. To that end, special exceptions have been filed to address certain requirements in the Zoning Ordinance pertaining to the Statement of Justification dated December 21, 2016 attached hereto. However, the special exceptions do not pertain to any specific land use currently proposed. The retail uses proposed are permitted by-right and the applicant intends to submit a site plan in the near future to proceed with the proposed redevelopment.

Wells + Associates completed a trip generation analysis comparing the by-right potential of the property to the redevelopment proposed by the Applicant. The analysis was performed using standard Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition rates/equations. The results of the analysis are summarized in Table 1. As shown, the proposed redevelopment would *reduce* the trip generation potential of the site by 38 weekday AM peak hour, 159 weekday PM

peak hour, and 1,756 weekday daily trips.

Based on the results summarized herein, it can be concluded that the proposed redevelopment of the Fairfax Shopping Center would not result in any traffic impacts on the surrounding roadway network above and beyond the currently approved retail uses on the property.

If you have any questions on this analysis or require additional information, please contact Will Johnson at 703.365.9262 or wfjohnson@wellsandassociates.com.

Attachments: a/s

Table 1
Fairfax Shopping Center
Trip Generation Analysis [1]

Scenario	Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Weekday Average Daily Trips
Existing Approved (By-Right)										
Shopping Center	820	82,268	GSF	86	52	138	252	274	526	5,982
Proposed Program										
Shopping Center	820	48,200	GSF	62	38	100	176	191	367	4,226
			Net New Trips	**-24**	**-14**	**-38**	**-76**	**-83**	**-159**	**-1,756**

Note(s):
(1) Trip generation based on the Institute of Transportation Engineers' Trip Generation, 9th Edition equations and/or rates.

ADJACENT STREET TRAFFIC DATA
CURRENT WITH 9th Ed.

Land Use	ITE Code	Amt	Units	------ Weekday ------							------ Weekend ------			
				AM Peak Hour			PM Peak Hour			Daily	Saturday Peak Hour			Daily
				In	Out	Total	In	Out	Total	Total	In	Out	Total	Total
Residential														
Residential Condominium/Townhouse	230	137	DU	12	55	**67**	53	25	**78**	**846**	45	38	**83**	**924**
High-Rise Residential Condominium/Townhouse	232	184	DU	16	67	**83**	49	30	**79**	**918**	37	48	**85**	**923**
Residential Total				**28**	**122**	**150**	**102**	**55**	**157**	**1,764**	**82**	**86**	**168**	**1,847**
Recreational														
Recreational Community Center	495	24	kSF	33	17	**50**	33	33	**66**	**812**	15	11	**26**	**219**
Recreational Total				**33**	**17**	**50**	**33**	**33**	**66**	**812**	**15**	**11**	**26**	**219**
Retail														
Shopping Center	820	20	kSF	37	22	**59**	98	106	**204**	**2,386**	161	147	**308**	**3,352**
Retail Total				**37**	**22**	**59**	**98**	**106**	**204**	**2,386**	**161**	**147**	**308**	**3,352**
TOTAL PROPOSED TRIPS				**98**	**161**	**259**	**233**	**194**	**427**	**4,962**	**258**	**244**	**502**	**5,418**
Existing To Be Removed														
Private High School			Actual Trips	671	334	**1005**	46	86	**132**		N/A	N/A	**N/A**	**N/A**
TOTAL NET NEW TRIPS				**-573**	**-173**	**0** **-746**	**187**	**108**	**295**	**4,962**	**258**	**244**	**502**	**5,418**

Transportation Consultants
INNOVATION + SOLUTIONS

WELLS + ASSOCIATES

Paul VI Redevelopment

Traffic Impact Study

April 18, 2017
Revised: November 15, 2017

SECTION 1
INTRODUCTION

This report presents the results of a traffic impact study conducted in support of the proposed redevelopment of the Paul VI Catholic High School (Paul VI) in the City of Fairfax, Virginia, and presents an evaluation of the existing and future transportation network.

This study was conducted in accordance with a scoping agreement developed with City of Fairfax staff. The study scope was determined with City staff based on a review of key study intersections and roadways that would potentially be affected by the implementation of the proposed redevelopment and the number of new trips expected to be generated.

The subject site is located south of Fairfax Boulevard, east of Oak Street, and west of McLean Avenue, in the City of Fairfax, Virginia, as shown on Figure 1-1.

The subject property is comprised of three parcels located at 10675 Fairfax Boulevard, 10600 Cedar Avenue, and 10606 Cedar Avenue, totaling 18.5 acres. The parcel located at 10675 Fairfax Boulevard is zoned CR (Commercial Retail) and the two Cedar Avenue parcels are zoned RM (Residential Medium Density).

The applicant, IDI Group Companies, proposes to develop the site with 184 residential condominium units, 137 town homes, 20,000 square feet (SF) of local serving retail and 24,000 SF of community center space. The site plan is shown on Figure 1-2.

According to the 24VAC30-155 ("Chapter 870") regulations, all development proposals which meet certain specific trip generation thresholds are subject to the regulations as outlined in the Virginia Department of Transportation's (VDOT) Traffic Impact Analysis Regulations Administrative Guidelines ("Administrative Guidelines"). In January 2012, an amendment to the Administrative Guidelines took effect, which determined a development proposal is considered to substantially impact the transportation network if it generates 5,000 or more net new daily vehicle trips located on, or within 3,000 feet of, a VDOT maintained roadway. Based on the trips anticipated to be generated by the subject development, the development would not require a VDOT Chapter 870 compliant traffic study.

Although a traffic impact analysis is not required per 24VAC30-155, the City of Fairfax requires the submission of a traffic study in conjunction with any development application.

This traffic study was completed in accordance with the City of Fairfax policies and guidelines and is intended to address the following issues:

1. Estimation of the net new vehicle trip ends generated by the planned land uses during the AM and PM commuter peak hours and during the PM school peak hour.

2. Determination of the effects of the proposed development on the surrounding local roadway network.

3. Identification of potential road and/or operational improvements necessary to accommodate the project.

Based on the traffic study scoping form provided in Appendix A, tasks undertaken to prepare this study included the following:

1. A review of the applicant's conceptual plans for the subject site.

2. A field review of the subject site in order to determine existing roadway and intersection geometrics and traffic controls, access opportunities and/or constraints, and general traffic conditions.

3. Peak hour turning movement counts obtained at the following study intersections:

    - Lee Highway/Fairfax Boulevard/Main Street
    - Fairfax Boulevard/Fairchester Drive, Walnut Street
    - Fairfax Boulevard/Meredith Drive/Oak Street
    - Fairfax Boulevard/The Shops at Fairfax Entrance-Future Site Entrance.
    - Fairfax Boulevard/Paul VI Entrance (Future Site Entrance)
    - Fairfax Boulevard/McLean Avenue/Warwick Avenue
    - Walnut Street/Cedar Avenue
    - Oak Street/Cedar Avenue
    - McLean Avenue/Cedar Avenue

4. Calculation of existing AM and PM commuter peak hour and PM school peak hour intersection levels of service at the study intersections.

5. Identification of the number of net new peak hour trips that would be generated by the proposed mixed-use development based on standard Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition equations less trips currently generated by the existing Paul VI Catholic High School determined from traffic counts.

6. Determination of future background traffic forecasts based on regional traffic growth and estimates of traffic that would be generated by other approved/planned developments in the site vicinity.

7. Calculation of future levels of service with and without the proposed development at the key study intersections for a proposed build-out year of 2027.

Sources of data for this analysis include traffic counts conducted by Wells + Associates Inc., information obtained from the City of Fairfax, the Institute of Transportation Engineers (ITE), VDOT, the Highway Capacity Manual 2000 (Synchro software, version 9.1), IDI Companies Group, and the files and library of Wells + Associates.

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

1. The Lee Highway/Fairfax Boulevard/Main Street intersection currently operates at or near capacity at level of service (LOS) "E" during each of the three (3) studied peak periods.

2. All other signalized intersections currently operate at an overall LOS D or better during each of the three (3) studied peak periods based on Highway Capacity Manual calculations, however, substantial queues were observed along Fairfax Boulevard during the peak periods. Specifically, substantial queues along eastbound Fairfax Boulevard were observed during the AM peak period and substantial westbound queues were observed during the PM peak period.

3. Historic VDOT traffic data indicates that average daily traffic counts along Fairfax Boulevard and Main Street have decreased by 0.7% to 1.7% per year between 2008 and 2016.

4. The Novus Fairfax Gateway and Mount Vineyard pipeline developments are anticipated to generate 395 AM commuter peak hour trips, 418 PM school peak hour trips, and 576 PM commuter peak hour trips at full buildout.

5. Under future 2027 traffic conditions, without redevelopment of the Paul VI site, minimal increases in delay at the study intersections are expected due to the trips generated by pipeline development in the vicinity of the site and overall levels of service would remain generally consistent with existing conditions.

6. The existing Paul VI Catholic High School currently generates 1,005 trips during the AM commuter peak hour, 563 trips during the PM school peak hour, and 132 trips during the PM commuter peak hour.

7. The Applicant proposes to redevelop the site with 184 residential condominium units, 137 town homes, 20,000 SF of local serving retail, and 24,000 SF of community center space.

8. The project is estimated to generate 789 ***fewer*** AM peak commuter hour trips, 148 ***fewer*** PM school peak hour trips, and 294 ***more*** PM peak commuter hour trips than are currently generated by the high school.

9. Under future 2027 traffic conditions, with the development of the subject site, intersection levels of service would remain generally consistent with existing and background conditions. The analyses show that the Lee Highway/Fairfax Boulevard/Main Street will continue to operate at LOS E during all three peak periods studied. All other intersections will operate at LOS D or better during each of the studied peak periods.

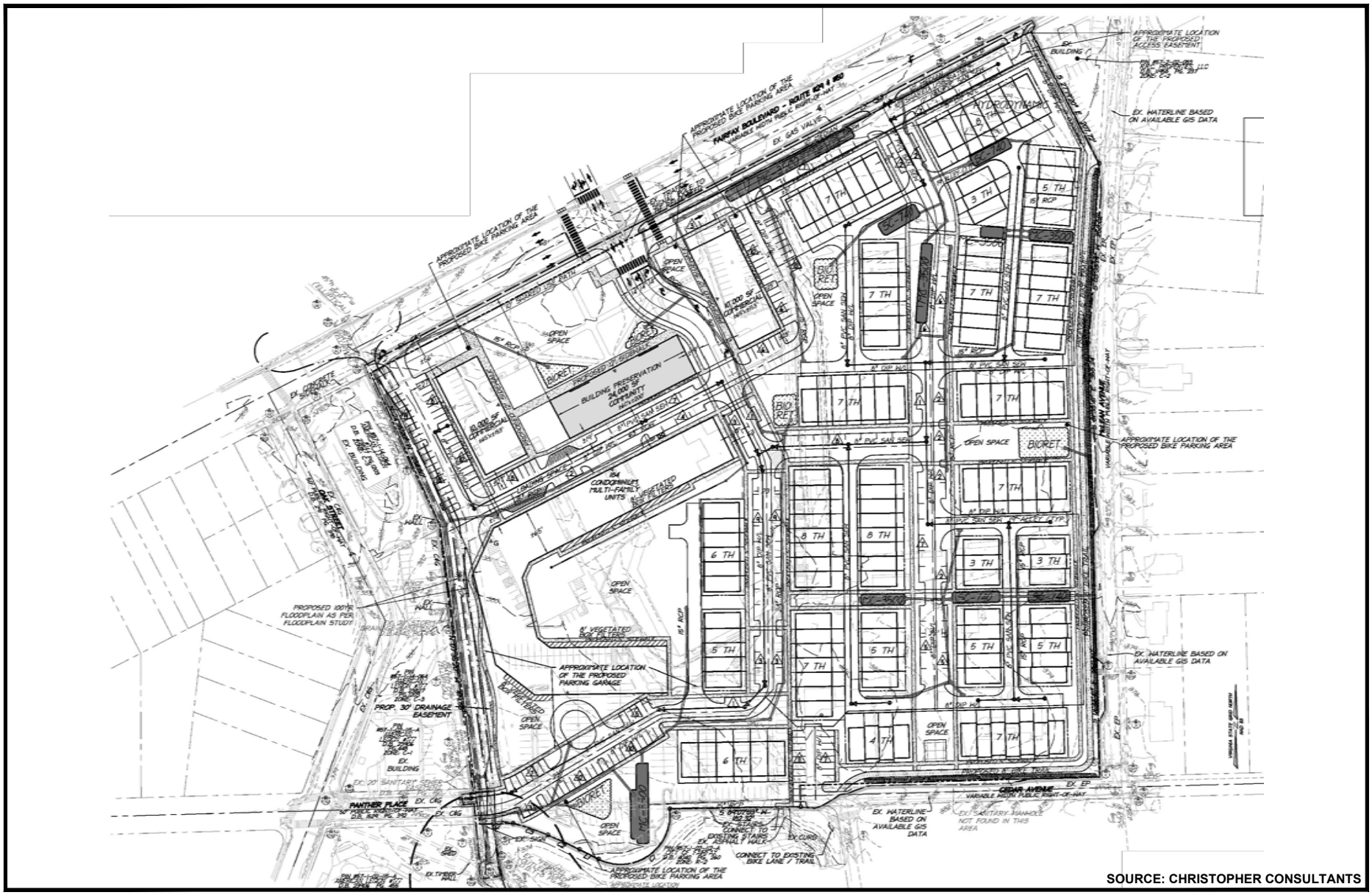
10. A full turning movement site driveway is proposed along Fairfax Boulevard to align with the existing Shops at Fairfax entrance. The full access signalized intersection would operate at an overall LOS "D" or better during each of the studied peak periods.

11. A full turning movement, side-street stop-controlled entrance is proposed along Fairfax Boulevard between the Shops at Fairfax intersection and McLean Avenue. This unsignalized intersection will operate at LOS "C" or better during each of the studied time periods.

Figure 1-1
Site Location
Paul VI Redevelopment
City of Fairfax, Virginia

NORTH

L:\PROJECTS\6501 - 7000\6709 - PAUL VI DEVELOPMENT\GRAPHICS\6709 - RPT GRAPHICS - 2017 OCT 24.DWG



SOURCE: CHRISTOPHER CONSULTANTS

Figure 1-2
Site Plan
Paul VI Redevelopment
City of Fairfax, Virginia

JCP

NORTH

SECTION 2
BACKGROUND INFORMATION

Location and Surrounding Uses

As shown in Figure 1-1, Paul VI is regionally located approximately ½ mile east of Main Street on Fairfax Boulevard in the City of Fairfax. Regional Access is provided by I-66 via Lee Jackson Memorial Highway/Main Street and Chain Bridge Road. Fairfax Boulevard/Arlington Boulevard provides access to/from I-495 (the Capital Beltway).

Properties immediately west and south of the site are generally residential in nature while commercial uses are predominant along Fairfax Boulevard. An existing McDonald's restaurant and a daycare facility are located immediately west of the site and south of Fairfax Boulevard.

Comprehensive Plan Land Use Recommendations

The City's Comprehensive Plan shows the subject parcels as institutional and residential on the Future Land Use Map.

Existing Transportation Network

Existing Road Network. The following are descriptions of the roadways in the vicinity of the proposed development.

Route 29/50 (Fairfax Boulevard). Fairfax Boulevard is classified as an arterial roadway according to the City of Fairfax Comprehensive Plan. Within the vicinity of the subject site, Fairfax Boulevard is constructed as a five-lane, undivided roadway with a center two-way left turn lane and a posted speed limit of 35 miles per hour. Traffic signals are provided at major cross-streets including Main Street, Fairchester Drive/Walnut Street, Meredith Drive/Oak Street, and McLean Avenue/Warwick Avenue. The intersection of Fairfax Boulevard and the driveway to The Shops at Fairfax is also signalized. The Lee Highway/Fairfax Boulevard/Main Street intersection (referred to as Kamp Washington) is a critical signalized intersection within the City of Fairfax. Based on 2016 VDOT average annual daily traffic (AADT) data, Fairfax Boulevard east of Main Street carries approximately 36,000 vehicles per day (vpd).

Route 236 (Main Street). Main Street is also classified by the Comprehensive Plan as an arterial roadway and is constructed as a four-lane, median-divided roadway with a posted speed limit of 35 miles per hour. Based on 2016 VDOT AADT data, Main Street east of the Kamp Washington intersection carries approximately 35,000 vpd.

Cedar Avenue. Cedar Avenue is a two-lane east-west discontinuous roadway. The section of Cedar Avenue west of Paul VI is approximately 30 feet in width, operates as a collector roadway, and provides access to the parking lot in the rear of Paul VI. The section of Cedar Avenue east of Paul VI operates as a residential street and does not provide access to or from the school.

Oak Street. Oak Street is a two-lane north-south undivided roadway with a width of approximately 33 feet. Oak Street provides access to residential and commercial properties south of Fairfax Boulevard and to Paul VI Catholic High School via Cedar Avenue.

Walnut Street. Walnut Street is a two-lane north-south undivided roadway with a width of approximately 33 feet. Walnut Street provides access to residential and commercial properties south of Fairfax Boulevard.

McLean Avenue. McLean Avenue is a two-lane undivided north-south residential street that provides access between Fairfax Boulevard and Cedar Avenue, east of Paul VI Catholic High School.

Existing lane use and traffic control at each of the study intersections is shown on Figure 2-1.

Public Transit Service. The site is served by the City of Fairfax's City-University Energysaver (CUE) Bus "Gold Route" along Main Street and Warwick Avenue and provides access between the George Mason University (GMU) campus and the Vienna/Fairfax-GMU metrorail station, via University Drive, Chain Bridge Road, West Street, Main Street, Lee Highway, Jermantown Road, Orchard Street, Bevan Drive, Warwick Avenue and Fairfax Boulevard. Additionally, the site is served by the "Green Route" which provides service between the GMU campus, Old Town Fairfax, and the Vienna/Fairfax-GMU metrorail station via University Drive, Chain Bridge Road, Eaton Place, Fairfax Boulevard, Fairfax Circle, Arlington Boulevard, Nutley Street, Virginia Center Boulevard, Old Pickett Road, Pickett Road, Main Street, North Street, and George Mason Boulevard.

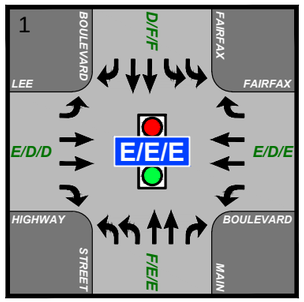
Pedestrian Facilities. Concrete sidewalks are provided along both sides of Fairfax Boulevard and Oak Street, and along the north side of Cedar Avenue east of Oak Street. Marked crosswalks are provided across the north, south, and east legs of the Fairfax Boulevard/ Meredith Drive/Oak Street intersection; across the west leg of the Fairfax Boulevard/McLean Avenue/Warwick Avenue intersection; and across the east leg of the intersection of Fairfax Boulevard and The Shops at Fairfax driveway.

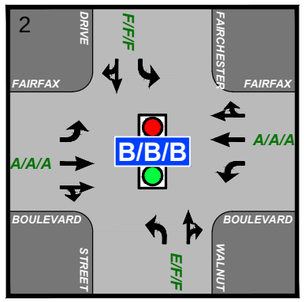
Future Transportation Network

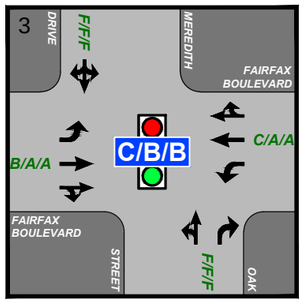
The City of Fairfax's Comprehensive Plan provides recommended strategies for the improvement of the City's transportation network. In general, the Plan recommends that the City should strive to achieve a balance between allowing for the efficient movement of traffic and providing safe and convenient access to City businesses and residences for vehicles, pedestrians, bicycles, and other modes of transport. In terms of roadway operational improvements, the Plan recommends that through traffic should be encouraged to utilize the City's arterial system (cf. Comprehensive Plan, Strategy T-7.4.1). Therefore, no specific capacity improvements (i.e., roadway widening) are recommended for the collector streets that immediately surround the subject site. Any improvements to these streets should focus on enhancing safety and the mobility of pedestrians, bicycles, and public transit.

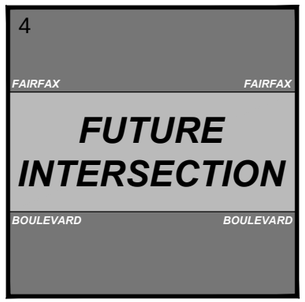
The Comprehensive Plan recommends that Fairfax Boulevard be configured with landscaped medians, where possible, and enhanced streetscape features to encourage pedestrian activity. Slow lanes (with on-street parking), separated from the main travel lanes by landscaped medians should be considered within or adjacent to portions of the Kamp Washington and Northfax Centers if the nature of adjacent redevelopment activity is such that those features would be appropriate.

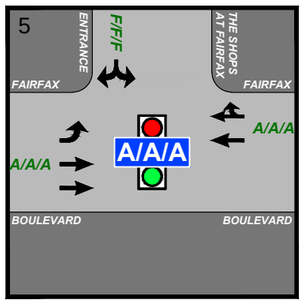
Based on the location of the site, adjacent to the Kamp Washington and Northfax Centers, and the Comprehensive Plan recommendations, a slow lane with on-street parking is proposed along a portion of the site frontage of Fairfax Boulevard.

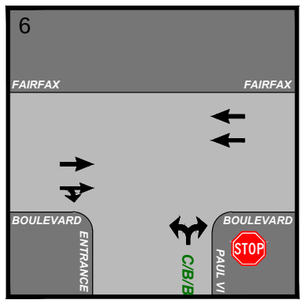


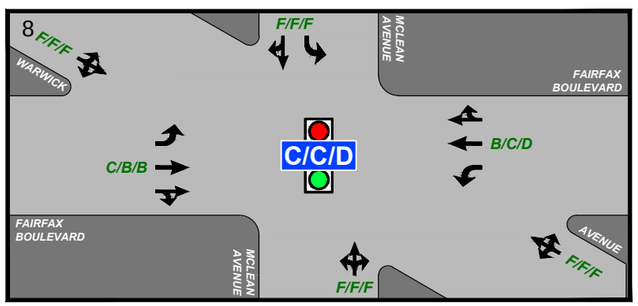


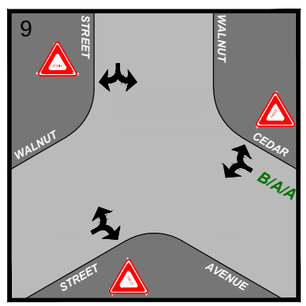


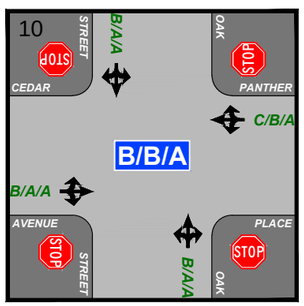


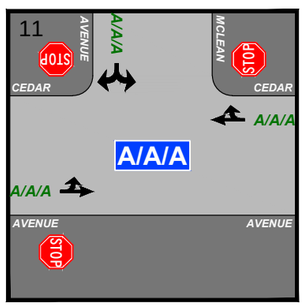


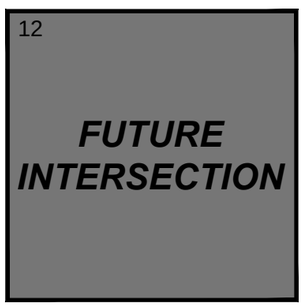


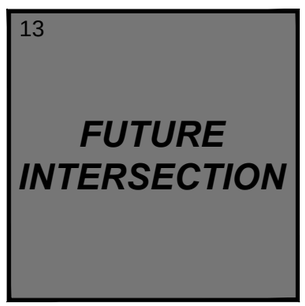












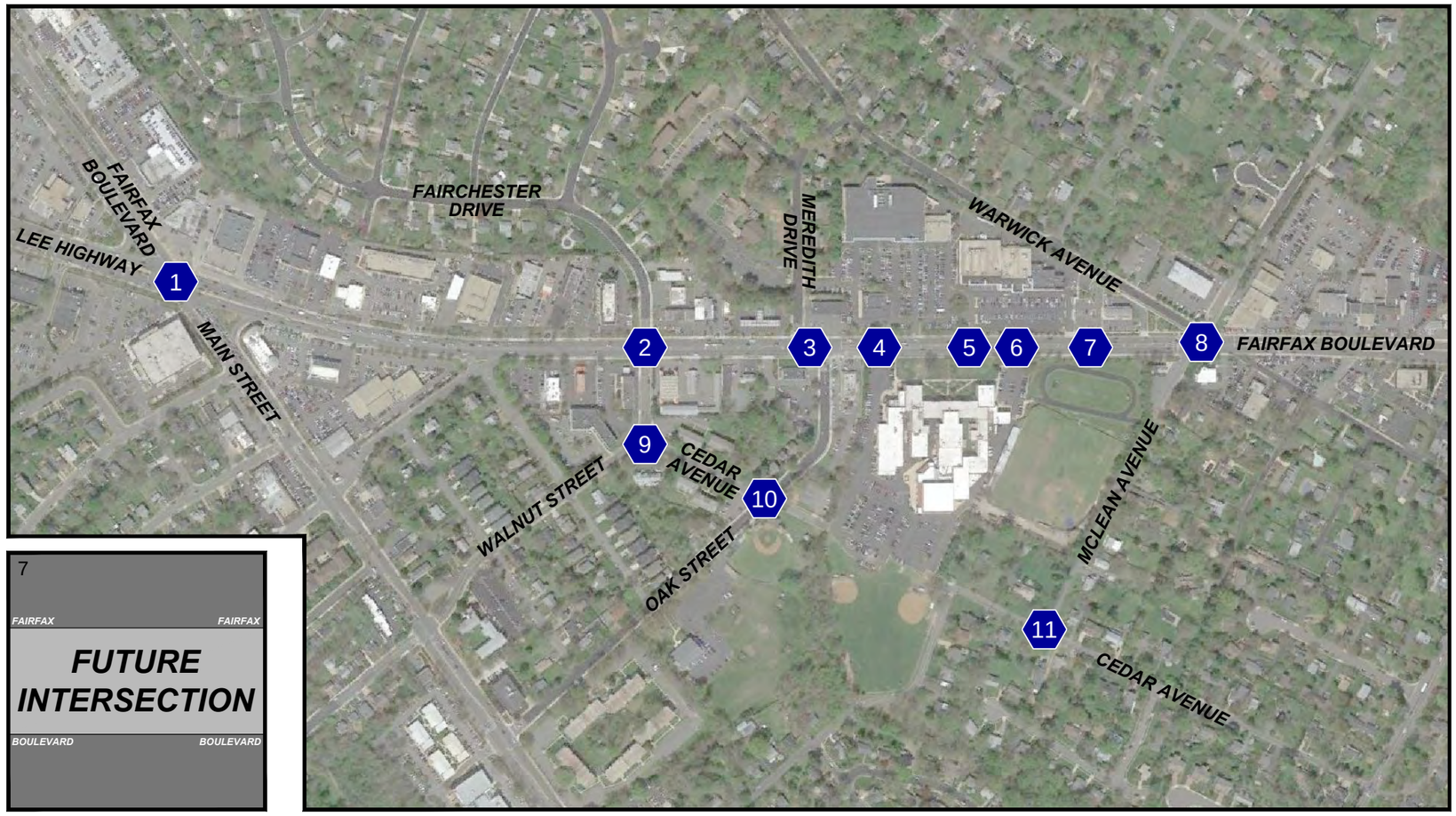


Figure 2-1
Existing Lane Use, Traffic Controls, and Levels of Service

Paul VI Redevelopment

Fairfax County, Virginia

X/X/X Approach Levels of Service

X/X/X Overall Intersection Levels of Service

Represents One Travel Lane

Signalized Intersection

Stop Sign

Yield Sign

NORTH

SECTION 3
STUDY SCOPE AND ANALYSIS PARAMETERS

Overview

The subject site is located south of Fairfax Boulevard, east of Oak Street, and west of McLean Avenue in the City of Fairfax, Virginia. The subject property is comprised of three parcels located at 10675 Fairfax Boulevard, 10600 Cedar Avenue, and 10606 Cedar Avenue totaling 18.5 acres. The parcel located at 10675 Fairfax Boulevard is zoned CR and the two Cedar Avenue parcels are zoned RM.

The primary objective of this study is to assess the impacts of the proposed development plan on the surrounding street system.

This traffic study was conducted in accordance with the scoping document and discussions with Wells + Associates, City staff, and the Applicant. The traffic study scope was approved by the Applicant and City staff on January 12, 2017 and is provided in Appendix A.

Study Area

The study area was determined based on the intersections and roadways that potentially would be affected by implementation of the proposed development plan. The following intersections were selected for analysis and evaluation:

- Lee Highway/Fairfax Boulevard/Main Street
- Fairfax Boulevard/Fairchester Drive, Walnut Street
- Fairfax Boulevard/Meredith Drive/Oak Street
- Fairfax Boulevard/The Shops at Fairfax Entrance-Future Site Entrance.
- Fairfax Boulevard/Paul VI Entrance (Future Site Entrance)
- Fairfax Boulevard/McLean Avenue/Warwick Avenue
- Walnut Street/Cedar Avenue
- Oak Street/Cedar Avenue
- McLean Avenue/Cedar Avenue

Site Development Program

The Applicant proposes to develop the site with 184 residential condominium units, 137 town homes, 20,000 SF of local serving retail and 24,000 SF of community center space.

Analysis Study Periods

The intersections within the study area were analyzed under AM and PM commuter peak hour conditions and under the PM school peak hour condition.

Existing Traffic Volumes

Existing AM commuter, school PM, and PM commuter peak hour turning movements and pedestrian counts were conducted on Wednesday, February 3, 2016, and Thursday, January 5, 2017, at the study intersections from 6:00 AM to 9:00 AM and from 2:00 PM to 7:00 PM.

The existing vehicular traffic volumes used in the analyses are provided on Figure 3-1. All existing count data are included in Appendix B.

L:\PROJECTS\6501 - 7000\6709 - PAUL VI DEVELOPMENT\GRAPHICS\6709 - RPT GRAPHICS - 2017 OCT 24.DWG JCP

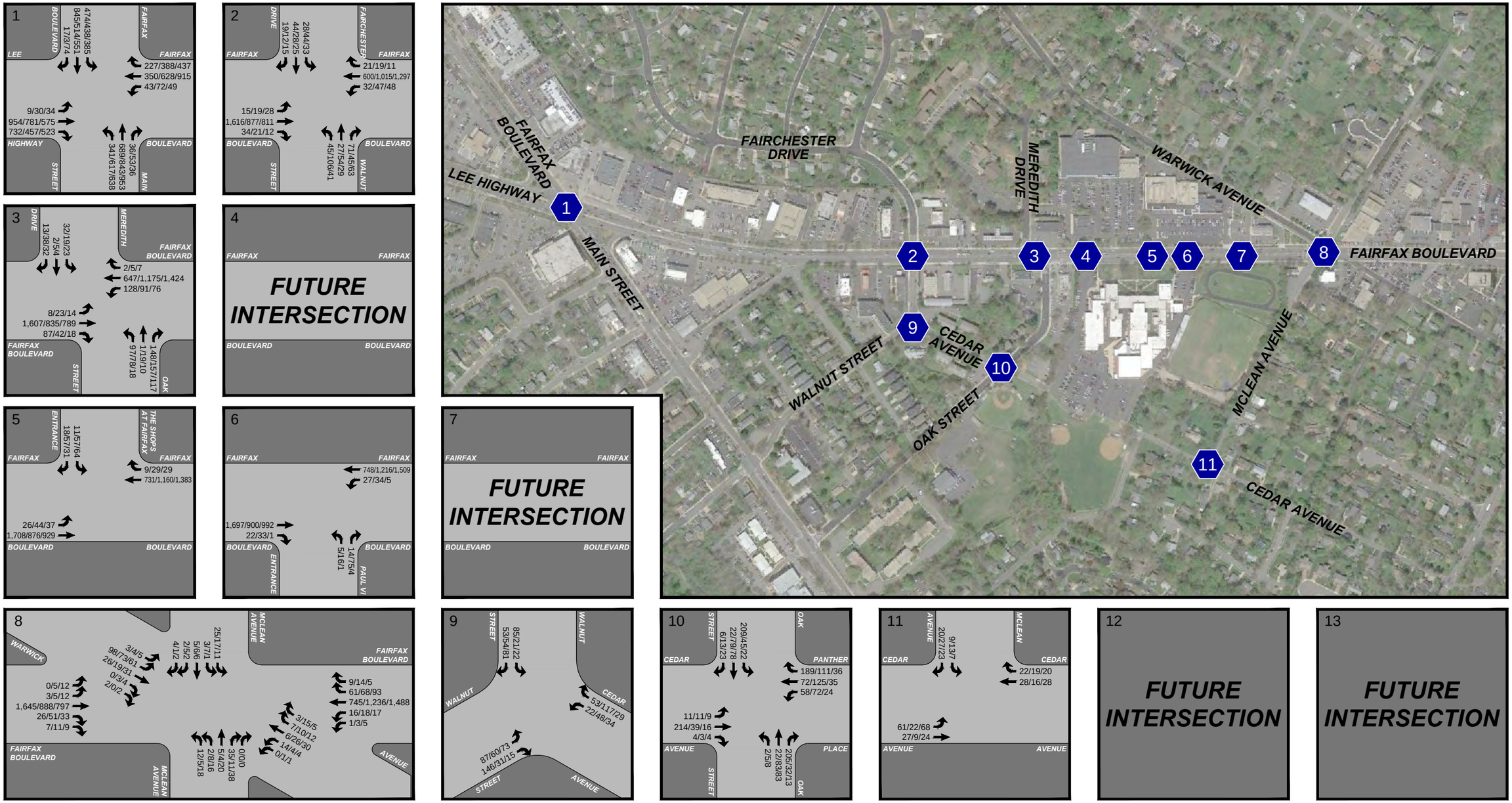


Figure 3-1
Existing Peak Hour Traffic Volumes

Paul VI Redevelopment

Fairfax County, Virginia

AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

NORTH

SECTION 4
EXISTING CONDITIONS ANALYSIS

Existing Intersection Levels of Service

Peak hour levels of service were calculated for the study intersections based on the existing lane use and traffic controls shown on Figure 2-1, the existing traffic volumes shown on Figure 3-1, and the 2000 Highway Capacity Manual (HCM) analysis procedures for signalized and unsignalized intersections. The results are presented in Appendix C and summarized on Table 4-1.

The analyses show that the Lee Highway/Fairfax Boulevard/Main Street intersection currently operates at or near capacity at LOS "E" during each of the peak hours (AM commuter peak, School PM peak, and PM commuter peak) with an average delay per vehicle of between 62.3 and 71.5 seconds.

Other signalized intersections along Fairfax Boulevard in the vicinity of the site operate at adequate overall LOS "D" or better during each of the three peak periods studied. However, the side street approaches operate at LOS "E" and "F" with average delays between 76.1 seconds and 128.0 seconds. The volume-to-capacity (v/c) ratios for the side street approaches at intersections along Fairfax Boulevard east of Main Street are well below 1.0, indicating that the lengthy delays are the result of long cycle lengths (190 seconds during the AM commuter peak hour and 220 seconds during the PM school peak and PM commuter peak hours) and the assignment of the predominance of the green time to the Fairfax Boulevard approaches, rather than insufficient capacity.

All approaches at the unsignalized intersections of Walnut Street/Cedar Avenue, Oak Street/Cedar Avenue, and McLean Avenue/Cedar Avenue operate at LOS "C" or better during each of the peak periods.

Table 4-1

Paul VI Redevelopment

Existing Intersection Capacity Analysis Summary[1]

	Intersection	Intersection Control	Approach	Existing		
				AM Peak	PM School Peak	PM Peak
1.	Lee Highway & Fairfax Boulevard & Main Street[2]	Signal	EB Appr	D (54.0)	F (87.3)	F (91.3)
			WB Appr	F (96.0)	E (70.1)	E (76.3)
			NB Appr	E (74.9)	D (45.1)	D (39.1)
			SB Appr	E (57.4)	D (49.5)	E (71.5)
			Overall	**E (71.5)**	**E (62.3)**	**E (69.8)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	A (8.2)	A (1.4)	A (1.4)
			WB Appr	A (5.3)	A (2.6)	A (1.7)
			NB Appr	E (76.1)	F (87.5)	F (90.9)
			SB Appr	F (88.8)	F (93.7)	F (118.8)
			Overall	**B (14.1)**	**B (13.0)**	**B (10.1)**
3.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (15.7)	A (4.3)	A (3.3)
			WB Appr	C (23.3)	A (7.4)	A (8.3)
			NB Appr	F (83.8)	F (100.1)	F (100.0)
			SB Appr	F (89.5)	F (102.4)	F (102.5)
			Overall	**C (25.1)**	**B (18.1)**	**B (14.1)**
4.	Fairfax Boulevard & Site Entrance	Free	EB Appr	Future Intersection		
			NB Appr			
5.	Fairfax Boulevard & Shops at Fairfax Entrance/Site Entrance (Future)	Signal	EB Appr	A (2.0)	A (1.0)	A (1.4)
			WB Appr	A (0.6)	A (1.2)	A (0.5)
			NB Appr	Future Approach		
			SB Appr	F (84.1)	F (104.7)	F (103.9)
			Overall	**A (2.6)**	**A (6.4)**	**A (4.8)**
6.	Fairfax Boulevard & Paul VI Entrance	Stop	NB Appr	C (21.1)	B (13.6)	B (12.6)
7.	Fairfax Boulevard & Site Exit	Stop	NB Appr	Future Intersection		
8.	Fairfax Boulevard & McLean Avenue & Warwick Road[3]	Signal	EB Appr	F (115.4)	F (117.3)	F (128.0)
			WB Appr	F (90.4)	F (103.7)	F (103.2)
			NB Appr	F (88.2)	F (106.5)	F (115.4)
			SB Appr	F (85.3)	F (104.4)	F (93.1)
			NE Appr	C (21.9)	B (12.3)	B (11.5)
			SW Appr	B (19.7)	C (23.3)	D (39.1)
			Overall	**C (28.5)**	**C (26.6)**	**D (37.9)**
9.	Walnut Street & Cedar Avenue[4]	Stop	WB Appr	B (10.1)	A (9.4)	A (9.5)
10.	Oak Street & Cedar Avenue	Stop	EB Appr	B (13.9)	A (8.5)	A (7.8)
			WB Appr	C (15.6)	B (10.9)	A (8.0)
			NB Appr	B (12.6)	A (9.0)	A (8.0)
			SB Appr	B (14.8)	A (9.4)	A (8.1)
			Overall	**B (14.3)**	**B (10.0)**	**A (8.0)**
11.	Cedar Avenue & McLean Avenue	Stop	EB Appr	A (7.7)	A (7.4)	A (7.7)
			WB Appr	A (7.1)	A (6.9)	A (7.1)
			SB Appr	A (7.0)	A (6.9)	A (7.0)
			Overall	**A (7.4)**	**A (7.0)**	**A (7.4)**
12.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection		
13.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection		

Notes:
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 9.1.
2. Fairfax Boulevard/Main Street analyzed as east-west road; Lee Highway/Fairfax Boulevard analyzed as north-south roadway.
3. Warwick Road analyzed as east-west road; McLean Avenue analyzed as north-south roadway; Fairfax Boulevard analyzed as northeast-southwest roadway.
4. Analyzed with northbound and southbound as free movements along Walnut Street, and westbound movements along Cedar Avenue as stop-controlled.

SECTION 5
ANALYSIS OF FUTURE CONDITIONS WITHOUT SITE DEVELOPMENT

Overview

Forecasts for traffic conditions without the redevelopment of Paul VI were estimated at the study intersections based on a composite of existing traffic and pipeline development trips as described in Section 3 of this report. Future levels of service under these forecasted conditions were evaluated at the study intersections.

Regional Traffic Growth

A review of VDOT AADT volumes along Fairfax Boulevard and Main Street in the vicinity of the site indicates a modest reduction in traffic volumes over the past eight (8) years. AADT volumes along Fairfax Boulevard east of Main Street fell from 38,000 vehicles in 2008 to 36,000 vehicles in 2016, an average annual decrease of approximately 0.7% per year. AADT volumes along Main Street south of Fairfax Boulevard fell from 40,000 vehicles in 2008 to 35,000 vehicles in 2016, an average annual decrease of approximately 1.7% per year.

In order to present a conservative (or worst case) analysis, no continuing decrease in regional traffic volumes was assumed in this analysis.

Traffic from Other Approved/Pending Developments

At the request of City staff, the following approved/pending developments were included as approved (i.e., "pipeline") developments:

- Novus Fairfax Gateway
  - 4,000 SF Office
  - 5,000 SF Quality Restaurant
  - 7,400 SF High Turn-Over Sit-Down Restaurant
  - 12,600 SF Shopping Center
  - 395 Residential Apartments

- Mount Vineyard
  - 132 Residential Condominiums/Townhouses

As shown in Table 5-1, these pipeline developments are anticipated to generate 395 AM peak commuter hour trips, 418 PM school peak hour trips, and 576 PM commuter peak hour trips at full buildout.

Background Traffic Forecasts

The existing traffic volumes depicted on Figure 3-1 and the pipeline trip assignments shown on Figure 5-1 were added together to yield the background future traffic forecasts at the study intersections, shown on Figure 5-2.

Background Future Levels of Service

Peak hour levels of service were calculated for the study intersections based on the existing lane use and traffic controls, background future traffic forecasts, and the 2000 Highway Capacity Manual (HCM) analysis procedures for signalized and unsignalized intersections. The results are provided in Appendix D, shown on Figure 5-3, and summarized in Table 5-2.

As shown on Table 5-2, the Lee Highway/Fairfax Boulevard/Main Street intersection will continue to operate at or near capacity at LOS "E" during each of the peak hours (AM commuter peak, School PM peak, and PM commuter peak). When compared to existing conditions, the average delay per vehicle at this intersection will increase to between 64.0 and 75.0 seconds during the peak hours, an increase of between 1.7 seconds per vehicle and 3.6 seconds per vehicle.

Other signalized intersections along Fairfax Boulevard in the vicinity of the site continue to operate at an adequate overall LOS "D" or better during each of the three peak periods studied. As with the existing conditions analysis, the side street approaches will continue to operate at LOS "E" and "F" due to the combination of long cycle lengths (190 seconds during the AM commuter peak hour and 220 seconds during the PM school peak and PM commuter peak hours) and the assignment of the predominance of the green time to the Fairfax Boulevard approaches. The side street approaches at signalized intersections east of Main Street will continue to operate with v/c ratios well below 1.0.

All approaches at the unsignalized intersections of Walnut Street/Cedar Avenue, Oak Street/ Cedar Avenue, and McLean Avenue/Cedar Avenue will continue to operate at LOS "C" or better during each of the peak hours.

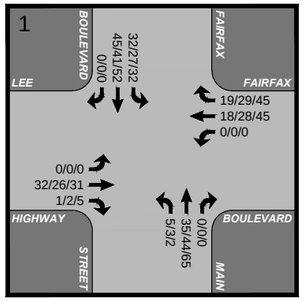
Table 5-1

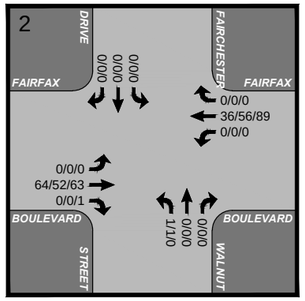
Paul VI Redevelopment

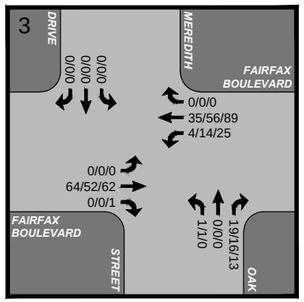
Pipeline Development Trip Generation

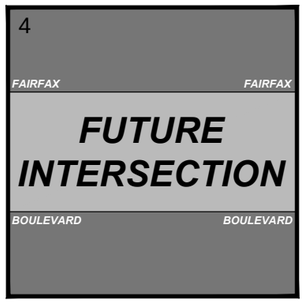
Development	ITE Land Use Code[1]	Amount	Units	AM Peak Hour			School PM Peak Hour			PM Peak Hour			Average Daily Trips
				In	Out	Total	In	Out	Total	In	Out	Total	
Novus Fairfax Gateway													
Office	710	4,000	SF	5	1	6	1	2	3	1	5	6	44
Quality Restaurant	931	5,000	SF	2	2	4	5	5	10	25	12	37	450
High Turnover Restaurant	932	7,400	SF	44	36	80	9	9	18	44	29	73	941
Shopping Center	820	12,600	SF	27	17	44	69	78	147	72	78	150	1,767
Apartments	220	395	DU	39	158	197	102	79	181	153	82	235	2,517
Total Novus Fairfax Gateway Trips				**117**	**214**	**331**	**186**	**173**	**359**	**295**	**206**	**501**	**5,719**
Mount Vineyard													
Condominiums/Townhomes	230	132	DU	**11**	**53**	**64**	**33**	**26**	**59**	**50**	**25**	**75**	**819**
Total Background Development Trips				**128**	**267**	**395**	**219**	**199**	**418**	**345**	**231**	**576**	**6,538**

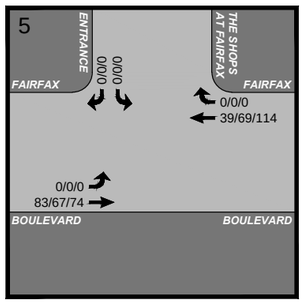
Notes: 1. Institute of Transportation Engineer's (ITE), Trip Generation Manual, 9th Edition

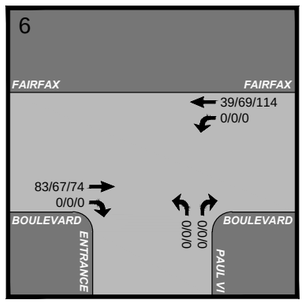


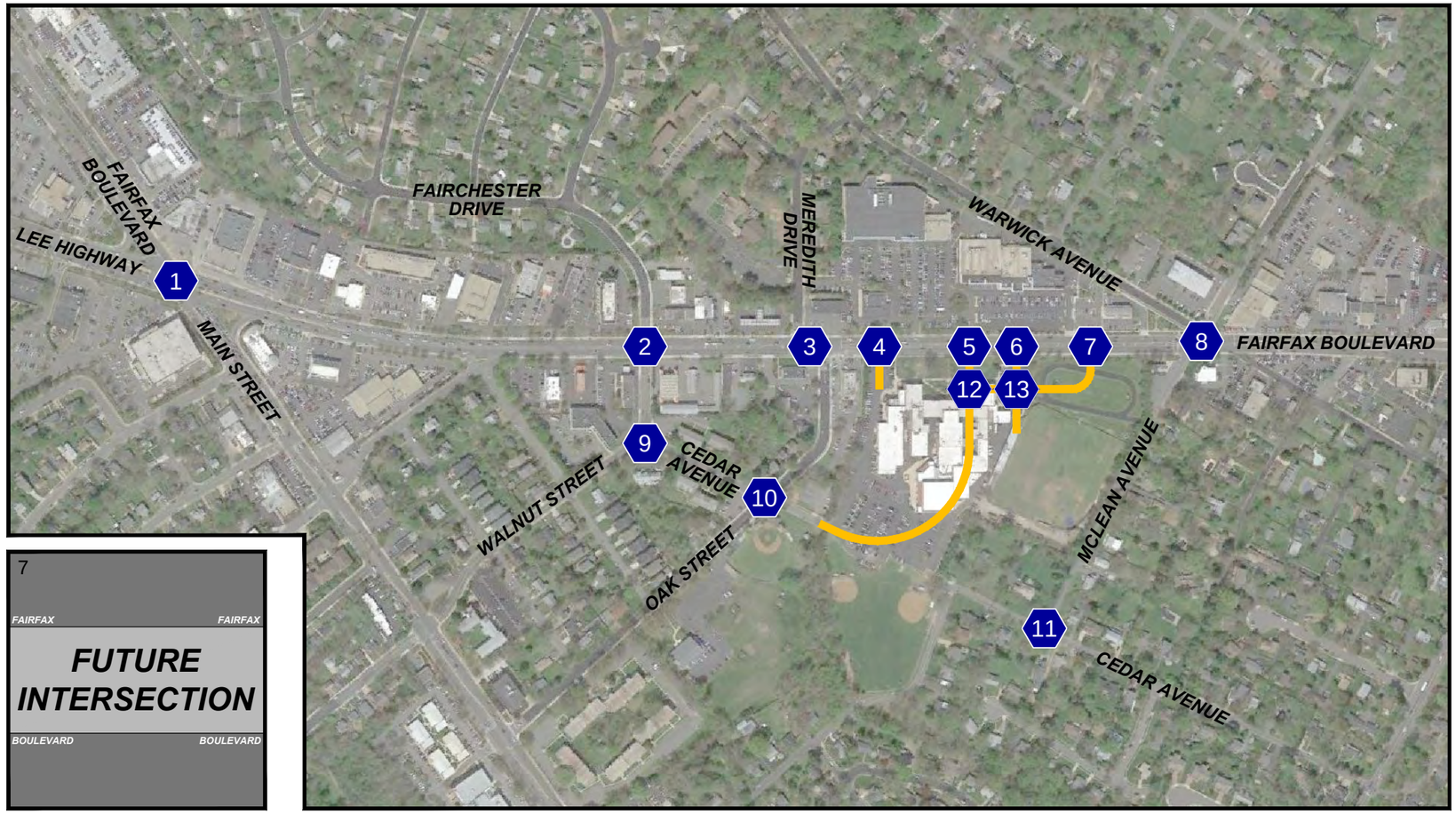


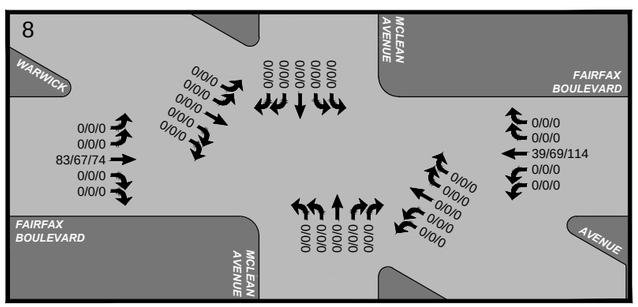


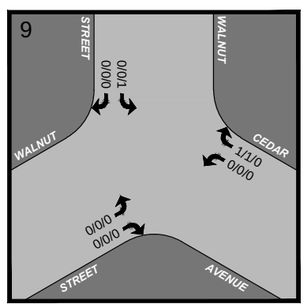


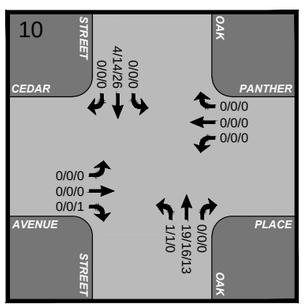


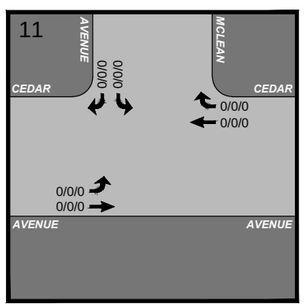


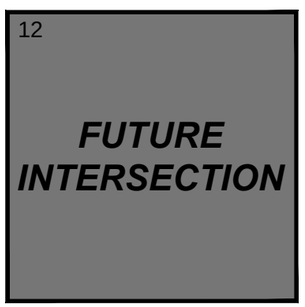












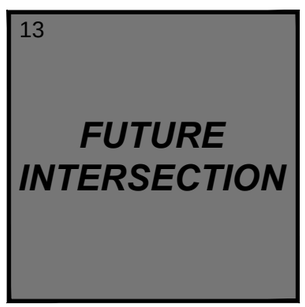


Figure 5-1
Pipeline Development Site Generated Traffic Assignments

Paul VI Redevelopment

Fairfax County, Virginia

AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

NORTH

L:\PROJECTS\6501 - 7000\6709 - PAUL VI DEVELOPMENT\GRAPHICS\6709 - RPT GRAPHICS - 2017 OCT 24.DWG JCP

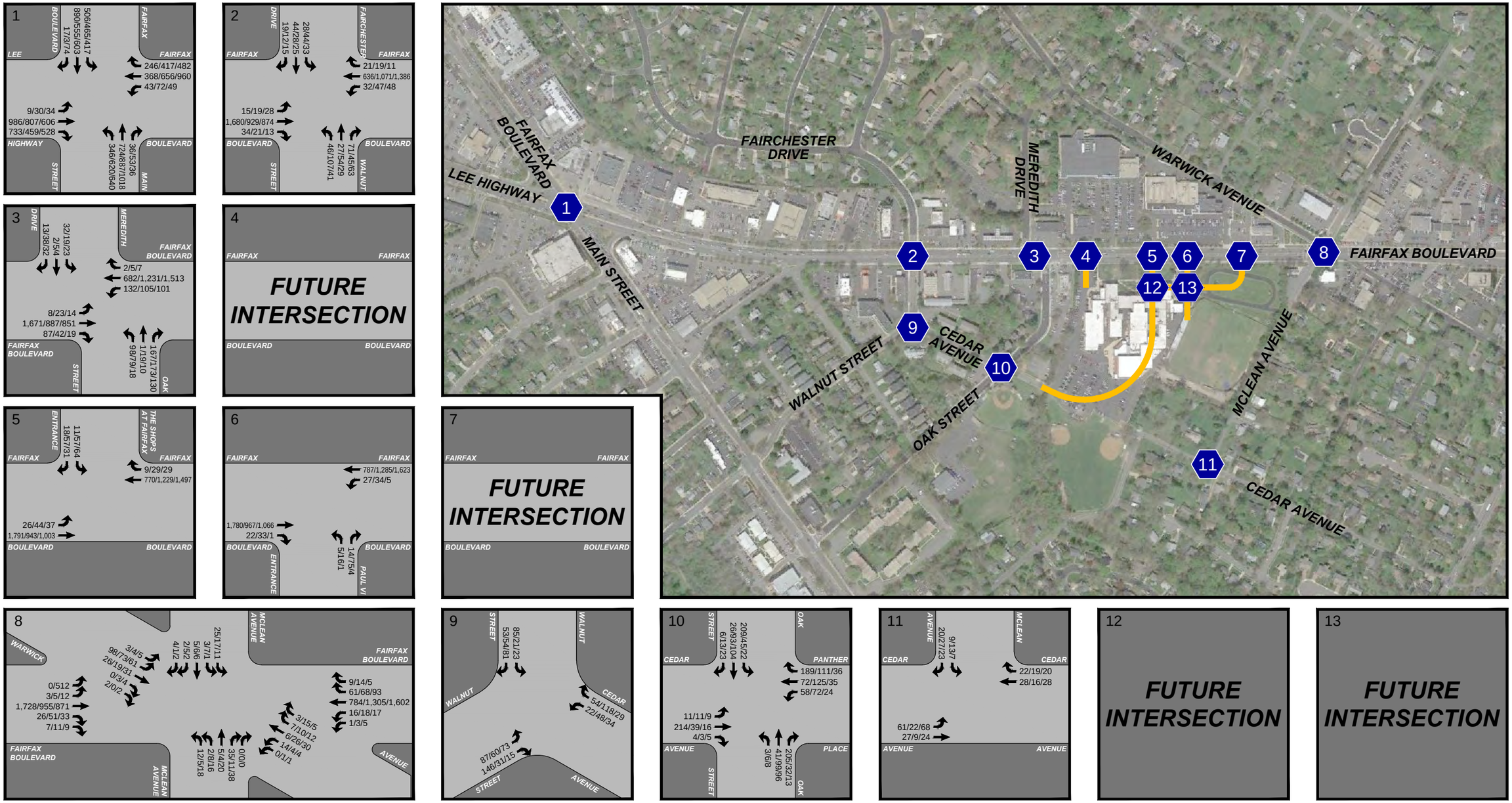


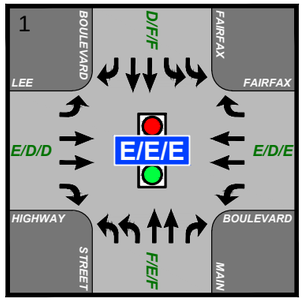
Figure 5-2
2027 Background Future Peak Hour Traffic Forecasts

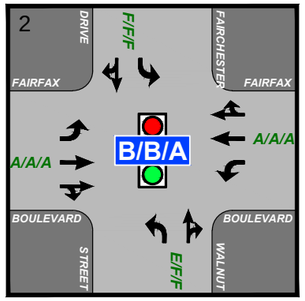
Paul VI Redevelopment

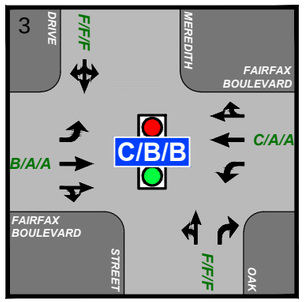
Fairfax County, Virginia

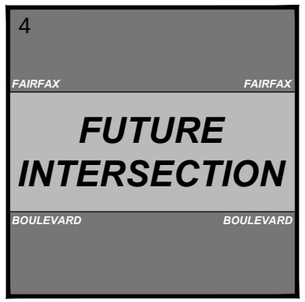
AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

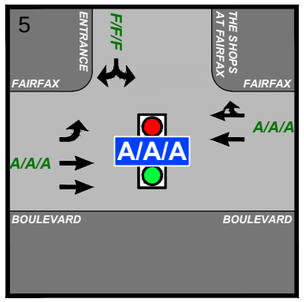
NORTH

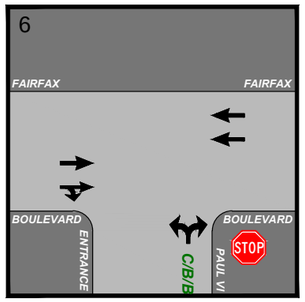


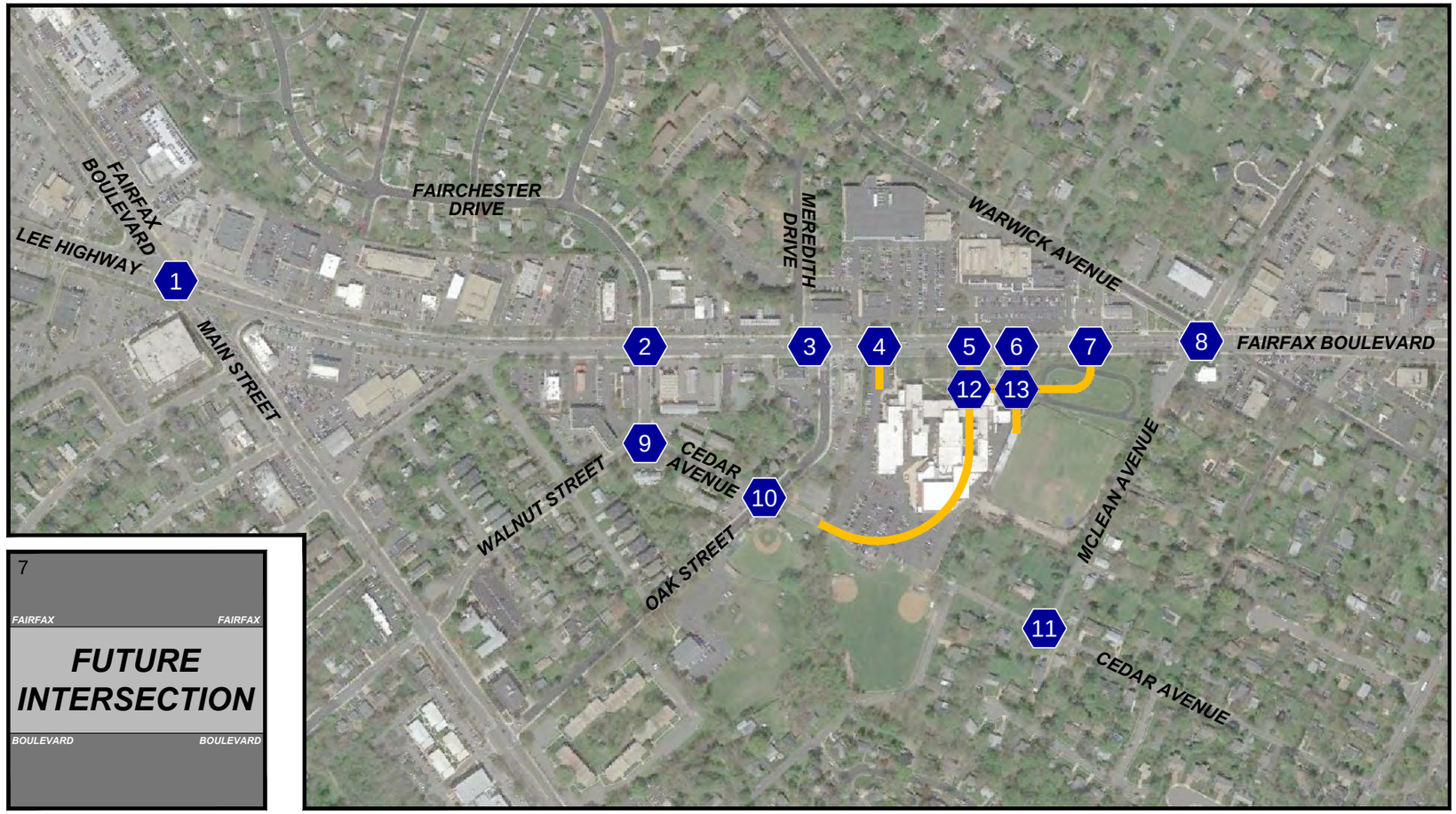


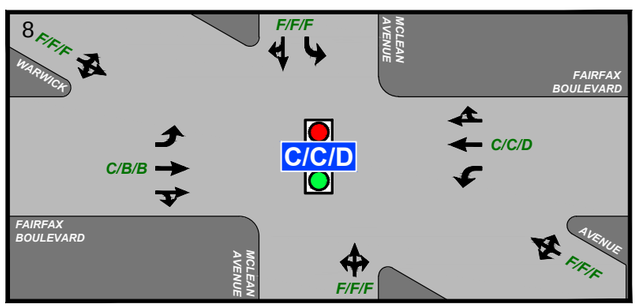


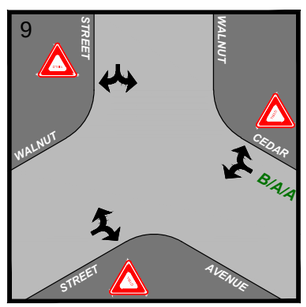


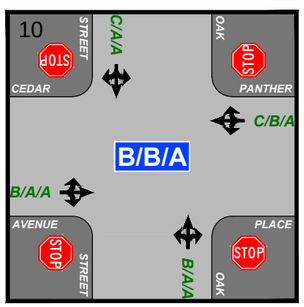


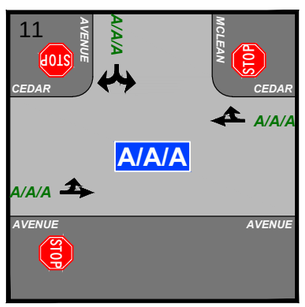


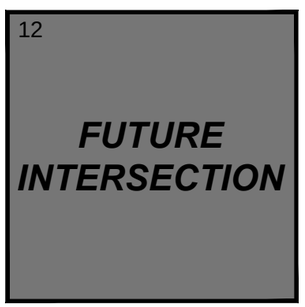












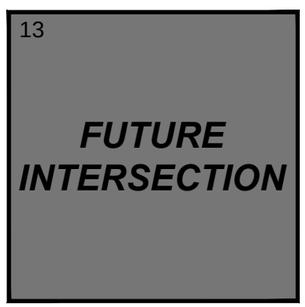


Figure 5-3
Existing Lane Use, Traffic Controls, and Background Future Levels of Service

Paul VI Redevelopment

Fairfax County, Virginia

X/X/X Approach Levels of Service

X/X/X Overall Intersection Levels of Service

Represents One Travel Lane

Signalized Intersection

Stop Sign

Yield Sign

NORTH

Table 5-2

Paul VI Redevelopment

Background Future Intersection Capacity Analysis Summary[1]

	Intersection	Intersection Control	Approach	Existing			Background Future		
				AM Peak	PM School Peak	PM Peak	AM Peak	PM School Peak	PM Peak
1.	Lee Highway & Fairfax Boulevard & Main Street[2]	Signal	EB Appr	D (54.0)	F (87.3)	F (91.3)	D (54.8)	F (89.0)	F (95.6)
			WB Appr	F (96.0)	E (70.1)	E (76.3)	F (106.3)	E (72.0)	F (82.9)
			NB Appr	E (74.9)	D (45.1)	D (39.1)	E (78.4)	D (46.0)	D (40.0)
			SB Appr	E (57.4)	D (49.5)	E (71.5)	E (56.5)	D (51.1)	E (72.4)
			Overall	**E (71.5)**	**E (62.3)**	**E (69.8)**	**E (75.0)**	**E (64.0)**	**E (73.4)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	A (8.2)	A (1.4)	A (1.4)	A (9.0)	A (1.4)	A (1.5)
			WB Appr	A (5.3)	A (2.6)	A (1.7)	A (5.4)	A (2.6)	A (1.8)
			NB Appr	E (76.1)	F (87.5)	F (90.9)	E (76.0)	F (87.6)	F (90.9)
			SB Appr	F (88.8)	F (93.7)	F (118.8)	F (88.7)	F (93.6)	F (118.8)
			Overall	**B (14.1)**	**B (13.0)**	**B (10.1)**	**B (14.4)**	**B (12.6)**	**A (9.6)**
3.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (15.7)	A (4.3)	A (3.3)	B (19.2)	A (4.3)	A (3.4)
			WB Appr	C (23.3)	A (7.4)	A (8.3)	C (23.3)	A (7.5)	A (9.5)
			NB Appr	F (83.8)	F (100.1)	F (100.0)	F (83.7)	F (99.7)	F (99.8)
			SB Appr	F (89.5)	F (102.4)	F (102.5)	F (89.5)	F (102.4)	F (102.5)
			Overall	**C (25.1)**	**B (18.1)**	**B (14.1)**	**C (27.4)**	**B (18.1)**	**B (14.8)**
4.	Fairfax Boulevard & Site Entrance	Free	EB Appr	Future Intersection			Future Intersection		
			NB Appr						
5.	Fairfax Boulevard & Shops at Fairfax Entrance/Site Entrance (Future)	Signal	EB Appr	A (2.0)	A (1.0)	A (1.4)	A (2.4)	A (1.0)	A (1.4)
			WB Appr	A (0.6)	A (1.2)	A (0.5)	A (0.6)	A (1.3)	A (0.5)
			NB Appr	Future Approach			Future Approach		
			SB Appr	F (84.1)	F (104.7)	F (103.9)	F (84.1)	F (104.7)	F (103.9)
			Overall	**A (2.6)**	**A (6.4)**	**A (4.8)**	**A (2.8)**	**A (6.2)**	**A (4.5)**
6.	Fairfax Boulevard & Paul VI Entrance	Stop	NB Appr	C (21.1)	B (13.6)	B (12.6)	C (22.4)	B (14.2)	B (13.1)
7.	Fairfax Boulevard & Site Exit	Stop	NB Appr	Future Intersection			Future Intersection		
8.	Fairfax Boulevard & McLean Avenue & Warwick Road[3]	Signal	EB Appr	F (115.4)	F (117.3)	F (128.0)	F (115.4)	F (117.3)	F (128.0)
			WB Appr	F (90.4)	F (103.7)	F (103.2)	F (90.4)	F (103.7)	F (103.2)
			NB Appr	F (88.2)	F (106.5)	F (115.4)	F (88.2)	F (106.5)	F (115.4)
			SB Appr	F (85.3)	F (104.4)	F (93.1)	F (85.3)	F (104.4)	F (93.1)
			NE Appr	C (21.9)	B (12.3)	B (11.5)	C (24.2)	B (13.2)	B (12.6)
			SW Appr	B (19.7)	C (23.3)	D (39.1)	C (20.1)	C (24.3)	D (43.7)
			Overall	**C (28.5)**	**C (26.6)**	**D (37.9)**	**C (29.7)**	**C (27.1)**	**D (40.4)**
9.	Walnut Street & Cedar Avenue[4]	Stop	WB Appr	B (10.1)	A (9.4)	A (9.5)	B (10.1)	A (9.4)	A (9.5)
10.	Oak Street & Cedar Avenue	Stop	EB Appr	B (13.9)	A (8.5)	A (7.8)	B (14.3)	A (8.7)	A (7.9)
			WB Appr	C (15.6)	B (10.9)	A (8.0)	C (16.2)	B (11.2)	A (8.1)
			NB Appr	B (12.6)	A (9.0)	A (8.0)	B (13.6)	A (9.3)	A (8.2)
			SB Appr	B (14.8)	A (9.4)	A (8.1)	C (15.3)	A (9.7)	A (8.4)
			Overall	**B (14.3)**	**B (10.0)**	**A (8.0)**	**B (14.9)**	**B (10.2)**	**A (8.2)**
11.	Cedar Avenue & McLean Avenue	Stop	EB Appr	A (7.7)	A (7.4)	A (7.7)	A (7.7)	A (7.4)	A (7.7)
			WB Appr	A (7.1)	A (6.9)	A (7.1)	A (7.1)	A (6.9)	A (7.1)
			SB Appr	A (7.0)	A (6.9)	A (7.0)	A (7.0)	A (6.9)	A (7.0)
			Overall	**A (7.4)**	**A (7.0)**	**A (7.4)**	**A (7.4)**	**A (7.0)**	**A (7.4)**
12.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection			Future Intersection		
13.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection			Future Intersection		

Notes:
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 9.1.
2. Fairfax Boulevard/Main Street analyzed as east-west road; Lee Highway/Fairfax Boulevard analyzed as north-south roadway.
3. Warwick Road analyzed as east-west road; McLean Avenue analyzed as north-south roadway; Fairfax Boulevard analyzed as northeast-southwest roadway.
4. Analyzed with northbound and southbound as free movements along Walnut Street, and westbound movements along Cedar Avenue as stop-controlled.

SECTION 6
SITE ANALYSIS

Overview

Trips anticipated to be generated by the proposed development plan forecasted and assigned to the surrounding roadway network. The generation, distribution, and assignment of site trips were based on the proposed redevelopment plan and program, as well as the locations of future site entrances in relation to the surrounding roadway network.

Existing Site Trips

As stated previously, the site is currently developed with the Paul VI Catholic High School. The redevelopment plan calls for the elimination of the school use and the construction of a mix of residential, retail, and community uses. Trips currently generated by the school were tabulated through existing traffic counts. As shown in Table 6-1, the Paul VI Catholic High School currently generates 1,005 trips during the AM commuter peak hour, 563 trips during the PM school peak hour, and 132 trips during the PM commuter peak hour.

A portion of the existing school will remain and will be repurposed as local serving retail and/or community use. Existing traffic volumes generated by the high school were eliminated from the existing traffic streams based on the existing driveway counts conducted at existing school access drives. The existing traffic volumes less the existing school trips removed at each of the study intersections are shown on Figure 6-1.

Proposed Site Access

The site plan provided on Figure 1-2 shows that a slow lane (with on-street parking), separated from the main travel lanes by a landscaped median is proposed along a portion of the Fairfax Boulevard site frontage. Access between the site and Fairfax Boulevard is proposed via two (2) full access driveways; one (1) will be located directly across Fairfax Boulevard from the existing signalized driveway to/from the Shops at Fairfax, and the other will be located approximately 570’ east of the existing signalized driveway to/from the Shops at Fairfax and approximately 260’ west of the Fairfax Boulevard/Mclean Avenue/Warwick Avenue intersection. A right-in/right-out driveway will be provided from Fairfax Boulevard west of the existing signalized driveway to/from the Shops at Fairfax. An additional right-in/right-out driveway will be provided from the proposed slow lane and access to/from the southern portion of the property will be provided via Cedar Avenue to/from the west. Access between the site and Cedar Avenue to/from the east is not proposed by the Applicant, however access to a new 22-space parking lot for the existing ball fields located south of the Paul VI property is proposed.

Trip Generation

Overview. Trip generation estimates for the AM and PM peak hours, as well as the average daily traffic, were derived from the standard Institute of Transportation Engineers (ITE) trip generation rates, as published in the Trip Generation Manual, 9th edition. The "Residential Condominium/ Townhouse" (230) land use code was used for the proposed townhomes units. The "High-Rise Residential Condominium/Townhouse" (232) land use code was used for the single family attached units as this building will be three (3) or more floors in height. The "Shopping Center" (820) land use code was used for the retail uses, and the "Recreational Community Center" (495) land use code was used for the community center use to be operated by the City of Fairfax.

Existing trips generated by Paul VI were determined through traffic counts at the existing site driveways. The trip generation analysis for the existing uses and the proposed uses is presented in Table 6-1.

Net Site Trips. The net vehicle trips that would be generated by the proposed development plan were determined by subtracting the current trip generation of Paul VI from the trips anticipated to be generated by the site after redevelopment. This comparison is shown in Table 6-1 and illustrates that the proposed site will generate 789 ***fewer*** AM peak commuter hour trips, 148 ***fewer*** PM school peak hour trips, and 294 ***more*** PM peak commuter hour trips than are currently generated by the high school.

It should be noted that no reduction in site generated trips due to transit mode split was taken in this analysis. However, it is anticipated that the project would take advantage of public transit opportunities available in the proximity of the site.

Site Trip Distribution

As agreed upon in the scope with City staff, site trip distribution used in the analysis was based on existing travel patterns and engineering judgment. For purposes of this analysis, the following distribution was used in the forecasting of future site traffic:

- To/from the west on Lee Highway/Fairfax Boulevard: 35%
- To/from the northeast on Fairfax Boulevard: 50%
- To/from the southeast on Main Street: 15%

Site Trip Assignments

The assignments of the total vehicle trips generated upon the future build-out of the Paul VI redevelopment was based on the above distribution, and are depicted on Figure 6-2.

Table 6-1

Paul VI Redevelopment

Site Trip Generation Analysis

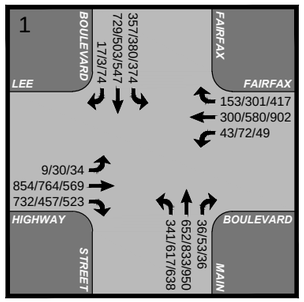
Development	ITE Land Use Code[1]	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM School Peak (2:45-3:45) In	PM School Peak (2:45-3:45) Out	PM School Peak (2:45-3:45) Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Average Daily Trips
Existing													
Private High School[2,3]			Actual Trips	671	334	1,005	174	389	563	46	86	132	3,270
Proposed[4]													
Condominiums	232	184	DU	16	66	82	37	29	66	48	30	78	917
Townhomes	230	137	DU	11	55	66	44	38	82	52	26	78	846
Subtotal Residential		321	DU	27	121	148	81	67	148	100	56	156	1,763
Community Center	495	24,000	SF	32	17	49	28	41	69	32	34	66	812
Local Serving Retail	820	20,000	SF	12	7	19	93	105	198	98	106	204	2,386
Total Proposed Trips				**71**	**145**	**216**	**202**	**213**	**415**	**230**	**196**	**426**	**4,961**
Comparison													
Proposed vs. Existing				**-600**	**-189**	**-789**	**28**	**-176**	**-148**	**184**	**110**	**294**	**1,691**

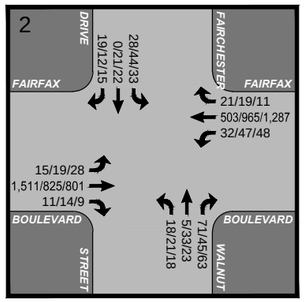
Notes: 1. Institute of Transportation Engineer's (ITE), Trip Generation Manual, 9th Edition

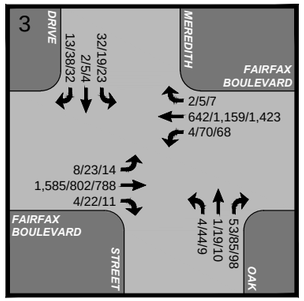
2. Based on traffic counts completed on February 3, 2016.

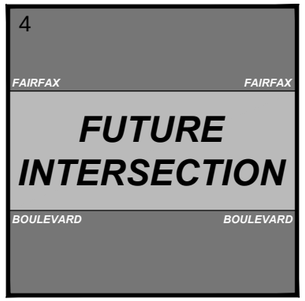
3. Actual ADT estimated based on ITE ADT and PM school peak ratio.

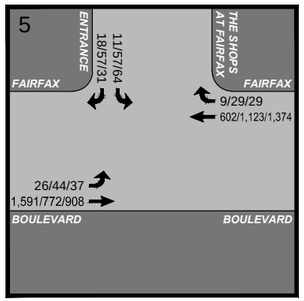
4. PM School Peak trips based on residential and retail diurnal rates compiled from ITE and Wells + Associates files.

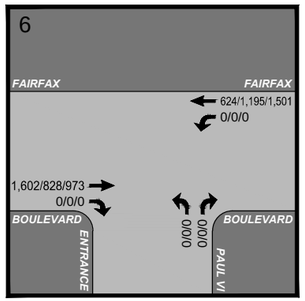


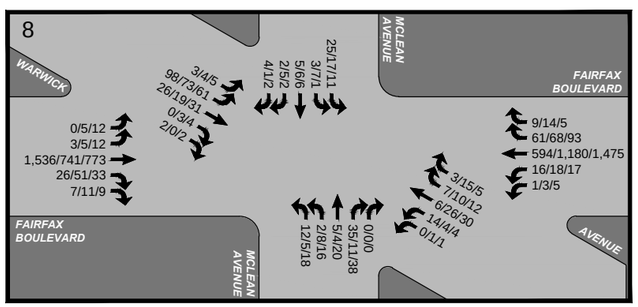


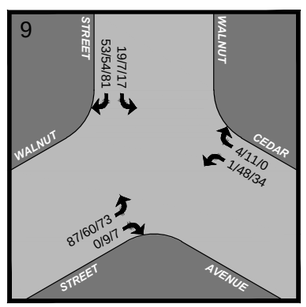


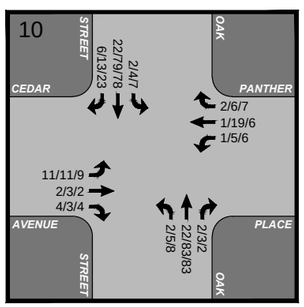


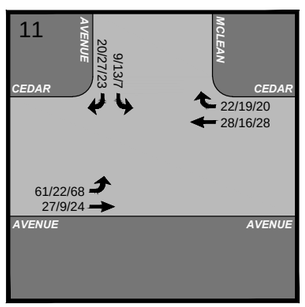


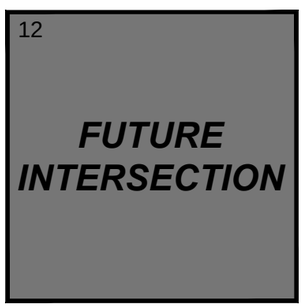


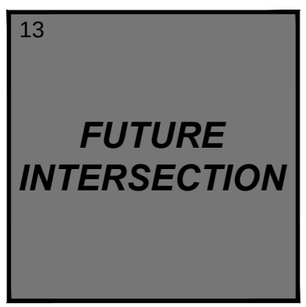












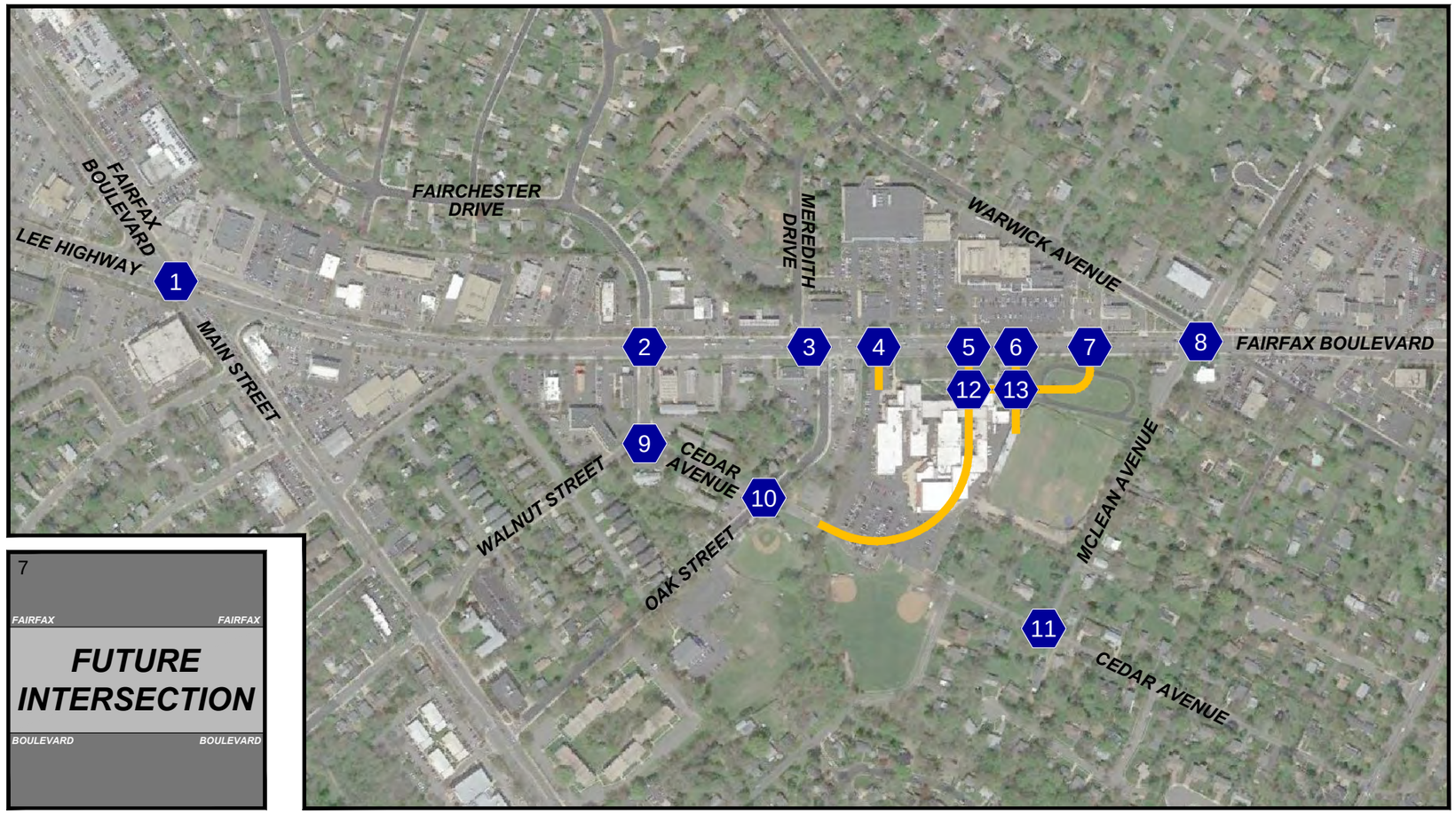


Figure 6-1
Existing Traffic Volumes Less Existing Site Trips

Paul VI Redevelopment

Fairfax County, Virginia

AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

NORTH

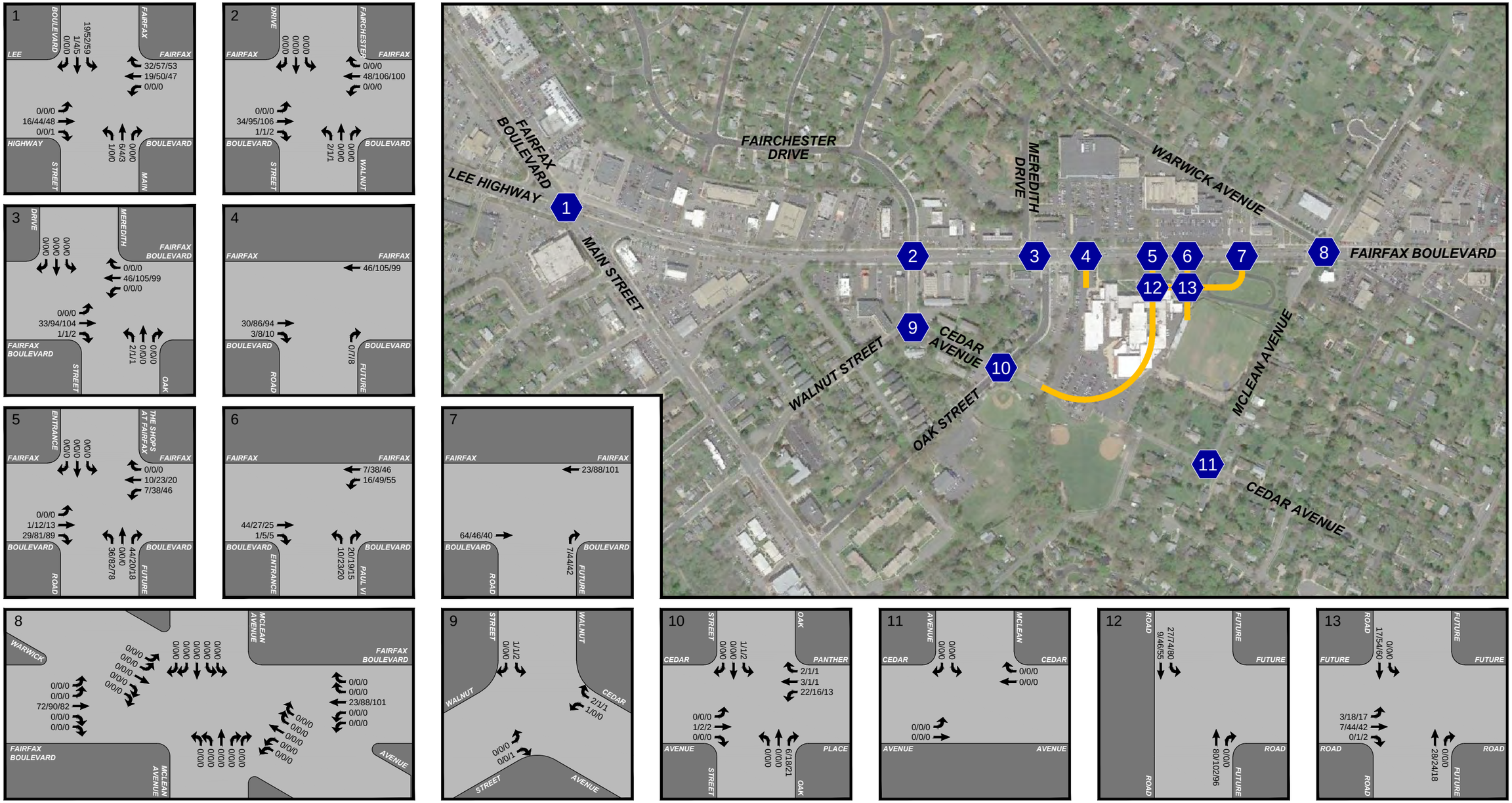


Figure 6-2
Site Trip Assignments

Paul VI Redevelopment

Fairfax County, Virginia

AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

NORTH

SECTION 7
ANALYSIS OF FUTURE CONDITIONS WITH SITE DEVELOPMENT

Total Future Traffic Forecasts

Site trip assignments shown on Figure 6-2 were added to the existing traffic volumes less the existing site trips at each of the study intersections, shown on Figure 6-1, and pipeline trip assignments shown on Figure 5-2 to yield 2027 total future traffic forecasts, shown on Figure 7-1.

Proposed Improvements

Provision of a slow lane (with on-street parking), separated from the main travel lanes by landscaped medians is proposed along the portion of the Fairfax Boulevard site frontage east of the Fairfax Boulevard/The Shops at Fairfax signalized intersection. Access between the site and Fairfax Boulevard is proposed via two (2) full access driveways and one (1) right-in/right-out driveway. One of the proposed full access site driveways will form the fourth (south) leg at the Fairfax Boulevard/The Shops at Fairfax signalized intersection and will provide two northbound and one southbound lanes. The other full access driveway will be located along Fairfax Boulevard approximately 570' east of the existing signalized driveway to/from the Shops at Fairfax and approximately 260' west of the Fairfax Boulevard/Mclean Avenue intersection. A right-in/right-out driveway from Fairfax Boulevard will be provided west of the Fairfax Boulevard/The Shops at Fairfax signalized intersection.

Lane use and traffic control at each of the study intersections for 2027 total future conditions is shown on Figure 7-2.

Total Future Levels of Service with Proposed Development Plan

Future levels of service with the proposed development plan were estimated at the study intersections based on the future traffic volumes shown on Figure 7-1, future lane use and traffic control shown on Figure 7-2, and the 2000 HCM methodologies for signalized and unsignalized intersections. The results of these analyses are provided in Appendix E and summarized in Table 7-1.

As shown in Table 7-1, levels of service under future site development conditions would remain generally consistent with future background conditions (i.e., without site development).

The Lee Highway/Fairfax Boulevard/Main Street intersection will continue to operate at an overall LOS E during all three studied peak periods under total future conditions. When compared to background future conditions, the intersection will experience minor ***reductions*** in delay (0.3 – 5.8 seconds) during the AM, PM school peak period, and PM peak commuter periods.

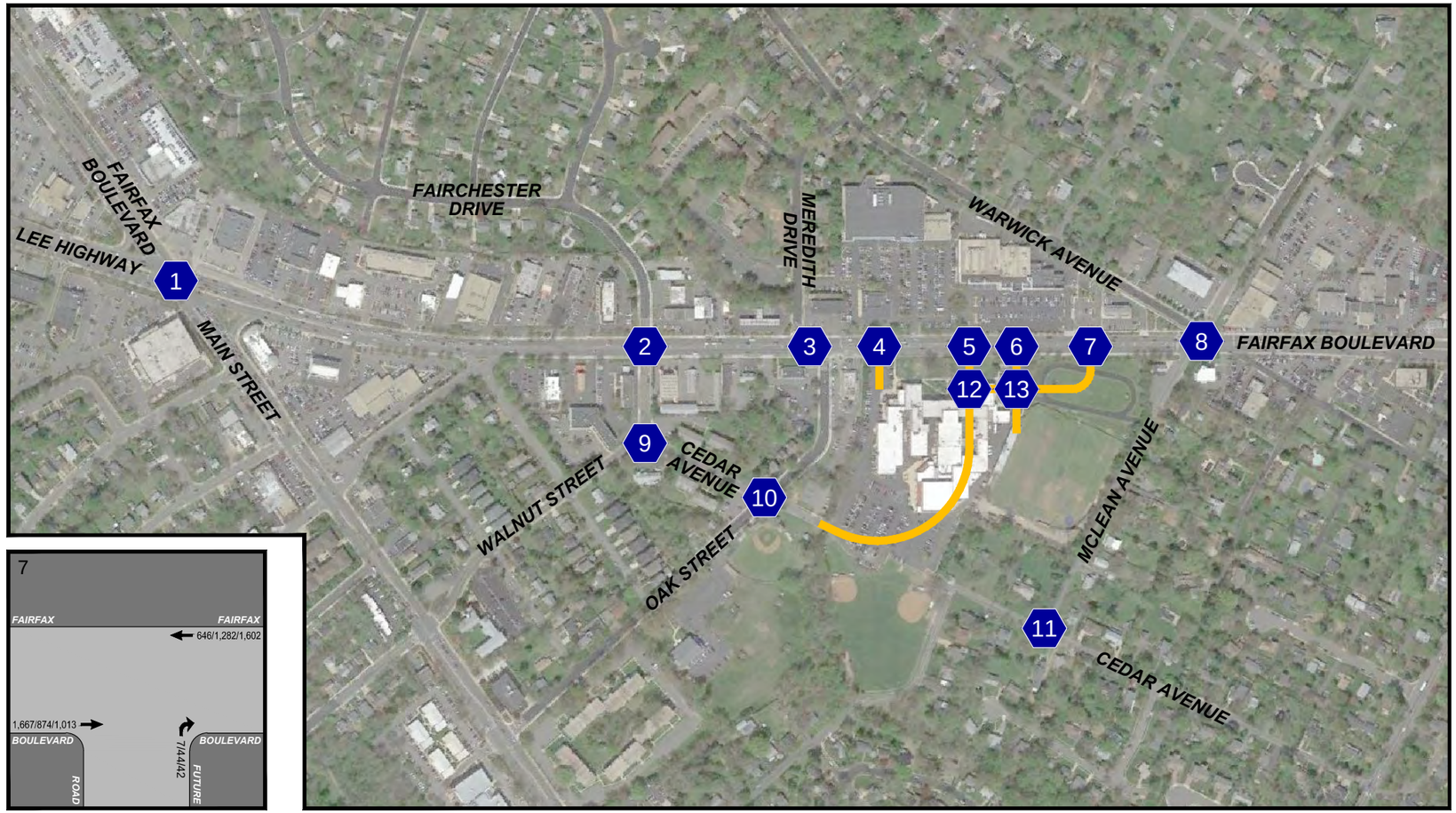
When compared to background future conditions, the Fairfax Boulevard/Fairchester Drive, Walnut Street intersection will experience minor ***reductions*** in overall delay during each of the three peak periods.

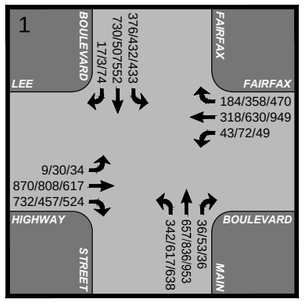
When compared to background future conditions, the Fairfax Boulevard/Meredith Drive/Oak Street will experience a significant ***reduction*** (18.8 seconds) in delay during the AM commuter peak period and minor ***increases*** in delay during the PM school and PM commuter peak periods.

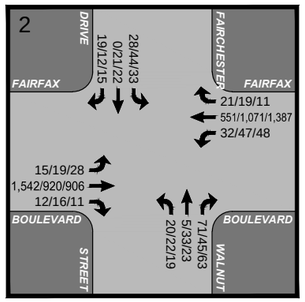
When compared to background future conditions, the Fairfax Boulevard/Shops at Fairfax Driveway/Site Driveway intersection will experience a decline in LOS due to the addition of a fourth (northbound) leg at this intersection. However, this intersection will operate at an acceptable LOS "D" or better during all three (3) peak periods studied.

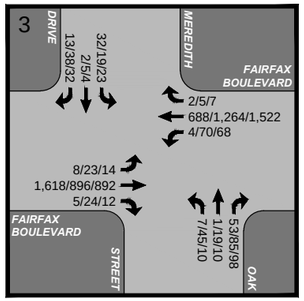
When compared to background future conditions, the Fairfax Boulevard/McLean Avenue/Warwick Road intersection will experience a minor ***reduction*** in delay during the AM commuter peak period and minor ***increases*** in delay during the PM school and PM commuter peak periods.

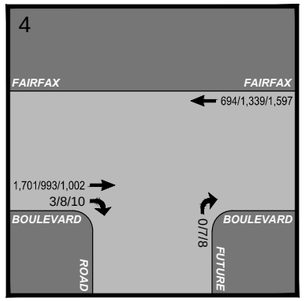
All studied unsignalized intersections will operate at LOS "C" or better during each of the peak periods.

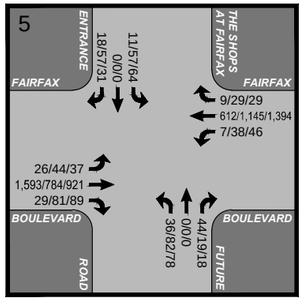


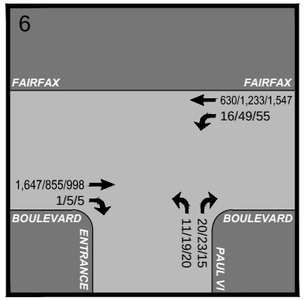


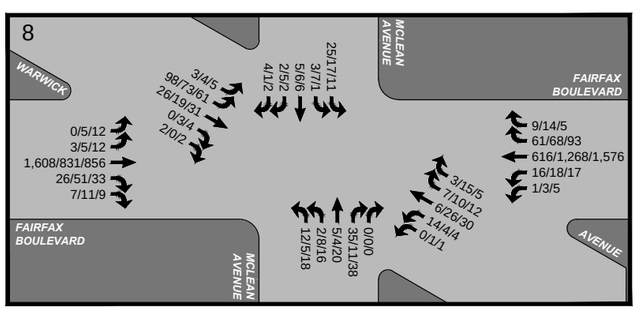


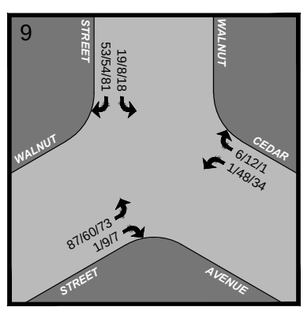


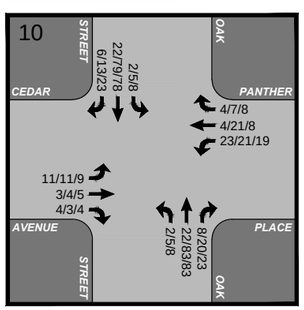


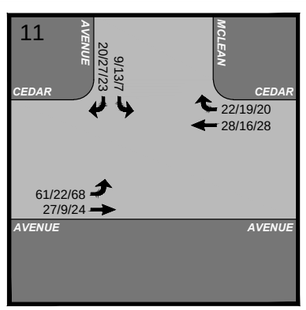


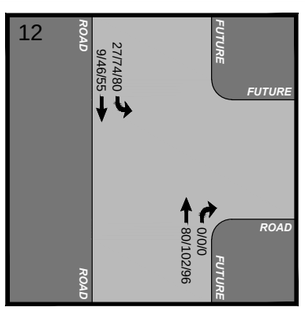












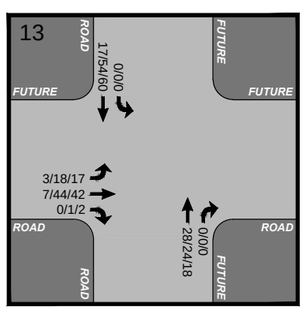


Figure 7-1
2027 Total Future Peak Hour Traffic Forecasts

Paul VI Redevelopment

Fairfax County, Virginia

AM PEAK HOUR
SCHOOL PM PEAK HOUR
PM PEAK HOUR
000 / 000 / 000

NORTH

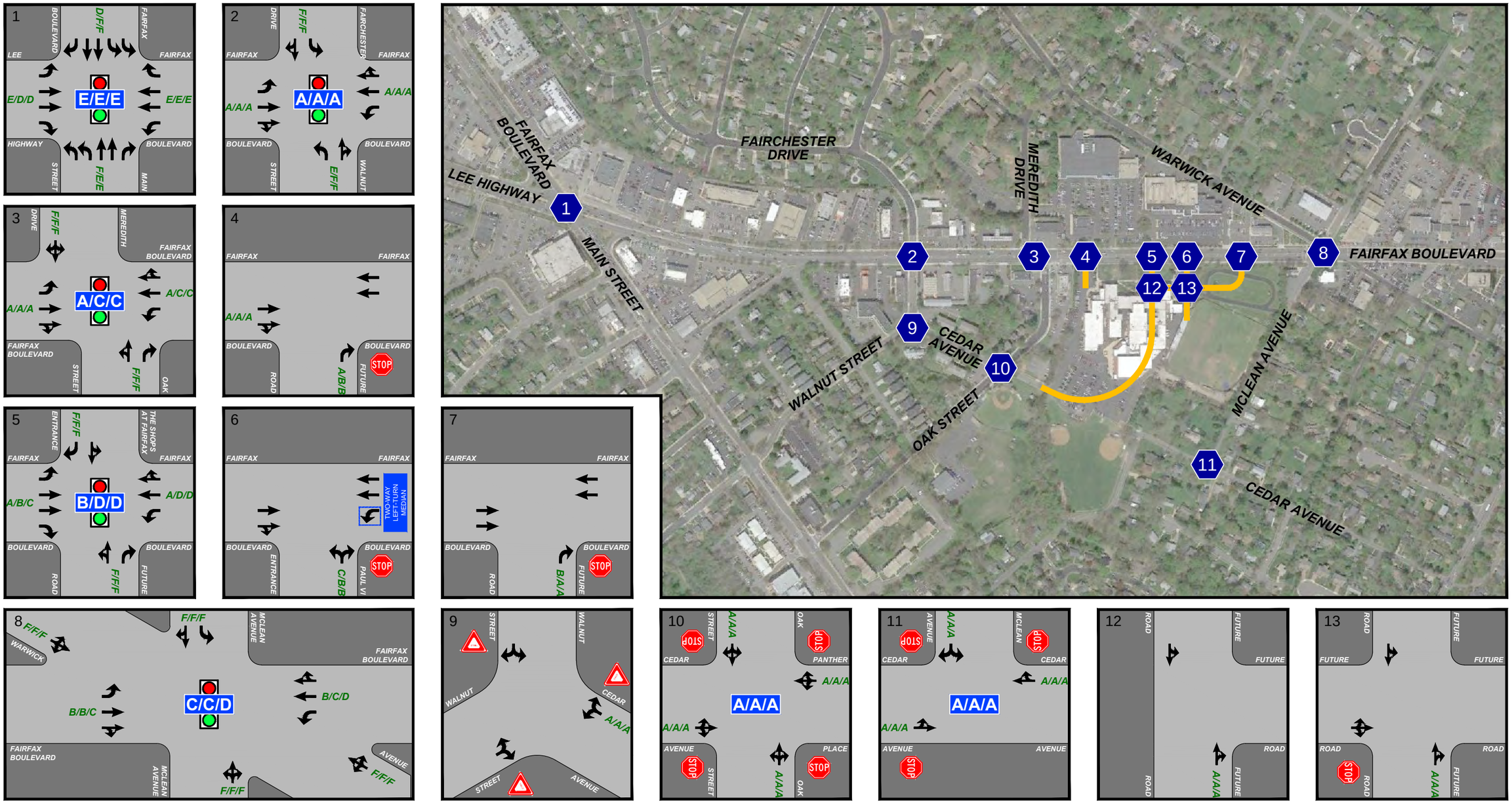


Figure 7-2
Total Future Lane Use, Traffic Controls, and Levels of Service

Paul VI Redevelopment

Fairfax County, Virginia

X/X/X Approach Levels of Service

X/X/X Overall Intersection Levels of Service

Represents One Travel Lane

Signalized Intersection

Stop Sign

Yield Sign

NORTH

Table 7-1

Paul VI Redevelopment

Total Future Intersection Capacity Analysis Summary[1]

	Intersection	Intersection Control	Approach	Existing			Background Future			Total Future		
				AM Peak	PM School Peak	PM Peak	AM Peak	PM School Peak	PM Peak	AM Peak	PM School Peak	PM Peak
1.	Lee Highway & Fairfax Boulevard & Main Street[2]	Signal	EB Appr	D (54.0)	F (87.3)	F (91.3)	D (54.8)	F (89.0)	F (95.6)	D (52.0)	F (87.0)	F (91.8)
			WB Appr	F (96.0)	E (70.1)	E (76.3)	F (106.3)	E (72.0)	F (82.9)	F (88.4)	E (69.9)	E (76.3)
			NB Appr	E (74.9)	D (45.1)	D (39.1)	E (78.4)	D (46.0)	D (40.0)	E (69.6)	D (46.0)	D (40.3)
			SB Appr	E (57.4)	D (49.5)	E (71.5)	E (56.5)	D (51.1)	E (72.4)	E (71.7)	E (55.8)	E (62.5)
			Overall	**E (71.5)**	**E (62.3)**	**E (69.8)**	**E (75.0)**	**E (64.0)**	**E (73.4)**	**E (69.8)**	**E (63.7)**	**E (67.6)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	A (8.2)	A (1.4)	A (1.4)	A (9.0)	A (1.4)	A (1.5)	A (6.7)	A (1.3)	A (1.5)
			WB Appr	A (5.3)	A (2.6)	A (1.7)	A (5.4)	A (2.6)	A (1.8)	A (0.9)	A (1.2)	A (2.8)
			NB Appr	E (76.1)	F (87.5)	F (90.9)	E (76.0)	F (87.6)	F (90.9)	E (75.1)	F (88.8)	F (89.8)
			SB Appr	F (88.8)	F (93.7)	F (118.8)	F (88.7)	F (93.6)	F (118.8)	F (94.5)	F (111.4)	F (114.7)
			Overall	**B (14.1)**	**B (13.0)**	**B (10.1)**	**B (14.4)**	**B (12.6)**	**A (9.6)**	**A (9.8)**	**A (8.8)**	**A (9.0)**
3.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (15.7)	A (4.3)	A (3.3)	B (19.2)	A (4.3)	A (3.4)	A (5.0)	A (3.9)	A (3.1)
			WB Appr	C (23.3)	A (7.4)	A (8.3)	C (23.3)	A (7.5)	A (9.5)	A (4.4)	C (20.3)	C (23.4)
			NB Appr	F (83.8)	F (100.1)	F (100.0)	F (83.7)	F (99.7)	F (99.8)	F (86.3)	F (98.6)	F (100.4)
			SB Appr	F (89.5)	F (102.4)	F (102.5)	F (89.5)	F (102.4)	F (102.5)	F (89.5)	F (102.4)	F (102.5)
			Overall	**C (25.1)**	**B (18.1)**	**B (14.1)**	**C (27.4)**	**B (18.1)**	**B (14.8)**	**A (8.6)**	**C (20.8)**	**C (21.6)**
4.	Fairfax Boulevard & Site Entrance	Stop[3]	EB Appr	Future Intersection			Future Intersection			A (0.0)	A (0.0)	A (0.0)
			NB Appr							A (0.0)	B (10.2)	B (10.5)
5.	Fairfax Boulevard & Shops at Fairfax Entrance/Site Entrance	Signal	EB Appr	A (2.0)	A (1.0)	A (1.4)	A (2.4)	A (1.0)	A (1.4)	A (7.9)	B (17.6)	C (26.5)
			WB Appr	A (0.6)	A (1.2)	A (0.5)	A (0.6)	A (1.3)	A (0.5)	A (5.4)	D (42.5)	D (40.6)
			NB Appr	Future Approach			Future Approach			F (105.2)	F (96.0)	F (95.5)
			SB Appr	F (84.1)	F (104.7)	F (103.9)	F (84.1)	F (104.7)	F (103.9)	F (88.2)	F (93.9)	F (96.2)
			Overall	**A (2.6)**	**A (6.4)**	**A (4.8)**	**A (2.8)**	**A (6.2)**	**A (4.5)**	**B (11.5)**	**D (37.7)**	**D (39.1)**
6.	Fairfax Boulevard & Site Entrance	Stop	NB Appr	C (21.1)	B (13.6)	B (12.6)	C (22.4)	B (14.2)	B (13.1)	C (20.0)	B (12.5)	B (13.3)
7.	Fairfax Boulevard & Site Exit	Stop	NB Appr	Future Intersection			Future Intersection			B (11.4)	A (9.8)	A (9.8)
8.	Fairfax Boulevard & McLean Avenue & Warwick Road[4]	Signal	EB Appr	F (115.4)	F (117.3)	F (128.0)	F (115.4)	F (117.3)	F (128.0)	F (115.4)	F (117.3)	F (128.0)
			WB Appr	F (90.4)	F (103.7)	F (103.2)	F (90.4)	F (103.7)	F (103.2)	F (90.4)	F (103.7)	F (103.2)
			NB Appr	F (88.2)	F (106.5)	F (115.4)	F (88.2)	F (106.5)	F (115.4)	F (88.2)	F (106.5)	F (115.4)
			SB Appr	F (85.3)	F (104.4)	F (93.1)	F (85.3)	F (104.4)	F (93.1)	F (85.3)	F (104.4)	F (93.1)
			NE Appr	C (21.9)	B (12.3)	B (11.5)	C (24.2)	B (13.2)	B (12.6)	B (16.3)	B (15.2)	C (27.7)
			SW Appr	B (19.7)	C (23.3)	D (39.1)	C (20.1)	C (24.3)	D (43.7)	B (18.6)	C (23.8)	D (42.5)
			Overall	**C (28.5)**	**C (26.6)**	**D (37.9)**	**C (29.7)**	**C (27.1)**	**D (40.4)**	**C (25.2)**	**C (28.2)**	**D (44.6)**
9.	Walnut Street & Cedar Avenue[5]	Stop	WB Appr	B (10.1)	A (9.4)	A (9.5)	B (10.1)	A (9.4)	A (9.5)	A (8.9)	A (9.4)	A (9.9)
10.	Oak Street & Cedar Avenue	Stop	EB Appr	B (13.9)	A (8.5)	A (7.8)	B (14.3)	A (8.7)	A (7.9)	A (7.2)	A (7.6)	A (7.6)
			WB Appr	C (15.6)	B (10.9)	A (8.0)	C (16.2)	B (11.2)	A (8.1)	A (7.3)	A (7.8)	A (7.7)
			NB Appr	B (12.6)	A (9.0)	A (8.0)	B (13.6)	A (9.3)	A (8.2)	A (7.1)	A (7.7)	A (7.7)
			SB Appr	B (14.8)	A (9.4)	A (8.1)	C (15.3)	A (9.7)	A (8.4)	A (7.1)	A (7.7)	A (7.7)
			Overall	**B (14.3)**	**B (10.0)**	**A (8.0)**	**B (14.9)**	**B (10.2)**	**A (8.2)**	**A (7.2)**	**A (7.7)**	**A (7.7)**
11.	Cedar Avenue & McLean Avenue	Stop	EB Appr	A (7.7)	A (7.4)	A (7.7)	A (7.7)	A (7.4)	A (7.7)	A (7.7)	A (7.4)	A (7.7)
			WB Appr	A (7.1)	A (6.9)	A (7.1)	A (7.1)	A (6.9)	A (7.1)	A (7.1)	A (6.9)	A (7.1)
			SB Appr	A (7.0)	A (6.9)	A (7.0)	A (7.0)	A (6.9)	A (7.0)	A (7.0)	A (6.9)	A (7.0)
			Overall	**A (7.4)**	**A (7.0)**	**A (7.4)**	**A (7.4)**	**A (7.0)**	**A (7.4)**	**A (7.4)**	**A (7.0)**	**A (7.4)**
12.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection			Future Intersection			A (5.6)	A (4.8)	A (4.7)
13.	Internal Road & Frontage Road	Stop	NB Appr	Future Intersection			Future Intersection			A (9.2)	A (9.7)	A (9.7)

Notes:
1. Capacity analysis based on Highway Capacity Manual methodology, using Synchro 9.1.
2. Fairfax Boulevard/Main Street analyzed as east-west road; Lee Highway/Fairfax Boulevard analyzed as north-south roadway.
3. The eastbound right movement is neither signal nor stop-controlled.
4. Warwick Road analyzed as east-west road; McLean Avenue analyzed as north-south roadway; Fairfax Boulevard analyzed as northeast-southwest roadway.
5. Analyzed with northbound and southbound as free movements along Walnut Street, and westbound movements along Cedar Avenue as stop-controlled.

SECTION 8
TRANSPORTATION DEMAND MANAGEMENT

To take full advantage of the site's proximity to various transit facilities and services, a project sponsored Transportation Demand Management (TDM) program would encourage the use of transit, ridesharing, bicycling, and walking which would serve to decrease reliance on the single occupancy vehicles (SOV).

TDM is a general term for strategies that result in more efficient use of transportation resources. There are many different TDM strategies with a variety of results. They can improve the transportation options available to consumers, provide an incentive to choose more efficient travel patterns, or reduce the need for physical travel through mobility substitutes or more efficient land use. TDM strategies can change travel timing, route, destination, or mode.

The following strategies should be considered:

A. Designate a Transportation Management Coordinator (TMC) to implement the TDM program and advise residents, tenants, and employees of the availability and location of the TDM coordinator and program. It is anticipated that after the for sell units are sold, the Home Owner's Association (HOA) would assume the TMC duties and would provide information regarding the TDM program at least once a year. The TMC functions may include the following:

   1. Assist residents and employees in making effective and efficient commuting choices.

   2. Disseminate Metrorail, Metrobus, ridesharing, and other relevant transit options to new residents and employees.

   3. Solicit support from the Metropolitan Washington Council of Governments Commuter Connections (MWCOGCC) program, the Washington Metropolitan Area Transit Authority, the City of Fairfax, etc.

   4. Provide on-site assistance to residents and employees in forming and maintaining carpools and vanpools.

   5. Disseminate park-and-ride lot information to prospective carpoolers and vanpoolers.

   6. Encourage carpool/vanpool participants, transit users, bicyclists, and walkers to register in MWCOGCC Guaranteed Ride Home (GRH) program.

   7. Encourage residents and employees to ride bikes or walk to work.

   8. Provide on-site facilities for bicycle parking and/or storage, including bike racks for visitors and bike storage lockers for residents.

9. Market and promote the TDM Program among residents and employees through printed materials obtained from the City, MWCOGCC, Metro and/or the projects' web site (if available).

B. Commuter Center.

1. Designate a centralized space on-site as a "Commuter Center".

2. Install display racks that would provide information on local transit options.

3. Promote transit and multi-modal options provided by the City.

C. Incentives to use transit, including:

1. Providing information on Metrorail, CUE Bus, Metrobus, and other public transportation facilities, services, routes, schedules, and fares.

2. Disseminating information to transit users regarding free guaranteed rides home in cases of emergency.

3. Providing safe, convenient, and attractive pedestrian connections on site that connect to off-site facilities.

D. Carpool programs, including:

1. Disseminating information to carpoolers regarding free guaranteed rides home in cases of emergency.

2. Reserve a number of conveniently-located, parking spaces for carpools only for commercial use with registration.

E. Parking management, including:

1. Reserving a number of conveniently-located, parking spaces for carpools, and/or hybrid vehicles.

2. Implementing a parking pass system in order to manage the number of vehicular parking spaces allotted per resident or dwelling unit.

3. Providing an on-street parking space for a car sharing service (i.e., Zip or Flex Car).

SECTION 9
CONCLUSIONS

Based on the results of this traffic impact study, the following may be concluded:

1. The Lee Highway/Fairfax Boulevard/Main Street intersection currently operates at or near capacity at level of service (LOS) "E" during each of the three (3) studied peak periods.

2. All other signalized intersections currently operate at an overall LOS D or better during each of the three (3) studied peak periods based on Highway Capacity Manual calculations, however, substantial queues were observed along Fairfax Boulevard during the peak periods. Specifically, substantial queues along eastbound Fairfax Boulevard were observed during the AM peak period and substantial westbound queues were observed during the PM peak period.

3. Historic VDOT traffic data indicates that average daily traffic counts along Fairfax Boulevard and Main Street have decreased by 0.7% to 1.7% per year between 2008 and 2016.

4. The Novus Fairfax Gateway and Mount Vineyard pipeline developments are anticipated to generate 395 AM commuter peak hour trips, 418 PM school peak hour trips, and 576 PM commuter peak hour trips at full buildout.

5. Under future 2027 traffic conditions, without redevelopment of the Paul VI site, minimal increases in delay at the study intersections are expected due to the trips generated by pipeline development in the vicinity of the site and overall levels of service would remain generally consistent with existing conditions.

6. The existing Paul VI Catholic High School currently generates 1,005 trips during the AM commuter peak hour, 563 trips during the PM school peak hour, and 132 trips during the PM commuter peak hour.

7. The Applicant proposes to redevelop the site with 184 residential condominium units, 137 town homes, 20,000 SF of local serving retail, and 24,000 SF of community center space.

8. The project is estimated to generate 789 ***fewer*** AM peak commuter hour trips, 148 ***fewer*** PM school peak hour trips, and 294 ***more*** PM peak commuter hour trips than are currently generated by the high school.

9. Under future 2027 traffic conditions, with the development of the subject site, intersection levels of service would remain generally consistent with existing and background conditions. The analyses show that the Lee Highway/Fairfax Boulevard/Main Street will continue to operate at LOS E during all three peak periods studied. All other intersections will operate at LOS D or better during each of the studied peak periods.

10. A full turning movement site driveway is proposed along Fairfax Boulevard to align with the existing Shops at Fairfax entrance. The full access signalized intersection would operate at an overall LOS "D" or better during each of the studied peak periods.

11. A full turning movement, side-street stop-controlled entrance is proposed along Fairfax Boulevard between the Shops at Fairfax intersection and McLean Avenue. This unsignalized intersection will operate at LOS "C" or better during each of the studied time periods.

Appendix E

Vehicle Level of Service Definitions

15125 Washington Street
Suite 212
Haymarket, VA 20169
571.248.0992

LEVEL OF SERVICE DEFINITIONS

All capacity analyses are based on the procedures specified by the Transportation Research Board, Special Report 209: *Highway Capacity Manual (HCM)*, 2000. Levels of service (LOS) range from A to F. A brief description of each level of service for signalized and unsignalized intersections is provided below.

Signalized Intersections: Level of service is based upon the traffic volume present in each lane on the roadway, the capacity of each lane at the intersection and the delay associated with each directional movement. The levels of service for signalized intersections are defined below:

- Level of Service A describes operations with very low average delay per vehicle, i.e., less than 10.0 seconds. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop. Short signal cycle lengths may also contribute to low delay.
- Level of Service B describes operations with average delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
- Level of Service C describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level although many still pass through the intersection without stopping. This is generally considered the lower end of the range of the acceptable level of service in rural areas.
- Level of Service D describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and/or high traffic volumes as compared to the roadway capacity. Many vehicles are required to stop and the number of vehicles that do not have to stop declines. Individual signal cycle failures, where all waiting vehicles do not clear the intersection during a single green time, are noticeable. This is generally considered the lower end of the range of the acceptable level of service in urban areas.
- Level of Service E describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. These higher delay values generally indicate poor progression, long cycle lengths, and high traffic volumes. Individual cycle failures are frequent occurrences. LOS E has been set as the limit of acceptable conditions.
- Level of Service F describes operations with average delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation, i.e., when traffic arrives at a flow rate that exceeds the capacity of the intersection. It may also occur at high volumes with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such delays.

Unsignalized Intersections: At an unsignalized intersection, the major street through traffic and right-turns are assumed to operate unimpeded and therefore receive no level of service rating. The level of service for the minor street and the major street left-turn traffic is dependent on the volume and capacity of the available lanes, and, the number and frequency of acceptable gaps in the major street traffic to make a conflicting turn. The level of service

grade is provided for each conflicting movement at an unsignalized intersection and is based on the total average delay experienced by each vehicle. The delay includes the time it takes a vehicle to move from the back of a queue through the intersection.

The unsignalized intersection level of service analysis does not account for variations in driver behavior or the effects of nearby traffic signals. Therefore, the results from this analysis usually indicate worse levels of service than may be experienced in the field. The unsignalized intersection level of service descriptions are provided below:

- Level of Service A. Describes operations where there is very little to no conflicting traffic for a minor side street movement, i.e., an average total delay of less than 10.0 seconds per vehicle.
- Level of Service B. Describes operations with average total delay in the range of 10.1 to 15.0 seconds per vehicle.
- Level of Service C. Describes operations with average total delay in the range of 15.1 to 25.0 second per vehicle.
- Level of Service D. Describes operations with average total delay in the range of 25.1 to 35.0 seconds per vehicle.
- Level of Service E. Describes operations with average total delay in the range of 35.1 to 50.0 seconds per vehicle.
- Level of Service F. Describes operations with average total delay of 50 seconds per vehicle. LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through or enter a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queuing on the minor approaches. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal driver behavior.

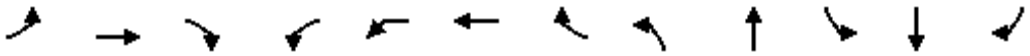
Appendix F

Vehicular Capacity Analysis Worksheets – Existing (2019) Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	54	2051	1	752	251	1	272	14	5
v/c Ratio	0.13	0.62	0.01	0.38	0.25	0.02	0.82	0.03	0.06
Control Delay	7.3	11.3	38.0	42.8	22.0	89.0	115.5	0.2	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	11.5	38.0	42.8	22.0	89.0	115.5	0.2	82.2
Queue Length 50th (ft)	4	164	1	383	114	1	298	0	6
Queue Length 95th (ft)	m28	#1034	m4	582	215	9	m389	m0	22
Internal Link Dist (ft)		810		1204		100		1669	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	454	3320	132	1972	1015	67	379	486	175
Starvation Cap Reductn	0	374	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	0.12	0.70	0.01	0.38	0.25	0.01	0.72	0.03	0.03

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

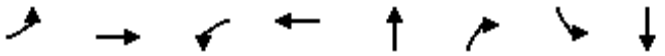


Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	50	1886	1	1	0	692	231	1	0	250	1	12
Future Volume (vph)	50	1886	1	1	0	692	231	1	0	250	1	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1635	
Flt Permitted	0.29	1.00			0.05	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	548	4987			96	3223	1524		1805	1687	1635	
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)	54	2050	1	1	0	752	251	1	0	272	1	13
RTOR Reduction (vph)	0	0	0	0	0	0	96	0	0	0	11	0
Lane Group Flow (vph)	54	2051	0	0	1	752	155	0	1	272	3	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	115.1	108.5			104.3	103.1	103.1		1.3	36.3	36.3	
Effective Green, g (s)	117.1	110.5			106.3	105.1	105.1		2.3	37.3	37.3	
Actuated g/C Ratio	0.62	0.58			0.56	0.55	0.55		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	388	2900			73	1782	843		21	331	320	
v/s Ratio Prot	c0.01	c0.41			0.00	0.23			c0.00	c0.16	0.00	
v/s Ratio Perm	0.08				0.01		0.10					
v/c Ratio	0.14	0.71			0.01	0.42	0.18		0.05	0.82	0.01	
Uniform Delay, d1	16.0	28.3			23.9	24.7	21.1		92.8	73.2	61.5	
Progression Factor	0.44	0.44			1.84	1.80	4.00		1.00	1.32	1.00	
Incremental Delay, d2	0.1	1.2			0.1	0.7	0.5		0.9	16.2	0.0	
Delay (s)	7.2	13.7			44.1	45.3	84.9		93.7	112.8	61.5	
Level of Service	A	B			D	D	F		F	F	E	
Approach Delay (s)		13.5				55.2			93.7		110.3	
Approach LOS		B				E			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

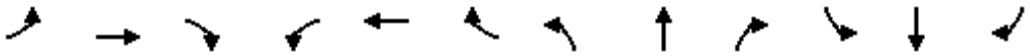
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	3	1833	76	693	74	188	3	2
v/c Ratio	0.00	0.69	0.35	0.26	0.62	0.63	0.05	0.00
Control Delay	1.0	4.7	29.6	3.3	104.3	22.7	77.0	0.0
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.0	4.8	29.6	3.3	104.3	22.8	77.0	0.0
Queue Length 50th (ft)	0	152	32	8	91	19	4	0
Queue Length 95th (ft)	m1	185	114	110	149	104	16	0
Internal Link Dist (ft)		1037		810	420			120
Turn Bay Length (ft)	165		150				120	
Base Capacity (vph)	739	2656	306	2683	290	480	158	514
Starvation Cap Reductn	0	4	0	0	0	0	0	0
Spillback Cap Reductn	0	116	0	0	0	5	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.00	0.72	0.25	0.26	0.26	0.40	0.02	0.00

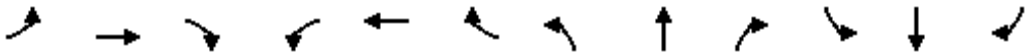
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	1661	26	70	637	1	66	2	173	3	0	2
Future Volume (vph)	3	1661	26	70	637	1	66	2	173	3	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3428		1805	3195			1754	1599	1081	1077	
Flt Permitted	0.39	1.00		0.08	1.00			0.73	1.00	0.65	1.00	
Satd. Flow (perm)	737	3428		158	3195			1345	1599	734	1077	
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)	3	1805	28	76	692	1	72	2	188	3	0	2
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	157	0	2	0
Lane Group Flow (vph)	3	1833	0	76	693	0	0	74	31	3	0	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	147.4	146.2		161.0	153.6			15.9	15.9	15.9	15.9	
Effective Green, g (s)	149.4	147.2		162.0	154.6			16.9	16.9	16.9	16.9	
Actuated g/C Ratio	0.79	0.77		0.85	0.81			0.09	0.09	0.09	0.09	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	591	2655		217	2599			119	142	65	95	
v/s Ratio Prot	0.00	c0.53		c0.02	0.22						0.00	
v/s Ratio Perm	0.00			0.28				c0.06	0.02	0.00		
v/c Ratio	0.01	0.69		0.35	0.27			0.62	0.22	0.05	0.00	
Uniform Delay, d1	4.3	10.4		11.7	4.2			83.5	80.4	79.2	78.9	
Progression Factor	0.30	0.30		9.95	0.84			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.2		0.9	0.2			9.7	0.8	0.3	0.0	
Delay (s)	1.3	4.3		117.0	3.8			93.2	81.2	79.5	78.9	
Level of Service	A	A		F	A			F	F	E	E	
Approach Delay (s)		4.3			14.9			84.6			79.2	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



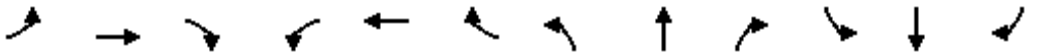
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	269	1405	9	115	531	93	27	662	87	147	584	233
v/c Ratio	0.70	0.73	0.01	1.12	0.30	0.13	0.30	0.91	0.18	0.68	0.70	0.32
Control Delay	121.0	20.3	0.0	184.7	24.4	5.7	94.5	90.6	4.7	128.9	107.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.4
Total Delay	121.0	20.3	0.0	184.7	24.4	5.7	94.5	90.6	4.7	128.9	110.4	6.1
Queue Length 50th (ft)	182	235	0	~166	74	3	33	427	0	99	257	1
Queue Length 95th (ft)	m234	376	m0	#302	302	37	72	#525	30	143	472	74
Internal Link Dist (ft)		772			1037			554			381	
Turn Bay Length (ft)	600		500	200		350	200		225	300		200
Base Capacity (vph)	458	1924	964	103	1755	732	110	748	479	222	837	763
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	153	221
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.73	0.01	1.12	0.30	0.13	0.25	0.89	0.18	0.66	0.85	0.43

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	1363	9	112	515	90	26	642	84	143	566	226
Future Volume (vph)	261	1363	9	112	515	90	26	642	84	143	566	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	269	1405	9	115	531	93	27	662	87	147	584	233
RTOR Reduction (vph)	0	0	4	0	0	29	0	0	63	0	0	136
Lane Group Flow (vph)	269	1405	5	115	531	64	27	662	24	147	584	97
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	19.9	100.5	107.6	11.2	91.5	103.6	7.1	38.9	50.1	12.1	44.8	64.7
Effective Green, g (s)	21.4	102.0	110.6	12.7	93.0	106.6	8.6	40.4	53.1	13.6	46.3	67.7
Actuated g/C Ratio	0.11	0.54	0.58	0.07	0.49	0.56	0.05	0.21	0.28	0.07	0.24	0.36
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	386	1899	908	103	1732	704	80	752	428	216	837	564
v/s Ratio Prot	0.08	c0.40	0.00	c0.07	0.15	0.01	0.02	c0.19	0.00	c0.05	c0.17	0.02
v/s Ratio Perm			0.00			0.04			0.01			0.04
v/c Ratio	0.70	0.74	0.01	1.12	0.31	0.09	0.34	0.88	0.06	0.68	0.70	0.17
Uniform Delay, d1	81.2	33.8	16.6	88.7	29.1	19.3	87.9	72.5	50.1	86.1	65.5	41.9
Progression Factor	1.41	0.56	1.00	0.81	0.82	0.81	1.00	1.00	1.00	1.31	1.55	0.74
Incremental Delay, d2	3.7	1.8	0.0	122.6	0.4	0.1	2.5	11.7	0.1	8.4	2.5	0.1
Delay (s)	118.4	20.6	16.6	194.8	24.4	15.7	90.4	84.1	50.2	121.0	103.8	31.0
Level of Service	F	C	B	F	C	B	F	F	D	F	F	C
Approach Delay (s)		36.2			49.8			80.6			88.8	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1615	1	0	767	4	0	0	6	0	0	2
Future Vol, veh/h	0	1615	1	0	767	4	0	0	6	0	0	2
Conflicting Peds, #/hr	2	0	5	5	0	2	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	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1665	1	0	791	4	0	0	6	0	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	797	0	0	1671	0	0	2067	2468	838	1628	2466	400
Stage 1	-	-	-	-	-	-	1671	1671	-	795	795	-
Stage 2	-	-	-	-	-	-	396	797	-	833	1671	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	821	-	-	380	-	-	31	30	309	68	30	600
Stage 1	-	-	-	-	-	-	100	151	-	347	398	-
Stage 2	-	-	-	-	-	-	601	397	-	329	151	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	820	-	-	378	-	-	31	30	308	67	30	599
Mov Cap-2 Maneuver	-	-	-	-	-	-	31	30	-	67	30	-
Stage 1	-	-	-	-	-	-	100	150	-	346	397	-
Stage 2	-	-	-	-	-	-	599	396	-	322	150	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.9	11
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	308	820	-	-	378	-	-	599
HCM Lane V/C Ratio	0.02	-	-	-	-	-	-	0.003
HCM Control Delay (s)	16.9	0	-	-	0	-	-	11
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	EBT	WBT	NBT	SBL	SBT	NET	SWL	SWT
Lane Group Flow (vph)	158	27	63	36	13	1545	32	763
v/c Ratio	0.88	0.35	0.53	0.48	0.09	0.74	0.22	0.33
Control Delay	124.0	99.2	99.6	104.8	80.6	15.4	22.3	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	124.0	99.2	99.6	104.8	80.6	15.5	22.3	14.6
Queue Length 50th (ft)	197	33	77	44	15	735	10	134
Queue Length 95th (ft)	#334	72	132	87	41	294	35	187
Internal Link Dist (ft)	220	125	220		220	755		447
Turn Bay Length (ft)				175			150	
Base Capacity (vph)	187	147	138	88	163	2098	201	2299
Starvation Cap Reductn	0	0	0	0	0	42	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.18	0.46	0.41	0.08	0.75	0.16	0.33

Intersection Summary

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

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL	WBT	NBL2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Future Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5				6.5			5.0		
Lane Util. Factor			1.00				1.00			1.00		
Frpb, ped/bikes			1.00				1.00			1.00		
Flpb, ped/bikes			1.00				1.00			1.00		
Frt			1.00				1.00			0.92		
Flt Protected			0.96				0.97			0.99		
Satd. Flow (prot)			1741				1812			1697		
Flt Permitted			0.96				0.97			0.90		
Satd. Flow (perm)			1741				1812			1546		
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)	2	122	29	2	3	15	12	9	10	7	36	1
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	158	0	0	0	27	0	0	63	0	0
Confl. Peds. (#/hr)	2			1	1	1		1	1			
Heavy Vehicles (%)	100%	2%	2%	100%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Split	Split	NA			Split	NA	Perm	Perm	NA		
Protected Phases	3	3	3			4	4			7		
Permitted Phases								7	7			
Actuated Green, G (s)			19.7				7.2			13.1		
Effective Green, g (s)			19.7				7.2			14.6		
Actuated g/C Ratio			0.10				0.04			0.08		
Clearance Time (s)			6.5				6.5			6.5		
Vehicle Extension (s)			3.0				3.0			3.0		
Lane Grp Cap (vph)			180				68			118		
v/s Ratio Prot			c0.09				c0.01					
v/s Ratio Perm										c0.04		
v/c Ratio			0.88				0.40			0.53		
Uniform Delay, d1			84.0				89.3			84.4		
Progression Factor			1.00				1.00			1.00		
Incremental Delay, d2			34.8				3.8			4.6		
Delay (s)			118.8				93.1			89.0		
Level of Service			F				F			F		
Approach Delay (s)			118.8				93.1			89.0		
Approach LOS			F				F			F		

Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	32.2
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	7	10	3	0	1441	43	15	10	21	694	41
Future Volume (vph)	28	7	10	3	0	1441	43	15	10	21	694	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	5.0			7.1				7.1	7.1	
Lane Util. Factor		1.00	1.00			0.95				1.00	0.95	
Frpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Frt		1.00	0.97			0.99				1.00	0.99	
Flt Protected		0.95	1.00			1.00				0.95	1.00	
Satd. Flow (prot)		1770	1834			3519				1770	3501	
Flt Permitted		0.58	1.00			1.00				0.07	1.00	
Satd. Flow (perm)		1088	1834			3519				137	3501	
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)	29	7	10	3	0	1486	44	15	10	22	715	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	36	13	0	0	1545	0	0	0	32	763	0
Confl. Peds. (#/hr)					1							1
Heavy Vehicles (%)	2%	2%	0%	0%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA			pm+pt	pm+pt	NA	
Protected Phases			7		1	6			5	5	2	
Permitted Phases	7	7			6				2	2		
Actuated Green, G (s)		13.1	13.1			110.6				123.4	123.4	
Effective Green, g (s)		13.1	14.6			110.6				123.4	123.4	
Actuated g/C Ratio		0.07	0.08			0.58				0.65	0.65	
Clearance Time (s)		6.5	6.5			7.1				7.1	7.1	
Vehicle Extension (s)		3.0	3.0			4.0				3.0	4.0	
Lane Grp Cap (vph)		75	140			2048				137	2273	
v/s Ratio Prot			0.01			c0.44				0.01	c0.22	
v/s Ratio Perm		0.03								0.14		
v/c Ratio		0.48	0.09			0.75				0.23	0.34	
Uniform Delay, d1		85.2	81.5			29.6				24.5	14.9	
Progression Factor		1.00	1.00			0.43				1.35	0.91	
Incremental Delay, d2		4.8	0.3			2.3				0.9	0.4	
Delay (s)		89.9	81.8			15.1				33.8	14.0	
Level of Service		F	F			B				C	B	
Approach Delay (s)			87.8			15.1					14.8	
Approach LOS			F			B					B	

Intersection Summary

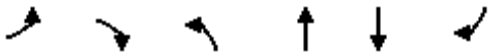
Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	6
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	5	1115	1025
v/c Ratio	0.02	0.22	0.21
Control Delay	0.2	0.1	0.3
Queue Delay	0.0	0.0	0.0
Total Delay	0.2	0.1	0.3
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	m39
Internal Link Dist (ft)	220	381	521
Turn Bay Length (ft)			
Base Capacity (vph)	334	5085	4989
Starvation Cap Reductn	0	0	756
Spillback Cap Reductn	0	53	678
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.22	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	1015	932	1
Future Volume (vph)	0	5	0	1015	932	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			5.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	5	0	1115	1024	1
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1115	1025	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4			6	2	
Permitted Phases				4		
Actuated Green, G (s)	1.4			179.0	177.6	
Effective Green, g (s)	1.4			179.0	177.6	
Actuated g/C Ratio	0.01			0.94	0.93	
Clearance Time (s)	6.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	11			4924	4752	
v/s Ratio Prot	0.00			c0.21	0.20	
v/s Ratio Perm				0.01		
v/c Ratio	0.00			0.23	0.22	
Uniform Delay, d1	93.6			0.4	0.5	
Progression Factor	1.00			1.00	0.90	
Incremental Delay, d2	0.1			0.0	0.1	
Delay (s)	93.7			0.4	0.5	
Level of Service	F			A	A	
Approach Delay (s)	93.7			0.4	0.5	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	229	262	286	13	1082	306	1000
v/c Ratio	1.01	0.47	0.41	0.19	0.88	0.92	0.48
Control Delay	139.8	4.3	1.8	137.0	30.3	89.8	42.2
Queue Delay	0.0	3.5	5.1	0.0	0.7	0.0	0.0
Total Delay	139.8	7.8	6.8	137.0	31.0	89.8	42.2
Queue Length 50th (ft)	~291	0	12	17	389	327	313
Queue Length 95th (ft)	#488	m14	m0	45	468	#502	413
Internal Link Dist (ft)	420	47			521		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	548	692	161	1236	349	2062
Starvation Cap Reductn	0	198	334	0	30	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	1.01	0.75	0.80	0.08	0.90	0.88	0.48

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	61	43	395	7	5	951	34	4	275
Future Volume (vph)	85	99	25	61	43	395	7	5	951	34	4	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.92	0.85		1.00	0.99			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1530	1475		1602	4942			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1530	1475		1602	4942			138
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	93	109	27	67	47	434	8	5	1045	37	4	302
RTOR Reduction (vph)	0	3	0	0	25	188	0	0	0	0	0	0
Lane Group Flow (vph)	0	226	0	0	237	98	0	13	1082	0	0	306
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		3.5	46.0			84.2
Effective Green, g (s)		24.1			65.0	65.0		4.5	47.5			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.02	0.25			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			523	504		37	1235			334
v/s Ratio Prot		c0.13			c0.15	0.07		0.01	0.22			c0.16
v/s Ratio Perm												c0.25
v/c Ratio		1.01			0.45	0.19		0.35	0.88			0.92
Uniform Delay, d1		83.0			48.7	44.0		91.3	68.4			61.5
Progression Factor		1.00			0.06	0.18		1.50	0.31			1.00
Incremental Delay, d2		62.9			0.9	0.3		5.6	8.8			28.7
Delay (s)		145.8			4.0	8.3		142.9	29.7			90.1
Level of Service		F			A	A		F	C			F
Approach Delay (s)		145.8			6.2				31.1			
Approach LOS		F			A				C			

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	893	17
Future Volume (vph)	893	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4930	
Flt Permitted	1.00	
Satd. Flow (perm)	4930	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	981	19
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1000	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	73.9	
Effective Green, g (s)	75.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1956	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	43.4	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	44.3	
Level of Service	D	
Approach Delay (s)	55.1	
Approach LOS	E	

Intersection Summary

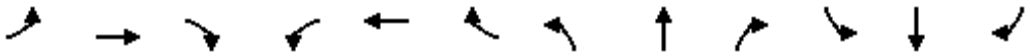
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	483	432	34	218
v/c Ratio	0.23	0.72	0.14	1.14
Control Delay	1.8	87.0	1.3	152.3
Queue Delay	9.6	0.1	0.0	0.0
Total Delay	11.4	87.1	1.3	152.3
Queue Length 50th (ft)	10	221	0	~241
Queue Length 95th (ft)	m13	323	0	#392
Internal Link Dist (ft)	47	1669	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2038	628	272	192
Starvation Cap Reductn	1515	0	0	0
Spillback Cap Reductn	0	10	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.92	0.70	0.13	1.14

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	361	6	0	344	23	8	0	21	39	1	145
Future Volume (vph)	43	361	6	0	344	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3390			3351			1446			1346	
Flt Permitted		0.99			1.00			0.99			0.99	
Satd. Flow (perm)		3390			3351			1446			1346	
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)	51	425	7	0	405	27	9	0	25	46	1	171
RTOR Reduction (vph)	0	0	0	0	2	0	0	33	0	0	66	0
Lane Group Flow (vph)	0	483	0	0	430	0	0	1	0	0	152	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			33.0			5.2			16.8	
Effective Green, g (s)		109.3			34.0			6.2			17.8	
Actuated g/C Ratio		0.58			0.18			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1950			599			47			126	
v/s Ratio Prot		c0.14			c0.13			c0.00			c0.11	
v/s Ratio Perm												
v/c Ratio		0.25			0.72			0.02			1.21	
Uniform Delay, d1		20.0			73.5			89.0			86.1	
Progression Factor		0.09			1.09			1.00			1.00	
Incremental Delay, d2		0.0			5.4			0.1			145.5	
Delay (s)		1.9			85.9			89.0			231.6	
Level of Service		A			F			F			F	
Approach Delay (s)		1.9			85.9			89.0			231.6	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	78.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	25	1246	4	1732	538	7	340	126	16
v/c Ratio	0.19	0.34	0.01	0.72	0.47	0.12	1.50	0.38	0.18
Control Delay	15.7	12.2	9.8	15.8	6.0	106.8	307.2	30.2	101.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	12.2	9.8	15.8	6.0	106.8	307.2	30.2	101.3
Queue Length 50th (ft)	8	150	1	352	152	10	~695	41	23
Queue Length 95th (ft)	m24	380	m2	383	92	33	m#928	m111	53
Internal Link Dist (ft)		810		1202		100		1641	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	139	3671	353	2412	1153	63	226	328	189
Starvation Cap Reductn	0	0	0	2	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	0.18	0.34	0.01	0.72	0.47	0.11	1.50	0.38	0.08

Intersection Summary

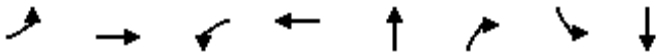
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	23	1144	3	4	0	1593	495	3	0	4	313	8
Future Volume (vph)	23	1144	3	4	0	1593	495	3	0	4	313	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1635
Flt Permitted	0.06	1.00			0.19	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	113	5084			359	3539	1583		1717		1736	1635
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)	25	1243	3	4	0	1732	538	3	0	4	340	9
RTOR Reduction (vph)	0	0	0	0	0	0	84	0	0	0	0	110
Lane Group Flow (vph)	25	1246	0	0	4	1732	454	0	7	0	340	16
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	148.9	143.6			140.7	139.5	139.5		3.0		27.7	27.7
Effective Green, g (s)	150.9	145.6			142.7	141.5	141.5		4.0		28.7	28.7
Actuated g/C Ratio	0.69	0.66			0.65	0.64	0.64		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	123	3364			247	2276	1018		31		226	213
v/s Ratio Prot	c0.01	c0.25			0.00	c0.49			c0.00		c0.20	0.01
v/s Ratio Perm	0.13				0.01		0.29					
v/c Ratio	0.20	0.37			0.02	0.76	0.45		0.23		1.50	0.08
Uniform Delay, d1	26.6	16.7			14.1	27.4	19.6		106.5		95.7	84.0
Progression Factor	1.05	0.86			0.71	0.54	0.45		1.00		1.07	2.82
Incremental Delay, d2	0.8	0.3			0.0	2.2	1.2		3.7		248.5	0.3
Delay (s)	28.8	14.7			10.1	16.9	10.1		110.2		351.2	237.1
Level of Service	C	B			B	B	B		F		F	F
Approach Delay (s)		15.0				15.3			110.2			320.3
Approach LOS		B				B			F			F

Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	108	10	2	3
Future Volume (vph)	108	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

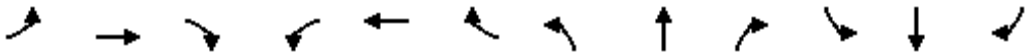
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	33	1129	183	1572	137	178	10	20
v/c Ratio	0.14	0.42	0.45	0.56	0.93	0.53	0.13	0.10
Control Delay	3.3	5.1	3.8	1.5	150.2	16.0	93.1	51.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	3.3	5.1	3.8	1.6	150.2	16.0	93.1	51.7
Queue Length 50th (ft)	2	201	2	13	201	0	13	12
Queue Length 95th (ft)	5	218	14	7	#357	87	38	46
Internal Link Dist (ft)		1037		810	420			120
Turn Bay Length (ft)	165		150				120	
Base Capacity (vph)	262	2699	535	2813	150	335	78	200
Starvation Cap Reductn	0	0	0	407	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.42	0.34	0.65	0.91	0.53	0.13	0.10

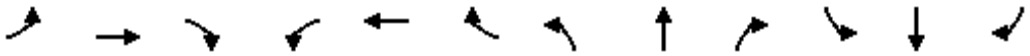
Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	958	81	168	1440	6	120	6	164	9	8	10
Future Volume (vph)	30	958	81	168	1440	6	120	6	164	9	8	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3503		1805	3537			1814	1615	1805	1743	
Flt Permitted	0.13	1.00		0.22	1.00			0.72	1.00	0.38	1.00	
Satd. Flow (perm)	227	3503		413	3537			1373	1615	721	1743	
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)	33	1041	88	183	1565	7	130	7	178	10	9	11
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	159	0	10	0
Lane Group Flow (vph)	33	1127	0	183	1572	0	0	137	19	10	10	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	173.7	168.5		182.3	172.8			22.7	22.7	22.7	22.7	
Effective Green, g (s)	175.7	169.5		184.3	173.8			23.7	23.7	23.7	23.7	
Actuated g/C Ratio	0.80	0.77		0.84	0.79			0.11	0.11	0.11	0.11	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	220	2698		412	2794			147	173	77	187	
v/s Ratio Prot	0.00	0.32		c0.02	c0.44						0.01	
v/s Ratio Perm	0.12			0.35				c0.10	0.01	0.01		
v/c Ratio	0.15	0.42		0.44	0.56			0.93	0.11	0.13	0.05	
Uniform Delay, d1	6.8	8.5		5.3	8.7			97.4	88.6	88.8	88.1	
Progression Factor	0.66	0.53		0.42	0.10			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.5		0.5	0.6			53.9	0.3	0.8	0.1	
Delay (s)	4.8	5.0		2.8	1.5			151.3	88.9	89.6	88.2	
Level of Service	A	A		A	A			F	F	F	F	
Approach Delay (s)		5.0			1.6			116.0			88.7	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

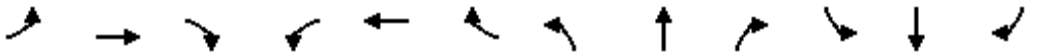


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	219	769	27	89	1305	138	97	553	67	174	568	334
v/c Ratio	0.75	0.40	0.03	0.54	0.66	0.14	0.81	0.87	0.13	0.62	0.79	0.67
Control Delay	154.7	16.3	0.0	87.0	20.1	3.7	142.1	102.0	0.5	150.8	87.9	28.3
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	4.5	1.0
Total Delay	154.7	16.3	0.0	87.0	20.3	3.7	142.1	102.0	0.5	150.8	92.4	29.3
Queue Length 50th (ft)	172	147	0	131	642	35	142	414	0	135	268	80
Queue Length 95th (ft)	223	165	m0	m198	496	m16	#258	488	0	182	326	106
Internal Link Dist (ft)		774			1037			554			381	
Turn Bay Length (ft)	600		500	200		350	200		225	300		200
Base Capacity (vph)	300	1933	1021	166	1981	996	122	684	510	340	815	502
Starvation Cap Reductn	0	0	0	0	136	0	0	0	0	0	176	45
Spillback Cap Reductn	0	0	0	0	16	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.40	0.03	0.54	0.71	0.14	0.80	0.81	0.13	0.51	0.89	0.73

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	738	26	85	1253	132	93	531	64	167	545	321
Future Volume (vph)	210	738	26	85	1253	132	93	531	64	167	545	321
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	219	769	27	89	1305	138	97	553	67	174	568	334
RTOR Reduction (vph)	0	0	10	0	0	21	0	0	49	0	0	61
Lane Group Flow (vph)	219	769	17	89	1305	117	97	553	18	174	568	273
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.1	118.7	131.8	19.2	120.5	137.1	13.1	38.2	57.4	16.6	42.6	59.7
Effective Green, g (s)	18.6	120.2	134.8	20.7	122.0	140.1	14.6	39.7	60.4	18.1	44.1	62.7
Actuated g/C Ratio	0.08	0.55	0.61	0.09	0.55	0.64	0.07	0.18	0.27	0.08	0.20	0.29
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	293	1933	989	166	1981	961	119	638	431	279	716	451
v/s Ratio Prot	c0.06	0.22	0.00	0.05	c0.37	0.01	c0.05	c0.16	0.00	0.05	c0.16	0.05
v/s Ratio Perm			0.01			0.07			0.01			0.12
v/c Ratio	0.75	0.40	0.02	0.54	0.66	0.12	0.82	0.87	0.04	0.62	0.79	0.61
Uniform Delay, d1	98.4	28.9	16.7	95.1	34.4	15.7	101.4	87.6	58.6	97.7	83.6	68.0
Progression Factor	1.43	0.53	1.00	0.81	0.52	0.40	1.00	1.00	1.00	1.45	0.95	0.45
Incremental Delay, d2	9.1	0.6	0.0	2.7	1.4	0.0	33.2	11.9	0.0	4.2	6.0	2.3
Delay (s)	149.5	15.9	16.7	79.3	19.5	6.3	134.6	99.5	58.6	145.6	85.5	33.2
Level of Service	F	B	B	E	B	A	F	F	E	F	F	C
Approach Delay (s)		44.7			21.8			100.4			79.0	
Approach LOS		D			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	54.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	931	1	0	1695	2	0	0	8	0	0	10
Future Vol, veh/h	0	931	1	0	1695	2	0	0	8	0	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	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	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1001	1	0	1823	2	0	0	9	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1829	0	0	1002	0	0	1914	2831	501	2329	2830	917
Stage 1	-	-	-	-	-	-	1002	1002	-	1828	1828	-
Stage 2	-	-	-	-	-	-	912	1829	-	501	1002	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	330	-	-	687	-	-	41	17	515	20	17	274
Stage 1	-	-	-	-	-	-	260	318	-	79	126	-
Stage 2	-	-	-	-	-	-	295	126	-	521	318	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	329	-	-	687	-	-	39	17	515	20	17	273
Mov Cap-2 Maneuver	-	-	-	-	-	-	39	17	-	20	17	-
Stage 1	-	-	-	-	-	-	260	318	-	79	126	-
Stage 2	-	-	-	-	-	-	283	126	-	512	318	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.1	18.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	515	329	-	-	687	-	-	273
HCM Lane V/C Ratio	0.017	-	-	-	-	-	-	0.039
HCM Control Delay (s)	12.1	0	-	-	0	-	-	18.7
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	132	45	98	19	10	6	940	49	1741
v/c Ratio	0.74	0.44	0.71	0.18	0.06	0.05	0.45	0.21	0.77
Control Delay	120.2	112.9	122.2	95.7	91.0	6.3	9.0	14.8	20.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	120.2	112.9	122.2	95.7	91.0	6.3	9.1	14.8	20.5
Queue Length 50th (ft)	189	65	139	26	13	1	251	17	396
Queue Length 95th (ft)	274	116	#243	60	38	m3	131	m37	690
Internal Link Dist (ft)	220	220	220		220		755		445
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	204	165	138	103	161	144	2101	236	2248
Starvation Cap Reductn	0	0	0	0	0	0	402	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	0.65	0.27	0.71	0.18	0.06	0.04	0.55	0.21	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

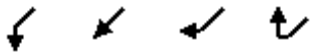
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Future Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0					5.0	
Lane Util. Factor		1.00				1.00					1.00	
Frpb, ped/bikes		1.00				0.99					1.00	
Flpb, ped/bikes		1.00				1.00					0.99	
Frt		0.99				0.98					0.96	
Flt Protected		0.97				0.98					0.97	
Satd. Flow (prot)		1798				1811					1709	
Flt Permitted		0.97				0.98					0.83	
Satd. Flow (perm)		1798				1811					1449	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	46	4	2	20	19	2	4	25	28	14	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	0	45	0	0	0	0	98	0
Confl. Peds. (#/hr)			4	2	2		4		2	2		
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%
Turn Type	Split	NA			Split	NA			Perm	Perm	NA	
Protected Phases	3	3			4	4					7	
Permitted Phases									7	7		
Actuated Green, G (s)		20.3				9.6					19.5	
Effective Green, g (s)		21.8				11.1					21.0	
Actuated g/C Ratio		0.10				0.05					0.10	
Clearance Time (s)		6.5				6.5					6.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		178				91					138	
v/s Ratio Prot		c0.07				c0.02						
v/s Ratio Perm											c0.07	
v/c Ratio		0.74				0.49					0.71	
Uniform Delay, d1		96.4				101.7					96.5	
Progression Factor		1.00				1.00					1.00	
Incremental Delay, d2		15.3				4.2					15.8	
Delay (s)		111.6				105.9					112.3	
Level of Service		F				F					F	
Approach Delay (s)		111.6				105.9					112.3	
Approach LOS		F				F					F	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2	SWL2
Lane Configurations												
Traffic Volume (vph)	4	15	3	4	2	4	6	0	809	73	10	22
Future Volume (vph)	4	15	3	4	2	4	6	0	809	73	10	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0	5.0				5.6	5.1			
Lane Util. Factor			1.00	1.00				1.00	0.95			
Frpb, ped/bikes			1.00	0.98				1.00	1.00			
Flpb, ped/bikes			1.00	1.00				1.00	1.00			
Frt			1.00	0.91				1.00	0.99			
Flt Protected			0.95	1.00				0.95	1.00			
Satd. Flow (prot)			1691	1687				1805	3488			
Flt Permitted			0.61	1.00				0.06	1.00			
Satd. Flow (perm)			1079	1687				112	3488			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	16	3	4	2	4	6	0	852	77	11	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	19	10	0	0	0	6	940	0	0	0
Confl. Peds. (#/hr)					2	2	2				4	
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%	0%	0%	2%	0%	0%	100%
Turn Type		Perm	Perm	NA			custom	pm+pt	NA			pm+pt
Protected Phases				7				1	6			5
Permitted Phases		7	7				1	6				2
Actuated Green, G (s)			19.5	19.5				130.5	129.2			
Effective Green, g (s)			21.0	21.0				133.5	131.2			
Actuated g/C Ratio			0.10	0.10				0.61	0.60			
Clearance Time (s)			6.5	6.5				7.1	7.1			
Vehicle Extension (s)			3.0	3.0				3.0	4.0			
Lane Grp Cap (vph)			102	161				89	2080			
v/s Ratio Prot				0.01				0.00	0.27			
v/s Ratio Perm			0.02					0.04				
v/c Ratio			0.19	0.06				0.07	0.45			
Uniform Delay, d1			91.6	90.5				29.8	24.5			
Progression Factor			1.00	1.00				0.36	0.33			
Incremental Delay, d2			0.9	0.2				0.3	0.7			
Delay (s)			92.5	90.7				11.0	8.7			
Level of Service			F	F				B	A			
Approach Delay (s)				91.9					8.7			
Approach LOS				F					A			

Intersection Summary

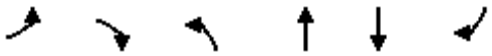


Movement	SWL	SWT	SWR	SWR2
Lane Configurations				
Traffic Volume (vph)	25	1519	128	7
Future Volume (vph)	25	1519	128	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1228	3420		
Flt Permitted	0.23	1.00		
Satd. Flow (perm)	295	3420		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1599	135	7
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	49	1741	0	0
Confl. Peds. (#/hr)	4		2	
Heavy Vehicles (%)	0%	4%	4%	25%
Turn Type	pm+pt	NA		
Protected Phases	5	2		
Permitted Phases	2			
Actuated Green, G (s)	143.3	135.6		
Effective Green, g (s)	145.5	137.6		
Actuated g/C Ratio	0.66	0.63		
Clearance Time (s)	7.1	7.1		
Vehicle Extension (s)	3.0	4.0		
Lane Grp Cap (vph)	234	2139		
v/s Ratio Prot	c0.01	c0.51		
v/s Ratio Perm	0.13			
v/c Ratio	0.21	0.81		
Uniform Delay, d1	16.2	31.4		
Progression Factor	0.87	0.62		
Incremental Delay, d2	0.3	2.8		
Delay (s)	14.5	22.3		
Level of Service	B	C		
Approach Delay (s)		22.1		
Approach LOS		C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	16	907	1062
v/c Ratio	0.06	0.18	0.22
Control Delay	0.4	0.1	0.6
Queue Delay	0.0	0.0	0.1
Total Delay	0.4	0.1	0.7
Queue Length 50th (ft)	0	0	32
Queue Length 95th (ft)	0	0	35
Internal Link Dist (ft)	220	381	521
Turn Bay Length (ft)			
Base Capacity (vph)	344	5085	4849
Starvation Cap Reductn	0	0	2167
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.05	0.18	0.40

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	0	880	1028	2
Future Volume (vph)	0	16	0	880	1028	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	16	0	907	1060	2
RTOR Reduction (vph)	16	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	907	1062	0
Confl. Peds. (#/hr)	1		3			3
Turn Type	Prot			NA	NA	
Protected Phases	4			6	2	
Permitted Phases				4		
Actuated Green, G (s)	4.2			210.0	205.8	
Effective Green, g (s)	4.2			210.0	205.8	
Actuated g/C Ratio	0.02			0.95	0.94	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	30			5085	4755	
v/s Ratio Prot	0.00			c0.17	c0.21	
v/s Ratio Perm				0.01		
v/c Ratio	0.01			0.18	0.22	
Uniform Delay, d1	105.9			0.3	0.6	
Progression Factor	1.00			1.00	0.89	
Incremental Delay, d2	0.1			0.0	0.1	
Delay (s)	106.0			0.3	0.6	
Level of Service	F			A	A	
Approach Delay (s)	106.0			0.3	0.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	428	353	31	924	348	1023
v/c Ratio	0.74	0.74	0.48	0.37	0.51	0.94	0.44
Control Delay	126.1	9.1	1.7	148.2	14.0	68.9	41.7
Queue Delay	0.0	25.7	9.1	0.0	0.7	0.0	0.0
Total Delay	126.1	34.8	10.8	148.2	14.7	68.9	41.7
Queue Length 50th (ft)	132	49	0	47	82	306	380
Queue Length 95th (ft)	#244	m68	m0	92	92	#523	435
Internal Link Dist (ft)	420	47			521		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	127	581	739	198	1813	370	2325
Starvation Cap Reductn	0	160	345	0	505	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	0.74	1.02	0.90	0.16	0.71	0.94	0.44

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	87	98	564	12	17	822	65	2	332
Future Volume (vph)	27	45	18	87	98	564	12	17	822	65	2	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.92	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1629	1534		1805	4966			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.18
Satd. Flow (perm)		1810			1629	1534		1805	4966			344
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.92	0.96
Adj. Flow (vph)	28	47	19	91	102	588	13	18	856	68	2	346
RTOR Reduction (vph)	0	4	0	0	21	213	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	407	140	0	31	924	0	0	348
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		14.1			73.5	73.5		8.1	78.8			113.7
Effective Green, g (s)		15.1			74.5	74.5		9.1	80.3			114.7
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		124			551	519		74	1812			370
v/s Ratio Prot		c0.05			c0.25	0.09		0.02	0.19			c0.12
v/s Ratio Perm												c0.37
v/c Ratio		0.73			0.74	0.27		0.42	0.51			0.94
Uniform Delay, d1		100.4			64.2	53.0		102.9	54.5			38.4
Progression Factor		1.00			0.10	0.13		1.35	0.24			1.00
Incremental Delay, d2		19.7			2.6	0.3		3.8	1.0			31.8
Delay (s)		120.1			8.8	7.4		142.6	13.9			70.2
Level of Service		F			A	A		F	B			E
Approach Delay (s)		120.1			8.1				18.1			
Approach LOS		F			A				B			

Intersection Summary			
HCM 2000 Control Delay	31.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

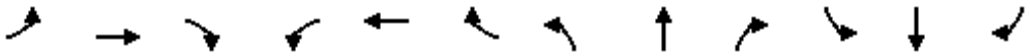
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	906	76
Future Volume (vph)	906	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5034	
Flt Permitted	1.00	
Satd. Flow (perm)	5034	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	944	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1023	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	98.8	
Effective Green, g (s)	100.3	
Actuated g/C Ratio	0.46	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2295	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.45	
Uniform Delay, d1	40.9	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	41.5	
Level of Service	D	
Approach Delay (s)	48.8	
Approach LOS	D	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	471	709	20	158
v/c Ratio	0.22	0.95	0.30	0.87
Control Delay	1.5	92.7	85.8	82.4
Queue Delay	3.0	11.5	0.0	0.4
Total Delay	4.5	104.2	85.8	82.7
Queue Length 50th (ft)	6	513	19	101
Queue Length 95th (ft)	m9	#658	55	#246
Internal Link Dist (ft)	47	1641	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2109	749	80	190
Starvation Cap Reductn	1505	0	0	0
Spillback Cap Reductn	0	46	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	1.01	0.25	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	290	11	0	616	51	9	3	7	22	3	124
Future Volume (vph)	141	290	11	0	616	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.98			1.00			0.98			0.99	
Satd. Flow (prot)		3448			3531			1697			1642	
Flt Permitted		0.98			1.00			0.98			0.99	
Satd. Flow (perm)		3448			3531			1697			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	309	12	0	655	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	3	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	470	0	0	706	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.7			45.5			6.8			12.2	
Effective Green, g (s)		129.8			46.5			7.8			13.2	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2034			746			60			98	
v/s Ratio Prot		c0.14			c0.20			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.23			0.95			0.22			0.76	
Uniform Delay, d1		21.4			85.5			103.1			101.8	
Progression Factor		0.07			0.85			1.00			1.00	
Incremental Delay, d2		0.0			20.7			0.7			25.3	
Delay (s)		1.6			93.2			103.8			127.1	
Level of Service		A			F			F			F	
Approach Delay (s)		1.6			93.2			103.8			127.1	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	65.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	29	1418	8	1317	627	6	218	66	14
v/c Ratio	0.14	0.43	0.04	0.61	0.56	0.07	0.80	0.16	0.12
Control Delay	16.8	16.3	7.9	20.4	11.4	69.3	103.1	7.5	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.8	16.3	7.9	20.4	11.4	69.3	103.1	7.5	63.7
Queue Length 50th (ft)	12	222	1	641	375	6	225	6	13
Queue Length 95th (ft)	m22	311	m3	#863	627	22	#331	30	34
Internal Link Dist (ft)		810		1202		100		1657	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	218	3281	222	2167	1117	94	282	419	264
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	0.13	0.43	0.04	0.61	0.56	0.06	0.77	0.16	0.05

Intersection Summary

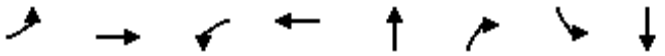
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	27	1301	4	6	1	1212	577	4	0	2	201	2
Future Volume (vph)	27	1301	4	6	1	1212	577	4	0	2	201	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.85
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5034			1621	3539	1583		1756		1787	1624
Flt Permitted	0.11	1.00			0.14	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	203	5034			231	3539	1583		1756		1787	1624
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)	29	1414	4	7	1	1317	627	4	0	2	218	2
RTOR Reduction (vph)	0	0	0	0	0	0	177	0	0	0	0	56
Lane Group Flow (vph)	29	1418	0	0	8	1317	450	0	6	0	218	10
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	85.1	81.1			79.9	78.5	78.5		1.5		21.8	21.8
Effective Green, g (s)	87.1	83.1			81.9	80.5	80.5		2.5		22.8	22.8
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	171	2788			148	1899	849		29		271	246
v/s Ratio Prot	c0.01	c0.28			0.00	c0.37			c0.00		c0.12	0.01
v/s Ratio Perm	0.09				0.03		0.28					
v/c Ratio	0.17	0.51			0.05	0.69	0.53		0.21		0.80	0.04
Uniform Delay, d1	19.2	20.8			16.7	25.6	22.5		72.8		61.4	54.3
Progression Factor	1.11	0.94			0.48	0.83	1.03		1.00		1.34	1.00
Incremental Delay, d2	0.4	0.6			0.1	1.9	2.1		3.5		17.6	0.1
Delay (s)	21.7	20.2			8.2	23.1	25.3		76.3		99.7	54.4
Level of Service	C	C			A	C	C		E		F	D
Approach Delay (s)		20.2				23.7			76.3			89.2
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	59	3	1	9
Future Volume (vph)	59	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

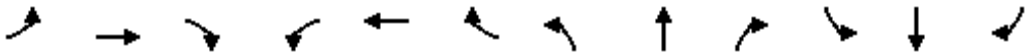
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	62	1280	154	1126	74	108	24	38
v/c Ratio	0.15	0.51	0.41	0.42	0.53	0.43	0.19	0.21
Control Delay	3.4	7.0	16.6	0.6	76.8	15.1	62.9	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	7.0	16.6	0.6	76.8	15.1	62.9	33.9
Queue Length 50th (ft)	10	127	27	4	70	0	22	15
Queue Length 95th (ft)	m18	158	109	3	119	57	50	50
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	165		150				120	
Base Capacity (vph)	637	2510	559	2674	415	537	377	510
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.51	0.28	0.42	0.18	0.20	0.06	0.07

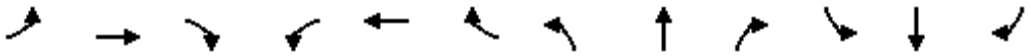
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	1111	66	142	1026	10	54	14	99	22	15	20
Future Volume (vph)	57	1111	66	142	1026	10	54	14	99	22	15	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3509		1805	3535			1827	1568	1719	1685	
Flt Permitted	0.23	1.00		0.17	1.00			0.74	1.00	0.71	1.00	
Satd. Flow (perm)	443	3509		318	3535			1413	1568	1283	1685	
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)	62	1208	72	154	1115	11	59	15	108	24	16	22
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	97	0	20	0
Lane Group Flow (vph)	62	1279	0	154	1126	0	0	74	11	24	18	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	111.9	106.2		121.9	111.2			13.8	13.8	13.8	13.8	
Effective Green, g (s)	113.9	107.2		123.9	112.2			14.8	14.8	14.8	14.8	
Actuated g/C Ratio	0.76	0.71		0.83	0.75			0.10	0.10	0.10	0.10	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	397	2507		378	2644			139	154	126	166	
v/s Ratio Prot	0.01	c0.36		c0.03	0.32						0.01	
v/s Ratio Perm	0.11			0.30				c0.05	0.01	0.02		
v/c Ratio	0.16	0.51		0.41	0.43			0.53	0.07	0.19	0.11	
Uniform Delay, d1	4.8	9.6		5.9	7.0			64.3	61.3	62.1	61.6	
Progression Factor	0.79	0.58		4.76	0.03			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.7		0.6	0.4			3.9	0.2	0.7	0.3	
Delay (s)	3.9	6.3		28.8	0.6			68.2	61.5	62.8	61.9	
Level of Service	A	A		C	A			E	E	E	E	
Approach Delay (s)		6.1			4.0			64.2			62.3	
Approach LOS		A			A			E			E	

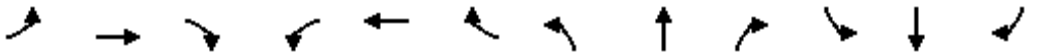
Intersection Summary			
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	256	917	24	90	873	79	81	570	98	167	622	373
v/c Ratio	0.64	0.56	0.03	0.55	0.57	0.09	0.53	0.77	0.18	0.52	0.79	0.62
Control Delay	91.6	29.9	0.5	66.0	24.3	1.5	78.0	63.2	2.1	99.0	61.5	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
Total Delay	91.6	29.9	0.5	66.0	24.3	1.5	78.0	63.2	2.1	99.0	61.9	17.4
Queue Length 50th (ft)	136	170	0	80	85	1	77	278	0	88	159	74
Queue Length 95th (ft)	186	370	m1	132	314	5	135	334	15	129	314	358
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	200		350	200		225	300		200
Base Capacity (vph)	431	1639	890	164	1544	874	177	855	530	411	948	611
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	71	9
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.56	0.03	0.55	0.57	0.09	0.46	0.67	0.18	0.41	0.71	0.62

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	246	880	23	86	838	76	78	547	94	160	597	358
Future Volume (vph)	246	880	23	86	838	76	78	547	94	160	597	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1569
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1569
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	256	917	24	90	873	79	81	570	98	167	622	373
RTOR Reduction (vph)	0	0	11	0	0	37	0	0	69	0	0	82
Lane Group Flow (vph)	256	917	13	90	873	42	81	570	29	167	622	291
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	15.9	67.9	79.3	12.2	63.9	76.6	11.4	29.9	42.1	12.7	32.1	48.0
Effective Green, g (s)	17.4	69.4	82.3	13.7	65.4	79.6	12.9	31.4	45.1	14.2	33.6	51.0
Actuated g/C Ratio	0.12	0.46	0.55	0.09	0.44	0.53	0.09	0.21	0.30	0.09	0.22	0.34
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	398	1637	842	164	1543	815	153	740	456	324	792	533
v/s Ratio Prot	0.07	c0.26	0.00	0.05	c0.25	0.00	0.05	0.16	0.01	c0.05	c0.18	0.06
v/s Ratio Perm			0.01			0.02			0.01			0.12
v/c Ratio	0.64	0.56	0.02	0.55	0.57	0.05	0.53	0.77	0.06	0.52	0.79	0.55
Uniform Delay, d1	63.3	29.2	15.4	65.2	31.7	17.0	65.6	55.9	37.4	64.6	54.8	40.1
Progression Factor	1.35	0.94	1.00	0.82	0.68	0.38	1.00	1.00	1.00	1.45	0.99	0.54
Incremental Delay, d2	3.0	1.2	0.0	3.5	1.4	0.0	3.3	5.0	0.1	1.4	5.1	1.1
Delay (s)	88.2	28.7	15.4	57.2	23.1	6.5	68.9	60.9	37.5	95.3	59.3	22.6
Level of Service	F	C	B	E	C	A	E	E	D	F	E	C
Approach Delay (s)		41.1			24.8			58.7			52.7	
Approach LOS		D			C			E			D	

Intersection Summary			
HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1139	3	0	1289	7	0	0	11	0	0	12
Future Vol, veh/h	0	1139	3	0	1289	7	0	0	11	0	0	12
Conflicting Peds, #/hr	5	0	3	3	0	5	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	-	-	-	80	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1174	3	0	1329	7	0	0	11	0	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1341	0	0	1180	0	0	1844	2520	592	1925	2518	673
Stage 1	-	-	-	-	-	-	1179	1179	-	1338	1338	-
Stage 2	-	-	-	-	-	-	665	1341	-	587	1180	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
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	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	510	-	-	588	-	-	46	28	449	40	28	398
Stage 1	-	-	-	-	-	-	202	262	-	161	220	-
Stage 2	-	-	-	-	-	-	416	219	-	463	262	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	508	-	-	587	-	-	44	28	448	39	28	396
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	28	-	39	28	-
Stage 1	-	-	-	-	-	-	202	261	-	160	219	-
Stage 2	-	-	-	-	-	-	403	218	-	451	261	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13.2	14.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	448	508	-	-	587	-	-	396
HCM Lane V/C Ratio	0.025	-	-	-	-	-	-	0.031
HCM Control Delay (s)	13.2	0	-	-	0	-	-	14.4
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	86	39	46	11	7	8	1184	43	1315
v/c Ratio	0.51	0.32	0.41	0.10	0.06	0.03	0.58	0.16	0.58
Control Delay	74.8	72.6	75.8	64.5	63.0	18.2	25.9	17.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	72.6	75.8	64.5	63.0	18.2	25.9	17.0	18.5
Queue Length 50th (ft)	82	37	44	10	6	0	413	16	285
Queue Length 95th (ft)	138	76	86	31	23	m8	358	m35	465
Internal Link Dist (ft)	220	220	220		220		755		420
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	219	180	166	161	177	317	2039	326	2259
Starvation Cap Reductn	0	0	0	0	0	0	66	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	0.39	0.22	0.28	0.07	0.04	0.03	0.60	0.13	0.58

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL2	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Future Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0				5.0					5.0
Lane Util. Factor			1.00				1.00					1.00
Frpb, ped/bikes			1.00				1.00					0.98
Flpb, ped/bikes			1.00				1.00					0.97
Frt			1.00				0.99					0.94
Flt Protected			0.96				0.97					0.98
Satd. Flow (prot)			1825				1801					1658
Flt Permitted			0.96				0.97					0.86
Satd. Flow (perm)			1825				1801					1451
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	62	20	2	3	25	7	1	3	15	5	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	0	39	0	0	0	0	46
Confl. Peds. (#/hr)				7	4			3		7	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Split	NA		Perm	Split	NA			Perm	Perm	NA
Protected Phases		3	3			4	4					7
Permitted Phases	3				4					7	7	
Actuated Green, G (s)			12.4				7.6					8.9
Effective Green, g (s)			13.9				9.1					10.4
Actuated g/C Ratio			0.09				0.06					0.07
Clearance Time (s)			6.5				6.5					6.5
Vehicle Extension (s)			3.0				3.0					3.0
Lane Grp Cap (vph)			169				109					100
v/s Ratio Prot			c0.05				c0.02					
v/s Ratio Perm												c0.03
v/c Ratio			0.51				0.36					0.46
Uniform Delay, d1			64.8				67.6					67.1
Progression Factor			1.00				1.00					1.00
Incremental Delay, d2			2.4				2.0					3.3
Delay (s)			67.2				69.7					70.4
Level of Service			E				E					E
Approach Delay (s)			67.2				69.7					70.4
Approach LOS			E				E					E

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2
Lane Configurations												
Traffic Volume (vph)	20	1	8	3	1	4	2	2	6	1044	77	15
Future Volume (vph)	20	1	8	3	1	4	2	2	6	1044	77	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0				5.6	5.1		
Lane Util. Factor				1.00	1.00				1.00	0.95		
Frpb, ped/bikes				1.00	0.92				1.00	1.00		
Flpb, ped/bikes				0.99	1.00				1.00	1.00		
Frt				1.00	0.87				1.00	0.99		
Flt Protected				0.95	1.00				0.95	1.00		
Satd. Flow (prot)				1784	1527				1805	3495		
Flt Permitted				0.76	1.00				0.14	1.00		
Satd. Flow (perm)				1420	1527				259	3495		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	1	8	3	1	4	2	2	6	1088	80	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	7	0	0	0	8	1184	0	0
Confl. Peds. (#/hr)		2		2		7	3	3	3		2	4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Turn Type			Perm	Perm	NA			custom	pm+pt	NA		
Protected Phases					7				1	6		
Permitted Phases			7	7				1	6			
Actuated Green, G (s)				8.9	8.9				82.7	81.4		
Effective Green, g (s)				10.4	10.4				85.7	83.4		
Actuated g/C Ratio				0.07	0.07				0.57	0.56		
Clearance Time (s)				6.5	6.5				7.1	7.1		
Vehicle Extension (s)				3.0	3.0				3.0	4.0		
Lane Grp Cap (vph)				98	105				176	1943		
v/s Ratio Prot					0.00				0.00	0.34		
v/s Ratio Perm				0.01					0.03			
v/c Ratio				0.11	0.07				0.05	0.61		
Uniform Delay, d1				65.5	65.3				16.7	22.4		
Progression Factor				1.00	1.00				1.29	1.01		
Incremental Delay, d2				0.5	0.3				0.1	1.3		
Delay (s)				66.0	65.5				21.6	24.0		
Level of Service				E	E				C	C		
Approach Delay (s)					65.8					24.0		
Approach LOS					E					C		

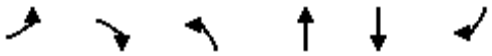
Intersection Summary

Movement	SWL2	SWL	SWT	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	27	14	1206	52	5
Future Volume (vph)	27	14	1206	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.1		
Lane Util. Factor		1.00	0.95		
Frpb, ped/bikes		1.00	1.00		
Flpb, ped/bikes		1.00	1.00		
Frt		1.00	0.99		
Flt Protected		0.95	1.00		
Satd. Flow (prot)		1805	3515		
Flt Permitted		0.14	1.00		
Satd. Flow (perm)		273	3515		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	15	1256	54	5
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	43	1315	0	0
Confl. Peds. (#/hr)	2	4			3
Heavy Vehicles (%)	0%	0%	2%	0%	0%
Turn Type	pm+pt	pm+pt	NA		
Protected Phases	5	5	2		
Permitted Phases	2	2			
Actuated Green, G (s)		92.1	86.1		
Effective Green, g (s)		95.1	88.1		
Actuated g/C Ratio		0.63	0.59		
Clearance Time (s)		7.1	7.1		
Vehicle Extension (s)		3.0	4.0		
Lane Grp Cap (vph)		249	2064		
v/s Ratio Prot		c0.01	c0.37		
v/s Ratio Perm		0.10			
v/c Ratio		0.17	0.64		
Uniform Delay, d1		14.8	20.4		
Progression Factor		1.21	0.90		
Incremental Delay, d2		0.3	1.3		
Delay (s)		18.2	19.6		
Level of Service		B	B		
Approach Delay (s)			19.6		
Approach LOS			B		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	8	942	1180
v/c Ratio	0.04	0.19	0.24
Control Delay	0.2	0.1	0.2
Queue Delay	0.0	0.0	0.0
Total Delay	0.2	0.1	0.2
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	12
Internal Link Dist (ft)	220	381	521
Turn Bay Length (ft)			
Base Capacity (vph)	350	5085	4965
Starvation Cap Reductn	0	0	535
Spillback Cap Reductn	0	0	28
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.19	0.27

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	895	1116	5
Future Volume (vph)	0	8	0	895	1116	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5082	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5082	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	8	0	942	1175	5
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	942	1180	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4			6	2	
Permitted Phases				4		
Actuated Green, G (s)	1.4			140.0	138.6	
Effective Green, g (s)	1.4			140.0	138.6	
Actuated g/C Ratio	0.01			0.93	0.92	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	15			5085	4695	
v/s Ratio Prot	0.00			c0.17	c0.23	
v/s Ratio Perm				0.01		
v/c Ratio	0.00			0.19	0.25	
Uniform Delay, d1	73.6			0.4	0.6	
Progression Factor	1.00			1.00	0.30	
Incremental Delay, d2	0.1			0.0	0.1	
Delay (s)	73.7			0.4	0.3	
Level of Service	E			A	A	
Approach Delay (s)	73.7			0.4	0.3	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	35.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	169	232	26	878	269	1112
v/c Ratio	0.37	0.33	0.37	0.25	0.65	0.64	0.51
Control Delay	62.4	4.5	2.8	87.3	41.4	35.0	34.7
Queue Delay	0.0	1.1	1.1	0.0	0.0	0.0	0.0
Total Delay	62.4	5.6	3.9	87.3	41.4	35.0	34.7
Queue Length 50th (ft)	53	9	22	26	134	152	300
Queue Length 95th (ft)	100	20	51	61	210	#398	422
Internal Link Dist (ft)	420	47			521		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	187	554	667	165	1345	423	2199
Starvation Cap Reductn	0	212	247	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	0.34	0.49	0.55	0.16	0.65	0.64	0.51

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	58	39	292	12	13	808	44	5	256
Future Volume (vph)	25	23	14	58	39	292	12	13	808	44	5	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.94	0.85		1.00	0.99			1.00
Flt Protected		0.98			0.98	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1562	1504		1752	5049			1787
Flt Permitted		0.98			0.98	1.00		0.95	1.00			0.14
Satd. Flow (perm)		1807			1562	1504		1752	5049			269
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.92	0.97	0.97	0.97	0.92	0.97
Adj. Flow (vph)	26	24	14	60	40	301	13	13	833	45	5	264
RTOR Reduction (vph)	0	6	0	0	20	160	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	149	72	0	26	878	0	0	269
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		Prot	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases												6
Actuated Green, G (s)		12.8			45.5	45.5		5.4	38.4			73.0
Effective Green, g (s)		13.8			46.5	46.5		6.4	39.9			74.0
Actuated g/C Ratio		0.09			0.31	0.31		0.04	0.27			0.49
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		166			484	466		74	1343			424
v/s Ratio Prot		c0.03			c0.10	0.05		0.01	0.17			c0.12
v/s Ratio Perm												c0.19
v/c Ratio		0.35			0.31	0.15		0.35	0.65			0.63
Uniform Delay, d1		63.9			39.5	37.5		69.8	48.9			26.4
Progression Factor		1.00			0.09	0.33		1.22	0.79			1.00
Incremental Delay, d2		1.5			0.8	0.4		2.8	2.5			3.1
Delay (s)		65.4			4.5	12.6		87.9	41.3			29.5
Level of Service		E			A	B		F	D			C
Approach Delay (s)		65.4			9.2				42.6			
Approach LOS		E			A				D			

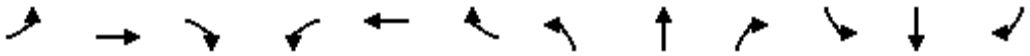
Intersection Summary			
HCM 2000 Control Delay	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1047	32
Future Volume (vph)	1047	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5066	
Flt Permitted	1.00	
Satd. Flow (perm)	5066	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1079	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1112	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	60.8	
Effective Green, g (s)	62.3	
Actuated g/C Ratio	0.42	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2104	
v/s Ratio Prot	0.22	
v/s Ratio Perm		
v/c Ratio	0.53	
Uniform Delay, d1	32.8	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	33.8	
Level of Service	C	
Approach Delay (s)	33.0	
Approach LOS	C	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	357	336	14	119
v/c Ratio	0.16	0.54	0.17	0.47
Control Delay	2.1	69.6	59.0	6.3
Queue Delay	1.8	0.1	0.0	0.0
Total Delay	3.8	69.7	59.0	6.3
Queue Length 50th (ft)	8	158	10	0
Queue Length 95th (ft)	13	220	35	0
Internal Link Dist (ft)	47	1657	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2151	825	137	299
Starvation Cap Reductn	1603	0	0	0
Spillback Cap Reductn	0	40	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.43	0.10	0.40

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	231	7	0	287	22	8	1	4	20	0	89
Future Volume (vph)	90	231	7	0	287	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3524			3475			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3524			3475			1738			1649	
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)	98	251	8	0	312	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	4	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	356	0	0	332	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		92.7			25.7			5.8			5.0	
Effective Green, g (s)		87.8			26.7			6.8			6.0	
Actuated g/C Ratio		0.59			0.18			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2062			618			78			65	
v/s Ratio Prot		c0.10			c0.10			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.17			0.54			0.13			0.07	
Uniform Delay, d1		14.3			56.0			68.8			69.3	
Progression Factor		0.16			1.23			1.00			1.00	
Incremental Delay, d2		0.0			1.6			0.3			0.2	
Delay (s)		2.3			70.3			69.0			69.5	
Level of Service		A			E			E			E	
Approach Delay (s)		2.3			70.3			69.0			69.5	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	40.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	134	322	329	225	20	417	433	80	21	433	51	37
Average Queue (ft)	15	121	125	112	1	196	208	7	1	261	11	4
95th Queue (ft)	64	264	266	225	13	372	392	41	11	390	38	21
Link Distance (ft)		764	764			1199	1199	1199	114	1675	1675	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		7	2	1		23						
Queuing Penalty (veh)		4	10	9		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	18	248	246	146	150	138	164	218	38	39
Average Queue (ft)	1	81	89	62	31	30	71	104	3	3
95th Queue (ft)	10	201	216	132	138	133	137	181	19	20
Link Distance (ft)		978	978		764	764	447	447		149
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	165			150					120	
Storage Blk Time (%)		2		1	1					
Queuing Penalty (veh)		0		4	1					

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	210	228	391	394	26	224	586	552	182	225	490	498
Average Queue (ft)	118	137	229	245	2	179	281	237	35	40	307	307
95th Queue (ft)	188	206	352	366	14	278	709	654	166	157	459	467
Link Distance (ft)			732	732			978	978			514	514
Upstream Blk Time (%)							1	1			0	0
Queuing Penalty (veh)							4	4			0	0
Storage Bay Dist (ft)	600	600			500	200			350	200		
Storage Blk Time (%)						40	3	4	0	0	34	25
Queuing Penalty (veh)						102	4	4	0	0	9	21

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	2	175	181	347	356	225
Average Queue (ft)	92	0	80	81	246	255	115
95th Queue (ft)	270	2	150	147	352	373	285
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)					6	10	
Queuing Penalty (veh)					19	30	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					39	0
Queuing Penalty (veh)	0					88	1

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	WB	NB	SB
Directions Served	TR	TR	LTR	LTR
Maximum Queue (ft)	4	7	17	24
Average Queue (ft)	0	0	2	2
95th Queue (ft)	4	2	12	14
Link Distance (ft)	391	732	254	91
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	SW	SW	SW
Directions Served	<LTR>	LTR	<LTR>	<L	TR	T	TR>	<L	T	TR>
Maximum Queue (ft)	233	81	141	113	36	379	385	120	273	309
Average Queue (ft)	173	26	48	35	5	164	168	26	120	141
95th Queue (ft)	250	64	109	94	22	306	315	78	238	265
Link Distance (ft)	188	107	225		231	713	713		391	391
Upstream Blk Time (%)	29	0							0	0
Queuing Penalty (veh)	0	0							0	0
Storage Bay Dist (ft)				175				150		
Storage Blk Time (%)				0		22		0	7	
Queuing Penalty (veh)				0		0		1	2	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	T	T	T	TR
Maximum Queue (ft)	31	67	64	85	54	147	170
Average Queue (ft)	5	6	6	7	3	15	21
95th Queue (ft)	24	42	44	50	27	85	101
Link Distance (ft)	242	340	340	340	526	526	526
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	453	56	67	112	331	382	380	421	406	399	361
Average Queue (ft)	336	24	42	17	154	182	190	239	199	234	219
95th Queue (ft)	529	55	67	65	305	348	343	391	347	359	330
Link Distance (ft)	434	38	38		526	526	526		958	958	958
Upstream Blk Time (%)	26	12	48								
Queuing Penalty (veh)	0	30	120								
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)				0	11			0	0		
Queuing Penalty (veh)				0	1			1	0		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	53	49	348	343	97	319
Average Queue (ft)	25	9	200	193	28	280
95th Queue (ft)	46	34	318	308	71	349
Link Distance (ft)	38	38	1675	1675	158	259
Upstream Blk Time (%)	4	2				84
Queuing Penalty (veh)	9	3				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 482

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	110	232	208	182	46	869	956	376	52	1291	906	60
Average Queue (ft)	16	100	91	77	3	443	462	23	10	996	392	11
95th Queue (ft)	58	210	191	166	24	905	930	185	35	1393	934	38
Link Distance (ft)		765	765			1192	1192	1192	111	1634	1634	213
Upstream Blk Time (%)						0	0			0		
Queuing Penalty (veh)						1	1			0		
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		6	0	0		25						
Queuing Penalty (veh)		1	1	0		1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	77	142	155	157	170	126	285	127	45	72
Average Queue (ft)	21	39	38	66	20	18	152	58	10	22
95th Queue (ft)	58	106	104	133	92	70	256	101	35	59
Link Distance (ft)		978	978		765	765	447	447		149
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	165			150					120	
Storage Blk Time (%)		0		1	0					
Queuing Penalty (veh)		0		11	0					

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	184	198	230	234	33	224	572	604	375	225	469	465
Average Queue (ft)	87	108	106	114	4	90	279	306	97	151	276	265
95th Queue (ft)	160	175	202	203	21	205	539	571	340	266	434	428
Link Distance (ft)			740	740			978	978			513	513
Upstream Blk Time (%)											0	0
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	200			350	200		
Storage Blk Time (%)						0	15	9	0	7	25	18
Queuing Penalty (veh)						0	13	11	0	18	24	12

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	6	174	189	333	354	225
Average Queue (ft)	57	0	88	99	197	223	142
95th Queue (ft)	223	8	155	166	325	370	275
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)					3	7	
Queuing Penalty (veh)					12	25	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					23	8
Queuing Penalty (veh)	0					73	22

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	LTR	LTR
Maximum Queue (ft)	266	286	26	43
Average Queue (ft)	57	70	6	11
95th Queue (ft)	191	214	24	35
Link Distance (ft)	740	740	126	77
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)	7			
Queuing Penalty (veh)	0			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	LTR>	LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	208	127	214	66	37	37	207	211	164	392	402
Average Queue (ft)	143	43	99	16	5	4	74	77	35	288	306
95th Queue (ft)	228	97	193	51	23	17	166	168	116	473	479
Link Distance (ft)	189	146	225		232		713	713		354	354
Upstream Blk Time (%)	12	0	1							13	16
Queuing Penalty (veh)	0	0	0							110	136
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							6		1	27	
Queuing Penalty (veh)							0		4	13	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	T	T	T	TR
Maximum Queue (ft)	43	97	112	103	77	194	252
Average Queue (ft)	13	7	8	10	5	17	31
95th Queue (ft)	39	44	51	56	35	90	140
Link Distance (ft)	242	340	340	340	526	526	526
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	254	56	57	91	133	146	166	480	693	648	578
Average Queue (ft)	113	23	40	30	51	73	95	347	300	315	305
95th Queue (ft)	224	54	63	74	118	134	155	545	704	630	491
Link Distance (ft)	434	38	38		526	526	526		958	958	958
Upstream Blk Time (%)	0	13	47						0	0	
Queuing Penalty (veh)	0	48	175						0	0	
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)				0	0			13	0		
Queuing Penalty (veh)				1	0			40	0		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	63	47	1101	1104	76	289
Average Queue (ft)	25	12	746	744	23	235
95th Queue (ft)	52	38	1188	1200	59	338
Link Distance (ft)	38	38	1634	1634	158	259
Upstream Blk Time (%)	5	3				61
Queuing Penalty (veh)	11	6				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 769

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	124	304	294	216	61	467	486	162	44	328	126	49
Average Queue (ft)	15	150	139	118	5	161	174	26	8	195	47	10
95th Queue (ft)	62	252	239	198	32	387	398	100	30	294	98	33
Link Distance (ft)		764	764			1190	1190	1190	109	1661	1661	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		11	2	1		17						
Queuing Penalty (veh)		3	7	3		1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	87	168	175	163	193	134	139	105	72	99		
Average Queue (ft)	31	58	71	76	16	13	60	46	22	35		
95th Queue (ft)	68	133	150	150	93	67	117	84	60	81		
Link Distance (ft)		981	981		764	764	447	447		205		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	165			150					120			
Storage Blk Time (%)		0		2	0				0	0		
Queuing Penalty (veh)		0		12	0				0	0		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	169	181	342	353	55	224	407	422	210	214	324	331
Average Queue (ft)	93	111	195	203	9	76	201	210	28	69	187	178
95th Queue (ft)	156	166	304	310	36	193	361	367	147	163	278	273
Link Distance (ft)			769	769			981	981			515	515
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	600	600			500	200			350	200		
Storage Blk Time (%)						0	9	2	0	0	7	3
Queuing Penalty (veh)						1	8	1	0	0	6	3

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	218	129	145	346	352	225
Average Queue (ft)	29	55	65	159	170	104
95th Queue (ft)	134	110	122	314	336	252
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				2	3	
Queuing Penalty (veh)				6	11	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				12	3
Queuing Penalty (veh)	0				44	9

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	LTR	LTR
Maximum Queue (ft)	38	55	25	39
Average Queue (ft)	2	4	6	11
95th Queue (ft)	18	27	21	36
Link Distance (ft)	769	769	135	122
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	<LTR>	<LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	158	93	92	37	27	72	286	277	163	359	367
Average Queue (ft)	67	30	25	7	3	7	135	131	28	219	247
95th Queue (ft)	133	73	67	27	17	37	231	221	114	359	384
Link Distance (ft)	188	154	225		229		713	713		328	328
Upstream Blk Time (%)	0									1	3
Queuing Penalty (veh)	0									8	20
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							14		0	18	
Queuing Penalty (veh)							1		0	8	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	NB	NB	NB	SB	SB	SB
Directions Served	LR	T	T	T	T	T	TR
Maximum Queue (ft)	35	72	85	82	123	207	282
Average Queue (ft)	8	4	5	6	6	18	28
95th Queue (ft)	30	32	36	39	66	111	146
Link Distance (ft)	242	340	340	340	526	526	526
Upstream Blk Time (%)					0	0	
Queuing Penalty (veh)					0	0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	130	66	52	116	228	246	275	384	356	420	463
Average Queue (ft)	50	23	29	23	127	144	162	188	186	239	267
95th Queue (ft)	103	60	62	71	204	221	243	333	312	369	417
Link Distance (ft)	434	38	38		526	526	526		958	958	958
Upstream Blk Time (%)		10	15								
Queuing Penalty (veh)		18	29								
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)					17			0			
Queuing Penalty (veh)					4			1			

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	48	39	199	213	47	156
Average Queue (ft)	23	11	118	124	12	70
95th Queue (ft)	46	34	187	199	38	133
Link Distance (ft)	38	38	1661	1661	158	259
Upstream Blk Time (%)	4	1				
Queuing Penalty (veh)	6	2				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 212

Appendix G

Vehicular Capacity Analysis Worksheets – Future (2023) Conditions without Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2208	1	833	251	1	272	11	5
v/c Ratio	0.10	0.67	0.01	0.42	0.25	0.02	0.82	0.02	0.06
Control Delay	8.8	12.1	39.0	44.8	24.5	89.0	123.2	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	12.3	39.0	44.8	24.5	89.0	123.2	0.1	82.2
Queue Length 50th (ft)	5	97	1	440	125	1	314	0	6
Queue Length 95th (ft)	m19	#1178	m4	641	229	9	m402	m0	22
Internal Link Dist (ft)		810		1204		100		1665	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	420	3320	119	1980	1011	67	379	487	175
Starvation Cap Reductn	0	381	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	0.10	0.75	0.01	0.42	0.25	0.01	0.72	0.02	0.03

Intersection Summary

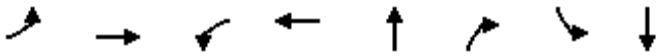
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2030	1	1	0	766	231	1	0	250	1	9
Future Volume (vph)	37	2030	1	1	0	766	231	1	0	250	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1641	
Flt Permitted	0.26	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	490	4987			73	3223	1524		1805	1687	1641	
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)	40	2207	1	1	0	833	251	1	0	272	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	86	0	0	0	9	0
Lane Group Flow (vph)	40	2208	0	0	1	833	165	0	1	272	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	114.6	108.5			104.8	103.6	103.6		1.3	36.3	36.3	
Effective Green, g (s)	116.6	110.5			106.8	105.6	105.6		2.3	37.3	37.3	
Actuated g/C Ratio	0.61	0.58			0.56	0.56	0.56		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	349	2900			61	1791	847		21	331	322	
v/s Ratio Prot	c0.00	c0.44			0.00	0.26			c0.00	c0.16	0.00	
v/s Ratio Perm	0.07				0.01		0.11					
v/c Ratio	0.11	0.76			0.02	0.47	0.19		0.05	0.82	0.01	
Uniform Delay, d1	16.4	29.8			25.9	25.3	21.0		92.8	73.2	61.4	
Progression Factor	0.54	0.45			1.87	1.85	3.59		1.00	1.43	1.00	
Incremental Delay, d2	0.1	1.3			0.1	0.9	0.5		0.9	16.2	0.0	
Delay (s)	8.9	14.6			48.7	47.7	75.9		93.7	120.5	61.5	
Level of Service	A	B			D	D	E		F	F	E	
Approach Delay (s)		14.5				54.2			93.7		118.2	
Approach LOS		B				D			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

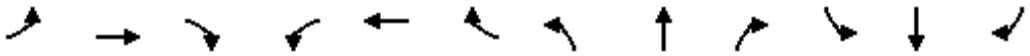
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	1973	75	765	153	185	7	123
v/c Ratio	0.10	0.81	0.49	0.33	0.92	0.57	0.09	0.49
Control Delay	3.4	10.3	59.7	3.6	127.5	43.2	67.3	71.1
Queue Delay	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	11.2	59.7	3.6	127.5	43.3	67.3	71.1
Queue Length 50th (ft)	7	176	47	40	190	110	8	127
Queue Length 95th (ft)	m10	193	119	6	#301	196	25	197
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	552	2441	163	2326	202	376	99	303
Starvation Cap Reductn	0	220	0	0	0	0	0	0
Spillback Cap Reductn	0	153	0	0	0	4	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.89	0.46	0.33	0.76	0.50	0.07	0.41

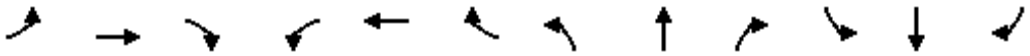
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1802	13	69	703	1	33	108	170	6	75	38
Future Volume (vph)	47	1802	13	69	703	1	33	108	170	6	75	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1354	1599	1081	1547	
Flt Permitted	0.34	1.00		0.05	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	646	3433		97	3195			1067	1599	525	1547	
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)	51	1959	14	75	764	1	36	117	185	7	82	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	76	0	10	0
Lane Group Flow (vph)	51	1973	0	75	765	0	0	153	109	7	113	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	139.8	134.1		143.8	136.1			28.9	28.9	28.9	28.9	
Effective Green, g (s)	141.8	135.1		145.8	137.1			29.9	29.9	29.9	29.9	
Actuated g/C Ratio	0.75	0.71		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	522	2441		152	2305			167	251	82	243	
v/s Ratio Prot	0.00	c0.57		c0.02	0.24						0.07	
v/s Ratio Perm	0.07			0.36				c0.14	0.07	0.01		
v/c Ratio	0.10	0.81		0.49	0.33			0.92	0.43	0.09	0.46	
Uniform Delay, d1	6.5	18.6		26.8	9.7			78.8	72.4	68.4	72.8	
Progression Factor	0.58	0.40		3.94	0.32			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.2		2.3	0.4			45.6	1.2	0.5	1.4	
Delay (s)	3.8	9.6		107.9	3.4			124.4	73.6	68.8	74.2	
Level of Service	A	A		F	A			F	E	E	E	
Approach Delay (s)		9.5			12.8			96.6			73.9	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



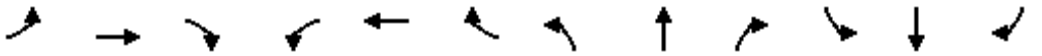
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	285	1551	10	141	597	72	29	637	113	153	557	240
v/c Ratio	0.71	0.80	0.01	1.37	0.34	0.10	0.32	0.89	0.24	0.71	0.68	0.32
Control Delay	119.7	22.4	0.0	262.9	23.0	6.4	95.1	88.8	9.0	132.7	109.5	4.8
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.5
Total Delay	119.7	22.6	0.0	262.9	23.0	6.4	95.1	88.8	9.0	132.7	112.0	5.3
Queue Length 50th (ft)	192	251	0	~236	70	0	36	408	10	104	241	0
Queue Length 95th (ft)	m238	412	m0	m#383	338	m38	76	488	54	147	452	76
Internal Link Dist (ft)		772			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1934	968	103	1753	731	110	748	474	222	825	768
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	155	223
Spillback Cap Reductn	0	56	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.83	0.01	1.37	0.34	0.10	0.26	0.85	0.24	0.69	0.83	0.44

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	276	1504	10	137	579	70	28	618	110	148	540	233
Future Volume (vph)	276	1504	10	137	579	70	28	618	110	148	540	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	285	1551	10	141	597	72	29	637	113	153	557	240
RTOR Reduction (vph)	0	0	4	0	0	29	0	0	72	0	0	147
Lane Group Flow (vph)	285	1551	6	141	597	43	29	637	41	153	557	93
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	20.6	101.1	108.3	11.2	91.4	103.6	7.2	38.2	49.4	12.2	44.1	64.7
Effective Green, g (s)	22.1	102.6	111.3	12.7	92.9	106.6	8.7	39.7	52.4	13.7	45.6	67.7
Actuated g/C Ratio	0.12	0.54	0.59	0.07	0.49	0.56	0.05	0.21	0.28	0.07	0.24	0.36
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	399	1911	913	103	1730	704	81	739	423	217	825	564
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.17	0.00	0.02	c0.18	0.01	c0.05	c0.16	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.04
v/c Ratio	0.71	0.81	0.01	1.37	0.35	0.06	0.36	0.86	0.10	0.71	0.68	0.17
Uniform Delay, d1	80.9	35.8	16.4	88.7	29.8	19.0	87.9	72.5	51.2	86.2	65.5	41.8
Progression Factor	1.41	0.57	1.00	0.79	0.75	1.35	1.00	1.00	1.00	1.33	1.59	0.74
Incremental Delay, d2	3.6	2.3	0.0	214.0	0.5	0.0	2.7	10.1	0.1	9.9	2.2	0.1
Delay (s)	117.4	22.7	16.4	284.4	22.9	25.7	90.6	82.7	51.3	124.7	106.1	31.2
Level of Service	F	C	B	F	C	C	F	F	D	F	F	C
Approach Delay (s)		37.2			68.7			78.4			90.1	
Approach LOS		D			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	61.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	1772	1	0	840	4	0	0	6	0	0	2
Future Vol, veh/h	0	1772	1	0	840	4	0	0	6	0	0	2
Conflicting Peds, #/hr	2	0	5	5	0	2	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1827	1	0	866	4	0	0	6	0	0	2

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	919	-	-	437
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	273	0	0	567
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	272	-	-	566
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.5	11.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	272	-	-	-	-	566
HCM Lane V/C Ratio	0.023	-	-	-	-	0.004
HCM Control Delay (s)	18.5	-	-	-	-	11.4
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0

Lane Group	EBT	WBT	NBT	SBL	SBT	NET	SWL	SWT
Lane Group Flow (vph)	158	27	63	36	13	1706	32	839
v/c Ratio	0.88	0.35	0.53	0.48	0.09	0.81	0.28	0.36
Control Delay	124.0	99.2	99.6	104.8	80.6	25.2	32.4	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	124.0	99.2	99.6	104.8	80.6	25.4	32.4	15.1
Queue Length 50th (ft)	197	33	77	44	15	885	11	158
Queue Length 95th (ft)	#334	72	132	87	41	593	50	196
Internal Link Dist (ft)	220	125	220		220	755		447
Turn Bay Length (ft)				175			150	
Base Capacity (vph)	187	147	138	88	163	2101	170	2299
Starvation Cap Reductn	0	0	0	0	0	41	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.18	0.46	0.41	0.08	0.83	0.19	0.36

Intersection Summary

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

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL	WBT	NBL2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Future Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5				6.5			5.0		
Lane Util. Factor			1.00				1.00			1.00		
Frpb, ped/bikes			1.00				1.00			1.00		
Flpb, ped/bikes			1.00				1.00			1.00		
Frt			1.00				1.00			0.92		
Flt Protected			0.96				0.97			0.99		
Satd. Flow (prot)			1741				1812			1697		
Flt Permitted			0.96				0.97			0.90		
Satd. Flow (perm)			1741				1812			1546		
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)	2	122	29	2	3	15	12	9	10	7	36	1
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	158	0	0	0	27	0	0	63	0	0
Confl. Peds. (#/hr)	2			1	1	1		1	1			
Heavy Vehicles (%)	100%	2%	2%	100%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Split	Split	NA			Split	NA	Perm	Perm	NA		
Protected Phases	3	3	3			4	4			7		
Permitted Phases								7	7			
Actuated Green, G (s)			19.7				7.2			13.1		
Effective Green, g (s)			19.7				7.2			14.6		
Actuated g/C Ratio			0.10				0.04			0.08		
Clearance Time (s)			6.5				6.5			6.5		
Vehicle Extension (s)			3.0				3.0			3.0		
Lane Grp Cap (vph)			180				68			118		
v/s Ratio Prot			c0.09				c0.01					
v/s Ratio Perm										c0.04		
v/c Ratio			0.88				0.40			0.53		
Uniform Delay, d1			84.0				89.3			84.4		
Progression Factor			1.00				1.00			1.00		
Incremental Delay, d2			34.8				3.8			4.6		
Delay (s)			118.8				93.1			89.0		
Level of Service			F				F			F		
Approach Delay (s)			118.8				93.1			89.0		
Approach LOS			F				F			F		

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	32.2
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	7	10	3	0	1598	43	15	10	21	767	41
Future Volume (vph)	28	7	10	3	0	1598	43	15	10	21	767	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	5.0			7.1				7.1	7.1	
Lane Util. Factor		1.00	1.00			0.95				1.00	0.95	
Frpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Frt		1.00	0.97			0.99				1.00	0.99	
Flt Protected		0.95	1.00			1.00				0.95	1.00	
Satd. Flow (prot)		1770	1834			3521				1770	3505	
Flt Permitted		0.58	1.00			1.00				0.05	1.00	
Satd. Flow (perm)		1088	1834			3521				86	3505	
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)	29	7	10	3	0	1647	44	15	10	22	791	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	36	13	0	0	1706	0	0	0	32	839	0
Confl. Peds. (#/hr)					1							1
Heavy Vehicles (%)	2%	2%	0%	0%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA			pm+pt	pm+pt	NA	
Protected Phases			7		1	6			5	5	2	
Permitted Phases	7	7			6				2	2		
Actuated Green, G (s)		13.1	13.1			110.6				123.4	123.4	
Effective Green, g (s)		13.1	14.6			110.6				123.4	123.4	
Actuated g/C Ratio		0.07	0.08			0.58				0.65	0.65	
Clearance Time (s)		6.5	6.5			7.1				7.1	7.1	
Vehicle Extension (s)		3.0	3.0			4.0				3.0	4.0	
Lane Grp Cap (vph)		75	140			2049				106	2276	
v/s Ratio Prot			0.01			c0.48				0.01	c0.24	
v/s Ratio Perm		0.03								0.19		
v/c Ratio		0.48	0.09			0.83				0.30	0.37	
Uniform Delay, d1		85.2	81.5			32.2				30.6	15.3	
Progression Factor		1.00	1.00			0.66				1.89	0.91	
Incremental Delay, d2		4.8	0.3			3.5				1.5	0.4	
Delay (s)		89.9	81.8			24.8				59.3	14.5	
Level of Service		F	F			C				E	B	
Approach Delay (s)			87.8			24.8					16.1	
Approach LOS			F			C					B	

Intersection Summary

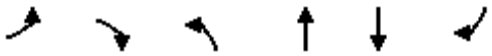
Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	6
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	5	1072	999
v/c Ratio	0.02	0.21	0.20
Control Delay	0.2	0.1	0.3
Queue Delay	0.0	0.0	0.0
Total Delay	0.2	0.1	0.3
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	m39
Internal Link Dist (ft)	220	381	265
Turn Bay Length (ft)			
Base Capacity (vph)	343	5085	4989
Starvation Cap Reductn	0	0	763
Spillback Cap Reductn	0	25	669
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.01	0.21	0.24

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	986	918	1
Future Volume (vph)	0	5	0	986	918	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	0	1072	998	1
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1072	999	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	1.4			190.0	177.6	
Effective Green, g (s)	1.4			190.0	177.6	
Actuated g/C Ratio	0.01			1.00	0.93	
Clearance Time (s)	6.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	11			5085	4752	
v/s Ratio Prot	0.00			0.21	0.20	
v/s Ratio Perm						
v/c Ratio	0.00			0.21	0.21	
Uniform Delay, d1	93.6			0.0	0.5	
Progression Factor	1.00			1.00	0.93	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	93.7			0.1	0.6	
Level of Service	F			A	A	
Approach Delay (s)	93.7			0.1	0.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	273	362	13	1039	390	1000
v/c Ratio	1.00	0.48	0.49	0.19	0.87	1.11	0.48
Control Delay	138.3	2.0	3.9	138.0	29.9	136.8	42.2
Queue Delay	0.0	5.0	19.7	0.0	0.8	0.0	0.0
Total Delay	138.3	6.9	23.7	138.0	30.7	136.8	42.2
Queue Length 50th (ft)	285	0	75	17	364	~505	313
Queue Length 95th (ft)	#486	m0	m62	45	423	#735	413
Internal Link Dist (ft)	420	47			176		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	561	743	161	1193	350	2062
Starvation Cap Reductn	0	219	372	0	33	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	1.00	0.80	0.98	0.08	0.90	1.11	0.48

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	37	43	504	7	5	936	20	4	355
Future Volume (vph)	85	99	25	37	43	504	7	5	936	20	4	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1516	1475		1602	4959			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1516	1475		1602	4959			143
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)	92	108	27	40	47	548	8	5	1017	22	4	386
RTOR Reduction (vph)	0	3	0	0	41	238	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	232	124	0	13	1039	0	0	390
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		3.5	44.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		4.5	45.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.02	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			518	504		37	1192			350
v/s Ratio Prot		c0.13			c0.15	0.08		0.01	0.21			c0.20
v/s Ratio Perm												c0.30
v/c Ratio		1.00			0.45	0.25		0.35	0.87			1.11
Uniform Delay, d1		83.0			48.6	44.9		91.3	69.3			63.8
Progression Factor		1.00			0.01	0.77		1.52	0.30			1.00
Incremental Delay, d2		60.6			0.8	0.3		5.6	8.8			82.6
Delay (s)		143.5			1.4	34.8		144.0	29.7			146.4
Level of Service		F			A	C		F	C			F
Approach Delay (s)		143.5			20.5				31.1			
Approach LOS		F			C				C			

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	903	17
Future Volume (vph)	903	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4931	
Flt Permitted	1.00	
Satd. Flow (perm)	4931	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	982	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1000	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	73.9	
Effective Green, g (s)	75.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1956	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.51	
Uniform Delay, d1	43.4	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	44.3	
Level of Service	D	
Approach Delay (s)	73.0	
Approach LOS	E	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	518	491	32	201
v/c Ratio	0.25	0.79	0.14	1.09
Control Delay	0.6	88.5	1.2	138.8
Queue Delay	26.9	2.2	0.0	2.2
Total Delay	27.4	90.6	1.2	141.0
Queue Length 50th (ft)	2	254	0	~193
Queue Length 95th (ft)	m3	390	0	#393
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2058	629	272	184
Starvation Cap Reductn	1550	0	0	0
Spillback Cap Reductn	0	55	3	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.02	0.86	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	427	6	0	429	23	8	0	21	39	1	145
Future Volume (vph)	43	427	6	0	429	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3396			3355			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3396			3355			1456			1347	
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)	47	464	7	0	466	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	518	0	0	489	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.1			5.4			15.5	
Effective Green, g (s)		109.3			35.1			6.4			16.5	
Actuated g/C Ratio		0.58			0.18			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1953			619			49			116	
v/s Ratio Prot		c0.15			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.79			0.02			1.15	
Uniform Delay, d1		20.2			73.9			88.8			86.8	
Progression Factor		0.03			1.07			1.00			1.00	
Incremental Delay, d2		0.0			7.9			0.1			129.6	
Delay (s)		0.6			86.7			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.6			86.7			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1395	4	1921	538	7	340	99	16
v/c Ratio	0.15	0.38	0.02	0.78	0.46	0.12	1.50	0.30	0.18
Control Delay	12.5	7.7	11.5	17.0	6.1	106.8	307.7	32.1	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	7.7	11.5	17.0	6.1	106.8	307.7	32.1	101.3
Queue Length 50th (ft)	3	106	1	388	134	10	~694	44	23
Queue Length 95th (ft)	m9	230	m2	#1596	136	33	m#928	m91	53
Internal Link Dist (ft)		810		1202		100		1650	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	109	3671	310	2459	1165	63	226	328	189
Starvation Cap Reductn	0	594	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	0.15	0.45	0.01	0.78	0.46	0.11	1.50	0.30	0.08

Intersection Summary

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

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

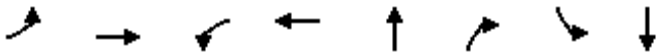
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1281	3	4	0	1767	495	3	0	4	313	8
Future Volume (vph)	15	1281	3	4	0	1767	495	3	0	4	313	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1641
Flt Permitted	0.04	1.00			0.15	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	69	5084			294	3539	1583		1717		1736	1641
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)	16	1392	3	4	0	1921	538	3	0	4	340	9
RTOR Reduction (vph)	0	0	0	0	0	0	75	0	0	0	0	86
Lane Group Flow (vph)	16	1395	0	0	4	1921	463	0	7	0	340	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	147.5	143.6			142.1	140.9	140.9		3.0		27.7	27.7
Effective Green, g (s)	149.5	145.6			144.1	142.9	142.9		4.0		28.7	28.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	83	3364			207	2298	1028		31		226	214
v/s Ratio Prot	c0.00	c0.27			0.00	c0.54			c0.00		c0.20	0.01
v/s Ratio Perm	0.13				0.01		0.29					
v/c Ratio	0.19	0.41			0.02	0.84	0.45		0.23		1.50	0.06
Uniform Delay, d1	33.9	17.3			14.1	29.6	19.1		106.5		95.7	83.8
Progression Factor	0.78	0.51			0.83	0.53	0.45		1.00		1.09	9.21
Incremental Delay, d2	1.0	0.3			0.0	3.3	1.2		3.7		248.1	0.2
Delay (s)	27.4	9.3			11.7	18.9	9.8		110.2		352.8	772.7
Level of Service	C	A			B	B	A		F		F	F
Approach Delay (s)		9.5				16.9			110.2			447.5
Approach LOS		A				B			F			F

Intersection Summary			
HCM 2000 Control Delay	58.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

Intersection Summary

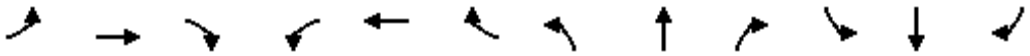


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	122	1221	179	1740	203	175	25	254
v/c Ratio	0.66	0.54	0.57	0.79	1.06	0.35	0.14	0.62
Control Delay	61.2	20.4	22.0	16.3	159.0	9.0	66.9	74.9
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	61.2	20.5	22.0	16.7	159.0	9.0	66.9	74.9
Queue Length 50th (ft)	101	355	32	208	298	0	29	300
Queue Length 95th (ft)	174	570	m134	322	#478	71	61	403
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	212	2251	370	2205	217	542	208	464
Starvation Cap Reductn	0	72	0	126	0	0	0	0
Spillback Cap Reductn	0	0	0	127	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.56	0.48	0.84	0.94	0.32	0.12	0.55

Intersection Summary

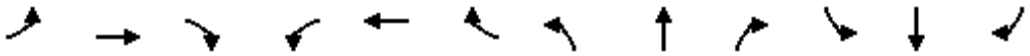
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1084	40	165	1594	6	60	127	161	23	111	122
Future Volume (vph)	112	1084	40	165	1594	6	60	127	161	23	111	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3523		1805	3537			1870	1615	1805	1751	
Flt Permitted	0.05	1.00		0.17	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	94	3523		324	3537			854	1615	817	1751	
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)	122	1178	43	179	1733	7	65	138	175	25	121	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	136	0	19	0
Lane Group Flow (vph)	122	1220	0	179	1740	0	0	203	39	25	235	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	155.5	139.6		148.7	136.2			48.6	48.6	48.6	48.6	
Effective Green, g (s)	157.5	140.6		150.7	137.2			49.6	49.6	49.6	49.6	
Actuated g/C Ratio	0.72	0.64		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	184	2251		312	2205			192	364	184	394	
v/s Ratio Prot	c0.05	0.35		0.04	c0.49						0.13	
v/s Ratio Perm	0.42			0.36				c0.24	0.02	0.03		
v/c Ratio	0.66	0.54		0.57	0.79			1.06	0.11	0.14	0.60	
Uniform Delay, d1	50.9	21.9		17.0	30.7			85.2	67.6	68.1	76.3	
Progression Factor	1.29	0.84		1.62	0.44			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.2	0.9		1.6	1.9			80.9	0.1	0.3	2.4	
Delay (s)	74.0	19.4		29.1	15.3			166.1	67.8	68.4	78.7	
Level of Service	E	B		C	B			F	E	E	E	
Approach Delay (s)		24.3			16.6			120.6			77.8	
Approach LOS		C			B			F			E	

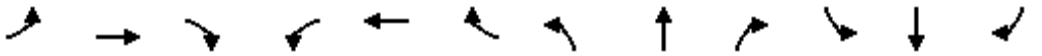
Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	901	29	145	1491	111	105	525	114	169	534	343
v/c Ratio	0.74	0.46	0.03	0.87	0.75	0.11	0.86	0.85	0.23	0.61	0.78	0.70
Control Delay	152.4	15.9	0.0	113.9	27.3	6.6	148.7	101.0	5.2	153.4	91.9	30.6
Queue Delay	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	2.4	1.1
Total Delay	152.4	15.9	0.0	113.9	32.6	6.6	148.7	101.0	5.2	153.4	94.3	31.7
Queue Length 50th (ft)	175	164	0	216	912	40	154	393	0	131	265	85
Queue Length 95th (ft)	#229	181	m0	m#306	1186	m40	#285	462	37	178	302	208
Internal Link Dist (ft)		774			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	308	1955	1030	166	1994	1001	122	678	503	340	815	495
Starvation Cap Reductn	0	0	0	0	439	0	0	0	0	0	166	39
Spillback Cap Reductn	0	0	0	0	77	0	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.46	0.03	0.87	0.96	0.11	0.86	0.77	0.23	0.50	0.82	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	214	865	28	139	1431	107	101	504	109	162	513	329
Future Volume (vph)	214	865	28	139	1431	107	101	504	109	162	513	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	223	901	29	145	1491	111	105	525	114	169	534	343
RTOR Reduction (vph)	0	0	11	0	0	21	0	0	83	0	0	61
Lane Group Flow (vph)	223	901	18	145	1491	90	105	525	31	169	534	282
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.7	120.1	133.5	19.2	121.3	137.6	13.4	37.1	56.3	16.3	40.9	58.6
Effective Green, g (s)	19.2	121.6	136.5	20.7	122.8	140.6	14.9	38.6	59.3	17.8	42.4	61.6
Actuated g/C Ratio	0.09	0.55	0.62	0.09	0.56	0.64	0.07	0.18	0.27	0.08	0.19	0.28
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	302	1956	1002	166	1994	965	122	620	423	275	688	443
v/s Ratio Prot	c0.06	0.25	0.00	0.08	c0.42	0.01	c0.06	c0.15	0.01	0.05	c0.15	0.06
v/s Ratio Perm			0.01			0.05			0.01			0.12
v/c Ratio	0.74	0.46	0.02	0.87	0.75	0.09	0.86	0.85	0.07	0.61	0.78	0.64
Uniform Delay, d1	98.0	29.5	16.0	98.4	36.9	15.2	101.5	87.8	59.9	97.8	84.3	69.4
Progression Factor	1.43	0.50	1.00	0.87	0.67	0.89	1.00	1.00	1.00	1.48	1.00	0.47
Incremental Delay, d2	8.0	0.7	0.0	24.9	1.6	0.0	42.2	10.4	0.1	4.0	5.4	3.0
Delay (s)	147.8	15.4	16.0	110.8	26.4	13.7	143.8	98.2	59.9	148.3	89.7	35.6
Level of Service	F	B	B	F	C	B	F	F	E	F	F	D
Approach Delay (s)		41.0			32.6			98.8			81.4	
Approach LOS		D			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	56.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1064	1	0	1889	2	0	0	8	0	0	10
Future Vol, veh/h	0	1064	1	0	1889	2	0	0	8	0	0	10
Conflicting Peds, #/hr	4	0	0	0	0	4	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1144	1	0	2031	2	0	0	9	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	573	-	-	1021
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	463	0	0	234
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	463	-	-	233
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.9	21.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	463	-	-	-	-	233
HCM Lane V/C Ratio	0.019	-	-	-	-	0.046
HCM Control Delay (s)	12.9	-	-	-	-	21.2
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	132	45	98	19	10	6	1080	49	1945
v/c Ratio	0.74	0.44	0.71	0.18	0.06	0.06	0.51	0.25	0.86
Control Delay	120.2	112.9	122.2	95.7	91.0	9.7	10.8	18.4	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	120.2	112.9	122.2	95.7	91.0	9.7	11.0	18.4	27.3
Queue Length 50th (ft)	189	65	139	26	13	1	280	20	594
Queue Length 95th (ft)	274	116	#243	60	38	m4	190	m38	#1638
Internal Link Dist (ft)	220	220	220		220		755		445
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	204	165	138	103	161	112	2105	201	2251
Starvation Cap Reductn	0	0	0	0	0	0	311	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	0.65	0.27	0.71	0.18	0.06	0.05	0.60	0.24	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

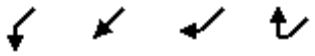
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Future Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0					5.0	
Lane Util. Factor		1.00				1.00					1.00	
Frpb, ped/bikes		1.00				0.99					1.00	
Flpb, ped/bikes		1.00				1.00					0.99	
Frt		0.99				0.98					0.96	
Flt Protected		0.97				0.98					0.97	
Satd. Flow (prot)		1798				1811					1709	
Flt Permitted		0.97				0.98					0.83	
Satd. Flow (perm)		1798				1811					1449	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	46	4	2	20	19	2	4	25	28	14	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	0	45	0	0	0	0	98	0
Confl. Peds. (#/hr)			4	2	2		4		2	2		
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%
Turn Type	Split	NA			Split	NA			Perm	Perm	NA	
Protected Phases	3	3			4	4					7	
Permitted Phases									7	7		
Actuated Green, G (s)		20.3				9.6					19.5	
Effective Green, g (s)		21.8				11.1					21.0	
Actuated g/C Ratio		0.10				0.05					0.10	
Clearance Time (s)		6.5				6.5					6.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		178				91					138	
v/s Ratio Prot		c0.07				c0.02						
v/s Ratio Perm											c0.07	
v/c Ratio		0.74				0.49					0.71	
Uniform Delay, d1		96.4				101.7					96.5	
Progression Factor		1.00				1.00					1.00	
Incremental Delay, d2		15.3				4.2					15.8	
Delay (s)		111.6				105.9					112.3	
Level of Service		F				F					F	
Approach Delay (s)		111.6				105.9					112.3	
Approach LOS		F				F					F	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2	SWL2
Lane Configurations												
Traffic Volume (vph)	4	15	3	4	2	4	6	0	942	73	10	22
Future Volume (vph)	4	15	3	4	2	4	6	0	942	73	10	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0	5.0				5.6	5.1			
Lane Util. Factor			1.00	1.00				1.00	0.95			
Frpb, ped/bikes			1.00	0.98				1.00	1.00			
Flpb, ped/bikes			1.00	1.00				1.00	1.00			
Frt			1.00	0.91				1.00	0.99			
Flt Protected			0.95	1.00				0.95	1.00			
Satd. Flow (prot)			1691	1687				1805	3495			
Flt Permitted			0.61	1.00				0.03	1.00			
Satd. Flow (perm)			1079	1687				58	3495			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	16	3	4	2	4	6	0	992	77	11	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	19	10	0	0	0	6	1080	0	0	0
Confl. Peds. (#/hr)					2	2	2				4	
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%	0%	0%	2%	0%	0%	100%
Turn Type		Perm	Perm	NA			custom	pm+pt	NA			pm+pt
Protected Phases				7				1	6			5
Permitted Phases		7	7				1	6				2
Actuated Green, G (s)			19.5	19.5				130.5	129.2			
Effective Green, g (s)			21.0	21.0				133.5	131.2			
Actuated g/C Ratio			0.10	0.10				0.61	0.60			
Clearance Time (s)			6.5	6.5				7.1	7.1			
Vehicle Extension (s)			3.0	3.0				3.0	4.0			
Lane Grp Cap (vph)			102	161				57	2084			
v/s Ratio Prot				0.01				0.00	0.31			
v/s Ratio Perm			0.02					0.06				
v/c Ratio			0.19	0.06				0.11	0.52			
Uniform Delay, d1			91.6	90.5				39.1	25.9			
Progression Factor			1.00	1.00				0.55	0.37			
Incremental Delay, d2			0.9	0.2				0.8	0.9			
Delay (s)			92.5	90.7				22.2	10.5			
Level of Service			F	F				C	B			
Approach Delay (s)				91.9					10.5			
Approach LOS				F					B			

Intersection Summary

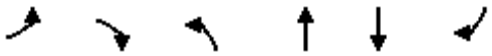


Movement	SWL	SWT	SWR	SWR2
Lane Configurations				
Traffic Volume (vph)	25	1713	128	7
Future Volume (vph)	25	1713	128	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1228	3425		
Flt Permitted	0.18	1.00		
Satd. Flow (perm)	238	3425		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1803	135	7
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	49	1945	0	0
Confl. Peds. (#/hr)	4		2	
Heavy Vehicles (%)	0%	4%	4%	25%
Turn Type	pm+pt	NA		
Protected Phases	5	2		
Permitted Phases	2			
Actuated Green, G (s)	143.3	135.6		
Effective Green, g (s)	145.5	137.6		
Actuated g/C Ratio	0.66	0.63		
Clearance Time (s)	7.1	7.1		
Vehicle Extension (s)	3.0	4.0		
Lane Grp Cap (vph)	198	2142		
v/s Ratio Prot	c0.01	c0.57		
v/s Ratio Perm	0.15			
v/c Ratio	0.25	0.91		
Uniform Delay, d1	17.7	35.7		
Progression Factor	1.09	0.73		
Incremental Delay, d2	0.5	5.1		
Delay (s)	19.7	31.2		
Level of Service	B	C		
Approach Delay (s)		31.0		
Approach LOS		C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	16	858	1033
v/c Ratio	0.06	0.17	0.21
Control Delay	0.4	0.1	0.6
Queue Delay	0.0	0.0	0.1
Total Delay	0.4	0.1	0.7
Queue Length 50th (ft)	0	0	32
Queue Length 95th (ft)	0	0	36
Internal Link Dist (ft)	220	381	265
Turn Bay Length (ft)			
Base Capacity (vph)	353	5085	4849
Starvation Cap Reductn	0	0	2183
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.05	0.17	0.39

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	0	832	1000	2
Future Volume (vph)	0	16	0	832	1000	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	16	0	858	1031	2
RTOR Reduction (vph)	16	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	858	1033	0
Confl. Peds. (#/hr)	1		3			3
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	4.2			220.0	205.8	
Effective Green, g (s)	4.2			220.0	205.8	
Actuated g/C Ratio	0.02			1.00	0.94	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	30			5085	4755	
v/s Ratio Prot	0.00			0.17	c0.20	
v/s Ratio Perm						
v/c Ratio	0.01			0.17	0.22	
Uniform Delay, d1	105.9			0.0	0.6	
Progression Factor	1.00			1.00	0.93	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	106.0			0.1	0.6	
Level of Service	F			A	A	
Approach Delay (s)	106.0			0.1	0.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	450	441	31	874	475	1030
v/c Ratio	0.73	0.77	0.60	0.37	0.49	1.23	0.45
Control Delay	124.2	5.4	4.9	151.9	12.4	155.8	42.0
Queue Delay	0.0	46.6	53.5	0.0	0.7	0.0	0.0
Total Delay	124.2	52.0	58.3	151.9	13.1	155.8	42.0
Queue Length 50th (ft)	132	74	89	48	68	~643	383
Queue Length 95th (ft)	#244	m41	m57	92	79	#895	439
Internal Link Dist (ft)	420	47			176		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	129	589	742	198	1785	386	2313
Starvation Cap Reductn	0	173	339	0	529	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	0.73	1.08	1.09	0.16	0.70	1.23	0.45

Intersection Summary

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

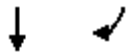
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	52	98	706	12	17	800	39	2	454
Future Volume (vph)	27	45	18	52	98	706	12	17	800	39	2	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1613	1534		1805	4991			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.20
Satd. Flow (perm)		1810			1613	1534		1805	4991			371
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	54	102	735	12	18	833	41	2	473
RTOR Reduction (vph)	0	4	0	0	32	215	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	418	226	0	31	874	0	0	475
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.1	77.2			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.1	78.7			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			547	520		74	1785			386
v/s Ratio Prot		c0.05			c0.26	0.15		0.02	0.18			c0.17
v/s Ratio Perm												c0.47
v/c Ratio		0.72			0.76	0.44		0.42	0.49			1.23
Uniform Delay, d1		100.2			64.8	56.3		102.9	55.0			40.8
Progression Factor		1.00			0.08	0.32		1.39	0.21			1.00
Incremental Delay, d2		18.1			0.7	0.1		3.8	1.0			124.5
Delay (s)		118.3			5.7	18.2		146.4	12.4			165.3
Level of Service		F			A	B		F	B			F
Approach Delay (s)		118.3			11.9				17.0			
Approach LOS		F			B				B			

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	913	76
Future Volume (vph)	913	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5034	
Flt Permitted	1.00	
Satd. Flow (perm)	5034	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	951	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1030	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	98.3	
Effective Green, g (s)	99.8	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2283	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.45	
Uniform Delay, d1	41.3	
Progression Factor	1.00	
Incremental Delay, d2	0.6	
Delay (s)	41.9	
Level of Service	D	
Approach Delay (s)	80.9	
Approach LOS	F	

Intersection Summary

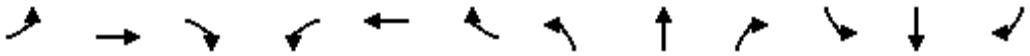
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	573	823	20	158
v/c Ratio	0.27	1.10	0.28	0.89
Control Delay	1.4	131.3	83.8	85.5
Queue Delay	17.0	1.0	0.0	0.4
Total Delay	18.4	132.3	83.8	85.9
Queue Length 50th (ft)	8	~700	19	102
Queue Length 95th (ft)	m8	#844	55	#246
Internal Link Dist (ft)	47	1650	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1548	0	0	0
Spillback Cap Reductn	0	60	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.98	1.19	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	386	11	0	723	51	9	3	7	22	3	124
Future Volume (vph)	141	386	11	0	723	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3458			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3458			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	411	12	0	769	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	572	0	0	821	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.23			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.28			1.10			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.07			0.90			1.00			1.00	
Incremental Delay, d2		0.0			62.7			0.6			32.1	
Delay (s)		1.5			140.6			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.5			140.6			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	88.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1606	8	1499	627	6	218	50	14
v/c Ratio	0.14	0.49	0.05	0.69	0.57	0.07	0.80	0.12	0.12
Control Delay	25.4	25.3	6.9	22.4	11.8	69.3	101.0	6.7	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	25.3	6.9	22.4	11.8	69.3	101.0	6.7	63.7
Queue Length 50th (ft)	8	291	2	817	433	6	226	4	13
Queue Length 95th (ft)	m28	506	m2	#1063	650	22	#338	24	34
Internal Link Dist (ft)		810		1202		100		1655	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	171	3281	187	2170	1100	94	282	419	264
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	0.13	0.49	0.04	0.69	0.57	0.06	0.77	0.12	0.05

Intersection Summary

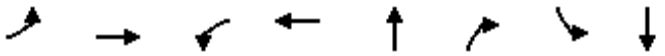
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1474	4	6	1	1379	577	4	0	2	201	2
Future Volume (vph)	20	1474	4	6	1	1379	577	4	0	2	201	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5034			1621	3539	1583		1756		1787	1626
Flt Permitted	0.07	1.00			0.10	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	126	5034			173	3539	1583		1756		1787	1626
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)	22	1602	4	7	1	1499	627	4	0	2	218	2
RTOR Reduction (vph)	0	0	0	0	0	0	155	0	0	0	0	42
Lane Group Flow (vph)	22	1606	0	0	8	1499	472	0	6	0	218	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	85.0	81.1			80.0	78.6	78.6		1.5		21.8	21.8
Effective Green, g (s)	87.0	83.1			82.0	80.6	80.6		2.5		22.8	22.8
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	127	2788			117	1901	850		29		271	247
v/s Ratio Prot	c0.01	0.32			0.00	c0.42			c0.00		c0.12	0.00
v/s Ratio Perm	0.09				0.04		0.30					
v/c Ratio	0.17	0.58			0.07	0.79	0.56		0.21		0.80	0.03
Uniform Delay, d1	22.6	21.9			17.5	27.9	22.9		72.8		61.4	54.2
Progression Factor	1.68	1.39			0.41	0.85	0.91		1.00		1.30	1.00
Incremental Delay, d2	0.5	0.7			0.2	2.9	2.2		3.5		17.5	0.1
Delay (s)	38.3	31.3			7.4	26.5	23.1		76.3		97.6	54.3
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		31.4				25.4			76.3			89.5
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	32.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

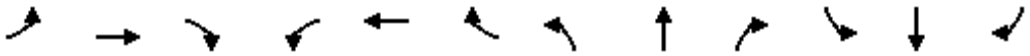
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	176	1429	151	1284	140	105	46	267
v/c Ratio	0.52	0.65	0.52	0.59	0.78	0.28	0.25	0.79
Control Delay	19.6	12.2	32.6	16.3	85.4	9.8	53.5	66.8
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	19.6	12.2	32.6	16.9	85.4	9.8	53.5	66.8
Queue Length 50th (ft)	21	313	56	700	132	0	39	220
Queue Length 95th (ft)	78	760	m144	775	202	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	418	2196	382	2191	250	476	257	457
Starvation Cap Reductn	0	0	0	458	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.65	0.40	0.74	0.56	0.22	0.18	0.58

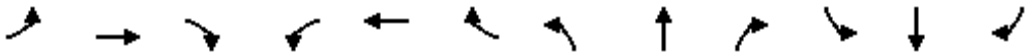
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1282	33	139	1171	10	27	102	97	42	116	130
Future Volume (vph)	162	1282	33	139	1171	10	27	102	97	42	116	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3526		1805	3535			1881	1568	1719	1694	
Flt Permitted	0.15	1.00		0.12	1.00			0.52	1.00	0.56	1.00	
Satd. Flow (perm)	281	3526		221	3535			988	1568	1011	1694	
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)	176	1393	36	151	1273	11	29	111	105	46	126	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	29	0
Lane Group Flow (vph)	176	1428	0	151	1284	0	0	140	19	46	238	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	104.8	92.4		104.0	92.0			26.3	26.3	26.3	26.3	
Effective Green, g (s)	106.8	93.4		106.0	93.0			27.3	27.3	27.3	27.3	
Actuated g/C Ratio	0.71	0.62		0.71	0.62			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	336	2195		293	2191			179	285	184	308	
v/s Ratio Prot	c0.05	c0.41		0.04	0.36						0.14	
v/s Ratio Perm	0.33			0.32				c0.14	0.01	0.05		
v/c Ratio	0.52	0.65		0.52	0.59			0.78	0.07	0.25	0.77	
Uniform Delay, d1	12.0	18.0		14.2	17.0			58.5	50.8	52.6	58.4	
Progression Factor	2.17	0.54		3.30	0.82			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	1.3		1.1	0.8			19.6	0.1	0.7	11.3	
Delay (s)	27.2	11.0		47.9	14.7			78.1	50.9	53.3	69.7	
Level of Service	C	B		D	B			E	D	D	E	
Approach Delay (s)		12.8			18.2			66.5			67.3	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

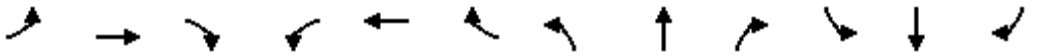


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	268	1091	26	150	1039	92	88	546	160	183	593	392
v/c Ratio	0.65	0.66	0.03	0.91	0.67	0.11	0.56	0.77	0.31	0.54	0.77	0.66
Control Delay	89.7	34.7	0.8	103.8	33.0	3.6	79.4	63.9	7.5	95.8	78.7	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Total Delay	89.7	34.7	0.8	103.8	33.0	3.6	79.4	63.9	7.5	95.8	79.0	29.5
Queue Length 50th (ft)	143	252	0	133	212	0	83	267	17	96	260	269
Queue Length 95th (ft)	192	454	m1	#284	438	25	145	320	53	139	340	446
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	438	1651	895	164	1543	874	177	854	520	411	948	607
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	61	9
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.66	0.03	0.91	0.67	0.11	0.50	0.64	0.31	0.45	0.67	0.66

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	257	1047	25	144	997	88	84	524	154	176	569	376
Future Volume (vph)	257	1047	25	144	997	88	84	524	154	176	569	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	268	1091	26	150	1039	92	88	546	160	183	593	392
RTOR Reduction (vph)	0	0	12	0	0	39	0	0	90	0	0	82
Lane Group Flow (vph)	268	1091	14	150	1039	53	88	546	70	183	593	310
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	16.5	68.5	80.2	12.2	63.9	77.2	11.7	28.7	40.9	13.3	31.2	47.7
Effective Green, g (s)	18.0	70.0	83.2	13.7	65.4	80.2	13.2	30.2	43.9	14.8	32.7	50.7
Actuated g/C Ratio	0.12	0.47	0.55	0.09	0.44	0.53	0.09	0.20	0.29	0.10	0.22	0.34
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	411	1651	851	164	1543	821	157	712	444	338	771	530
v/s Ratio Prot	0.08	c0.31	0.00	c0.08	c0.29	0.01	0.05	0.15	0.01	c0.05	c0.17	0.07
v/s Ratio Perm			0.01			0.03			0.03			0.13
v/c Ratio	0.65	0.66	0.02	0.91	0.67	0.07	0.56	0.77	0.16	0.54	0.77	0.58
Uniform Delay, d1	63.0	30.8	15.0	67.6	33.8	16.8	65.6	56.6	39.3	64.4	55.1	41.0
Progression Factor	1.33	1.02	1.00	0.88	0.87	0.79	1.00	1.00	1.00	1.40	1.31	0.97
Incremental Delay, d2	2.9	1.6	0.0	40.1	1.9	0.0	4.5	5.0	0.2	1.7	4.6	1.6
Delay (s)	86.6	33.1	15.0	99.7	31.3	13.3	70.1	61.5	39.5	92.1	76.8	41.3
Level of Service	F	C	B	F	C	B	E	E	D	F	E	D
Approach Delay (s)		43.1			38.1			58.0			67.3	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	50.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1319	3	0	1472	7	0	0	11	0	0	12
Future Vol, veh/h	0	1319	3	0	1472	7	0	0	11	0	0	12
Conflicting Peds, #/hr	5	0	3	3	0	5	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1360	3	0	1518	7	0	0	11	0	0	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	685	-	-	768
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	391	0	0	344
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	390	-	-	343
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

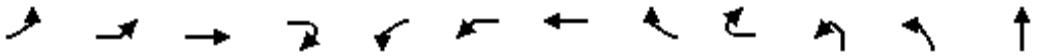
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.5	15.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	390	-	-	-	-	343
HCM Lane V/C Ratio	0.029	-	-	-	-	0.036
HCM Control Delay (s)	14.5	-	-	-	-	15.9
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.1

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	86	39	46	11	7	8	1371	43	1506
v/c Ratio	0.51	0.32	0.41	0.10	0.06	0.04	0.67	0.20	0.67
Control Delay	74.8	72.6	75.8	64.5	63.0	19.9	29.1	20.9	25.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	72.6	75.8	64.5	63.0	19.9	29.1	20.9	25.8
Queue Length 50th (ft)	82	37	44	10	6	0	466	20	395
Queue Length 95th (ft)	138	76	86	31	23	m8	443	m35	#617
Internal Link Dist (ft)	220	220	220		220		755		420
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	219	180	166	161	177	269	2041	277	2261
Starvation Cap Reductn	0	0	0	0	0	0	23	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	0.39	0.22	0.28	0.07	0.04	0.03	0.68	0.16	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL2	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Future Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0				5.0					5.0
Lane Util. Factor			1.00				1.00					1.00
Frpb, ped/bikes			1.00				1.00					0.98
Flpb, ped/bikes			1.00				1.00					0.97
Frt			1.00				0.99					0.94
Flt Protected			0.96				0.97					0.98
Satd. Flow (prot)			1825				1801					1658
Flt Permitted			0.96				0.97					0.86
Satd. Flow (perm)			1825				1801					1451
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	62	20	2	3	25	7	1	3	15	5	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	0	39	0	0	0	0	46
Confl. Peds. (#/hr)				7	4			3		7	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Split	NA		Perm	Split	NA			Perm	Perm	NA
Protected Phases		3	3			4	4					7
Permitted Phases	3				4					7	7	
Actuated Green, G (s)			12.4				7.6					8.9
Effective Green, g (s)			13.9				9.1					10.4
Actuated g/C Ratio			0.09				0.06					0.07
Clearance Time (s)			6.5				6.5					6.5
Vehicle Extension (s)			3.0				3.0					3.0
Lane Grp Cap (vph)			169				109					100
v/s Ratio Prot			c0.05				c0.02					
v/s Ratio Perm												c0.03
v/c Ratio			0.51				0.36					0.46
Uniform Delay, d1			64.8				67.6					67.1
Progression Factor			1.00				1.00					1.00
Incremental Delay, d2			2.4				2.0					3.3
Delay (s)			67.2				69.7					70.4
Level of Service			E				E					E
Approach Delay (s)			67.2				69.7					70.4
Approach LOS			E				E					E

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2
Lane Configurations												
Traffic Volume (vph)	20	1	8	3	1	4	2	2	6	1224	77	15
Future Volume (vph)	20	1	8	3	1	4	2	2	6	1224	77	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0				5.6	5.1		
Lane Util. Factor				1.00	1.00				1.00	0.95		
Frpb, ped/bikes				1.00	0.92				1.00	1.00		
Flpb, ped/bikes				0.99	1.00				1.00	1.00		
Frt				1.00	0.87				1.00	0.99		
Flt Protected				0.95	1.00				0.95	1.00		
Satd. Flow (prot)				1784	1527				1805	3501		
Flt Permitted				0.76	1.00				0.09	1.00		
Satd. Flow (perm)				1420	1527				174	3501		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	1	8	3	1	4	2	2	6	1275	80	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	7	0	0	0	8	1371	0	0
Confl. Peds. (#/hr)		2		2		7	3	3	3		2	4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Turn Type			Perm	Perm	NA			custom	pm+pt	NA		
Protected Phases					7				1	6		
Permitted Phases			7	7				1	6			
Actuated Green, G (s)				8.9	8.9				82.7	81.4		
Effective Green, g (s)				10.4	10.4				85.7	83.4		
Actuated g/C Ratio				0.07	0.07				0.57	0.56		
Clearance Time (s)				6.5	6.5				7.1	7.1		
Vehicle Extension (s)				3.0	3.0				3.0	4.0		
Lane Grp Cap (vph)				98	105				129	1946		
v/s Ratio Prot					0.00				0.00	0.39		
v/s Ratio Perm				0.01					0.03			
v/c Ratio				0.11	0.07				0.06	0.70		
Uniform Delay, d1				65.5	65.3				19.0	24.3		
Progression Factor				1.00	1.00				1.40	1.04		
Incremental Delay, d2				0.5	0.3				0.2	1.9		
Delay (s)				66.0	65.5				26.8	27.1		
Level of Service				E	E				C	C		
Approach Delay (s)					65.8					27.1		
Approach LOS					E					C		

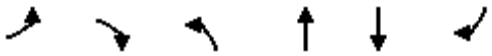
Intersection Summary

Movement	SWL2	SWL	SWT	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	27	14	1389	52	5
Future Volume (vph)	27	14	1389	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.1		
Lane Util. Factor		1.00	0.95		
Frpb, ped/bikes		1.00	1.00		
Flpb, ped/bikes		1.00	1.00		
Frt		1.00	0.99		
Flt Protected		0.95	1.00		
Satd. Flow (prot)		1805	3518		
Flt Permitted		0.10	1.00		
Satd. Flow (perm)		186	3518		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	15	1447	54	5
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	43	1506	0	0
Confl. Peds. (#/hr)	2	4			3
Heavy Vehicles (%)	0%	0%	2%	0%	0%
Turn Type	pm+pt	pm+pt	NA		
Protected Phases	5	5	2		
Permitted Phases	2	2			
Actuated Green, G (s)		92.1	86.1		
Effective Green, g (s)		95.1	88.1		
Actuated g/C Ratio		0.63	0.59		
Clearance Time (s)		7.1	7.1		
Vehicle Extension (s)		3.0	4.0		
Lane Grp Cap (vph)		198	2066		
v/s Ratio Prot		c0.01	c0.43		
v/s Ratio Perm		0.13			
v/c Ratio		0.22	0.73		
Uniform Delay, d1		17.6	22.3		
Progression Factor		1.47	1.17		
Incremental Delay, d2		0.4	1.8		
Delay (s)		26.3	27.9		
Level of Service		C	C		
Approach Delay (s)			27.8		
Approach LOS			C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	8	942	1187
v/c Ratio	0.04	0.19	0.24
Control Delay	0.2	0.1	0.2
Queue Delay	0.0	0.0	0.0
Total Delay	0.2	0.1	0.2
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	6
Internal Link Dist (ft)	220	381	241
Turn Bay Length (ft)			
Base Capacity (vph)	348	5085	4965
Starvation Cap Reductn	0	0	585
Spillback Cap Reductn	0	0	44
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.19	0.27

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	895	1123	5
Future Volume (vph)	0	8	0	895	1123	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5082	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5082	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	8	0	942	1182	5
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	942	1187	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	1.4			150.0	138.6	
Effective Green, g (s)	1.4			150.0	138.6	
Actuated g/C Ratio	0.01			1.00	0.92	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	15			5085	4695	
v/s Ratio Prot	0.00			0.19	c0.23	
v/s Ratio Perm						
v/c Ratio	0.00			0.19	0.25	
Uniform Delay, d1	73.6			0.0	0.6	
Progression Factor	1.00			1.00	0.32	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	73.7			0.1	0.3	
Level of Service	E			A	A	
Approach Delay (s)	73.7			0.1	0.3	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	174	326	25	879	407	1143
v/c Ratio	0.30	0.31	0.44	0.25	0.66	1.27	0.60
Control Delay	56.7	1.2	4.4	93.6	42.2	177.0	42.1
Queue Delay	0.0	1.0	1.9	0.0	0.0	0.2	0.0
Total Delay	56.7	2.2	6.3	93.6	42.2	177.2	42.1
Queue Length 50th (ft)	52	0	68	25	142	~439	354
Queue Length 95th (ft)	98	0	118	60	213	#788	456
Internal Link Dist (ft)	420	47			200		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	217	613	769	165	1339	320	1911
Starvation Cap Reductn	0	251	294	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	5	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.48	0.69	0.15	0.66	1.29	0.60

Intersection Summary

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

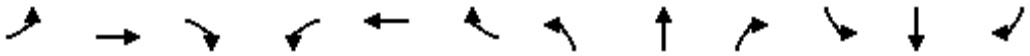
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	35	39	411	12	13	826	26	5	390
Future Volume (vph)	25	23	14	35	39	411	12	13	826	26	5	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1538	1504		1750	5063			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.14
Satd. Flow (perm)		1807			1538	1504		1750	5063			266
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)	26	24	14	36	40	424	12	13	852	27	5	402
RTOR Reduction (vph)	0	6	0	0	36	214	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	138	112	0	25	879	0	0	407
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.3			50.5	50.5		5.3	38.2			64.5
Effective Green, g (s)		17.3			51.5	51.5		6.3	39.7			65.5
Actuated g/C Ratio		0.12			0.34	0.34		0.04	0.26			0.44
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		208			528	516		73	1340			324
v/s Ratio Prot		c0.03			c0.09	0.07		0.01	0.17			c0.17
v/s Ratio Perm												c0.38
v/c Ratio		0.28			0.26	0.22		0.34	0.66			1.26
Uniform Delay, d1		60.6			35.5	34.9		69.8	49.1			38.9
Progression Factor		1.00			0.00	0.90		1.32	0.81			1.00
Incremental Delay, d2		0.9			0.6	0.5		2.8	2.5			138.0
Delay (s)		61.5			0.6	31.9		94.7	42.0			176.9
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.5			21.0				43.5			
Approach LOS		E			C				D			

Intersection Summary			
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1077	32
Future Volume (vph)	1077	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5066	
Flt Permitted	1.00	
Satd. Flow (perm)	5066	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1110	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1143	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	52.4	
Effective Green, g (s)	53.9	
Actuated g/C Ratio	0.36	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1820	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.63	
Uniform Delay, d1	39.8	
Progression Factor	1.00	
Incremental Delay, d2	1.7	
Delay (s)	41.4	
Level of Service	D	
Approach Delay (s)	77.0	
Approach LOS	E	

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	347	7	0	383	22	8	1	4	20	0	89
Future Volume (vph)	90	347	7	0	383	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3537			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3537			3482			1738			1649	
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)	98	377	8	0	416	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	482	0	0	437	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.7			30.5			5.8			5.2	
Effective Green, g (s)		82.8			31.5			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1952			731			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.60			0.13			0.07	
Uniform Delay, d1		17.4			53.5			68.8			69.1	
Progression Factor		0.16			1.17			1.00			1.00	
Incremental Delay, d2		0.0			1.9			0.3			0.2	
Delay (s)		2.7			64.6			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.7			64.6			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	78	338	342	223	6	532	538	136	20	391	42	33
Average Queue (ft)	10	125	126	111	0	229	236	13	1	257	10	4
95th Queue (ft)	47	262	267	216	5	503	512	100	12	370	35	19
Link Distance (ft)		764	764			1199	1199	1199	114	1671	1671	213
Upstream Blk Time (%)						0	0					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		9	2	1		26						
Queuing Penalty (veh)		3	12	6		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	74	232	242	153	366	368	430	262	101	242		
Average Queue (ft)	20	101	106	67	128	114	215	124	12	119		
95th Queue (ft)	54	209	220	150	482	454	371	226	59	221		
Link Distance (ft)		982	982		764	764	447	447		235		
Upstream Blk Time (%)					3	1	0			2		
Queuing Penalty (veh)					11	4	0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				0	15				0	17		
Queuing Penalty (veh)				1	11				0	1		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	223	229	445	466	26	475	953	956	92	212	480	500
Average Queue (ft)	121	140	254	269	1	425	565	406	17	36	292	290
95th Queue (ft)	198	209	402	418	12	558	1232	1068	60	137	447	454
Link Distance (ft)			732	732			982	982			514	514
Upstream Blk Time (%)							14	3			0	0
Queuing Penalty (veh)							55	11			0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				0		58	4	0		0	32	22
Queuing Penalty (veh)				0		168	6	0		0	9	24

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	171	155	343	355	225
Average Queue (ft)	103	81	80	237	249	114
95th Queue (ft)	278	144	141	351	374	278
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				5	9	
Queuing Penalty (veh)				17	28	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				37	1
Queuing Penalty (veh)	0				87	2

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	NB	SB
Directions Served	TR	R	R
Maximum Queue (ft)	4	23	21
Average Queue (ft)	0	3	2
95th Queue (ft)	4	15	12
Link Distance (ft)	732	254	92
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	SW	SW	SW
Directions Served	<LTR>	LTR	<LTR>	<L	TR	T	TR>	<L	T	TR>
Maximum Queue (ft)	228	89	132	95	42	459	490	141	277	299
Average Queue (ft)	163	26	45	32	7	215	227	24	128	150
95th Queue (ft)	249	65	104	77	29	397	416	77	260	281
Link Distance (ft)	188	107	225		231	713	713		391	391
Upstream Blk Time (%)	25	0								0
Queuing Penalty (veh)	0	0								0
Storage Bay Dist (ft)				175				150		
Storage Blk Time (%)						29			9	
Queuing Penalty (veh)						0			3	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B9	B9
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	32	17	73	96	8	16
Average Queue (ft)	5	1	6	12	0	1
95th Queue (ft)	23	9	39	63	6	10
Link Distance (ft)	235	284	284	284	184	184
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	B9	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	460	64	65	132	259	263	269	99	131	135	494	848
Average Queue (ft)	328	17	43	21	154	182	187	6	18	19	400	427
95th Queue (ft)	518	51	62	82	275	314	308	42	75	75	582	939
Link Distance (ft)	434	37	37		184	184	184	284	284	284		958
Upstream Blk Time (%)	20	5	55		4	7	9					6
Queuing Penalty (veh)	0	16	159		14	25	31					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					10						26	0
Queuing Penalty (veh)					1						78	0

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	782	522
Average Queue (ft)	370	258
95th Queue (ft)	782	475
Link Distance (ft)	958	958
Upstream Blk Time (%)	1	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	49	50	555	541	81	319
Average Queue (ft)	25	8	354	341	26	287
95th Queue (ft)	44	35	560	554	63	322
Link Distance (ft)	37	37	1671	1671	158	259
Upstream Blk Time (%)	3	7				96
Queuing Penalty (veh)	8	16				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 809

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	47	162	151	129	50	1255	1249	1212	50	1326	948	59
Average Queue (ft)	7	51	52	41	4	949	978	510	11	934	333	13
95th Queue (ft)	27	128	122	102	25	1478	1496	1446	37	1493	914	42
Link Distance (ft)		764	764			1192	1192	1192	111	1656	1656	213
Upstream Blk Time (%)						6	10	2		0		
Queuing Penalty (veh)						43	75	16		0		
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		1	0			28						
Queuing Penalty (veh)		0	0			1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	219	327	319	174	393	388	411	145	144	283
Average Queue (ft)	94	142	146	83	184	190	238	61	35	223
95th Queue (ft)	182	286	290	166	352	353	414	118	110	331
Link Distance (ft)		982	982		764	764	447	447		268
Upstream Blk Time (%)							5			13
Queuing Penalty (veh)							0			0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)		0		1	22				0	46
Queuing Penalty (veh)		0		6	37				0	11

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	184	189	249	243	31	474	719	748	375	225	483	470
Average Queue (ft)	95	113	130	133	5	188	347	377	118	173	278	264
95th Queue (ft)	168	181	227	225	23	385	683	721	384	273	455	441
Link Distance (ft)			740	740			982	982			513	513
Upstream Blk Time (%)											0	0
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)						0	6	14	0	22	21	16
Queuing Penalty (veh)						0	9	15	0	56	21	18

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	6	147	155	312	344	225
Average Queue (ft)	80	0	66	73	162	187	148
95th Queue (ft)	259	6	127	134	279	327	261
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)					1	3	
Queuing Penalty (veh)					2	10	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					14	9
Queuing Penalty (veh)	0					46	23

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	386	404	24	52
Average Queue (ft)	147	166	5	17
95th Queue (ft)	380	408	21	53
Link Distance (ft)	740	740	126	77
Upstream Blk Time (%)				6
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	LTR>	LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	206	105	210	71	43	22	293	277	173	390	400
Average Queue (ft)	140	40	102	19	6	3	123	119	42	333	341
95th Queue (ft)	230	90	197	52	25	14	244	236	132	471	474
Link Distance (ft)	189	146	225		232		713	713		354	354
Upstream Blk Time (%)	12	0	2							20	23
Queuing Penalty (veh)	0	0	0							191	216
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							14		1	31	
Queuing Penalty (veh)							1		12	15	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B10	B10
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	42	3	70	128	4	5
Average Queue (ft)	11	0	4	8	0	0
95th Queue (ft)	34	3	42	65	4	5
Link Distance (ft)	236	284	284	284	184	184
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	265	61	53	80	120	150	156	495	1004	982	970
Average Queue (ft)	130	18	40	27	42	53	73	490	918	727	396
95th Queue (ft)	265	49	61	66	100	114	134	535	1225	1290	927
Link Distance (ft)	434	37	37		184	184	184		958	958	958
Upstream Blk Time (%)		7	52			0	0		72	8	1
Queuing Penalty (veh)		30	221			0	0		0	0	0
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)					0			82	1		
Queuing Penalty (veh)					0			248	3		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	67	58	1211	1215	79	301
Average Queue (ft)	26	15	962	970	21	251
95th Queue (ft)	53	45	1281	1301	61	332
Link Distance (ft)	37	37	1656	1656	158	259
Upstream Blk Time (%)	8	14				70
Queuing Penalty (veh)	22	38				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1386

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	154	401	398	225	60	646	645	234	40	296	99	49
Average Queue (ft)	18	213	200	162	7	221	228	26	8	167	37	10
95th Queue (ft)	85	347	334	248	34	521	520	130	29	258	79	32
Link Distance (ft)		764	764			1190	1190	1190	109	1662	1662	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		18	6	3	0	21						
Queuing Penalty (veh)		4	29	16	0	1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	221	309	347	174	458	484	230	116	145	236
Average Queue (ft)	107	108	119	96	179	191	107	48	51	178
95th Queue (ft)	193	230	251	180	383	400	184	91	128	257
Link Distance (ft)		981	981		764	764	447	447		205
Upstream Blk Time (%)										15
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				3	7				0	37
Queuing Penalty (veh)				16	10				0	16

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	165	184	417	421	46	406	645	684	375	222	308	305
Average Queue (ft)	93	112	265	272	8	174	334	349	103	71	176	168
95th Queue (ft)	153	169	387	393	32	381	631	647	346	160	262	258
Link Distance (ft)			769	769			981	981			515	515
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							0	0				
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				0		0	6	18	0	0	6	2
Queuing Penalty (veh)				0		1	9	16	0	0	5	3

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	217	131	146	342	352	225
Average Queue (ft)	40	61	64	155	166	114
95th Queue (ft)	128	116	122	299	323	255
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				1	2	
Queuing Penalty (veh)				3	7	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				12	4
Queuing Penalty (veh)	0				44	12

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	72	94	23	39
Average Queue (ft)	6	11	6	11
95th Queue (ft)	37	54	20	34
Link Distance (ft)	769	769	135	122
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	<LTR>	<LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	162	88	89	37	18	70	355	354	174	358	368
Average Queue (ft)	69	26	24	6	2	7	175	175	37	262	284
95th Queue (ft)	134	67	63	25	11	37	293	296	136	386	400
Link Distance (ft)	188	154	225		229		713	713		328	328
Upstream Blk Time (%)	0									3	7
Queuing Penalty (veh)	0									23	51
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							23		0	22	
Queuing Penalty (veh)							2		0	9	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B9	B9	B9
Directions Served	LR	T	T	TR	T	T	T
Maximum Queue (ft)	36	21	112	157	3	3	17
Average Queue (ft)	7	1	5	9	0	0	1
95th Queue (ft)	29	21	54	67	3	3	18
Link Distance (ft)	242	260	260	260	209	209	209
Upstream Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	UL	T	T
Maximum Queue (ft)	135	68	62	101	198	223	244	7	8	495	1001	979
Average Queue (ft)	54	17	35	22	114	133	158	0	1	482	869	817
95th Queue (ft)	110	53	65	64	176	205	228	8	11	565	1244	1213
Link Distance (ft)	434	37	37		209	209	209	260	260		958	958
Upstream Blk Time (%)		5	19		0	1	6				50	11
Queuing Penalty (veh)		12	47		1	4	17				0	0
Storage Bay Dist (ft)				135						470		
Storage Blk Time (%)					13					78	0	
Queuing Penalty (veh)					3					280	1	

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB
Directions Served	TR
Maximum Queue (ft)	972
Average Queue (ft)	585
95th Queue (ft)	1063
Link Distance (ft)	958
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	52	39	262	266	46	196
Average Queue (ft)	29	9	156	163	12	77
95th Queue (ft)	46	32	239	244	37	156
Link Distance (ft)	37	37	1662	1662	158	259
Upstream Blk Time (%)	4	1				0
Queuing Penalty (veh)	10	2				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 654

Appendix H

Vehicular Capacity Analysis Worksheets – Future (2023) Conditions with Development Phase 1

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

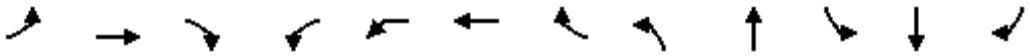
Timing Plan: 2023 TF AM

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2214	1	836	251	1	274	11	5
v/c Ratio	0.10	0.67	0.01	0.42	0.25	0.02	0.83	0.02	0.06
Control Delay	9.0	12.2	39.0	45.0	24.7	89.0	122.7	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	12.4	39.0	45.0	24.7	89.0	122.7	0.1	82.2
Queue Length 50th (ft)	5	98	1	443	125	1	313	0	6
Queue Length 95th (ft)	m19	#1184	m4	643	230	9	m406	m0	22
Internal Link Dist (ft)		810		1204		100		1637	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	417	3316	119	1977	1009	67	379	487	175
Starvation Cap Reductn	0	379	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	0.10	0.75	0.01	0.42	0.25	0.01	0.72	0.02	0.03

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

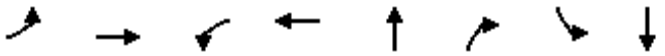


Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2036	1	1	0	769	231	1	0	252	1	9
Future Volume (vph)	37	2036	1	1	0	769	231	1	0	252	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1641	
Flt Permitted	0.26	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	487	4987			73	3223	1524		1805	1687	1641	
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)	40	2213	1	1	0	836	251	1	0	274	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	86	0	0	0	9	0
Lane Group Flow (vph)	40	2214	0	0	1	836	165	0	1	274	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	114.4	108.3			104.6	103.4	103.4		1.3	36.5	36.5	
Effective Green, g (s)	116.4	110.3			106.6	105.4	105.4		2.3	37.5	37.5	
Actuated g/C Ratio	0.61	0.58			0.56	0.55	0.55		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	347	2895			61	1787	845		21	332	323	
v/s Ratio Prot	c0.00	c0.44			0.00	0.26			c0.00	c0.16	0.00	
v/s Ratio Perm	0.07				0.01		0.11					
v/c Ratio	0.12	0.76			0.02	0.47	0.20		0.05	0.83	0.01	
Uniform Delay, d1	16.5	30.1			26.2	25.4	21.1		92.8	73.1	61.3	
Progression Factor	0.55	0.45			1.88	1.85	3.57		1.00	1.42	1.00	
Incremental Delay, d2	0.1	1.3			0.1	0.9	0.5		0.9	16.4	0.0	
Delay (s)	9.1	14.7			49.3	48.0	76.0		93.7	120.0	61.3	
Level of Service	A	B			D	D	E		F	F	E	
Approach Delay (s)		14.6				54.5			93.7		117.7	
Approach LOS		B				D			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

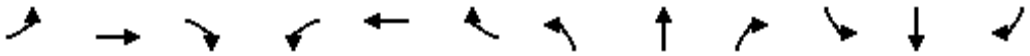
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	1979	75	767	153	185	7	123
v/c Ratio	0.10	0.81	0.50	0.33	0.92	0.57	0.09	0.49
Control Delay	3.5	10.6	60.7	3.6	127.5	43.2	67.3	71.1
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	11.5	60.7	3.6	127.5	43.3	67.3	71.1
Queue Length 50th (ft)	7	181	47	42	190	110	8	127
Queue Length 95th (ft)	m10	197	120	6	#301	196	25	197
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	550	2441	162	2326	202	376	99	303
Starvation Cap Reductn	0	219	0	0	0	0	0	0
Spillback Cap Reductn	0	155	0	0	0	4	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.89	0.46	0.33	0.76	0.50	0.07	0.41

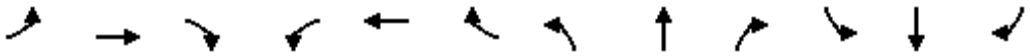
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	1808	13	69	705	1	33	108	170	6	75	38
Future Volume (vph)	48	1808	13	69	705	1	33	108	170	6	75	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1354	1599	1081	1547	
Flt Permitted	0.34	1.00		0.05	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	645	3433		95	3195			1067	1599	525	1547	
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)	52	1965	14	75	766	1	36	117	185	7	82	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	76	0	10	0
Lane Group Flow (vph)	52	1979	0	75	767	0	0	153	109	7	113	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	139.8	134.1		143.8	136.1			28.9	28.9	28.9	28.9	
Effective Green, g (s)	141.8	135.1		145.8	137.1			29.9	29.9	29.9	29.9	
Actuated g/C Ratio	0.75	0.71		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	522	2441		151	2305			167	251	82	243	
v/s Ratio Prot	0.00	c0.58		c0.02	0.24						0.07	
v/s Ratio Perm	0.07			0.36				c0.14	0.07	0.01		
v/c Ratio	0.10	0.81		0.50	0.33			0.92	0.43	0.09	0.46	
Uniform Delay, d1	6.5	18.7		27.2	9.7			78.8	72.4	68.4	72.8	
Progression Factor	0.59	0.41		3.74	0.32			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.2		2.4	0.4			45.6	1.2	0.5	1.4	
Delay (s)	3.9	9.9		104.2	3.4			124.4	73.6	68.8	74.2	
Level of Service	A	A		F	A			F	E	E	E	
Approach Delay (s)		9.7			12.4			96.6			73.9	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



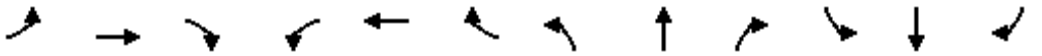
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	288	1552	10	141	599	72	37	637	113	159	564	241
v/c Ratio	0.72	0.80	0.01	1.37	0.34	0.10	0.39	0.89	0.24	0.73	0.69	0.32
Control Delay	119.5	22.5	0.0	263.0	23.2	6.4	97.8	88.8	9.0	130.9	118.5	6.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.5
Total Delay	119.5	22.7	0.0	263.0	23.2	6.4	97.8	88.8	9.0	130.9	120.9	6.4
Queue Length 50th (ft)	193	251	0	~236	77	0	45	408	10	107	379	0
Queue Length 95th (ft)	m241	412	m0	m#383	340	m38	91	488	54	#154	456	82
Internal Link Dist (ft)		772			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1932	968	103	1749	730	110	748	474	222	819	764
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	142	221
Spillback Cap Reductn	0	57	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.83	0.01	1.37	0.34	0.10	0.34	0.85	0.24	0.72	0.83	0.44

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	1505	10	137	581	70	36	618	110	154	547	234
Future Volume (vph)	279	1505	10	137	581	70	36	618	110	154	547	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	288	1552	10	141	599	72	37	637	113	159	564	241
RTOR Reduction (vph)	0	0	4	0	0	29	0	0	72	0	0	145
Lane Group Flow (vph)	288	1552	6	141	599	43	37	637	41	159	564	96
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	20.8	100.9	108.6	11.2	91.0	103.2	7.7	38.4	49.6	12.2	43.8	64.6
Effective Green, g (s)	22.3	102.4	111.6	12.7	92.5	106.2	9.2	39.9	52.6	13.7	45.3	67.6
Actuated g/C Ratio	0.12	0.54	0.59	0.07	0.49	0.56	0.05	0.21	0.28	0.07	0.24	0.36
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	402	1907	916	103	1722	702	85	743	424	217	819	563
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.17	0.00	0.02	c0.18	0.01	c0.05	c0.16	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.04
v/c Ratio	0.72	0.81	0.01	1.37	0.35	0.06	0.44	0.86	0.10	0.73	0.69	0.17
Uniform Delay, d1	80.8	36.0	16.2	88.7	30.1	19.1	87.9	72.3	51.0	86.4	65.9	42.0
Progression Factor	1.41	0.57	1.00	0.80	0.76	1.36	1.00	1.00	1.00	1.30	1.70	0.89
Incremental Delay, d2	3.5	2.3	0.0	214.0	0.5	0.0	3.5	9.6	0.1	11.9	2.4	0.1
Delay (s)	117.1	22.8	16.2	284.5	23.3	26.0	91.4	81.9	51.1	124.0	114.8	37.6
Level of Service	F	C	B	F	C	C	F	F	D	F	F	D
Approach Delay (s)		37.5			68.9			78.0			97.0	
Approach LOS		D			E			E			F	

Intersection Summary					
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service	E		
HCM 2000 Volume to Capacity ratio	0.86				
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6		
Intersection Capacity Utilization	89.5%	ICU Level of Service	E		
Analysis Period (min)	15				

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1776	1	0	841	14	0	0	6	0	0	6
Future Vol, veh/h	0	1776	1	0	841	14	0	0	6	0	0	6
Conflicting Peds, #/hr	2	0	5	5	0	2	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1831	1	0	867	14	0	0	6	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	921	-	-	443
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	273	0	0	562
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	272	-	-	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

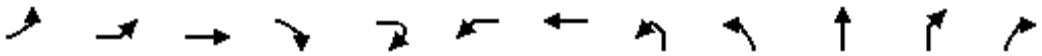
Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.5	11.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	272	-	-	-	-	561
HCM Lane V/C Ratio	0.023	-	-	-	-	0.011
HCM Control Delay (s)	18.5	-	-	-	-	11.5
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0

Lane Group	EBT	WBT	NBT	SBL	SBT	NET	SWL	SWT
Lane Group Flow (vph)	158	27	63	36	13	1711	32	844
v/c Ratio	0.88	0.35	0.53	0.48	0.09	0.81	0.28	0.37
Control Delay	124.0	99.2	99.6	104.8	80.6	25.5	32.9	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	124.0	99.2	99.6	104.8	80.6	25.6	32.9	15.7
Queue Length 50th (ft)	197	33	77	44	15	890	13	177
Queue Length 95th (ft)	#334	72	132	87	41	613	50	206
Internal Link Dist (ft)	220	125	220		220	755		447
Turn Bay Length (ft)				175			150	
Base Capacity (vph)	187	147	138	88	163	2101	169	2299
Starvation Cap Reductn	0	0	0	0	0	40	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.18	0.46	0.41	0.08	0.83	0.19	0.37

Intersection Summary

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



Movement	EBL2	EBL	EBT	EBR	EBR2	WBL	WBT	NBL2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Future Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5				6.5			5.0		
Lane Util. Factor			1.00				1.00			1.00		
Frpb, ped/bikes			1.00				1.00			1.00		
Flpb, ped/bikes			1.00				1.00			1.00		
Frt			1.00				1.00			0.92		
Flt Protected			0.96				0.97			0.99		
Satd. Flow (prot)			1741				1812			1697		
Flt Permitted			0.96				0.97			0.90		
Satd. Flow (perm)			1741				1812			1546		
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)	2	122	29	2	3	15	12	9	10	7	36	1
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	158	0	0	0	27	0	0	63	0	0
Confl. Peds. (#/hr)	2			1	1	1		1	1			
Heavy Vehicles (%)	100%	2%	2%	100%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Split	Split	NA			Split	NA	Perm	Perm	NA		
Protected Phases	3	3	3			4	4			7		
Permitted Phases								7	7			
Actuated Green, G (s)			19.7				7.2			13.1		
Effective Green, g (s)			19.7				7.2			14.6		
Actuated g/C Ratio			0.10				0.04			0.08		
Clearance Time (s)			6.5				6.5			6.5		
Vehicle Extension (s)			3.0				3.0			3.0		
Lane Grp Cap (vph)			180				68			118		
v/s Ratio Prot			c0.09				c0.01					
v/s Ratio Perm										c0.04		
v/c Ratio			0.88				0.40			0.53		
Uniform Delay, d1			84.0				89.3			84.4		
Progression Factor			1.00				1.00			1.00		
Incremental Delay, d2			34.8				3.8			4.6		
Delay (s)			118.8				93.1			89.0		
Level of Service			F				F			F		
Approach Delay (s)			118.8				93.1			89.0		
Approach LOS			F				F			F		

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	32.2
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	7	10	3	0	1602	43	15	10	21	772	41
Future Volume (vph)	28	7	10	3	0	1602	43	15	10	21	772	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	5.0			7.1				7.1	7.1	
Lane Util. Factor		1.00	1.00			0.95				1.00	0.95	
Frpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Frt		1.00	0.97			0.99				1.00	0.99	
Flt Protected		0.95	1.00			1.00				0.95	1.00	
Satd. Flow (prot)		1770	1834			3521				1770	3505	
Flt Permitted		0.58	1.00			1.00				0.05	1.00	
Satd. Flow (perm)		1088	1834			3521				85	3505	
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)	29	7	10	3	0	1652	44	15	10	22	796	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	36	13	0	0	1711	0	0	0	32	844	0
Confl. Peds. (#/hr)					1							1
Heavy Vehicles (%)	2%	2%	0%	0%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA			pm+pt	pm+pt	NA	
Protected Phases			7		1	6			5	5	2	
Permitted Phases	7	7			6				2	2		
Actuated Green, G (s)		13.1	13.1			110.6				123.4	123.4	
Effective Green, g (s)		13.1	14.6			110.6				123.4	123.4	
Actuated g/C Ratio		0.07	0.08			0.58				0.65	0.65	
Clearance Time (s)		6.5	6.5			7.1				7.1	7.1	
Vehicle Extension (s)		3.0	3.0			4.0				3.0	4.0	
Lane Grp Cap (vph)		75	140			2049				105	2276	
v/s Ratio Prot			0.01			c0.49				0.01	c0.24	
v/s Ratio Perm		0.03								0.19		
v/c Ratio		0.48	0.09			0.83				0.30	0.37	
Uniform Delay, d1		85.2	81.5			32.3				30.8	15.4	
Progression Factor		1.00	1.00			0.67				1.92	0.95	
Incremental Delay, d2		4.8	0.3			3.5				1.6	0.4	
Delay (s)		89.9	81.8			25.0				60.8	15.1	
Level of Service		F	F			C				E	B	
Approach Delay (s)			87.8			25.0					16.8	
Approach LOS			F			C					B	

Intersection Summary

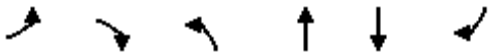
Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	6
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	32	1075	1014
v/c Ratio	0.36	0.21	0.22
Control Delay	53.6	0.1	1.0
Queue Delay	0.0	0.0	0.1
Total Delay	53.7	0.1	1.2
Queue Length 50th (ft)	14	0	35
Queue Length 95th (ft)	56	0	m50
Internal Link Dist (ft)	220	381	224
Turn Bay Length (ft)			
Base Capacity (vph)	142	5085	4663
Starvation Cap Reductn	0	0	2203
Spillback Cap Reductn	2	33	649
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.21	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	19	0	989	918	15
Future Volume (vph)	10	19	0	989	918	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.91			1.00	1.00	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1669			5085	5072	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1669			5085	5072	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	21	0	1075	998	16
RTOR Reduction (vph)	20	0	0	0	1	0
Lane Group Flow (vph)	12	0	0	1075	1013	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	6.5			190.0	172.5	
Effective Green, g (s)	6.5			190.0	172.5	
Actuated g/C Ratio	0.03			1.00	0.91	
Clearance Time (s)	6.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	57			5085	4604	
v/s Ratio Prot	0.01			0.21	c0.20	
v/s Ratio Perm						
v/c Ratio	0.21			0.21	0.22	
Uniform Delay, d1	89.2			0.0	1.0	
Progression Factor	1.00			1.00	0.91	
Incremental Delay, d2	1.8			0.1	0.1	
Delay (s)	91.0			0.1	1.0	
Level of Service	F			A	A	
Approach Delay (s)	91.0			0.1	1.0	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	274	362	16	1050	390	1009
v/c Ratio	1.00	0.49	0.49	0.22	0.88	1.11	0.51
Control Delay	138.3	2.0	4.0	141.2	31.6	136.8	44.7
Queue Delay	0.0	5.1	20.3	0.0	0.9	0.0	0.0
Total Delay	138.3	7.2	24.2	141.2	32.5	136.8	44.7
Queue Length 50th (ft)	285	0	75	21	369	~505	363
Queue Length 95th (ft)	#486	m0	m63	53	430	#735	420
Internal Link Dist (ft)	420	47			217		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	559	743	165	1192	350	1984
Starvation Cap Reductn	0	218	373	0	31	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	1.00	0.80	0.98	0.10	0.90	1.11	0.51

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

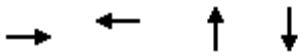
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	38	43	504	10	5	944	22	4	355
Future Volume (vph)	85	99	25	38	43	504	10	5	944	22	4	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1516	1475		1636	4957			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1516	1475		1636	4957			143
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)	92	108	27	41	47	548	11	5	1026	24	4	386
RTOR Reduction (vph)	0	3	0	0	40	238	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	234	124	0	16	1050	0	0	390
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		5.1	44.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		6.1	45.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.03	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			518	504		52	1192			350
v/s Ratio Prot		c0.13			c0.15	0.08		0.01	0.21			c0.20
v/s Ratio Perm												c0.30
v/c Ratio		1.00			0.45	0.25		0.31	0.88			1.11
Uniform Delay, d1		83.0			48.6	44.9		89.9	69.5			63.8
Progression Factor		1.00			0.01	0.77		1.55	0.32			1.00
Incremental Delay, d2		60.6			0.8	0.3		3.3	9.4			82.6
Delay (s)		143.5			1.4	35.0		142.3	31.3			146.5
Level of Service		F			A	C		F	C			F
Approach Delay (s)		143.5			20.5				33.0			
Approach LOS		F			C				C			

Intersection Summary			
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	912	17
Future Volume (vph)	912	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4931	
Flt Permitted	1.00	
Satd. Flow (perm)	4931	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	991	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1009	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	72.3	
Effective Green, g (s)	73.8	
Actuated g/C Ratio	0.39	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1915	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.53	
Uniform Delay, d1	44.7	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	45.7	
Level of Service	D	
Approach Delay (s)	73.8	
Approach LOS	E	

Intersection Summary



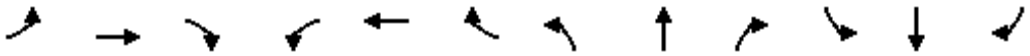
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	520	492	32	201
v/c Ratio	0.25	0.79	0.14	1.09
Control Delay	0.6	88.5	1.2	139.2
Queue Delay	26.8	2.3	0.0	2.2
Total Delay	27.4	90.7	1.2	141.4
Queue Length 50th (ft)	2	261	0	~194
Queue Length 95th (ft)	m3	391	0	#393
Internal Link Dist (ft)	47	1637	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2060	628	272	184
Starvation Cap Reductn	1550	0	0	0
Spillback Cap Reductn	0	55	3	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.02	0.86	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	429	6	0	430	23	8	0	21	39	1	145
Future Volume (vph)	43	429	6	0	430	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3396			3355			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3396			3355			1456			1347	
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)	47	466	7	0	467	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	520	0	0	490	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.1			5.4			15.5	
Effective Green, g (s)		109.3			35.1			6.4			16.5	
Actuated g/C Ratio		0.58			0.18			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1953			619			49			116	
v/s Ratio Prot		c0.15			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.79			0.02			1.15	
Uniform Delay, d1		20.2			74.0			88.8			86.8	
Progression Factor		0.03			1.06			1.00			1.00	
Incremental Delay, d2		0.0			8.1			0.1			129.6	
Delay (s)		0.6			86.7			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.6			86.7			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2023 TF PM

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1401	4	1925	538	7	342	99	16
v/c Ratio	0.15	0.38	0.02	0.78	0.46	0.12	1.51	0.30	0.18
Control Delay	12.4	7.6	11.5	17.1	6.2	106.8	311.1	32.2	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	7.7	11.5	17.1	6.2	106.8	311.1	32.2	101.3
Queue Length 50th (ft)	3	106	1	390	134	10	~701	45	23
Queue Length 95th (ft)	m9	228	m2	#1601	136	33	m#934	m91	53
Internal Link Dist (ft)		810		1202		100		1646	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	109	3671	308	2459	1165	63	226	328	189
Starvation Cap Reductn	0	593	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	0.15	0.46	0.01	0.78	0.46	0.11	1.51	0.30	0.08

Intersection Summary

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

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

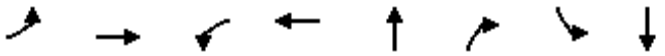
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1286	3	4	0	1771	495	3	0	4	315	8
Future Volume (vph)	15	1286	3	4	0	1771	495	3	0	4	315	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1641
Flt Permitted	0.04	1.00			0.15	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	68	5084			292	3539	1583		1717		1736	1641
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)	16	1398	3	4	0	1925	538	3	0	4	342	9
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0	86
Lane Group Flow (vph)	16	1401	0	0	4	1925	464	0	7	0	342	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	147.5	143.6			142.1	140.9	140.9		3.0		27.7	27.7
Effective Green, g (s)	149.5	145.6			144.1	142.9	142.9		4.0		28.7	28.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	82	3364			206	2298	1028		31		226	214
v/s Ratio Prot	c0.00	c0.28			0.00	c0.54			c0.00		c0.20	0.01
v/s Ratio Perm	0.13				0.01		0.29					
v/c Ratio	0.20	0.42			0.02	0.84	0.45		0.23		1.51	0.06
Uniform Delay, d1	34.1	17.4			14.1	29.6	19.1		106.5		95.7	83.8
Progression Factor	0.77	0.51			0.83	0.53	0.45		1.00		1.10	9.26
Incremental Delay, d2	1.0	0.3			0.0	3.3	1.2		3.7		251.8	0.2
Delay (s)	27.4	9.2			11.7	19.0	9.8		110.2		356.7	776.8
Level of Service	C	A			B	B	A		F		F	F
Approach Delay (s)		9.4				17.0			110.2			451.0
Approach LOS		A				B			F			F

Intersection Summary			
HCM 2000 Control Delay	59.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

Intersection Summary

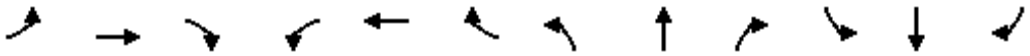


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	1227	179	1744	203	175	25	254
v/c Ratio	0.67	0.55	0.58	0.79	1.06	0.35	0.14	0.62
Control Delay	62.7	20.6	22.4	16.5	159.0	9.0	66.9	74.9
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	62.7	20.6	22.4	17.0	159.0	9.0	66.9	74.9
Queue Length 50th (ft)	106	361	33	247	298	0	29	300
Queue Length 95th (ft)	176	574	m135	323	#478	71	61	403
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	211	2251	368	2202	217	542	208	464
Starvation Cap Reductn	0	70	0	124	0	0	0	0
Spillback Cap Reductn	0	0	0	143	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.56	0.49	0.85	0.94	0.32	0.12	0.55

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

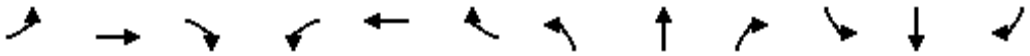


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	1089	40	165	1598	6	60	127	161	23	111	122
Future Volume (vph)	114	1089	40	165	1598	6	60	127	161	23	111	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3523		1805	3537			1870	1615	1805	1751	
Flt Permitted	0.05	1.00		0.17	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	92	3523		321	3537			854	1615	817	1751	
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)	124	1184	43	179	1737	7	65	138	175	25	121	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	136	0	19	0
Lane Group Flow (vph)	124	1226	0	179	1744	0	0	203	39	25	235	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	155.7	139.6		148.5	136.0			48.6	48.6	48.6	48.6	
Effective Green, g (s)	157.7	140.6		150.5	137.0			49.6	49.6	49.6	49.6	
Actuated g/C Ratio	0.72	0.64		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	185	2251		310	2202			192	364	184	394	
v/s Ratio Prot	c0.05	0.35		0.04	c0.49						0.13	
v/s Ratio Perm	0.43			0.36				c0.24	0.02	0.03		
v/c Ratio	0.67	0.54		0.58	0.79			1.06	0.11	0.14	0.60	
Uniform Delay, d1	52.7	22.0		17.1	30.9			85.2	67.6	68.1	76.3	
Progression Factor	1.25	0.85		1.64	0.44			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.6	0.9		1.7	1.9			80.9	0.1	0.3	2.4	
Delay (s)	74.4	19.5		29.7	15.5			166.1	67.8	68.4	78.7	
Level of Service	E	B		C	B			F	E	E	E	
Approach Delay (s)		24.5			16.8			120.6			77.8	
Approach LOS		C			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

3: Chain Bridge Road & Fairfax Blvd

Timing Plan: 2023 TF PM

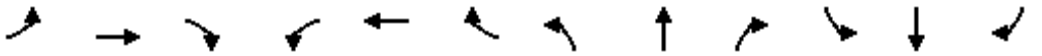


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	903	29	145	1494	111	115	525	114	174	544	344
v/c Ratio	0.75	0.46	0.03	0.87	0.75	0.11	0.94	0.85	0.23	0.62	0.78	0.69
Control Delay	152.1	16.0	0.0	113.7	27.7	6.6	164.2	100.9	5.1	152.5	93.8	30.8
Queue Delay	0.0	0.0	0.0	0.0	5.8	0.0	0.0	0.0	0.0	0.0	2.8	1.0
Total Delay	152.1	16.0	0.0	113.7	33.5	6.6	164.2	100.9	5.1	152.5	96.7	31.8
Queue Length 50th (ft)	179	164	0	217	938	40	170	393	0	135	277	87
Queue Length 95th (ft)	#236	181	m0	m#302	1188	m40	#318	462	37	182	321	134
Internal Link Dist (ft)		774			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	310	1951	1028	166	1987	998	122	678	503	340	815	498
Starvation Cap Reductn	0	0	0	0	437	0	0	0	0	0	168	39
Spillback Cap Reductn	0	0	0	0	80	0	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.46	0.03	0.87	0.96	0.11	0.94	0.77	0.23	0.51	0.84	0.75

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	867	28	139	1434	107	110	504	109	167	522	330
Future Volume (vph)	219	867	28	139	1434	107	110	504	109	167	522	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	228	903	29	145	1494	111	115	525	114	174	544	344
RTOR Reduction (vph)	0	0	11	0	0	21	0	0	83	0	0	61
Lane Group Flow (vph)	228	903	18	145	1494	90	115	525	31	174	544	283
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.9	119.7	133.1	19.2	120.7	137.3	13.4	37.2	56.4	16.6	41.3	59.2
Effective Green, g (s)	19.4	121.2	136.1	20.7	122.2	140.3	14.9	38.7	59.4	18.1	42.8	62.2
Actuated g/C Ratio	0.09	0.55	0.62	0.09	0.56	0.64	0.07	0.18	0.27	0.08	0.19	0.28
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	305	1949	999	166	1985	962	122	622	424	279	695	447
v/s Ratio Prot	c0.07	0.26	0.00	0.08	c0.42	0.01	c0.06	c0.15	0.01	0.05	c0.15	0.06
v/s Ratio Perm			0.01			0.05			0.01			0.12
v/c Ratio	0.75	0.46	0.02	0.87	0.75	0.09	0.94	0.84	0.07	0.62	0.78	0.63
Uniform Delay, d1	97.9	29.8	16.2	98.4	37.4	15.4	102.1	87.7	59.8	97.7	84.2	68.9
Progression Factor	1.42	0.50	1.00	0.87	0.68	0.90	1.00	1.00	1.00	1.46	1.02	0.48
Incremental Delay, d2	8.5	0.7	0.0	24.8	1.6	0.0	63.4	10.2	0.1	4.2	5.7	2.9
Delay (s)	148.0	15.6	16.2	110.6	26.9	13.8	165.5	97.9	59.9	147.3	91.4	35.9
Level of Service	F	B	B	F	C	B	F	F	E	F	F	D
Approach Delay (s)		41.6			33.0			102.5			82.6	
Approach LOS		D			C			F			F	

Intersection Summary					
HCM 2000 Control Delay	57.3	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	0.78				
Actuated Cycle Length (s)	220.0	Sum of lost time (s)		21.6	
Intersection Capacity Utilization	85.1%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	1070	1	0	1890	14	0	0	8	0	0	14
Future Vol, veh/h	0	1070	1	0	1890	14	0	0	8	0	0	14
Conflicting Peds, #/hr	4	0	0	0	0	4	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1151	1	0	2032	15	0	0	9	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	576	-	-	1028
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	460	0	0	231
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	460	-	-	230
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13	21.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	460	-	-	-	-	230
HCM Lane V/C Ratio	0.019	-	-	-	-	0.065
HCM Control Delay (s)	13	-	-	-	-	21.7
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	132	45	98	19	10	6	1086	49	1950
v/c Ratio	0.74	0.44	0.71	0.18	0.06	0.06	0.52	0.25	0.87
Control Delay	120.2	112.9	122.2	95.7	91.0	10.0	11.0	18.6	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	120.2	112.9	122.2	95.7	91.0	10.0	11.2	18.6	27.6
Queue Length 50th (ft)	189	65	139	26	13	1	282	21	607
Queue Length 95th (ft)	274	116	#243	60	38	m4	194	m39	#1645
Internal Link Dist (ft)	220	220	220		220		755		445
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	204	165	138	103	161	112	2105	199	2251
Starvation Cap Reductn	0	0	0	0	0	0	307	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	0.65	0.27	0.71	0.18	0.06	0.05	0.60	0.25	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

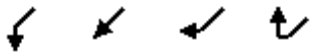
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Future Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0					5.0	
Lane Util. Factor		1.00				1.00					1.00	
Frpb, ped/bikes		1.00				0.99					1.00	
Flpb, ped/bikes		1.00				1.00					0.99	
Frt		0.99				0.98					0.96	
Flt Protected		0.97				0.98					0.97	
Satd. Flow (prot)		1798				1811					1709	
Flt Permitted		0.97				0.98					0.83	
Satd. Flow (perm)		1798				1811					1449	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	46	4	2	20	19	2	4	25	28	14	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	0	45	0	0	0	0	98	0
Confl. Peds. (#/hr)			4	2	2		4		2	2		
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%
Turn Type	Split	NA			Split	NA			Perm	Perm	NA	
Protected Phases	3	3			4	4					7	
Permitted Phases									7	7		
Actuated Green, G (s)		20.3				9.6					19.5	
Effective Green, g (s)		21.8				11.1					21.0	
Actuated g/C Ratio		0.10				0.05					0.10	
Clearance Time (s)		6.5				6.5					6.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		178				91					138	
v/s Ratio Prot		c0.07				c0.02						
v/s Ratio Perm											c0.07	
v/c Ratio		0.74				0.49					0.71	
Uniform Delay, d1		96.4				101.7					96.5	
Progression Factor		1.00				1.00					1.00	
Incremental Delay, d2		15.3				4.2					15.8	
Delay (s)		111.6				105.9					112.3	
Level of Service		F				F					F	
Approach Delay (s)		111.6				105.9					112.3	
Approach LOS		F				F					F	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2	SWL2
Lane Configurations												
Traffic Volume (vph)	4	15	3	4	2	4	6	0	948	73	10	22
Future Volume (vph)	4	15	3	4	2	4	6	0	948	73	10	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0	5.0				5.6	5.1			
Lane Util. Factor			1.00	1.00				1.00	0.95			
Frpb, ped/bikes			1.00	0.98				1.00	1.00			
Flpb, ped/bikes			1.00	1.00				1.00	1.00			
Frt			1.00	0.91				1.00	0.99			
Flt Protected			0.95	1.00				0.95	1.00			
Satd. Flow (prot)			1691	1687				1805	3495			
Flt Permitted			0.61	1.00				0.03	1.00			
Satd. Flow (perm)			1079	1687				58	3495			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	16	3	4	2	4	6	0	998	77	11	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	19	10	0	0	0	6	1086	0	0	0
Confl. Peds. (#/hr)					2	2	2				4	
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%	0%	0%	2%	0%	0%	100%
Turn Type		Perm	Perm	NA			custom	pm+pt	NA			pm+pt
Protected Phases				7				1	6			5
Permitted Phases		7	7				1	6				2
Actuated Green, G (s)			19.5	19.5				130.5	129.2			
Effective Green, g (s)			21.0	21.0				133.5	131.2			
Actuated g/C Ratio			0.10	0.10				0.61	0.60			
Clearance Time (s)			6.5	6.5				7.1	7.1			
Vehicle Extension (s)			3.0	3.0				3.0	4.0			
Lane Grp Cap (vph)			102	161				57	2084			
v/s Ratio Prot				0.01				0.00	0.31			
v/s Ratio Perm			0.02					0.06				
v/c Ratio			0.19	0.06				0.11	0.52			
Uniform Delay, d1			91.6	90.5				39.4	26.0			
Progression Factor			1.00	1.00				0.56	0.38			
Incremental Delay, d2			0.9	0.2				0.8	0.9			
Delay (s)			92.5	90.7				22.9	10.7			
Level of Service			F	F				C	B			
Approach Delay (s)				91.9					10.7			
Approach LOS				F					B			

Intersection Summary

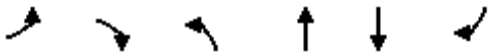


Movement	SWL	SWT	SWR	SWR2
Lane Configurations				
Traffic Volume (vph)	25	1718	128	7
Future Volume (vph)	25	1718	128	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1228	3425		
Flt Permitted	0.18	1.00		
Satd. Flow (perm)	236	3425		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1808	135	7
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	49	1950	0	0
Confl. Peds. (#/hr)	4		2	
Heavy Vehicles (%)	0%	4%	4%	25%
Turn Type	pm+pt	NA		
Protected Phases	5	2		
Permitted Phases	2			
Actuated Green, G (s)	143.3	135.6		
Effective Green, g (s)	145.5	137.6		
Actuated g/C Ratio	0.66	0.63		
Clearance Time (s)	7.1	7.1		
Vehicle Extension (s)	3.0	4.0		
Lane Grp Cap (vph)	197	2142		
v/s Ratio Prot	c0.01	c0.57		
v/s Ratio Perm	0.15			
v/c Ratio	0.25	0.91		
Uniform Delay, d1	17.8	35.8		
Progression Factor	1.09	0.74		
Incremental Delay, d2	0.5	5.2		
Delay (s)	19.9	31.6		
Level of Service	B	C		
Approach Delay (s)		31.3		
Approach LOS		C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	45	863	1053
v/c Ratio	0.48	0.17	0.22
Control Delay	56.4	0.1	0.9
Queue Delay	0.0	0.0	0.1
Total Delay	56.4	0.1	1.0
Queue Length 50th (ft)	19	0	33
Queue Length 95th (ft)	71	0	53
Internal Link Dist (ft)	220	381	220
Turn Bay Length (ft)			
Base Capacity (vph)	180	5085	4722
Starvation Cap Reductn	0	0	2104
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.17	0.40

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	31	0	837	1000	21
Future Volume (vph)	13	31	0	837	1000	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.90			1.00	1.00	
Flt Protected	0.99			1.00	1.00	
Satd. Flow (prot)	1660			5085	5067	
Flt Permitted	0.99			1.00	1.00	
Satd. Flow (perm)	1660			5085	5067	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	32	0	863	1031	22
RTOR Reduction (vph)	31	0	0	0	1	0
Lane Group Flow (vph)	14	0	0	863	1052	0
Confl. Peds. (#/hr)	1		3			3
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	7.0			220.0	203.0	
Effective Green, g (s)	7.0			220.0	203.0	
Actuated g/C Ratio	0.03			1.00	0.92	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	52			5085	4675	
v/s Ratio Prot	0.01			0.17	c0.21	
v/s Ratio Perm						
v/c Ratio	0.27			0.17	0.23	
Uniform Delay, d1	104.0			0.0	0.8	
Progression Factor	1.00			1.00	0.90	
Incremental Delay, d2	2.8			0.1	0.1	
Delay (s)	106.8			0.1	0.8	
Level of Service	F			A	A	
Approach Delay (s)	106.8			0.1	0.8	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	452	441	36	888	475	1043
v/c Ratio	0.72	0.78	0.60	0.40	0.50	1.24	0.45
Control Delay	124.1	5.6	4.9	152.2	13.4	160.9	42.6
Queue Delay	0.0	48.3	53.5	0.0	0.7	0.0	0.0
Total Delay	124.1	53.9	58.3	152.2	14.1	160.9	42.6
Queue Length 50th (ft)	132	77	89	55	74	~655	391
Queue Length 95th (ft)	#244	m43	m57	105	85	#906	448
Internal Link Dist (ft)	420	47			221		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	130	588	741	198	1785	383	2303
Starvation Cap Reductn	0	172	338	0	528	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	0.72	1.09	1.09	0.18	0.71	1.24	0.45

Intersection Summary

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

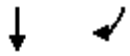
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	54	98	706	17	17	811	41	2	454
Future Volume (vph)	27	45	18	54	98	706	17	17	811	41	2	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1613	1534		1805	4990			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.19
Satd. Flow (perm)		1810			1613	1534		1805	4990			361
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	56	102	735	18	18	845	43	2	473
RTOR Reduction (vph)	0	4	0	0	31	213	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	421	228	0	36	888	0	0	475
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.6	77.2			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.6	78.7			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			547	520		78	1785			383
v/s Ratio Prot		c0.05			c0.26	0.15		0.02	0.18			c0.17
v/s Ratio Perm												c0.47
v/c Ratio		0.72			0.77	0.44		0.46	0.50			1.24
Uniform Delay, d1		100.2			65.0	56.4		102.7	55.2			41.9
Progression Factor		1.00			0.08	0.32		1.38	0.22			1.00
Incremental Delay, d2		18.1			0.8	0.1		4.3	1.0			128.5
Delay (s)		118.3			5.9	18.0		146.2	13.4			170.4
Level of Service		F			A	B		F	B			F
Approach Delay (s)		118.3			11.9				18.6			
Approach LOS		F			B				B			

Intersection Summary			
HCM 2000 Control Delay	47.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	925	76
Future Volume (vph)	925	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5035	
Flt Permitted	1.00	
Satd. Flow (perm)	5035	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	964	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1043	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	97.8	
Effective Green, g (s)	99.3	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2272	
v/s Ratio Prot	0.21	
v/s Ratio Perm		
v/c Ratio	0.46	
Uniform Delay, d1	41.8	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	42.4	
Level of Service	D	
Approach Delay (s)	82.5	
Approach LOS	F	

Intersection Summary

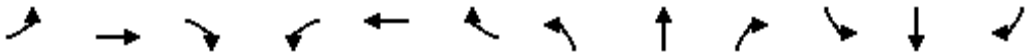
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	575	825	20	158
v/c Ratio	0.27	1.10	0.28	0.89
Control Delay	1.4	132.1	83.8	85.5
Queue Delay	17.7	0.5	0.0	0.4
Total Delay	19.1	132.6	83.8	85.9
Queue Length 50th (ft)	8	~702	19	102
Queue Length 95th (ft)	m8	#846	55	#246
Internal Link Dist (ft)	47	1646	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1548	0	0	0
Spillback Cap Reductn	0	60	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	1.20	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Future Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3458			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3458			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	413	12	0	771	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	574	0	0	823	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.23			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.28			1.10			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.07			0.90			1.00			1.00	
Incremental Delay, d2		0.0			63.7			0.6			32.1	
Delay (s)		1.5			141.6			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.5			141.6			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	89.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2023 TF SAT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1611	8	1504	628	6	220	50	14
v/c Ratio	0.14	0.49	0.05	0.69	0.57	0.07	0.81	0.12	0.12
Control Delay	25.6	25.3	6.9	22.4	11.9	69.3	101.3	6.8	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	25.3	6.9	22.4	11.9	69.3	101.3	6.8	63.7
Queue Length 50th (ft)	8	290	2	820	434	6	228	4	13
Queue Length 95th (ft)	m28	508	m2	#1068	652	22	#343	24	34
Internal Link Dist (ft)		810		1202		100		1665	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	170	3280	186	2169	1099	94	282	419	264
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	0.13	0.49	0.04	0.69	0.57	0.06	0.78	0.12	0.05

Intersection Summary

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

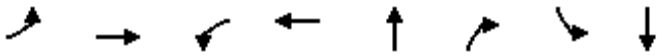
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1478	4	6	1	1384	578	4	0	2	202	2
Future Volume (vph)	20	1478	4	6	1	1384	578	4	0	2	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5034			1621	3539	1583		1756		1787	1626
Flt Permitted	0.07	1.00			0.10	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	124	5034			171	3539	1583		1756		1787	1626
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)	22	1607	4	7	1	1504	628	4	0	2	220	2
RTOR Reduction (vph)	0	0	0	0	0	0	155	0	0	0	0	42
Lane Group Flow (vph)	22	1611	0	0	8	1504	473	0	6	0	220	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	84.9	81.0			79.9	78.5	78.5		1.5		21.9	21.9
Effective Green, g (s)	86.9	83.0			81.9	80.5	80.5		2.5		22.9	22.9
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	126	2785			116	1899	849		29		272	248
v/s Ratio Prot	c0.01	0.32			0.00	c0.42			c0.00		c0.12	0.00
v/s Ratio Perm	0.10				0.04		0.30					
v/c Ratio	0.17	0.58			0.07	0.79	0.56		0.21		0.81	0.03
Uniform Delay, d1	22.7	22.0			17.5	28.0	23.0		72.8		61.4	54.1
Progression Factor	1.69	1.39			0.41	0.84	0.91		1.00		1.30	1.00
Incremental Delay, d2	0.5	0.7			0.2	3.0	2.3		3.5		17.8	0.1
Delay (s)	39.0	31.4			7.4	26.6	23.1		76.3		97.7	54.2
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		31.5				25.5			76.3			89.6
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

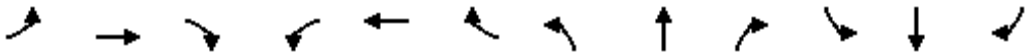
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	178	1434	151	1289	140	105	46	267
v/c Ratio	0.53	0.65	0.52	0.59	0.78	0.28	0.25	0.79
Control Delay	20.8	12.3	33.1	16.6	85.4	9.8	53.5	66.8
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	20.8	12.3	33.1	17.1	85.4	9.8	53.5	66.8
Queue Length 50th (ft)	23	318	56	703	132	0	39	220
Queue Length 95th (ft)	82	763	m144	777	202	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	415	2194	380	2186	250	476	257	457
Starvation Cap Reductn	0	0	0	455	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.65	0.40	0.74	0.56	0.22	0.18	0.58

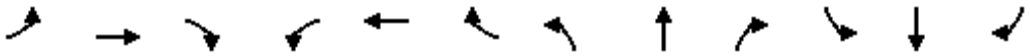
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1286	33	139	1176	10	27	102	97	42	116	130
Future Volume (vph)	164	1286	33	139	1176	10	27	102	97	42	116	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3526		1805	3535			1881	1568	1719	1694	
Flt Permitted	0.15	1.00		0.12	1.00			0.52	1.00	0.56	1.00	
Satd. Flow (perm)	276	3526		219	3535			988	1568	1011	1694	
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)	178	1398	36	151	1278	11	29	111	105	46	126	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	29	0
Lane Group Flow (vph)	178	1433	0	151	1289	0	0	140	19	46	238	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	105.1	92.4		103.7	91.7			26.3	26.3	26.3	26.3	
Effective Green, g (s)	107.1	93.4		105.7	92.7			27.3	27.3	27.3	27.3	
Actuated g/C Ratio	0.71	0.62		0.70	0.62			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	336	2195		291	2184			179	285	184	308	
v/s Ratio Prot	c0.05	c0.41		0.04	0.36						0.14	
v/s Ratio Perm	0.33			0.32				c0.14	0.01	0.05		
v/c Ratio	0.53	0.65		0.52	0.59			0.78	0.07	0.25	0.77	
Uniform Delay, d1	12.2	18.0		14.3	17.2			58.5	50.8	52.6	58.4	
Progression Factor	2.25	0.54		3.27	0.82			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	1.3		1.1	0.9			19.6	0.1	0.7	11.3	
Delay (s)	28.7	11.1		47.9	15.0			78.1	50.9	53.3	69.7	
Level of Service	C	B		D	B			E	D	D	E	
Approach Delay (s)		13.0			18.5			66.5			67.3	
Approach LOS		B			B			E			E	

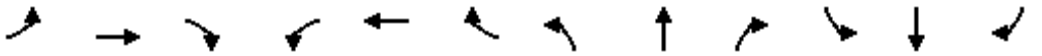
Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	274	1093	26	150	1044	92	100	546	160	188	603	394
v/c Ratio	0.66	0.67	0.03	0.91	0.68	0.11	0.62	0.76	0.31	0.55	0.78	0.66
Control Delay	90.3	35.0	0.8	104.2	33.6	3.8	82.3	63.1	7.4	93.2	85.9	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Total Delay	90.3	35.0	0.8	104.2	33.6	3.8	82.3	63.1	7.4	93.2	86.2	29.3
Queue Length 50th (ft)	146	254	0	133	216	0	95	265	17	99	264	263
Queue Length 95th (ft)	195	455	m1	#282	443	26	161	320	53	142	356	449
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	441	1639	890	164	1526	867	177	854	524	411	948	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	63	12
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.67	0.03	0.91	0.68	0.11	0.56	0.64	0.31	0.46	0.68	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	1049	25	144	1002	88	96	524	154	180	579	378
Future Volume (vph)	263	1049	25	144	1002	88	96	524	154	180	579	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	274	1093	26	150	1044	92	100	546	160	188	603	394
RTOR Reduction (vph)	0	0	12	0	0	39	0	0	89	0	0	82
Lane Group Flow (vph)	274	1093	14	150	1044	53	100	546	71	188	603	312
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	16.7	68.0	80.1	12.2	63.2	76.6	12.1	29.1	41.3	13.4	31.3	48.0
Effective Green, g (s)	18.2	69.5	83.1	13.7	64.7	79.6	13.6	30.6	44.3	14.9	32.8	51.0
Actuated g/C Ratio	0.12	0.46	0.55	0.09	0.43	0.53	0.09	0.20	0.30	0.10	0.22	0.34
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	416	1639	850	164	1526	815	162	721	448	341	773	533
v/s Ratio Prot	0.08	c0.31	0.00	0.08	c0.29	0.01	c0.06	0.15	0.01	0.05	c0.17	0.07
v/s Ratio Perm			0.01			0.03			0.03			0.13
v/c Ratio	0.66	0.67	0.02	0.91	0.68	0.07	0.62	0.76	0.16	0.55	0.78	0.59
Uniform Delay, d1	62.9	31.3	15.1	67.6	34.4	17.1	65.7	56.2	39.1	64.4	55.2	40.8
Progression Factor	1.34	1.02	1.00	0.89	0.87	0.81	1.00	1.00	1.00	1.36	1.43	0.97
Incremental Delay, d2	2.9	1.7	0.0	40.0	2.0	0.0	6.8	4.6	0.2	1.9	5.0	1.6
Delay (s)	87.1	33.5	15.1	100.1	32.0	13.9	72.5	60.8	39.2	89.5	84.2	41.0
Level of Service	F	C	B	F	C	B	E	E	D	F	F	D
Approach Delay (s)		43.7			38.6			57.9			70.7	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	1327	3	0	1474	24	0	0	11	0	0	17
Future Vol, veh/h	0	1327	3	0	1474	24	0	0	11	0	0	17
Conflicting Peds, #/hr	5	0	3	3	0	5	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1368	3	0	1520	25	0	0	11	0	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	689	-	-	778
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	388	0	0	339
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	387	-	-	338
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.6	16.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	387	-	-	-	-	338
HCM Lane V/C Ratio	0.029	-	-	-	-	0.052
HCM Control Delay (s)	14.6	-	-	-	-	16.2
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	86	39	46	11	7	8	1379	43	1513
v/c Ratio	0.51	0.32	0.41	0.10	0.06	0.04	0.67	0.20	0.67
Control Delay	74.8	72.6	75.8	64.5	63.0	20.1	29.2	21.0	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	72.6	75.8	64.5	63.0	20.1	29.3	21.0	25.6
Queue Length 50th (ft)	82	37	44	10	6	0	472	20	394
Queue Length 95th (ft)	138	76	86	31	23	m7	447	m35	#627
Internal Link Dist (ft)	220	220	220		220		755		420
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	219	180	166	161	177	268	2043	275	2261
Starvation Cap Reductn	0	0	0	0	0	0	21	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	0.39	0.22	0.28	0.07	0.04	0.03	0.68	0.16	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL2	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Future Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0				5.0					5.0
Lane Util. Factor			1.00				1.00					1.00
Frpb, ped/bikes			1.00				1.00					0.98
Flpb, ped/bikes			1.00				1.00					0.97
Frt			1.00				0.99					0.94
Flt Protected			0.96				0.97					0.98
Satd. Flow (prot)			1825				1801					1658
Flt Permitted			0.96				0.97					0.86
Satd. Flow (perm)			1825				1801					1451
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	62	20	2	3	25	7	1	3	15	5	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	0	39	0	0	0	0	46
Confl. Peds. (#/hr)				7	4			3		7	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Split	NA		Perm	Split	NA			Perm	Perm	NA
Protected Phases		3	3			4	4					7
Permitted Phases	3				4					7	7	
Actuated Green, G (s)			12.4				7.6					8.9
Effective Green, g (s)			13.9				9.1					10.4
Actuated g/C Ratio			0.09				0.06					0.07
Clearance Time (s)			6.5				6.5					6.5
Vehicle Extension (s)			3.0				3.0					3.0
Lane Grp Cap (vph)			169				109					100
v/s Ratio Prot			c0.05				c0.02					
v/s Ratio Perm												c0.03
v/c Ratio			0.51				0.36					0.46
Uniform Delay, d1			64.8				67.6					67.1
Progression Factor			1.00				1.00					1.00
Incremental Delay, d2			2.4				2.0					3.3
Delay (s)			67.2				69.7					70.4
Level of Service			E				E					E
Approach Delay (s)			67.2				69.7					70.4
Approach LOS			E				E					E

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2
Lane Configurations												
Traffic Volume (vph)	20	1	8	3	1	4	2	2	6	1232	77	15
Future Volume (vph)	20	1	8	3	1	4	2	2	6	1232	77	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0				5.6	5.1		
Lane Util. Factor				1.00	1.00				1.00	0.95		
Frpb, ped/bikes				1.00	0.92				1.00	1.00		
Flpb, ped/bikes				0.99	1.00				1.00	1.00		
Frt				1.00	0.87				1.00	0.99		
Flt Protected				0.95	1.00				0.95	1.00		
Satd. Flow (prot)				1784	1527				1805	3501		
Flt Permitted				0.76	1.00				0.09	1.00		
Satd. Flow (perm)				1420	1527				171	3501		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	1	8	3	1	4	2	2	6	1283	80	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	7	0	0	0	8	1379	0	0
Confl. Peds. (#/hr)		2		2		7	3	3	3		2	4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Turn Type			Perm	Perm	NA			custom	pm+pt	NA		
Protected Phases					7				1	6		
Permitted Phases			7	7				1	6			
Actuated Green, G (s)				8.9	8.9				82.7	81.4		
Effective Green, g (s)				10.4	10.4				85.7	83.4		
Actuated g/C Ratio				0.07	0.07				0.57	0.56		
Clearance Time (s)				6.5	6.5				7.1	7.1		
Vehicle Extension (s)				3.0	3.0				3.0	4.0		
Lane Grp Cap (vph)				98	105				128	1946		
v/s Ratio Prot					0.00				0.00	0.39		
v/s Ratio Perm				0.01					0.03			
v/c Ratio				0.11	0.07				0.06	0.71		
Uniform Delay, d1				65.5	65.3				19.1	24.4		
Progression Factor				1.00	1.00				1.42	1.04		
Incremental Delay, d2				0.5	0.3				0.2	2.0		
Delay (s)				66.0	65.5				27.4	27.3		
Level of Service				E	E				C	C		
Approach Delay (s)					65.8					27.3		
Approach LOS					E					C		

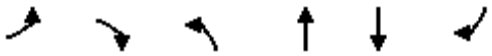
Intersection Summary

Movement	SWL2	SWL	SWT	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	27	14	1396	52	5
Future Volume (vph)	27	14	1396	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.1		
Lane Util. Factor		1.00	0.95		
Frpb, ped/bikes		1.00	1.00		
Flpb, ped/bikes		1.00	1.00		
Frt		1.00	0.99		
Flt Protected		0.95	1.00		
Satd. Flow (prot)		1805	3518		
Flt Permitted		0.10	1.00		
Satd. Flow (perm)		183	3518		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	15	1454	54	5
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	43	1513	0	0
Confl. Peds. (#/hr)	2	4			3
Heavy Vehicles (%)	0%	0%	2%	0%	0%
Turn Type	pm+pt	pm+pt	NA		
Protected Phases	5	5	2		
Permitted Phases	2	2			
Actuated Green, G (s)		92.1	86.1		
Effective Green, g (s)		95.1	88.1		
Actuated g/C Ratio		0.63	0.59		
Clearance Time (s)		7.1	7.1		
Vehicle Extension (s)		3.0	4.0		
Lane Grp Cap (vph)		197	2066		
v/s Ratio Prot		c0.01	c0.43		
v/s Ratio Perm		0.13			
v/c Ratio		0.22	0.73		
Uniform Delay, d1		17.8	22.4		
Progression Factor		1.47	1.16		
Incremental Delay, d2		0.4	1.8		
Delay (s)		26.6	27.7		
Level of Service		C	C		
Approach Delay (s)			27.6		
Approach LOS			C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	41	948	1214
v/c Ratio	0.37	0.19	0.27
Control Delay	43.3	0.1	0.5
Queue Delay	0.0	0.0	0.1
Total Delay	43.3	0.1	0.6
Queue Length 50th (ft)	15	0	7
Queue Length 95th (ft)	57	0	8
Internal Link Dist (ft)	220	381	215
Turn Bay Length (ft)			
Base Capacity (vph)	245	5085	4572
Starvation Cap Reductn	0	0	1461
Spillback Cap Reductn	0	0	39
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.17	0.19	0.39

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	24	0	901	1123	30
Future Volume (vph)	15	24	0	901	1123	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.92			1.00	1.00	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1677			5085	5062	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1677			5085	5062	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	25	0	948	1182	32
RTOR Reduction (vph)	24	0	0	0	1	0
Lane Group Flow (vph)	17	0	0	948	1213	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	6.5			150.0	133.5	
Effective Green, g (s)	6.5			150.0	133.5	
Actuated g/C Ratio	0.04			1.00	0.89	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	72			5085	4505	
v/s Ratio Prot	0.01			0.19	c0.24	
v/s Ratio Perm						
v/c Ratio	0.24			0.19	0.27	
Uniform Delay, d1	69.4			0.0	1.2	
Progression Factor	1.00			1.00	0.33	
Incremental Delay, d2	1.7			0.1	0.1	
Delay (s)	71.1			0.1	0.5	
Level of Service	E			A	A	
Approach Delay (s)	71.1			0.1	0.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	177	326	33	894	407	1160
v/c Ratio	0.30	0.31	0.44	0.30	0.67	1.30	0.65
Control Delay	56.7	1.2	4.4	94.9	43.2	188.4	45.1
Queue Delay	0.0	1.0	1.9	0.0	0.0	0.2	0.0
Total Delay	56.7	2.3	6.3	94.9	43.2	188.7	45.1
Queue Length 50th (ft)	52	0	67	33	150	~447	364
Queue Length 95th (ft)	98	0	115	72	220	#796	#487
Internal Link Dist (ft)	420	47			226		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	217	614	770	166	1339	313	1790
Starvation Cap Reductn	0	248	295	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	6	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.48	0.69	0.20	0.67	1.33	0.65

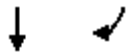
Intersection Summary

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

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

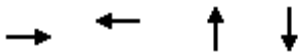
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	38	39	411	19	13	840	27	5	390
Future Volume (vph)	25	23	14	38	39	411	19	13	840	27	5	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1540	1504		1763	5063			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.14
Satd. Flow (perm)		1807			1540	1504		1763	5063			256
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)	26	24	14	39	40	424	20	13	866	28	5	402
RTOR Reduction (vph)	0	6	0	0	35	213	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	142	113	0	33	894	0	0	407
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.3			50.8	50.8		7.3	38.2			64.2
Effective Green, g (s)		17.3			51.8	51.8		8.3	39.7			65.2
Actuated g/C Ratio		0.12			0.35	0.35		0.06	0.26			0.43
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		208			531	519		97	1340			317
v/s Ratio Prot		c0.03			c0.09	0.07		0.02	0.18			c0.17
v/s Ratio Perm												c0.39
v/c Ratio		0.28			0.27	0.22		0.34	0.67			1.28
Uniform Delay, d1		60.6			35.4	34.7		68.2	49.3			39.5
Progression Factor		1.00			0.00	0.89		1.32	0.82			1.00
Incremental Delay, d2		0.9			0.6	0.5		2.1	2.6			149.7
Delay (s)		61.5			0.6	31.3		92.4	43.0			189.2
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.5			20.5				44.8			
Approach LOS		E			C				D			

Intersection Summary			
HCM 2000 Control Delay	60.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1093	32
Future Volume (vph)	1093	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5066	
Flt Permitted	1.00	
Satd. Flow (perm)	5066	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1127	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1160	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.1	
Effective Green, g (s)	51.6	
Actuated g/C Ratio	0.34	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1742	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.67	
Uniform Delay, d1	41.9	
Progression Factor	1.00	
Incremental Delay, d2	2.0	
Delay (s)	43.9	
Level of Service	D	
Approach Delay (s)	81.6	
Approach LOS	F	

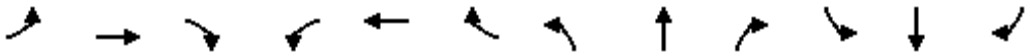
Intersection Summary



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	484	444	14	119
v/c Ratio	0.23	0.60	0.17	0.47
Control Delay	2.4	64.6	59.0	6.2
Queue Delay	51.9	0.3	0.0	0.0
Total Delay	54.3	64.9	59.0	6.2
Queue Length 50th (ft)	10	185	10	0
Queue Length 95th (ft)	m11	285	35	0
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2065	827	137	299
Starvation Cap Reductn	1621	0	0	0
Spillback Cap Reductn	0	70	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.09	0.59	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	348	7	0	386	22	8	1	4	20	0	89
Future Volume (vph)	90	348	7	0	386	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3537			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3537			3482			1738			1649	
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)	98	378	8	0	420	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	483	0	0	441	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.4			30.8			5.8			5.2	
Effective Green, g (s)		82.5			31.8			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1945			738			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.60			0.13			0.07	
Uniform Delay, d1		17.6			53.3			68.8			69.1	
Progression Factor		0.16			1.17			1.00			1.00	
Incremental Delay, d2		0.0			1.8			0.3			0.2	
Delay (s)		2.7			64.5			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.7			64.5			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	96	383	379	224	16	436	463	63	23	401	52	34
Average Queue (ft)	12	147	145	127	1	227	233	7	2	260	8	4
95th Queue (ft)	57	310	305	240	12	416	426	39	13	375	34	20
Link Distance (ft)		764	764			1199	1199	1199	114	1638	1638	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		12	3	2		23						
Queuing Penalty (veh)		4	20	16		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	82	259	242	166	294	254	413	277	103	250
Average Queue (ft)	23	109	112	66	69	59	210	122	13	121
95th Queue (ft)	59	227	228	140	222	197	383	236	62	223
Link Distance (ft)		982	982		764	764	447	447		235
Upstream Blk Time (%)							1	0		2
Queuing Penalty (veh)							0	0		0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				1	6				0	19
Queuing Penalty (veh)				3	4				0	1

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	232	275	478	498	125	475	994	1002	160	225	422	428
Average Queue (ft)	130	150	276	288	7	410	555	423	17	57	277	278
95th Queue (ft)	207	232	419	432	80	583	1222	1082	79	182	401	411
Link Distance (ft)			732	732			982	982			514	514
Upstream Blk Time (%)							9	2				
Queuing Penalty (veh)							34	7				
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			0	0		57	3	0	0	0	29	20
Queuing Penalty (veh)			0	0		165	4	0	0	0	11	22

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	170	168	346	358	225
Average Queue (ft)	110	84	82	237	249	121
95th Queue (ft)	283	151	149	345	368	284
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				5	9	
Queuing Penalty (veh)				16	28	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				39	0
Queuing Penalty (veh)	0				91	1

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	NB	SB
Directions Served	R	R
Maximum Queue (ft)	19	28
Average Queue (ft)	3	6
95th Queue (ft)	13	23
Link Distance (ft)	254	92
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	SW	SW	SW
Directions Served	<LTR>	LTR	<LTR>	<L	TR	T	TR>	<L	T	TR>
Maximum Queue (ft)	232	83	162	104	35	455	453	154	272	295
Average Queue (ft)	179	27	52	32	5	226	239	29	137	161
95th Queue (ft)	248	64	127	76	19	401	418	91	259	283
Link Distance (ft)	188	107	225		231	713	713		391	391
Upstream Blk Time (%)	36	0	0							
Queuing Penalty (veh)	0	0	0							
Storage Bay Dist (ft)				175				150		
Storage Blk Time (%)						30			10	
Queuing Penalty (veh)						0			3	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B9
Directions Served	LR	T	T	TR	T
Maximum Queue (ft)	89	69	113	142	3
Average Queue (ft)	28	8	21	28	0
95th Queue (ft)	68	39	78	99	3
Link Distance (ft)	235	243	243	243	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	B9	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	461	51	61	150	300	304	307	67	101	98	495	889
Average Queue (ft)	356	18	43	21	177	202	209	4	11	11	419	466
95th Queue (ft)	541	49	62	80	303	338	342	30	55	53	589	971
Link Distance (ft)	434	37	37		226	226	226	243	243	243		958
Upstream Blk Time (%)	28	8	53		3	6	7					6
Queuing Penalty (veh)	0	23	155		11	20	23					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)				0	15						30	0
Queuing Penalty (veh)				0	2						92	0

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	843	624
Average Queue (ft)	399	267
95th Queue (ft)	826	487
Link Distance (ft)	958	958
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	54	41	443	434	93	318
Average Queue (ft)	26	5	274	262	28	286
95th Queue (ft)	47	24	430	424	70	324
Link Distance (ft)	37	37	1638	1638	158	259
Upstream Blk Time (%)	5	1				96
Queuing Penalty (veh)	12	2				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 771

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	53	189	179	153	38	1252	1251	1259	44	1311	813	63
Average Queue (ft)	11	58	60	47	3	973	999	538	11	891	268	14
95th Queue (ft)	36	141	142	119	20	1485	1486	1487	36	1487	796	45
Link Distance (ft)		765	765			1192	1192	1192	111	1639	1639	213
Upstream Blk Time (%)						6	10	2		0		
Queuing Penalty (veh)						49	77	19		1		
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		2	0	0		28						
Queuing Penalty (veh)		0	0	0		1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	236	321	316	174	409	432	402	134	145	283		
Average Queue (ft)	93	137	140	86	175	187	227	56	34	220		
95th Queue (ft)	186	281	286	170	348	361	384	105	108	323		
Link Distance (ft)		980	980		765	765	447	447		268		
Upstream Blk Time (%)							1			12		
Queuing Penalty (veh)							0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				2	21					46		
Queuing Penalty (veh)				16	35					10		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	178	188	237	249	33	474	705	747	375	225	486	466
Average Queue (ft)	94	115	130	136	5	205	354	390	123	178	293	274
95th Queue (ft)	160	174	229	232	24	440	708	758	394	275	454	437
Link Distance (ft)			740	740			980	980			513	513
Upstream Blk Time (%)											0	0
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)						0	6	15	0	20	24	17
Queuing Penalty (veh)						0	9	16	0	50	27	19

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	10	135	150	316	322	225
Average Queue (ft)	93	0	62	67	178	200	159
95th Queue (ft)	281	8	123	128	297	334	267
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)					1	4	
Queuing Penalty (veh)					5	14	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					20	9
Queuing Penalty (veh)	0					65	23

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	472	442	24	75
Average Queue (ft)	179	196	6	27
95th Queue (ft)	402	414	23	63
Link Distance (ft)	740	740	126	77
Upstream Blk Time (%)	0			7
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	LTR>	LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	209	125	198	70	36	63	289	293	174	384	407
Average Queue (ft)	149	41	96	15	5	6	139	139	40	342	350
95th Queue (ft)	232	99	176	47	22	40	254	258	125	459	462
Link Distance (ft)	189	146	225		232		713	713		354	354
Upstream Blk Time (%)	16	0	0							22	25
Queuing Penalty (veh)	0	0	0							212	240
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							18		1	32	
Queuing Penalty (veh)							1		7	15	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB
Directions Served	LR	T	T	TR
Maximum Queue (ft)	102	70	176	207
Average Queue (ft)	38	4	22	36
95th Queue (ft)	87	27	93	133
Link Distance (ft)	235	239	239	239
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B10	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	UL	T	T	TR
Maximum Queue (ft)	223	62	58	90	121	158	164	7	495	1010	980	965
Average Queue (ft)	106	16	42	33	54	56	75	0	494	962	764	402
95th Queue (ft)	192	45	59	78	116	117	138	6	499	1113	1318	937
Link Distance (ft)	434	37	37		230	230	230	239		958	958	958
Upstream Blk Time (%)		3	55			0				80	11	1
Queuing Penalty (veh)		15	236			0				0	0	0
Storage Bay Dist (ft)				135					470			
Storage Blk Time (%)					0				86	0		
Queuing Penalty (veh)					0				265	1		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	55	49	1152	1166	72	299
Average Queue (ft)	27	11	981	994	22	244
95th Queue (ft)	50	36	1180	1203	56	339
Link Distance (ft)	37	37	1639	1639	158	259
Upstream Blk Time (%)	8	2				60
Queuing Penalty (veh)	23	6				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1456

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	127	454	452	225	58	732	719	515	40	314	102	42
Average Queue (ft)	11	206	196	156	6	234	250	46	8	173	37	9
95th Queue (ft)	57	354	349	248	32	587	618	277	29	266	81	30
Link Distance (ft)		764	764			1190	1190	1190	109	1672	1672	213
Upstream Blk Time (%)						0	0					
Queuing Penalty (veh)						0	0					
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		16	6	4	0	20						
Queuing Penalty (veh)		3	30	18	0	1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	206	286	314	174	423	426	212	126	145	238
Average Queue (ft)	98	105	117	89	161	174	106	52	48	177
95th Queue (ft)	175	227	243	174	374	386	191	100	131	258
Link Distance (ft)		980	980		764	764	447	447		205
Upstream Blk Time (%)										14
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				1	7				0	34
Queuing Penalty (veh)				8	10				1	15

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	175	190	417	427	37	371	660	685	375	224	326	317
Average Queue (ft)	103	120	260	264	6	141	314	330	95	83	183	176
95th Queue (ft)	161	172	381	387	27	332	578	599	337	173	271	268
Link Distance (ft)			769	769			980	980			515	515
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							0	0				
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				0			5	17	0	0	7	3
Queuing Penalty (veh)				0			7	15	0	0	7	4

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	249	147	145	312	347	225
Average Queue (ft)	49	61	65	152	169	116
95th Queue (ft)	157	124	126	284	319	251
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				0	2	
Queuing Penalty (veh)				1	8	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				10	4
Queuing Penalty (veh)	0				38	12

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	79	86	32	57
Average Queue (ft)	7	13	6	17
95th Queue (ft)	42	56	23	46
Link Distance (ft)	769	769	135	122
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	<LTR>	<LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	149	86	90	47	20	81	369	375	174	368	372
Average Queue (ft)	67	26	28	8	2	7	174	172	29	265	285
95th Queue (ft)	128	65	71	29	12	42	290	296	115	409	415
Link Distance (ft)	188	154	225		229		713	713		328	328
Upstream Blk Time (%)	0									4	7
Queuing Penalty (veh)	0									28	50
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							23			22	
Queuing Penalty (veh)							2			9	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B9	B9
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	81	18	121	139	6	36
Average Queue (ft)	31	1	6	10	0	1
95th Queue (ft)	66	10	50	52	4	26
Link Distance (ft)	235	234	234	234	235	235
Upstream Blk Time (%)			0	0		0
Queuing Penalty (veh)			0	0		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	UL	T	T
Maximum Queue (ft)	133	69	57	128	223	241	256	5	4	495	996	989
Average Queue (ft)	52	18	33	32	130	143	164	0	0	478	844	809
95th Queue (ft)	106	54	64	89	199	213	232	5	4	564	1289	1258
Link Distance (ft)	434	37	37		235	235	235	234	234		958	958
Upstream Blk Time (%)		5	18		1	1	2				60	15
Queuing Penalty (veh)		12	44		2	4	7				0	0
Storage Bay Dist (ft)				135						470		
Storage Blk Time (%)				0	20					74	1	
Queuing Penalty (veh)				1	7					269	2	

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB
Directions Served	TR
Maximum Queue (ft)	971
Average Queue (ft)	580
95th Queue (ft)	1069
Link Distance (ft)	958
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	52	36	276	284	53	167
Average Queue (ft)	29	9	161	170	16	72
95th Queue (ft)	46	31	254	264	44	143
Link Distance (ft)	37	37	1672	1672	158	259
Upstream Blk Time (%)	5	1				
Queuing Penalty (veh)	10	2				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 626

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

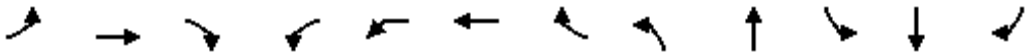
Timing Plan: 2023 TF AM MIT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2214	1	836	251	1	274	11	5
v/c Ratio	0.10	0.67	0.01	0.42	0.25	0.02	0.83	0.02	0.06
Control Delay	9.0	12.2	39.0	45.0	24.7	89.0	122.4	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	12.4	39.0	45.0	24.7	89.0	122.4	0.1	82.2
Queue Length 50th (ft)	5	98	1	443	125	1	313	0	6
Queue Length 95th (ft)	m19	#1184	m4	643	230	9	m406	m0	22
Internal Link Dist (ft)		810		1204		100		1637	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	417	3316	119	1977	1009	67	379	487	175
Starvation Cap Reductn	0	379	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	0.10	0.75	0.01	0.42	0.25	0.01	0.72	0.02	0.03

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

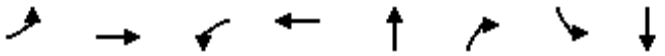


Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2036	1	1	0	769	231	1	0	252	1	9
Future Volume (vph)	37	2036	1	1	0	769	231	1	0	252	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1641	
Flt Permitted	0.26	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	487	4987			73	3223	1524		1805	1687	1641	
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)	40	2213	1	1	0	836	251	1	0	274	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	86	0	0	0	9	0
Lane Group Flow (vph)	40	2214	0	0	1	836	165	0	1	274	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	114.4	108.3			104.6	103.4	103.4		1.3	36.5	36.5	
Effective Green, g (s)	116.4	110.3			106.6	105.4	105.4		2.3	37.5	37.5	
Actuated g/C Ratio	0.61	0.58			0.56	0.55	0.55		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	347	2895			61	1787	845		21	332	323	
v/s Ratio Prot	c0.00	c0.44			0.00	0.26			c0.00	c0.16	0.00	
v/s Ratio Perm	0.07				0.01		0.11					
v/c Ratio	0.12	0.76			0.02	0.47	0.20		0.05	0.83	0.01	
Uniform Delay, d1	16.5	30.1			26.2	25.4	21.1		92.8	73.1	61.3	
Progression Factor	0.55	0.45			1.88	1.85	3.57		1.00	1.41	1.00	
Incremental Delay, d2	0.1	1.3			0.1	0.9	0.5		0.9	16.4	0.0	
Delay (s)	9.1	14.7			49.3	48.0	76.0		93.7	119.7	61.3	
Level of Service	A	B			D	D	E		F	F	E	
Approach Delay (s)		14.6				54.5			93.7		117.5	
Approach LOS		B				D			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

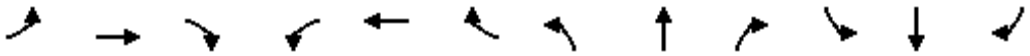
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	1979	75	767	153	185	7	123
v/c Ratio	0.10	0.81	0.50	0.33	0.92	0.57	0.09	0.49
Control Delay	3.5	10.6	60.7	3.7	127.5	43.2	67.3	71.1
Queue Delay	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	11.5	60.7	3.7	127.5	43.3	67.3	71.1
Queue Length 50th (ft)	7	181	47	42	190	110	8	127
Queue Length 95th (ft)	m10	197	121	7	#301	196	25	197
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	550	2441	162	2326	202	376	99	303
Starvation Cap Reductn	0	219	0	0	0	0	0	0
Spillback Cap Reductn	0	155	0	0	0	4	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.89	0.46	0.33	0.76	0.50	0.07	0.41

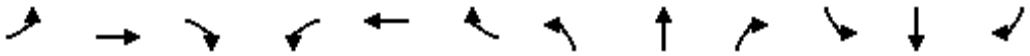
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	1808	13	69	705	1	33	108	170	6	75	38
Future Volume (vph)	48	1808	13	69	705	1	33	108	170	6	75	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1354	1599	1081	1547	
Flt Permitted	0.34	1.00		0.05	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	645	3433		95	3195			1067	1599	525	1547	
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)	52	1965	14	75	766	1	36	117	185	7	82	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	76	0	10	0
Lane Group Flow (vph)	52	1979	0	75	767	0	0	153	109	7	113	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	139.8	134.1		143.8	136.1			28.9	28.9	28.9	28.9	
Effective Green, g (s)	141.8	135.1		145.8	137.1			29.9	29.9	29.9	29.9	
Actuated g/C Ratio	0.75	0.71		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	522	2441		151	2305			167	251	82	243	
v/s Ratio Prot	0.00	c0.58		c0.02	0.24						0.07	
v/s Ratio Perm	0.07			0.36				c0.14	0.07	0.01		
v/c Ratio	0.10	0.81		0.50	0.33			0.92	0.43	0.09	0.46	
Uniform Delay, d1	6.5	18.7		27.2	9.7			78.8	72.4	68.4	72.8	
Progression Factor	0.59	0.41		3.75	0.32			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	2.2		2.4	0.4			45.6	1.2	0.5	1.4	
Delay (s)	3.9	9.9		104.3	3.5			124.4	73.6	68.8	74.2	
Level of Service	A	A		F	A			F	E	E	E	
Approach Delay (s)		9.7			12.5			96.6			73.9	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



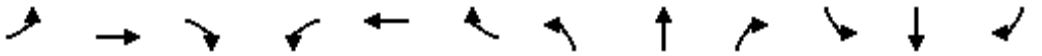
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	288	1552	10	141	599	72	37	637	113	159	564	241
v/c Ratio	0.72	0.80	0.01	1.37	0.34	0.10	0.39	0.89	0.24	0.73	0.69	0.32
Control Delay	119.5	22.5	0.0	263.0	23.3	6.4	97.8	88.8	9.0	130.9	118.5	6.0
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.5
Total Delay	119.5	22.7	0.0	263.0	23.3	6.4	97.8	88.8	9.0	130.9	120.9	6.4
Queue Length 50th (ft)	193	251	0	~236	77	0	45	408	10	107	379	0
Queue Length 95th (ft)	m241	412	m0	m#382	341	m38	91	488	54	#154	456	82
Internal Link Dist (ft)		772			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1932	968	103	1749	730	110	748	474	222	819	764
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	142	221
Spillback Cap Reductn	0	57	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.83	0.01	1.37	0.34	0.10	0.34	0.85	0.24	0.72	0.83	0.44

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	1505	10	137	581	70	36	618	110	154	547	234
Future Volume (vph)	279	1505	10	137	581	70	36	618	110	154	547	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	288	1552	10	141	599	72	37	637	113	159	564	241
RTOR Reduction (vph)	0	0	4	0	0	29	0	0	72	0	0	145
Lane Group Flow (vph)	288	1552	6	141	599	43	37	637	41	159	564	96
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	20.8	100.9	108.6	11.2	91.0	103.2	7.7	38.4	49.6	12.2	43.8	64.6
Effective Green, g (s)	22.3	102.4	111.6	12.7	92.5	106.2	9.2	39.9	52.6	13.7	45.3	67.6
Actuated g/C Ratio	0.12	0.54	0.59	0.07	0.49	0.56	0.05	0.21	0.28	0.07	0.24	0.36
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	402	1907	916	103	1722	702	85	743	424	217	819	563
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.17	0.00	0.02	c0.18	0.01	c0.05	c0.16	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.04
v/c Ratio	0.72	0.81	0.01	1.37	0.35	0.06	0.44	0.86	0.10	0.73	0.69	0.17
Uniform Delay, d1	80.8	36.0	16.2	88.7	30.1	19.1	87.9	72.3	51.0	86.4	65.9	42.0
Progression Factor	1.41	0.57	1.00	0.80	0.76	1.36	1.00	1.00	1.00	1.30	1.70	0.89
Incremental Delay, d2	3.5	2.3	0.0	214.0	0.5	0.0	3.5	9.6	0.1	11.9	2.4	0.1
Delay (s)	117.1	22.8	16.2	284.6	23.3	26.1	91.4	81.9	51.1	124.0	114.8	37.6
Level of Service	F	C	B	F	C	C	F	F	D	F	F	D
Approach Delay (s)		37.5			69.0			78.0			97.0	
Approach LOS		D			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱			↑↑↱				↱			↱
Traffic Vol, veh/h	0	1776	1	0	841	14	0	0	6	0	0	6
Future Vol, veh/h	0	1776	1	0	841	14	0	0	6	0	0	6
Conflicting Peds, #/hr	2	0	5	5	0	2	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1831	1	0	867	14	0	0	6	0	0	6

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	921	-	-	443
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	273	0	0	562
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	272	-	-	561
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18.5	11.5
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	272	-	-	-	-	561
HCM Lane V/C Ratio	0.023	-	-	-	-	0.011
HCM Control Delay (s)	18.5	-	-	-	-	11.5
HCM Lane LOS	C	-	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0

Lane Group	EBT	WBT	NBT	SBL	SBT	NET	SWL	SWT
Lane Group Flow (vph)	158	27	63	36	13	1711	32	844
v/c Ratio	0.88	0.35	0.53	0.48	0.09	0.81	0.28	0.37
Control Delay	124.0	99.2	99.6	104.8	80.6	25.5	32.9	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	124.0	99.2	99.6	104.8	80.6	25.6	32.9	15.7
Queue Length 50th (ft)	197	33	77	44	15	890	13	177
Queue Length 95th (ft)	#334	72	132	87	41	613	50	206
Internal Link Dist (ft)	220	125	220		220	755		447
Turn Bay Length (ft)				175			150	
Base Capacity (vph)	187	147	138	88	163	2101	169	2299
Starvation Cap Reductn	0	0	0	0	0	40	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.18	0.46	0.41	0.08	0.83	0.19	0.37

Intersection Summary

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

Movement	EBL2	EBL	EBT	EBR	EBR2	WBL	WBT	NBL2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Future Volume (vph)	2	118	28	2	3	15	12	9	10	7	35	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.5				6.5			5.0		
Lane Util. Factor			1.00				1.00			1.00		
Frpb, ped/bikes			1.00				1.00			1.00		
Flpb, ped/bikes			1.00				1.00			1.00		
Frt			1.00				1.00			0.92		
Flt Protected			0.96				0.97			0.99		
Satd. Flow (prot)			1741				1812			1697		
Flt Permitted			0.96				0.97			0.90		
Satd. Flow (perm)			1741				1812			1546		
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)	2	122	29	2	3	15	12	9	10	7	36	1
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	158	0	0	0	27	0	0	63	0	0
Confl. Peds. (#/hr)	2			1	1	1		1	1			
Heavy Vehicles (%)	100%	2%	2%	100%	2%	2%	2%	0%	0%	0%	2%	2%
Turn Type	Split	Split	NA			Split	NA	Perm	Perm	NA		
Protected Phases	3	3	3			4	4			7		
Permitted Phases								7	7			
Actuated Green, G (s)			19.7				7.2			13.1		
Effective Green, g (s)			19.7				7.2			14.6		
Actuated g/C Ratio			0.10				0.04			0.08		
Clearance Time (s)			6.5				6.5			6.5		
Vehicle Extension (s)			3.0				3.0			3.0		
Lane Grp Cap (vph)			180				68			118		
v/s Ratio Prot			c0.09				c0.01					
v/s Ratio Perm										c0.04		
v/c Ratio			0.88				0.40			0.53		
Uniform Delay, d1			84.0				89.3			84.4		
Progression Factor			1.00				1.00			1.00		
Incremental Delay, d2			34.8				3.8			4.6		
Delay (s)			118.8				93.1			89.0		
Level of Service			F				F			F		
Approach Delay (s)			118.8				93.1			89.0		
Approach LOS			F				F			F		

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	32.2
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL2	SBL	SBT	SBR	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	28	7	10	3	0	1602	43	15	10	21	772	41
Future Volume (vph)	28	7	10	3	0	1602	43	15	10	21	772	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.5	5.0			7.1				7.1	7.1	
Lane Util. Factor		1.00	1.00			0.95				1.00	0.95	
Frpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00				1.00	1.00	
Frt		1.00	0.97			0.99				1.00	0.99	
Flt Protected		0.95	1.00			1.00				0.95	1.00	
Satd. Flow (prot)		1770	1834			3521				1770	3505	
Flt Permitted		0.58	1.00			1.00				0.05	1.00	
Satd. Flow (perm)		1088	1834			3521				85	3505	
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)	29	7	10	3	0	1652	44	15	10	22	796	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	36	13	0	0	1711	0	0	0	32	844	0
Confl. Peds. (#/hr)					1							1
Heavy Vehicles (%)	2%	2%	0%	0%	3%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	Perm	NA		pm+pt	NA			pm+pt	pm+pt	NA	
Protected Phases			7		1	6			5	5	2	
Permitted Phases	7	7			6				2	2		
Actuated Green, G (s)		13.1	13.1			110.6				123.4	123.4	
Effective Green, g (s)		13.1	14.6			110.6				123.4	123.4	
Actuated g/C Ratio		0.07	0.08			0.58				0.65	0.65	
Clearance Time (s)		6.5	6.5			7.1				7.1	7.1	
Vehicle Extension (s)		3.0	3.0			4.0				3.0	4.0	
Lane Grp Cap (vph)		75	140			2049				105	2276	
v/s Ratio Prot			0.01			c0.49				0.01	c0.24	
v/s Ratio Perm		0.03								0.19		
v/c Ratio		0.48	0.09			0.83				0.30	0.37	
Uniform Delay, d1		85.2	81.5			32.3				30.8	15.4	
Progression Factor		1.00	1.00			0.67				1.92	0.95	
Incremental Delay, d2		4.8	0.3			3.5				1.6	0.4	
Delay (s)		89.9	81.8			25.0				60.8	15.1	
Level of Service		F	F			C				E	B	
Approach Delay (s)			87.8			25.0					16.8	
Approach LOS			F			C					B	

Intersection Summary

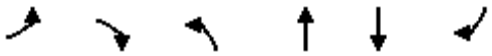
Movement	SWR2
Lane Configurations	
Traffic Volume (vph)	6
Future Volume (vph)	6
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.97
Adj. Flow (vph)	6
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	1
Heavy Vehicles (%)	2%
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	32	1075	1014
v/c Ratio	0.36	0.21	0.22
Control Delay	53.6	0.1	1.0
Queue Delay	0.0	0.0	0.1
Total Delay	53.7	0.1	1.2
Queue Length 50th (ft)	14	0	35
Queue Length 95th (ft)	56	0	m50
Internal Link Dist (ft)	220	381	224
Turn Bay Length (ft)			
Base Capacity (vph)	142	5085	4663
Starvation Cap Reductn	0	0	2203
Spillback Cap Reductn	2	42	649
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.23	0.21	0.41

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	19	0	989	918	15
Future Volume (vph)	10	19	0	989	918	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.91			1.00	1.00	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1669			5085	5072	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1669			5085	5072	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	21	0	1075	998	16
RTOR Reduction (vph)	20	0	0	0	1	0
Lane Group Flow (vph)	12	0	0	1075	1013	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	6.5			190.0	172.5	
Effective Green, g (s)	6.5			190.0	172.5	
Actuated g/C Ratio	0.03			1.00	0.91	
Clearance Time (s)	6.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	57			5085	4604	
v/s Ratio Prot	0.01			0.21	c0.20	
v/s Ratio Perm						
v/c Ratio	0.21			0.21	0.22	
Uniform Delay, d1	89.2			0.0	1.0	
Progression Factor	1.00			1.00	0.91	
Incremental Delay, d2	1.8			0.1	0.1	
Delay (s)	91.0			0.1	1.0	
Level of Service	F			A	A	
Approach Delay (s)	91.0			0.1	1.0	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	274	362	16	1050	390	1009
v/c Ratio	1.00	0.49	0.49	0.22	0.90	1.08	0.51
Control Delay	138.3	2.0	4.0	141.2	34.3	127.0	44.7
Queue Delay	0.0	5.1	20.3	0.0	0.6	0.0	0.0
Total Delay	138.3	7.2	24.2	141.2	34.8	127.0	44.7
Queue Length 50th (ft)	285	0	75	21	369	~493	363
Queue Length 95th (ft)	#486	m0	m63	53	447	#723	420
Internal Link Dist (ft)	420	47			217		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	559	743	165	1166	360	1984
Starvation Cap Reductn	0	218	373	0	16	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	1.00	0.80	0.98	0.10	0.91	1.08	0.51

Intersection Summary

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

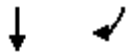
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	38	43	504	10	5	944	22	4	355
Future Volume (vph)	85	99	25	38	43	504	10	5	944	22	4	355
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1516	1475		1636	4957			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1516	1475		1636	4957			146
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)	92	108	27	41	47	548	11	5	1026	24	4	386
RTOR Reduction (vph)	0	3	0	0	40	238	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	234	124	0	16	1050	0	0	390
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		5.1	43.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		6.1	44.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.03	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			518	504		52	1166			360
v/s Ratio Prot		c0.13			c0.15	0.08		0.01	0.21			c0.20
v/s Ratio Perm												c0.28
v/c Ratio		1.00			0.45	0.25		0.31	0.90			1.08
Uniform Delay, d1		83.0			48.6	44.9		89.9	70.5			63.8
Progression Factor		1.00			0.01	0.77		1.55	0.32			1.00
Incremental Delay, d2		60.6			0.8	0.3		3.3	11.1			71.6
Delay (s)		143.5			1.4	35.0		142.3	33.8			135.3
Level of Service		F			A	C		F	C			F
Approach Delay (s)		143.5			20.5				35.4			
Approach LOS		F			C				D			

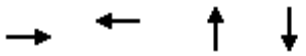
Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	912	17
Future Volume (vph)	912	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4931	
Flt Permitted	1.00	
Satd. Flow (perm)	4931	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	991	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1009	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	72.3	
Effective Green, g (s)	73.8	
Actuated g/C Ratio	0.39	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1915	
v/s Ratio Prot	0.20	
v/s Ratio Perm		
v/c Ratio	0.53	
Uniform Delay, d1	44.7	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	45.7	
Level of Service	D	
Approach Delay (s)	70.7	
Approach LOS	E	

Intersection Summary



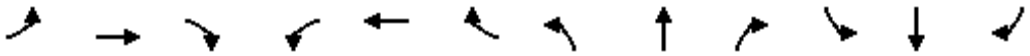
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	520	492	32	201
v/c Ratio	0.25	0.79	0.14	1.09
Control Delay	0.6	88.5	1.2	139.2
Queue Delay	22.5	2.3	0.0	2.2
Total Delay	23.1	90.7	1.2	141.4
Queue Length 50th (ft)	2	261	0	~194
Queue Length 95th (ft)	m3	391	0	#393
Internal Link Dist (ft)	47	1637	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2060	628	272	184
Starvation Cap Reductn	1542	0	0	0
Spillback Cap Reductn	0	55	3	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.00	0.86	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	429	6	0	430	23	8	0	21	39	1	145
Future Volume (vph)	43	429	6	0	430	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3396			3355			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3396			3355			1456			1347	
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)	47	466	7	0	467	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	520	0	0	490	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.1			5.4			15.5	
Effective Green, g (s)		109.3			35.1			6.4			16.5	
Actuated g/C Ratio		0.58			0.18			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1953			619			49			116	
v/s Ratio Prot		c0.15			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.79			0.02			1.15	
Uniform Delay, d1		20.2			74.0			88.8			86.8	
Progression Factor		0.03			1.06			1.00			1.00	
Incremental Delay, d2		0.0			8.1			0.1			129.6	
Delay (s)		0.6			86.7			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.6			86.7			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2023 TF PM MIT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1401	4	1925	538	7	342	99	16
v/c Ratio	0.15	0.38	0.02	0.78	0.46	0.12	1.51	0.30	0.18
Control Delay	12.5	7.6	11.5	17.1	6.2	106.8	311.1	32.2	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.5	7.6	11.5	17.1	6.2	106.8	311.1	32.2	101.3
Queue Length 50th (ft)	3	105	1	390	134	10	~701	45	23
Queue Length 95th (ft)	m9	227	m2	#1601	136	33	m#934	m91	53
Internal Link Dist (ft)		810		1202		100		1646	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	109	3671	308	2459	1165	63	226	328	189
Starvation Cap Reductn	0	593	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	0.15	0.46	0.01	0.78	0.46	0.11	1.51	0.30	0.08

Intersection Summary

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

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

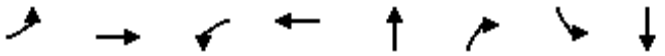
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1286	3	4	0	1771	495	3	0	4	315	8
Future Volume (vph)	15	1286	3	4	0	1771	495	3	0	4	315	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1641
Flt Permitted	0.04	1.00			0.15	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	68	5084			292	3539	1583		1717		1736	1641
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)	16	1398	3	4	0	1925	538	3	0	4	342	9
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0	86
Lane Group Flow (vph)	16	1401	0	0	4	1925	464	0	7	0	342	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	147.5	143.6			142.1	140.9	140.9		3.0		27.7	27.7
Effective Green, g (s)	149.5	145.6			144.1	142.9	142.9		4.0		28.7	28.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	82	3364			206	2298	1028		31		226	214
v/s Ratio Prot	c0.00	c0.28			0.00	c0.54			c0.00		c0.20	0.01
v/s Ratio Perm	0.13				0.01		0.29					
v/c Ratio	0.20	0.42			0.02	0.84	0.45		0.23		1.51	0.06
Uniform Delay, d1	34.1	17.4			14.1	29.6	19.1		106.5		95.7	83.8
Progression Factor	0.78	0.51			0.83	0.53	0.45		1.00		1.10	9.26
Incremental Delay, d2	1.0	0.3			0.0	3.3	1.2		3.7		251.8	0.2
Delay (s)	27.6	9.2			11.7	19.0	9.8		110.2		356.7	776.8
Level of Service	C	A			B	B	A		F		F	F
Approach Delay (s)		9.4				17.0			110.2			451.0
Approach LOS		A				B			F			F

Intersection Summary			
HCM 2000 Control Delay	59.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

Intersection Summary

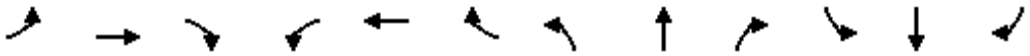


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	1227	179	1744	203	175	25	254
v/c Ratio	0.67	0.55	0.58	0.79	1.06	0.35	0.14	0.62
Control Delay	62.4	20.7	22.4	16.5	159.0	9.0	66.9	74.9
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	62.4	20.7	22.4	17.0	159.0	9.0	66.9	74.9
Queue Length 50th (ft)	106	364	33	247	298	0	29	300
Queue Length 95th (ft)	176	580	m135	323	#478	71	61	403
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	211	2251	368	2202	217	542	208	464
Starvation Cap Reductn	0	71	0	124	0	0	0	0
Spillback Cap Reductn	0	0	0	143	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.56	0.49	0.85	0.94	0.32	0.12	0.55

Intersection Summary

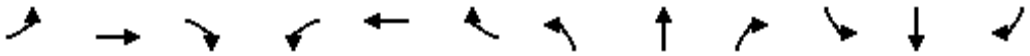
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	1089	40	165	1598	6	60	127	161	23	111	122
Future Volume (vph)	114	1089	40	165	1598	6	60	127	161	23	111	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3523		1805	3537			1870	1615	1805	1751	
Flt Permitted	0.05	1.00		0.17	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	92	3523		321	3537			854	1615	817	1751	
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)	124	1184	43	179	1737	7	65	138	175	25	121	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	136	0	19	0
Lane Group Flow (vph)	124	1226	0	179	1744	0	0	203	39	25	235	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	155.7	139.6		148.5	136.0			48.6	48.6	48.6	48.6	
Effective Green, g (s)	157.7	140.6		150.5	137.0			49.6	49.6	49.6	49.6	
Actuated g/C Ratio	0.72	0.64		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	185	2251		310	2202			192	364	184	394	
v/s Ratio Prot	c0.05	0.35		0.04	c0.49						0.13	
v/s Ratio Perm	0.43			0.36				c0.24	0.02	0.03		
v/c Ratio	0.67	0.54		0.58	0.79			1.06	0.11	0.14	0.60	
Uniform Delay, d1	52.7	22.0		17.1	30.9			85.2	67.6	68.1	76.3	
Progression Factor	1.24	0.85		1.64	0.44			1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.6	0.9		1.7	1.9			80.9	0.1	0.3	2.4	
Delay (s)	74.0	19.6		29.7	15.5			166.1	67.8	68.4	78.7	
Level of Service	E	B		C	B			F	E	E	E	
Approach Delay (s)		24.6			16.8			120.6			77.8	
Approach LOS		C			B			F			E	

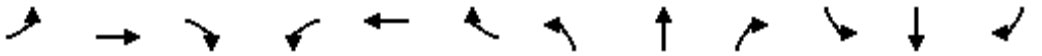
Intersection Summary			
HCM 2000 Control Delay	33.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	228	903	29	145	1494	111	115	525	114	174	544	344
v/c Ratio	0.75	0.46	0.03	0.87	0.75	0.11	0.88	0.84	0.24	0.62	0.80	0.70
Control Delay	152.2	16.1	0.0	113.7	27.9	6.6	150.1	100.3	10.8	152.5	95.1	31.3
Queue Delay	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	3.0	1.0
Total Delay	152.2	16.1	0.0	113.7	33.9	6.6	150.1	100.3	10.8	152.5	98.1	32.2
Queue Length 50th (ft)	179	164	0	217	938	40	169	393	18	135	277	87
Queue Length 95th (ft)	#236	181	m0	m#302	1188	m40	#305	462	63	182	321	134
Internal Link Dist (ft)		774			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	310	1947	1020	166	1984	997	130	678	483	340	799	492
Starvation Cap Reductn	0	0	0	0	437	0	0	0	0	0	157	35
Spillback Cap Reductn	0	0	0	0	80	0	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.46	0.03	0.87	0.97	0.11	0.88	0.77	0.24	0.51	0.85	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	867	28	139	1434	107	110	504	109	167	522	330
Future Volume (vph)	219	867	28	139	1434	107	110	504	109	167	522	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1584
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	228	903	29	145	1494	111	115	525	114	174	544	344
RTOR Reduction (vph)	0	0	11	0	0	21	0	0	69	0	0	61
Lane Group Flow (vph)	228	903	18	145	1494	90	115	525	45	174	544	283
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.9	119.5	133.9	19.2	120.5	137.1	14.4	37.4	56.6	16.6	40.5	58.4
Effective Green, g (s)	19.4	121.0	136.9	20.7	122.0	140.1	15.9	38.9	59.6	18.1	42.0	61.4
Actuated g/C Ratio	0.09	0.55	0.62	0.09	0.55	0.64	0.07	0.18	0.27	0.08	0.19	0.28
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	305	1946	1004	166	1981	961	130	625	425	279	682	442
v/s Ratio Prot	c0.07	0.26	0.00	0.08	c0.42	0.01	c0.06	0.15	0.01	0.05	c0.15	0.06
v/s Ratio Perm			0.01			0.05			0.02			0.12
v/c Ratio	0.75	0.46	0.02	0.87	0.75	0.09	0.88	0.84	0.11	0.62	0.80	0.64
Uniform Delay, d1	97.9	29.9	15.9	98.4	37.5	15.4	101.1	87.5	60.2	97.7	84.9	69.6
Progression Factor	1.43	0.50	0.00	0.87	0.68	0.90	1.00	1.00	1.00	1.46	1.01	0.48
Incremental Delay, d2	8.5	0.7	0.0	24.8	1.7	0.0	45.6	9.7	0.1	4.2	6.4	3.0
Delay (s)	148.0	15.7	0.0	110.6	27.1	13.9	146.8	97.2	60.3	147.3	92.6	36.1
Level of Service	F	B	A	F	C	B	F	F	E	F	F	D
Approach Delay (s)		41.3			33.1			99.2			83.2	
Approach LOS		D			C			F			F	

Intersection Summary					
HCM 2000 Control Delay	56.9	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	0.78				
Actuated Cycle Length (s)	220.0	Sum of lost time (s)		21.6	
Intersection Capacity Utilization	85.1%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	1070	1	0	1890	14	0	0	8	0	0	14
Future Vol, veh/h	0	1070	1	0	1890	14	0	0	8	0	0	14
Conflicting Peds, #/hr	4	0	0	0	0	4	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1151	1	0	2032	15	0	0	9	0	0	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	576	-	-	1028
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	460	0	0	231
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	460	-	-	230
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	13	21.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	460	-	-	-	-	230
HCM Lane V/C Ratio	0.019	-	-	-	-	0.065
HCM Control Delay (s)	13	-	-	-	-	21.7
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	132	45	98	19	10	6	1086	49	1950
v/c Ratio	0.74	0.44	0.71	0.18	0.06	0.06	0.52	0.25	0.87
Control Delay	120.2	112.9	122.2	95.7	91.0	10.0	11.0	18.5	27.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Total Delay	120.2	112.9	122.2	95.7	91.0	10.0	11.2	18.5	27.6
Queue Length 50th (ft)	189	65	139	26	13	1	282	21	607
Queue Length 95th (ft)	274	116	#243	60	38	m4	194	m39	#1645
Internal Link Dist (ft)	220	220	220		220		755		445
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	204	165	138	103	161	112	2105	199	2251
Starvation Cap Reductn	0	0	0	0	0	0	307	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	0.65	0.27	0.71	0.18	0.06	0.05	0.60	0.25	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

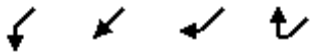
Movement	EBL	EBT	EBR	EBR2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Future Volume (vph)	76	44	4	2	19	18	2	4	24	27	13	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0					5.0	
Lane Util. Factor		1.00				1.00					1.00	
Frpb, ped/bikes		1.00				0.99					1.00	
Flpb, ped/bikes		1.00				1.00					0.99	
Frt		0.99				0.98					0.96	
Flt Protected		0.97				0.98					0.97	
Satd. Flow (prot)		1798				1811					1709	
Flt Permitted		0.97				0.98					0.83	
Satd. Flow (perm)		1798				1811					1449	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	80	46	4	2	20	19	2	4	25	28	14	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	0	0	45	0	0	0	0	98	0
Confl. Peds. (#/hr)			4	2	2		4		2	2		
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%
Turn Type	Split	NA			Split	NA			Perm	Perm	NA	
Protected Phases	3	3			4	4					7	
Permitted Phases									7	7		
Actuated Green, G (s)		20.3				9.6					19.5	
Effective Green, g (s)		21.8				11.1					21.0	
Actuated g/C Ratio		0.10				0.05					0.10	
Clearance Time (s)		6.5				6.5					6.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		178				91					138	
v/s Ratio Prot		c0.07				c0.02						
v/s Ratio Perm											c0.07	
v/c Ratio		0.74				0.49					0.71	
Uniform Delay, d1		96.4				101.7					96.5	
Progression Factor		1.00				1.00					1.00	
Incremental Delay, d2		15.3				4.2					15.8	
Delay (s)		111.6				105.9					112.3	
Level of Service		F				F					F	
Approach Delay (s)		111.6				105.9					112.3	
Approach LOS		F				F					F	

Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2	SWL2
Lane Configurations												
Traffic Volume (vph)	4	15	3	4	2	4	6	0	948	73	10	22
Future Volume (vph)	4	15	3	4	2	4	6	0	948	73	10	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0	5.0				5.6	5.1			
Lane Util. Factor			1.00	1.00				1.00	0.95			
Frpb, ped/bikes			1.00	0.98				1.00	1.00			
Flpb, ped/bikes			1.00	1.00				1.00	1.00			
Frt			1.00	0.91				1.00	0.99			
Flt Protected			0.95	1.00				0.95	1.00			
Satd. Flow (prot)			1691	1687				1805	3495			
Flt Permitted			0.61	1.00				0.03	1.00			
Satd. Flow (perm)			1079	1687				58	3495			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	4	16	3	4	2	4	6	0	998	77	11	23
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	19	10	0	0	0	6	1086	0	0	0
Confl. Peds. (#/hr)					2	2	2				4	
Heavy Vehicles (%)	0%	8%	0%	0%	0%	0%	0%	0%	2%	0%	0%	100%
Turn Type		Perm	Perm	NA			custom	pm+pt	NA			pm+pt
Protected Phases				7				1	6			5
Permitted Phases		7	7				1	6				2
Actuated Green, G (s)			19.5	19.5				130.5	129.2			
Effective Green, g (s)			21.0	21.0				133.5	131.2			
Actuated g/C Ratio			0.10	0.10				0.61	0.60			
Clearance Time (s)			6.5	6.5				7.1	7.1			
Vehicle Extension (s)			3.0	3.0				3.0	4.0			
Lane Grp Cap (vph)			102	161				57	2084			
v/s Ratio Prot				0.01				0.00	0.31			
v/s Ratio Perm			0.02					0.06				
v/c Ratio			0.19	0.06				0.11	0.52			
Uniform Delay, d1			91.6	90.5				39.4	26.0			
Progression Factor			1.00	1.00				0.56	0.38			
Incremental Delay, d2			0.9	0.2				0.8	0.9			
Delay (s)			92.5	90.7				22.9	10.7			
Level of Service			F	F				C	B			
Approach Delay (s)				91.9					10.7			
Approach LOS				F					B			

Intersection Summary

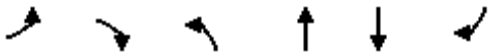


Movement	SWL	SWT	SWR	SWR2
Lane Configurations				
Traffic Volume (vph)	25	1718	128	7
Future Volume (vph)	25	1718	128	7
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	5.6	5.1		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.99		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1228	3425		
Flt Permitted	0.18	1.00		
Satd. Flow (perm)	236	3425		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	1808	135	7
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	49	1950	0	0
Confl. Peds. (#/hr)	4		2	
Heavy Vehicles (%)	0%	4%	4%	25%
Turn Type	pm+pt	NA		
Protected Phases	5	2		
Permitted Phases	2			
Actuated Green, G (s)	143.3	135.6		
Effective Green, g (s)	145.5	137.6		
Actuated g/C Ratio	0.66	0.63		
Clearance Time (s)	7.1	7.1		
Vehicle Extension (s)	3.0	4.0		
Lane Grp Cap (vph)	197	2142		
v/s Ratio Prot	c0.01	c0.57		
v/s Ratio Perm	0.15			
v/c Ratio	0.25	0.91		
Uniform Delay, d1	17.8	35.8		
Progression Factor	1.09	0.74		
Incremental Delay, d2	0.5	5.2		
Delay (s)	19.9	31.6		
Level of Service	B	C		
Approach Delay (s)		31.3		
Approach LOS		C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	45	863	1052
v/c Ratio	0.48	0.17	0.22
Control Delay	56.4	0.1	0.9
Queue Delay	0.0	0.0	0.1
Total Delay	56.4	0.1	1.0
Queue Length 50th (ft)	19	0	33
Queue Length 95th (ft)	71	0	53
Internal Link Dist (ft)	220	381	220
Turn Bay Length (ft)			
Base Capacity (vph)	180	5085	4722
Starvation Cap Reductn	0	0	2104
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.25	0.17	0.40

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	31	0	837	1000	20
Future Volume (vph)	13	31	0	837	1000	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.90			1.00	1.00	
Flt Protected	0.99			1.00	1.00	
Satd. Flow (prot)	1660			5085	5068	
Flt Permitted	0.99			1.00	1.00	
Satd. Flow (perm)	1660			5085	5068	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	13	32	0	863	1031	21
RTOR Reduction (vph)	31	0	0	0	1	0
Lane Group Flow (vph)	14	0	0	863	1051	0
Confl. Peds. (#/hr)	1		3			3
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	7.0			220.0	203.0	
Effective Green, g (s)	7.0			220.0	203.0	
Actuated g/C Ratio	0.03			1.00	0.92	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	52			5085	4676	
v/s Ratio Prot	0.01			0.17	c0.21	
v/s Ratio Perm						
v/c Ratio	0.27			0.17	0.22	
Uniform Delay, d1	104.0			0.0	0.8	
Progression Factor	1.00			1.00	0.90	
Incremental Delay, d2	2.8			0.1	0.1	
Delay (s)	106.8			0.1	0.8	
Level of Service	F			A	A	
Approach Delay (s)	106.8			0.1	0.8	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	452	441	36	888	475	1042
v/c Ratio	0.72	0.78	0.60	0.40	0.50	1.24	0.45
Control Delay	124.1	5.6	4.9	152.2	13.4	160.9	42.6
Queue Delay	0.0	48.3	53.5	0.0	0.7	0.0	0.0
Total Delay	124.1	53.9	58.3	152.2	14.1	160.9	42.6
Queue Length 50th (ft)	132	77	89	55	74	~655	391
Queue Length 95th (ft)	#244	m43	m57	105	85	#906	447
Internal Link Dist (ft)	420	47			221		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	130	588	741	198	1785	383	2303
Starvation Cap Reductn	0	172	338	0	528	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	0.72	1.09	1.09	0.18	0.71	1.24	0.45

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

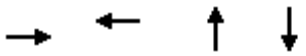
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	54	98	706	17	17	811	41	2	454
Future Volume (vph)	27	45	18	54	98	706	17	17	811	41	2	454
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1613	1534		1805	4990			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.19
Satd. Flow (perm)		1810			1613	1534		1805	4990			361
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	56	102	735	18	18	845	43	2	473
RTOR Reduction (vph)	0	4	0	0	31	213	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	421	228	0	36	888	0	0	475
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.6	77.2			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.6	78.7			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			547	520		78	1785			383
v/s Ratio Prot		c0.05			c0.26	0.15		0.02	0.18			c0.17
v/s Ratio Perm												c0.47
v/c Ratio		0.72			0.77	0.44		0.46	0.50			1.24
Uniform Delay, d1		100.2			65.0	56.4		102.7	55.2			41.9
Progression Factor		1.00			0.08	0.32		1.38	0.22			1.00
Incremental Delay, d2		18.1			0.8	0.1		4.3	1.0			128.5
Delay (s)		118.3			5.9	17.9		146.2	13.4			170.4
Level of Service		F			A	B		F	B			F
Approach Delay (s)		118.3			11.9				18.6			
Approach LOS		F			B				B			

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	924	76
Future Volume (vph)	924	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5035	
Flt Permitted	1.00	
Satd. Flow (perm)	5035	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	962	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1042	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	97.8	
Effective Green, g (s)	99.3	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2272	
v/s Ratio Prot	0.21	
v/s Ratio Perm		
v/c Ratio	0.46	
Uniform Delay, d1	41.8	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	42.4	
Level of Service	D	
Approach Delay (s)	82.5	
Approach LOS	F	

Intersection Summary



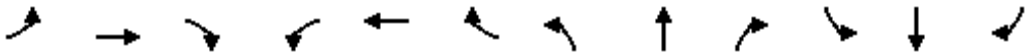
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	575	825	20	158
v/c Ratio	0.27	1.10	0.28	0.89
Control Delay	1.4	132.1	83.8	85.5
Queue Delay	17.7	0.5	0.0	0.4
Total Delay	19.1	132.6	83.8	85.9
Queue Length 50th (ft)	8	~703	19	102
Queue Length 95th (ft)	m8	#846	55	#246
Internal Link Dist (ft)	47	1646	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1548	0	0	0
Spillback Cap Reductn	0	60	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.99	1.20	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Future Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3458			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3458			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	413	12	0	771	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	574	0	0	823	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.23			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.28			1.10			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.07			0.90			1.00			1.00	
Incremental Delay, d2		0.0			63.7			0.6			32.1	
Delay (s)		1.5			141.6			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.5			141.6			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	89.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2023 TF SAT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1611	8	1504	628	6	220	50	14
v/c Ratio	0.14	0.49	0.05	0.69	0.57	0.07	0.81	0.12	0.12
Control Delay	25.6	25.2	6.9	22.4	11.9	69.3	101.3	6.8	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	25.2	6.9	22.4	11.9	69.3	101.3	6.8	63.7
Queue Length 50th (ft)	8	282	2	820	434	6	228	4	13
Queue Length 95th (ft)	m28	508	m2	#1068	652	22	#343	24	34
Internal Link Dist (ft)		810		1202		100		1665	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	170	3280	186	2169	1099	94	282	419	264
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	0.13	0.49	0.04	0.69	0.57	0.06	0.78	0.12	0.05

Intersection Summary

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

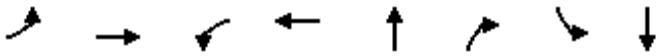
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1478	4	6	1	1384	578	4	0	2	202	2
Future Volume (vph)	20	1478	4	6	1	1384	578	4	0	2	202	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5034			1621	3539	1583		1756		1787	1626
Flt Permitted	0.07	1.00			0.10	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	124	5034			171	3539	1583		1756		1787	1626
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)	22	1607	4	7	1	1504	628	4	0	2	220	2
RTOR Reduction (vph)	0	0	0	0	0	0	155	0	0	0	0	42
Lane Group Flow (vph)	22	1611	0	0	8	1504	473	0	6	0	220	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	84.9	81.0			79.9	78.5	78.5		1.5		21.9	21.9
Effective Green, g (s)	86.9	83.0			81.9	80.5	80.5		2.5		22.9	22.9
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	126	2785			116	1899	849		29		272	248
v/s Ratio Prot	c0.01	0.32			0.00	c0.42			c0.00		c0.12	0.00
v/s Ratio Perm	0.10				0.04		0.30					
v/c Ratio	0.17	0.58			0.07	0.79	0.56		0.21		0.81	0.03
Uniform Delay, d1	22.7	22.0			17.5	28.0	23.0		72.8		61.4	54.1
Progression Factor	1.69	1.39			0.41	0.84	0.91		1.00		1.30	1.00
Incremental Delay, d2	0.5	0.7			0.2	3.0	2.3		3.5		17.8	0.1
Delay (s)	39.0	31.3			7.4	26.6	23.1		76.3		97.7	54.2
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		31.4				25.5			76.3			89.6
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

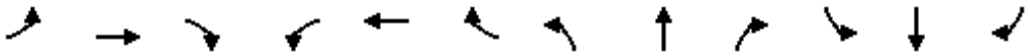
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	178	1434	151	1289	140	105	46	267
v/c Ratio	0.53	0.65	0.52	0.59	0.78	0.28	0.25	0.79
Control Delay	21.1	12.5	33.1	16.6	85.4	9.8	53.5	66.8
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Total Delay	21.1	12.5	33.1	17.1	85.4	9.8	53.5	66.8
Queue Length 50th (ft)	24	327	56	703	132	0	39	220
Queue Length 95th (ft)	82	768	m144	777	202	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	415	2194	380	2186	250	476	257	457
Starvation Cap Reductn	0	0	0	455	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.65	0.40	0.74	0.56	0.22	0.18	0.58

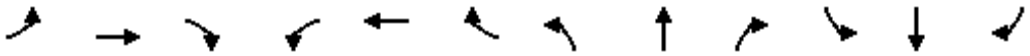
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	164	1286	33	139	1176	10	27	102	97	42	116	130
Future Volume (vph)	164	1286	33	139	1176	10	27	102	97	42	116	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3526		1805	3535			1881	1568	1719	1694	
Flt Permitted	0.15	1.00		0.12	1.00			0.52	1.00	0.56	1.00	
Satd. Flow (perm)	276	3526		219	3535			988	1568	1011	1694	
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)	178	1398	36	151	1278	11	29	111	105	46	126	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	29	0
Lane Group Flow (vph)	178	1433	0	151	1289	0	0	140	19	46	238	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	105.1	92.4		103.7	91.7			26.3	26.3	26.3	26.3	
Effective Green, g (s)	107.1	93.4		105.7	92.7			27.3	27.3	27.3	27.3	
Actuated g/C Ratio	0.71	0.62		0.70	0.62			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	336	2195		291	2184			179	285	184	308	
v/s Ratio Prot	c0.05	c0.41		0.04	0.36						0.14	
v/s Ratio Perm	0.33			0.32				c0.14	0.01	0.05		
v/c Ratio	0.53	0.65		0.52	0.59			0.78	0.07	0.25	0.77	
Uniform Delay, d1	12.2	18.0		14.3	17.2			58.5	50.8	52.6	58.4	
Progression Factor	2.29	0.55		3.27	0.82			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.3	1.3		1.1	0.9			19.6	0.1	0.7	11.3	
Delay (s)	29.2	11.2		47.9	15.0			78.1	50.9	53.3	69.7	
Level of Service	C	B		D	B			E	D	D	E	
Approach Delay (s)		13.2			18.5			66.5			67.3	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

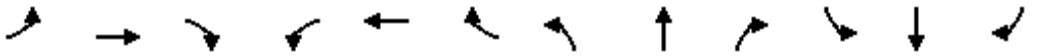


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	274	1093	26	150	1044	92	100	546	160	188	603	394
v/c Ratio	0.66	0.68	0.03	0.85	0.68	0.11	0.62	0.76	0.30	0.55	0.78	0.66
Control Delay	90.3	36.4	0.8	91.9	33.6	3.8	82.3	63.1	7.2	93.3	85.8	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Total Delay	90.3	36.4	0.8	91.9	33.6	3.8	82.3	63.1	7.2	93.3	86.2	29.3
Queue Length 50th (ft)	146	263	0	130	216	0	95	265	17	99	264	263
Queue Length 95th (ft)	195	464	m1	#270	443	26	161	320	52	142	356	449
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	441	1615	880	176	1526	867	177	854	533	411	948	609
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	63	12
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.68	0.03	0.85	0.68	0.11	0.56	0.64	0.30	0.46	0.68	0.66

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	263	1049	25	144	1002	88	96	524	154	180	579	378
Future Volume (vph)	263	1049	25	144	1002	88	96	524	154	180	579	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1535	1805	3539	1536	1787	3539	1520	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1535	1805	3539	1536	1787	3539	1520	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	274	1093	26	150	1044	92	100	546	160	188	603	394
RTOR Reduction (vph)	0	0	12	0	0	39	0	0	89	0	0	82
Lane Group Flow (vph)	274	1093	14	150	1044	53	100	546	71	188	603	312
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	16.7	67.0	79.1	13.2	63.2	76.6	12.1	29.1	42.3	13.4	31.3	48.0
Effective Green, g (s)	18.2	68.5	82.1	14.7	64.7	79.6	13.6	30.6	45.3	14.9	32.8	51.0
Actuated g/C Ratio	0.12	0.46	0.55	0.10	0.43	0.53	0.09	0.20	0.30	0.10	0.22	0.34
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	416	1616	840	176	1526	815	162	721	459	341	773	533
v/s Ratio Prot	0.08	c0.31	0.00	0.08	c0.29	0.01	c0.06	0.15	0.02	0.05	c0.17	0.07
v/s Ratio Perm			0.01			0.03			0.03			0.13
v/c Ratio	0.66	0.68	0.02	0.85	0.68	0.07	0.62	0.76	0.16	0.55	0.78	0.59
Uniform Delay, d1	62.9	32.0	15.5	66.6	34.4	17.1	65.7	56.2	38.3	64.4	55.2	40.8
Progression Factor	1.34	1.03	1.00	0.89	0.87	0.81	1.00	1.00	1.00	1.36	1.43	0.97
Incremental Delay, d2	2.9	1.8	0.0	26.2	2.0	0.0	6.8	4.6	0.2	1.9	5.0	1.6
Delay (s)	87.1	34.8	15.5	85.7	32.0	13.9	72.5	60.8	38.5	89.6	84.2	41.0
Level of Service	F	C	B	F	C	B	E	E	D	F	F	D
Approach Delay (s)		44.7			37.0			57.8			70.7	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	51.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↱			↑↱				↱			↱
Traffic Vol, veh/h	0	1327	3	0	1474	24	0	0	11	0	0	17
Future Vol, veh/h	0	1327	3	0	1474	24	0	0	11	0	0	17
Conflicting Peds, #/hr	5	0	3	3	0	5	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	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1368	3	0	1520	25	0	0	11	0	0	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	689	-	-	778
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	388	0	0	339
Stage 1	0	-	-	0	-	-	0	0	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	387	-	-	338
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	14.6	16.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR	SBLn1
Capacity (veh/h)	387	-	-	-	-	338
HCM Lane V/C Ratio	0.029	-	-	-	-	0.052
HCM Control Delay (s)	14.6	-	-	-	-	16.2
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	-	0.2

Lane Group	EBT	WBT	NBT	SBL	SBT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	86	39	46	11	7	8	1379	43	1513
v/c Ratio	0.51	0.32	0.41	0.10	0.06	0.04	0.67	0.20	0.67
Control Delay	74.8	72.6	75.8	64.5	63.0	20.1	29.2	21.0	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	72.6	75.8	64.5	63.0	20.1	29.3	21.0	25.6
Queue Length 50th (ft)	82	37	44	10	6	0	472	20	394
Queue Length 95th (ft)	138	76	86	31	23	m7	447	m35	#627
Internal Link Dist (ft)	220	220	220		220		755		420
Turn Bay Length (ft)				175		120		150	
Base Capacity (vph)	219	180	166	161	177	268	2043	275	2261
Starvation Cap Reductn	0	0	0	0	0	0	21	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	0.39	0.22	0.28	0.07	0.04	0.03	0.68	0.16	0.67

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL2	EBL	EBT	EBR2	WBL2	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations												
Traffic Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Future Volume (vph)	1	60	19	2	3	24	7	1	3	14	5	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.0				5.0					5.0
Lane Util. Factor			1.00				1.00					1.00
Frpb, ped/bikes			1.00				1.00					0.98
Flpb, ped/bikes			1.00				1.00					0.97
Frt			1.00				0.99					0.94
Flt Protected			0.96				0.97					0.98
Satd. Flow (prot)			1825				1801					1658
Flt Permitted			0.96				0.97					0.86
Satd. Flow (perm)			1825				1801					1451
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1	62	20	2	3	25	7	1	3	15	5	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	86	0	0	0	39	0	0	0	0	46
Confl. Peds. (#/hr)				7	4			3		7	3	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	Split	NA		Perm	Split	NA			Perm	Perm	NA
Protected Phases		3	3			4	4					7
Permitted Phases	3				4					7	7	
Actuated Green, G (s)			12.4				7.6					8.9
Effective Green, g (s)			13.9				9.1					10.4
Actuated g/C Ratio			0.09				0.06					0.07
Clearance Time (s)			6.5				6.5					6.5
Vehicle Extension (s)			3.0				3.0					3.0
Lane Grp Cap (vph)			169				109					100
v/s Ratio Prot			c0.05				c0.02					
v/s Ratio Perm												c0.03
v/c Ratio			0.51				0.36					0.46
Uniform Delay, d1			64.8				67.6					67.1
Progression Factor			1.00				1.00					1.00
Incremental Delay, d2			2.4				2.0					3.3
Delay (s)			67.2				69.7					70.4
Level of Service			E				E					E
Approach Delay (s)			67.2				69.7					70.4
Approach LOS			E				E					E

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	25.7
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBR	NBR2	SBL2	SBL	SBT	SBR	SBR2	NEL2	NEL	NET	NER	NER2
Lane Configurations												
Traffic Volume (vph)	20	1	8	3	1	4	2	2	6	1232	77	15
Future Volume (vph)	20	1	8	3	1	4	2	2	6	1232	77	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	5.0				5.6	5.1		
Lane Util. Factor				1.00	1.00				1.00	0.95		
Frpb, ped/bikes				1.00	0.92				1.00	1.00		
Flpb, ped/bikes				0.99	1.00				1.00	1.00		
Frt				1.00	0.87				1.00	0.99		
Flt Protected				0.95	1.00				0.95	1.00		
Satd. Flow (prot)				1784	1527				1805	3501		
Flt Permitted				0.76	1.00				0.09	1.00		
Satd. Flow (perm)				1420	1527				171	3501		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	1	8	3	1	4	2	2	6	1283	80	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	11	7	0	0	0	8	1379	0	0
Confl. Peds. (#/hr)		2		2		7	3	3	3		2	4
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%
Turn Type			Perm	Perm	NA			custom	pm+pt	NA		
Protected Phases					7				1	6		
Permitted Phases			7	7				1	6			
Actuated Green, G (s)				8.9	8.9				82.7	81.4		
Effective Green, g (s)				10.4	10.4				85.7	83.4		
Actuated g/C Ratio				0.07	0.07				0.57	0.56		
Clearance Time (s)				6.5	6.5				7.1	7.1		
Vehicle Extension (s)				3.0	3.0				3.0	4.0		
Lane Grp Cap (vph)				98	105				128	1946		
v/s Ratio Prot					0.00				0.00	0.39		
v/s Ratio Perm				0.01					0.03			
v/c Ratio				0.11	0.07				0.06	0.71		
Uniform Delay, d1				65.5	65.3				19.1	24.4		
Progression Factor				1.00	1.00				1.42	1.04		
Incremental Delay, d2				0.5	0.3				0.2	2.0		
Delay (s)				66.0	65.5				27.4	27.3		
Level of Service				E	E				C	C		
Approach Delay (s)					65.8					27.3		
Approach LOS					E					C		

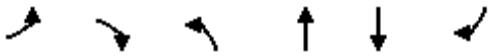
Intersection Summary

Movement	SWL2	SWL	SWT	SWR	SWR2
Lane Configurations					
Traffic Volume (vph)	27	14	1396	52	5
Future Volume (vph)	27	14	1396	52	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)		5.6	5.1		
Lane Util. Factor		1.00	0.95		
Frpb, ped/bikes		1.00	1.00		
Flpb, ped/bikes		1.00	1.00		
Frt		1.00	0.99		
Flt Protected		0.95	1.00		
Satd. Flow (prot)		1805	3518		
Flt Permitted		0.10	1.00		
Satd. Flow (perm)		183	3518		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	15	1454	54	5
RTOR Reduction (vph)	0	0	0	0	0
Lane Group Flow (vph)	0	43	1513	0	0
Confl. Peds. (#/hr)	2	4			3
Heavy Vehicles (%)	0%	0%	2%	0%	0%
Turn Type	pm+pt	pm+pt	NA		
Protected Phases	5	5	2		
Permitted Phases	2	2			
Actuated Green, G (s)		92.1	86.1		
Effective Green, g (s)		95.1	88.1		
Actuated g/C Ratio		0.63	0.59		
Clearance Time (s)		7.1	7.1		
Vehicle Extension (s)		3.0	4.0		
Lane Grp Cap (vph)		197	2066		
v/s Ratio Prot		c0.01	c0.43		
v/s Ratio Perm		0.13			
v/c Ratio		0.22	0.73		
Uniform Delay, d1		17.8	22.4		
Progression Factor		1.47	1.16		
Incremental Delay, d2		0.4	1.8		
Delay (s)		26.6	27.7		
Level of Service		C	C		
Approach Delay (s)			27.7		
Approach LOS			C		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	41	948	1213
v/c Ratio	0.37	0.19	0.27
Control Delay	43.3	0.1	0.5
Queue Delay	0.0	0.0	0.1
Total Delay	43.3	0.1	0.6
Queue Length 50th (ft)	15	0	7
Queue Length 95th (ft)	57	0	8
Internal Link Dist (ft)	220	381	215
Turn Bay Length (ft)			
Base Capacity (vph)	245	5085	4572
Starvation Cap Reductn	0	0	1461
Spillback Cap Reductn	0	0	39
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.17	0.19	0.39

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	24	0	901	1123	29
Future Volume (vph)	15	24	0	901	1123	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.92			1.00	1.00	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1677			5085	5063	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1677			5085	5063	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	25	0	948	1182	31
RTOR Reduction (vph)	24	0	0	0	1	0
Lane Group Flow (vph)	17	0	0	948	1212	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	6.5			150.0	133.5	
Effective Green, g (s)	6.5			150.0	133.5	
Actuated g/C Ratio	0.04			1.00	0.89	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	72			5085	4506	
v/s Ratio Prot	0.01			0.19	c0.24	
v/s Ratio Perm						
v/c Ratio	0.24			0.19	0.27	
Uniform Delay, d1	69.4			0.0	1.2	
Progression Factor	1.00			1.00	0.33	
Incremental Delay, d2	1.7			0.1	0.1	
Delay (s)	71.1			0.1	0.5	
Level of Service	E			A	A	
Approach Delay (s)	71.1			0.1	0.5	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	177	326	33	894	407	1159
v/c Ratio	0.30	0.31	0.44	0.30	0.67	1.30	0.65
Control Delay	56.7	1.2	4.4	94.9	43.2	188.4	45.1
Queue Delay	0.0	1.0	1.9	0.0	0.0	0.2	0.0
Total Delay	56.7	2.3	6.3	94.9	43.2	188.7	45.1
Queue Length 50th (ft)	52	0	67	33	150	~447	363
Queue Length 95th (ft)	98	0	115	72	220	#796	#486
Internal Link Dist (ft)	420	47			226		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	217	614	770	166	1339	313	1790
Starvation Cap Reductn	0	248	295	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	6	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.48	0.69	0.20	0.67	1.33	0.65

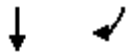
Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	38	39	411	19	13	840	27	5	390
Future Volume (vph)	25	23	14	38	39	411	19	13	840	27	5	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1540	1504		1763	5063			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.14
Satd. Flow (perm)		1807			1540	1504		1763	5063			256
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)	26	24	14	39	40	424	20	13	866	28	5	402
RTOR Reduction (vph)	0	6	0	0	35	213	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	142	113	0	33	894	0	0	407
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.3			50.8	50.8		7.3	38.2			64.2
Effective Green, g (s)		17.3			51.8	51.8		8.3	39.7			65.2
Actuated g/C Ratio		0.12			0.35	0.35		0.06	0.26			0.43
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		208			531	519		97	1340			317
v/s Ratio Prot		c0.03			c0.09	0.07		0.02	0.18			c0.17
v/s Ratio Perm												c0.39
v/c Ratio		0.28			0.27	0.22		0.34	0.67			1.28
Uniform Delay, d1		60.6			35.4	34.7		68.2	49.3			39.5
Progression Factor		1.00			0.00	0.89		1.32	0.82			1.00
Incremental Delay, d2		0.9			0.6	0.5		2.1	2.6			149.7
Delay (s)		61.5			0.6	31.3		92.4	43.0			189.2
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.5			20.5				44.8			
Approach LOS		E			C				D			

Intersection Summary			
HCM 2000 Control Delay	60.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



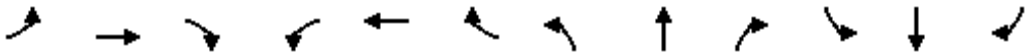
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1092	32
Future Volume (vph)	1092	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5066	
Flt Permitted	1.00	
Satd. Flow (perm)	5066	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1126	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1159	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	50.1	
Effective Green, g (s)	51.6	
Actuated g/C Ratio	0.34	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1742	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.67	
Uniform Delay, d1	41.9	
Progression Factor	1.00	
Incremental Delay, d2	2.0	
Delay (s)	43.9	
Level of Service	D	
Approach Delay (s)	81.6	
Approach LOS	F	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	484	444	14	119
v/c Ratio	0.23	0.60	0.17	0.47
Control Delay	2.4	64.6	59.0	6.2
Queue Delay	51.9	0.3	0.0	0.0
Total Delay	54.3	64.9	59.0	6.2
Queue Length 50th (ft)	10	185	10	0
Queue Length 95th (ft)	m11	285	35	0
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2065	827	137	299
Starvation Cap Reductn	1621	0	0	0
Spillback Cap Reductn	0	70	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.09	0.59	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	348	7	0	386	22	8	1	4	20	0	89
Future Volume (vph)	90	348	7	0	386	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3537			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3537			3482			1738			1649	
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)	98	378	8	0	420	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	483	0	0	441	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.4			30.8			5.8			5.2	
Effective Green, g (s)		82.5			31.8			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1945			738			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.60			0.13			0.07	
Uniform Delay, d1		17.6			53.3			68.8			69.1	
Progression Factor		0.16			1.17			1.00			1.00	
Incremental Delay, d2		0.0			1.8			0.3			0.2	
Delay (s)		2.7			64.5			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.7			64.5			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	91	381	415	225	18	486	486	66	18	400	48	36
Average Queue (ft)	11	140	141	119	1	215	220	6	2	258	9	4
95th Queue (ft)	51	301	305	231	9	422	424	35	12	374	33	20
Link Distance (ft)		764	764			1199	1199	1199	114	1638	1638	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		11	3	2		22						
Queuing Penalty (veh)		4	22	16		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	79	248	255	146	268	253	431	248	102	257
Average Queue (ft)	23	110	118	66	60	53	200	119	13	121
95th Queue (ft)	60	231	240	135	251	220	358	213	56	223
Link Distance (ft)		982	982		764	764	447	447		235
Upstream Blk Time (%)							1			2
Queuing Penalty (veh)							0			0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				1	6				0	19
Queuing Penalty (veh)				2	4				0	1

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	228	232	436	456	31	475	917	896	69	225	445	452
Average Queue (ft)	128	146	268	280	3	414	422	316	16	59	287	285
95th Queue (ft)	204	217	400	418	16	548	1061	899	50	186	417	424
Link Distance (ft)			732	732			982	982			514	514
Upstream Blk Time (%)							5	1			0	0
Queuing Penalty (veh)							21	5			0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				0		42	2	0		0	30	21
Queuing Penalty (veh)				0		121	3	0		0	11	23

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	190	182	346	357	225
Average Queue (ft)	106	91	87	245	258	122
95th Queue (ft)	283	169	165	351	377	284
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				6	10	
Queuing Penalty (veh)				21	32	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				40	0
Queuing Penalty (veh)	0				94	0

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	NB	SB
Directions Served	TR	R	R
Maximum Queue (ft)	3	20	31
Average Queue (ft)	0	3	5
95th Queue (ft)	3	13	23
Link Distance (ft)	732	254	92
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	SW	SW	SW
Directions Served	<LTR>	LTR	<LTR>	<L	TR	T	TR>	<L	T	TR>
Maximum Queue (ft)	216	87	121	110	44	494	499	146	296	305
Average Queue (ft)	166	25	49	33	6	220	224	30	142	165
95th Queue (ft)	240	70	105	83	26	405	420	93	269	291
Link Distance (ft)	188	107	225		231	713	713		391	391
Upstream Blk Time (%)	22	1								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)				175				150		
Storage Blk Time (%)				0		29			10	
Queuing Penalty (veh)				0		0			3	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	NB	NB	SB	SB	SB	B9
Directions Served	LR	T	T	T	T	TR	T
Maximum Queue (ft)	95	9	2	54	116	141	4
Average Queue (ft)	27	0	0	5	21	26	0
95th Queue (ft)	68	9	2	29	81	98	0
Link Distance (ft)	235	340	340	243	243	243	226
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	B9	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	470	53	56	145	300	307	306	88	125	140	495	791
Average Queue (ft)	376	17	42	23	183	210	219	8	17	19	389	400
95th Queue (ft)	542	46	62	85	313	352	352	52	80	85	565	901
Link Distance (ft)	434	37	37		226	226	226	243	243	243		958
Upstream Blk Time (%)	39	5	52		4	7	10			0		5
Queuing Penalty (veh)	0	13	153		14	23	33			0		0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					17						22	0
Queuing Penalty (veh)					3						68	0

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	721	561
Average Queue (ft)	374	267
95th Queue (ft)	781	494
Link Distance (ft)	958	958
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	55	43	533	520	88	319
Average Queue (ft)	28	5	341	329	27	286
95th Queue (ft)	46	26	588	574	69	316
Link Distance (ft)	37	37	1638	1638	158	259
Upstream Blk Time (%)	6	1			0	98
Queuing Penalty (veh)	14	3			0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 709

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	50	143	145	128	39	1252	1248	1215	58	1255	927	51
Average Queue (ft)	11	54	60	46	2	831	872	358	11	841	241	11
95th Queue (ft)	35	125	129	111	19	1397	1437	1212	38	1325	713	36
Link Distance (ft)		765	765			1192	1192	1192	111	1639	1639	213
Upstream Blk Time (%)						4	7	1				
Queuing Penalty (veh)						33	50	10				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		1				26						
Queuing Penalty (veh)		0				1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	217	297	314	166	396	402	432	126	145	283
Average Queue (ft)	101	137	140	87	186	194	226	60	36	227
95th Queue (ft)	191	273	280	170	350	360	395	105	113	326
Link Distance (ft)		980	980		765	765	447	447		268
Upstream Blk Time (%)							2			14
Queuing Penalty (veh)							0			0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				1	22				0	46
Queuing Penalty (veh)				12	37				0	11

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	199	208	240	238	34	430	761	760	375	225	427	450
Average Queue (ft)	110	125	120	124	5	188	346	383	109	168	273	256
95th Queue (ft)	179	190	211	217	24	399	701	742	367	271	420	411
Link Distance (ft)			740	740			980	980			513	513
Upstream Blk Time (%)												0
Queuing Penalty (veh)												0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)						0	6	15	0	17	21	17
Queuing Penalty (veh)						0	8	16	0	43	24	19

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	150	158	324	345	225
Average Queue (ft)	100	69	75	170	193	137
95th Queue (ft)	293	133	141	282	317	248
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				1	4	
Queuing Penalty (veh)				4	12	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				14	8
Queuing Penalty (veh)	0				47	20

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	563	576	24	76
Average Queue (ft)	170	191	5	20
95th Queue (ft)	432	461	20	58
Link Distance (ft)	740	740	126	77
Upstream Blk Time (%)	0	0		7
Queuing Penalty (veh)	0	0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	LTR>	LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	204	121	240	73	46	46	261	281	174	396	405
Average Queue (ft)	131	44	106	20	6	4	141	134	34	336	344
95th Queue (ft)	224	99	201	55	26	27	259	252	111	470	461
Link Distance (ft)	189	146	225		232		713	713		354	354
Upstream Blk Time (%)	9	0	1							21	24
Queuing Penalty (veh)	0	0	0							202	225
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							18		0	33	
Queuing Penalty (veh)							1		0	15	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB
Directions Served	LR	T	T	TR
Maximum Queue (ft)	115	55	145	190
Average Queue (ft)	42	5	21	31
95th Queue (ft)	94	33	84	117
Link Distance (ft)	235	239	239	239
Upstream Blk Time (%)				0
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	262	64	65	117	150	127	142	495	1000	981	967
Average Queue (ft)	135	23	43	35	58	62	81	494	958	713	397
95th Queue (ft)	249	53	62	84	125	120	135	496	1071	1304	958
Link Distance (ft)	434	37	37		230	230	230		958	958	958
Upstream Blk Time (%)		8	56						78	10	0
Queuing Penalty (veh)		34	239						0	0	0
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)				0	2			86	1		
Queuing Penalty (veh)				0	1			264	3		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	69	68	1300	1311	90	303
Average Queue (ft)	25	13	987	993	22	258
95th Queue (ft)	52	43	1276	1296	63	333
Link Distance (ft)	37	37	1639	1639	158	259
Upstream Blk Time (%)	7	4				74
Queuing Penalty (veh)	19	11				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1360

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	110	443	452	225	73	796	837	296	41	291	90	51
Average Queue (ft)	11	220	207	161	7	256	269	28	7	167	38	9
95th Queue (ft)	56	376	367	251	38	608	635	176	28	269	79	34
Link Distance (ft)		764	764			1190	1190	1190	109	1672	1672	213
Upstream Blk Time (%)							0					
Queuing Penalty (veh)							0					
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)	0	17	7	4	0	21						
Queuing Penalty (veh)	0	3	33	18	0	2						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	204	347	380	174	468	467	225	133	144	240
Average Queue (ft)	102	107	123	102	189	200	111	51	50	176
95th Queue (ft)	177	244	271	182	409	420	200	100	132	260
Link Distance (ft)		980	980		764	764	447	447		205
Upstream Blk Time (%)										15
Queuing Penalty (veh)										0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)		0		2	8				0	35
Queuing Penalty (veh)		0		12	12				1	15

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	179	204	426	434	46	380	657	674	375	224	295	298
Average Queue (ft)	102	122	267	276	8	153	350	368	115	84	178	171
95th Queue (ft)	162	181	387	398	32	338	629	647	369	183	264	270
Link Distance (ft)			769	769			980	980			515	515
Upstream Blk Time (%)							0	0				
Queuing Penalty (veh)							0	0				
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				0			6	20	0	0	6	2
Queuing Penalty (veh)				0			8	17	0	1	6	4

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	235	128	130	328	343	225
Average Queue (ft)	55	54	59	156	170	120
95th Queue (ft)	170	106	112	300	326	258
Link Distance (ft)			340	340	340	
Upstream Blk Time (%)				1	2	
Queuing Penalty (veh)				4	9	
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				12	5
Queuing Penalty (veh)	0				45	14

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	WB	WB	NB	SB
Directions Served	T	TR	R	R
Maximum Queue (ft)	78	82	29	48
Average Queue (ft)	10	14	7	15
95th Queue (ft)	47	56	23	41
Link Distance (ft)	769	769	135	122
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	WB	NB	SB	SB	NE	NE	NE	SW	SW	SW
Directions Served	<LTR>	<LTR>	<LTR>	<L	TR>	<L	T	TR>	<L	T	TR>
Maximum Queue (ft)	151	90	86	38	25	32	414	410	174	368	380
Average Queue (ft)	72	26	25	6	2	5	182	181	33	277	295
95th Queue (ft)	136	66	63	24	12	35	333	330	128	405	409
Link Distance (ft)	188	154	225		229		713	713		328	328
Upstream Blk Time (%)	0	0								4	7
Queuing Penalty (veh)	0	0								33	55
Storage Bay Dist (ft)				175		120			150		
Storage Blk Time (%)							22		0	22	
Queuing Penalty (veh)							2		0	9	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B9	B9
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	96	26	69	98	3	7
Average Queue (ft)	33	2	5	10	0	0
95th Queue (ft)	73	15	40	59	3	6
Link Distance (ft)	235	234	234	234	235	235
Upstream Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B9	B9	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	UL	T	T
Maximum Queue (ft)	132	78	59	137	230	249	267	9	12	495	997	983
Average Queue (ft)	52	20	35	28	135	154	177	0	1	474	792	752
95th Queue (ft)	104	59	64	78	211	230	253	6	8	571	1295	1249
Link Distance (ft)	434	37	37		235	235	235	234	234		958	958
Upstream Blk Time (%)		6	20		1	2	4				51	12
Queuing Penalty (veh)		14	48		3	5	11				0	0
Storage Bay Dist (ft)				135						470		
Storage Blk Time (%)				0	21					72	0	
Queuing Penalty (veh)				1	7					261	1	

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB
Directions Served	TR
Maximum Queue (ft)	974
Average Queue (ft)	566
95th Queue (ft)	1050
Link Distance (ft)	958
Upstream Blk Time (%)	1
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	53	35	256	254	55	183
Average Queue (ft)	29	9	160	166	14	79
95th Queue (ft)	45	32	237	244	45	161
Link Distance (ft)	37	37	1672	1672	158	259
Upstream Blk Time (%)	4	1				0
Queuing Penalty (veh)	10	2				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 665

Appendix I

Vehicular Capacity Analysis Worksheets – Future (2027) Conditions without Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2222	1	662	251	1	272	11	5
v/c Ratio	0.08	0.67	0.01	0.33	0.24	0.02	0.82	0.02	0.06
Control Delay	5.5	9.8	44.0	41.5	21.6	89.0	122.8	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	10.1	44.0	41.5	21.6	89.0	122.8	0.1	82.2
Queue Length 50th (ft)	3	54	1	321	114	1	311	0	6
Queue Length 95th (ft)	m16	#1189	m5	516	227	9	m402	m0	22
Internal Link Dist (ft)		810		1204		100		1631	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	503	3320	119	1980	1030	67	379	487	175
Starvation Cap Reductn	0	365	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	0.75	0.01	0.33	0.24	0.01	0.72	0.02	0.03

Intersection Summary

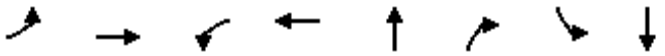
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2043	1	1	0	609	231	1	0	250	1	9
Future Volume (vph)	37	2043	1	1	0	609	231	1	0	250	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1641	
Flt Permitted	0.33	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	627	4987			73	3223	1524		1805	1687	1641	
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)	40	2221	1	1	0	662	251	1	0	272	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	108	0	0	0	9	0
Lane Group Flow (vph)	40	2222	0	0	1	662	143	0	1	272	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	114.6	108.5			104.8	103.6	103.6		1.3	36.3	36.3	
Effective Green, g (s)	116.6	110.5			106.8	105.6	105.6		2.3	37.3	37.3	
Actuated g/C Ratio	0.61	0.58			0.56	0.56	0.56		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	428	2900			61	1791	847		21	331	322	
v/s Ratio Prot	c0.00	c0.45			0.00	0.21			c0.00	c0.16	0.00	
v/s Ratio Perm	0.05				0.01		0.09					
v/c Ratio	0.09	0.77			0.02	0.37	0.17		0.05	0.82	0.01	
Uniform Delay, d1	15.5	30.0			26.2	23.6	20.7		92.8	73.2	61.4	
Progression Factor	0.33	0.33			2.16	1.84	5.91		1.00	1.42	1.00	
Incremental Delay, d2	0.1	1.3			0.1	0.6	0.4		0.9	16.2	0.0	
Delay (s)	5.2	11.3			56.6	44.0	122.7		93.7	120.1	61.5	
Level of Service	A	B			E	D	F		F	F	E	
Approach Delay (s)		11.2				65.6			93.7		117.8	
Approach LOS		B				E			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

Intersection Summary



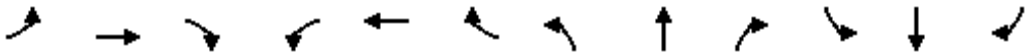
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	1987	75	594	156	185	7	126
v/c Ratio	0.08	0.83	0.47	0.26	0.91	0.47	0.08	0.49
Control Delay	2.8	10.8	61.9	4.7	126.6	15.0	65.3	70.3
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.8	11.5	61.9	4.7	126.6	15.1	65.3	70.3
Queue Length 50th (ft)	8	190	47	43	195	19	8	132
Queue Length 95th (ft)	m12	235	135	39	277	94	24	194
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	726	2405	246	2315	230	476	112	345
Starvation Cap Reductn	0	3	0	0	0	0	0	0
Spillback Cap Reductn	0	145	0	0	0	7	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.88	0.30	0.26	0.68	0.39	0.06	0.37

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1815	13	69	546	1	33	110	170	6	78	38
Future Volume (vph)	47	1815	13	69	546	1	33	110	170	6	78	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1352	1599	1081	1554	
Flt Permitted	0.42	1.00		0.05	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	796	3433		87	3195			1067	1599	522	1554	
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)	51	1973	14	75	593	1	36	120	185	7	85	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	140	0	10	0
Lane Group Flow (vph)	51	1987	0	75	594	0	0	156	45	7	116	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	137.8	132.1		144.6	135.5			29.5	29.5	29.5	29.5	
Effective Green, g (s)	139.8	133.1		146.6	136.5			30.5	30.5	30.5	30.5	
Actuated g/C Ratio	0.74	0.70		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	621	2404		158	2295			171	256	83	249	
v/s Ratio Prot	0.00	c0.58		c0.03	0.19						0.07	
v/s Ratio Perm	0.06			0.34				c0.15	0.03	0.01		
v/c Ratio	0.08	0.83		0.47	0.26			0.91	0.18	0.08	0.47	
Uniform Delay, d1	6.8	20.2		30.2	9.3			78.4	68.9	67.9	72.4	
Progression Factor	0.44	0.35		3.42	0.44			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	2.5		2.2	0.3			44.2	0.3	0.4	1.4	
Delay (s)	3.1	9.6		105.6	4.3			122.6	69.2	68.3	73.7	
Level of Service	A	A		F	A			F	E	E	E	
Approach Delay (s)		9.5			15.7			93.7			73.4	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



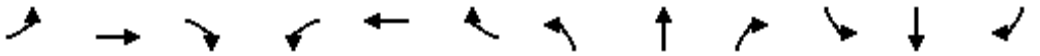
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	269	1554	7	146	426	76	19	664	118	159	579	251
v/c Ratio	0.70	0.81	0.01	1.42	0.24	0.10	0.22	0.91	0.25	0.73	0.64	0.33
Control Delay	109.9	29.4	0.0	282.0	22.1	3.6	92.3	90.7	9.9	133.5	105.3	6.3
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.4
Total Delay	109.9	29.9	0.0	282.0	22.1	3.6	92.3	90.7	9.9	133.5	106.8	6.7
Queue Length 50th (ft)	175	474	0	~249	65	1	23	429	13	108	256	2
Queue Length 95th (ft)	208	704	m0	#400	230	m14	55	#530	59	#153	468	90
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1920	962	103	1751	731	110	748	479	222	899	798
Starvation Cap Reductn	0	103	0	0	0	0	0	0	0	0	161	219
Spillback Cap Reductn	0	58	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.86	0.01	1.42	0.24	0.10	0.17	0.89	0.25	0.72	0.78	0.43

Intersection Summary

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

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

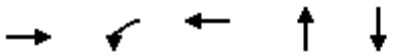
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	1507	7	142	413	74	18	644	114	154	562	243
Future Volume (vph)	261	1507	7	142	413	74	18	644	114	154	562	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1559	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1559	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	269	1554	7	146	426	76	19	664	118	159	579	251
RTOR Reduction (vph)	0	0	3	0	0	29	0	0	71	0	0	143
Lane Group Flow (vph)	269	1554	4	146	426	47	19	664	47	159	579	108
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	19.9	98.9	104.2	11.2	89.9	102.1	5.3	40.4	51.6	12.2	48.2	68.1
Effective Green, g (s)	21.4	100.4	107.2	12.7	91.4	105.1	6.8	41.9	54.6	13.7	49.7	71.1
Actuated g/C Ratio	0.11	0.53	0.56	0.07	0.48	0.55	0.04	0.22	0.29	0.07	0.26	0.37
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	386	1870	879	103	1702	694	63	780	440	217	899	592
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.12	0.00	0.01	c0.19	0.01	c0.05	c0.17	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.05
v/c Ratio	0.70	0.83	0.00	1.42	0.25	0.07	0.30	0.85	0.11	0.73	0.64	0.18
Uniform Delay, d1	81.2	37.7	18.1	88.7	29.1	19.7	89.3	71.1	49.8	86.4	62.3	39.9
Progression Factor	1.26	0.73	1.00	0.81	0.77	0.66	1.00	1.00	1.00	1.33	1.60	0.91
Incremental Delay, d2	4.5	3.7	0.0	234.2	0.3	0.0	2.7	8.9	0.1	11.9	1.6	0.1
Delay (s)	106.6	31.0	18.1	305.9	22.7	13.1	92.0	79.9	49.9	126.6	101.3	36.4
Level of Service	F	C	B	F	C	B	F	E	D	F	F	D
Approach Delay (s)		42.1			85.4			75.8			88.9	
Approach LOS		D			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	65.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	90.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1812	10	689	34	2
v/c Ratio	0.59	0.15	0.22	0.30	0.00
Control Delay	1.9	97.5	1.4	13.3	0.0
Queue Delay	0.1	0.0	0.0	0.0	0.0
Total Delay	1.9	97.5	1.4	13.3	0.0
Queue Length 50th (ft)	72	13	20	0	0
Queue Length 95th (ft)	116	39	61	18	0
Internal Link Dist (ft)	217		798	247	105
Turn Bay Length (ft)		80			
Base Capacity (vph)	3097	75	3189	217	519
Starvation Cap Reductn	171	0	0	0	0
Spillback Cap Reductn	37	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.62	0.13	0.22	0.16	0.00

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1757	1	10	664	4	27	0	6	0	0	2
Future Volume (veh/h)	0	1757	1	10	664	4	27	0	6	0	0	2
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1811	1	10	685	4	28	0	6	0	0	2
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	3110	2	27	3240	19	69	0	7	0	0	48
Arrive On Green	0.00	0.86	0.86	0.03	1.00	1.00	0.03	0.00	0.03	0.00	0.00	0.03
Sat Flow, veh/h	1774	3630	2	1774	3608	21	1136	0	243	0	0	1583
Grp Volume(v), veh/h	0	883	929	10	336	353	34	0	0	0	0	2
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1859	1379	0	0	0	0	1583
Q Serve(g_s), s	0.0	27.1	27.1	1.1	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.0	27.1	27.1	1.1	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.2
Prop In Lane	1.00		0.00	1.00		0.01	0.82		0.18	0.00		1.00
Lane Grp Cap(c), veh/h	1	1516	1595	27	1589	1669	76	0	0	0	0	48
V/C Ratio(X)	0.00	0.58	0.58	0.37	0.21	0.21	0.44	0.00	0.00	0.00	0.00	0.04
Avail Cap(c_a), veh/h	75	1516	1595	75	1589	1669	211	0	0	0	0	196
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.9	3.9	91.2	0.0	0.0	91.7	0.0	0.0	0.0	0.0	89.4
Incr Delay (d2), s/veh	0.0	1.6	1.6	8.2	0.3	0.3	4.0	0.0	0.0	0.0	0.0	0.4
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	0.0	13.7	14.4	0.6	0.1	0.1	1.9	0.0	0.0	0.0	0.0	0.1
LnGrp Delay(d),s/veh	0.0	5.5	5.5	99.4	0.3	0.3	95.7	0.0	0.0	0.0	0.0	89.8
LnGrp LOS		A	A	F	A	A	F					F
Approach Vol, veh/h		1812			699			34			2	
Approach Delay, s/veh		5.5			1.7			95.7			89.8	
Approach LOS		A			A			F			F	

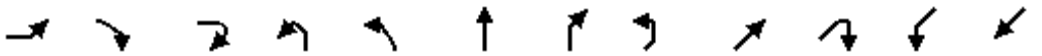
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	169.9		12.3	0.0	177.7		12.3
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	8.0	139.9		23.5	8.0	139.9		23.5
Max Q Clear Time (g_c+I1), s	3.1	29.1		6.7	0.0	2.0		2.2
Green Ext Time (p_c), s	0.0	51.0		0.1	0.0	7.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Lane Group	EBL	NBT	NET	SWL	SWT
Lane Group Flow (vph)	205	64	1691	22	696
v/c Ratio	0.86	0.43	0.65	0.12	0.26
Control Delay	73.9	10.7	3.4	6.3	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.2
Total Delay	73.9	10.7	3.5	6.3	4.7
Queue Length 50th (ft)	130	0	37	3	43
Queue Length 95th (ft)	#247	9	136	13	111
Internal Link Dist (ft)	50	220	755		123
Turn Bay Length (ft)				150	
Base Capacity (vph)	270	223	2599	240	2712
Starvation Cap Reductn	0	0	76	0	1163
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.29	0.67	0.09	0.45

Intersection Summary

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



Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	181	12	6	9	17	0	36	0	1626	15	21	616
Future Volume (vph)	181	12	6	9	17	0	36	0	1626	15	21	616
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5					6.5			7.1		7.1	7.1
Lane Util. Factor	1.00					1.00			0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Frt	0.99					0.92			1.00		1.00	0.99
Flt Protected	0.96					0.98			1.00		0.95	1.00
Satd. Flow (prot)	1664					1696			3535		1770	3486
Flt Permitted	0.96					0.98			1.00		0.09	1.00
Satd. Flow (perm)	1664					1696			3535		170	3486
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	12	6	9	18	0	37	0	1676	15	22	635
RTOR Reduction (vph)	93	0	0	0	0	62	0	0	0	0	0	0
Lane Group Flow (vph)	112	0	0	0	0	2	0	0	1691	0	22	696
Confl. Peds. (#/hr)		1	1	1	1			1				
Heavy Vehicles (%)	2%	100%	2%	0%	0%	2%	2%	0%	2%	2%	2%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	16.5					5.7			136.8		147.7	147.7
Effective Green, g (s)	16.5					5.7			136.8		147.7	147.7
Actuated g/C Ratio	0.09					0.03			0.72		0.78	0.78
Clearance Time (s)	6.5					6.5			7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0			4.0		3.0	4.0
Lane Grp Cap (vph)	144					50			2545		164	2709
v/s Ratio Prot	c0.07					c0.00			c0.48		0.00	c0.20
v/s Ratio Perm											0.10	
v/c Ratio	0.78					0.04			0.66		0.13	0.26
Uniform Delay, d1	84.9					89.5			14.3		12.5	5.9
Progression Factor	1.00					1.00			0.16		0.90	0.69
Incremental Delay, d2	22.6					0.3			1.2		0.4	0.2
Delay (s)	107.6					89.8			3.5		11.6	4.3
Level of Service	F					F			A		B	A
Approach Delay (s)	107.6					89.8			3.5			4.5
Approach LOS	F					F			A			A

Intersection Summary			
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.2
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

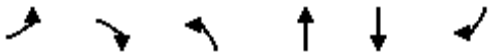
Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	53	6
Future Volume (vph)	53	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	55	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	1	
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	5	1088	1040
v/c Ratio	0.02	0.21	0.21
Control Delay	0.2	0.1	0.3
Queue Delay	0.0	0.0	0.0
Total Delay	0.2	0.1	0.3
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	m41
Internal Link Dist (ft)	220	381	225
Turn Bay Length (ft)			
Base Capacity (vph)	328	5085	4989
Starvation Cap Reductn	0	0	762
Spillback Cap Reductn	0	36	695
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.22	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	5	0	1001	956	1
Future Volume (vph)	0	5	0	1001	956	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	5	0	1088	1039	1
RTOR Reduction (vph)	5	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1088	1040	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	1.4			190.0	177.6	
Effective Green, g (s)	1.4			190.0	177.6	
Actuated g/C Ratio	0.01			1.00	0.93	
Clearance Time (s)	6.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	11			5085	4752	
v/s Ratio Prot	0.00			0.21	0.20	
v/s Ratio Perm						
v/c Ratio	0.00			0.21	0.22	
Uniform Delay, d1	93.6			0.0	0.5	
Progression Factor	1.00			1.00	0.93	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	93.7			0.1	0.6	
Level of Service	F			A	A	
Approach Delay (s)	93.7			0.1	0.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	33.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	274	363	13	1056	393	1041
v/c Ratio	1.00	0.49	0.49	0.19	0.89	1.12	0.50
Control Delay	138.3	2.0	4.0	136.3	31.3	139.4	42.7
Queue Delay	0.0	5.1	20.2	0.0	1.0	0.0	0.0
Total Delay	138.3	7.1	24.2	136.3	32.3	139.4	42.7
Queue Length 50th (ft)	285	0	76	17	383	~513	330
Queue Length 95th (ft)	#486	m0	m63	46	440	#745	434
Internal Link Dist (ft)	420	47			216		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	560	744	161	1193	350	2062
Starvation Cap Reductn	0	219	373	0	33	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	1.00	0.80	0.98	0.08	0.91	1.12	0.50

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	37	43	506	7	5	951	20	4	358
Future Volume (vph)	85	99	25	37	43	506	7	5	951	20	4	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1516	1475		1602	4959			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1516	1475		1602	4959			143
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)	92	108	27	40	47	550	8	5	1034	22	4	389
RTOR Reduction (vph)	0	3	0	0	41	239	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	233	124	0	13	1056	0	0	393
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		3.5	44.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		4.5	45.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.02	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			518	504		37	1192			350
v/s Ratio Prot		c0.13			c0.15	0.08		0.01	0.21			c0.20
v/s Ratio Perm												c0.30
v/c Ratio		1.00			0.45	0.25		0.35	0.89			1.12
Uniform Delay, d1		83.0			48.6	44.9		91.3	69.6			63.8
Progression Factor		1.00			0.01	0.77		1.50	0.31			1.00
Incremental Delay, d2		60.6			0.8	0.3		5.6	9.7			85.6
Delay (s)		143.5			1.4	35.0		142.3	31.0			149.5
Level of Service		F			A	C		F	C			F
Approach Delay (s)		143.5			20.5				32.4			
Approach LOS		F			C				C			

Intersection Summary			
HCM 2000 Control Delay	55.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	941	17
Future Volume (vph)	941	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4931	
Flt Permitted	1.00	
Satd. Flow (perm)	4931	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1023	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1041	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	73.9	
Effective Green, g (s)	75.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1956	
v/s Ratio Prot	0.21	
v/s Ratio Perm		
v/c Ratio	0.53	
Uniform Delay, d1	43.8	
Progression Factor	1.00	
Incremental Delay, d2	1.0	
Delay (s)	44.9	
Level of Service	D	
Approach Delay (s)	73.5	
Approach LOS	E	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	521	493	32	201
v/c Ratio	0.25	0.79	0.14	1.09
Control Delay	0.5	87.4	1.2	139.2
Queue Delay	29.2	2.2	0.0	2.2
Total Delay	29.7	89.7	1.2	141.4
Queue Length 50th (ft)	2	303	0	~193
Queue Length 95th (ft)	m3	390	0	#393
Internal Link Dist (ft)	47	1631	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2060	628	272	184
Starvation Cap Reductn	1553	0	0	0
Spillback Cap Reductn	0	54	3	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.86	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	430	6	0	431	23	8	0	21	39	1	145
Future Volume (vph)	43	430	6	0	431	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3397			3355			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3397			3355			1456			1347	
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)	47	467	7	0	468	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	521	0	0	491	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.1			5.4			15.5	
Effective Green, g (s)		109.3			35.1			6.4			16.5	
Actuated g/C Ratio		0.58			0.18			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1954			619			49			116	
v/s Ratio Prot		c0.15			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.79			0.02			1.15	
Uniform Delay, d1		20.2			74.0			88.8			86.8	
Progression Factor		0.03			1.05			1.00			1.00	
Incremental Delay, d2		0.0			8.1			0.1			129.6	
Delay (s)		0.6			85.6			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.6			85.6			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2027 FB PM

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1441	4	2042	538	7	340	99	16
v/c Ratio	0.18	0.39	0.02	0.83	0.46	0.12	1.50	0.30	0.18
Control Delay	18.9	6.8	12.5	20.6	7.1	106.8	307.8	32.7	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	6.9	12.5	20.6	7.1	106.8	307.8	32.7	101.3
Queue Length 50th (ft)	2	67	1	413	118	10	~695	46	23
Queue Length 95th (ft)	m9	216	m3	#1775	174	33	m#929	m91	53
Internal Link Dist (ft)		810		1202		100		1664	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	97	3671	299	2459	1161	63	226	328	189
Starvation Cap Reductn	0	591	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	0.16	0.47	0.01	0.83	0.46	0.11	1.50	0.30	0.08

Intersection Summary

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

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

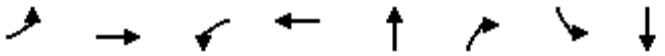
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1323	3	4	0	1879	495	3	0	4	313	8
Future Volume (vph)	15	1323	3	4	0	1879	495	3	0	4	313	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1641
Flt Permitted	0.03	1.00			0.15	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	50	5084			277	3539	1583		1717		1736	1641
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)	16	1438	3	4	0	2042	538	3	0	4	340	9
RTOR Reduction (vph)	0	0	0	0	0	0	70	0	0	0	0	86
Lane Group Flow (vph)	16	1441	0	0	4	2042	468	0	7	0	340	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	147.5	143.6			142.1	140.9	140.9		3.0		27.7	27.7
Effective Green, g (s)	149.5	145.6			144.1	142.9	142.9		4.0		28.7	28.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	71	3364			196	2298	1028		31		226	214
v/s Ratio Prot	c0.01	c0.28			0.00	c0.58			c0.00		c0.20	0.01
v/s Ratio Perm	0.15				0.01		0.30					
v/c Ratio	0.23	0.43			0.02	0.89	0.46		0.23		1.50	0.06
Uniform Delay, d1	41.6	17.6			14.3	32.0	19.2		106.5		95.7	83.8
Progression Factor	1.22	0.45			0.89	0.60	0.51		1.00		1.10	9.41
Incremental Delay, d2	1.4	0.3			0.0	4.7	1.2		3.7		248.1	0.2
Delay (s)	52.1	8.2			12.8	23.9	11.0		110.2		353.0	788.7
Level of Service	D	A			B	C	B		F		F	F
Approach Delay (s)		8.7				21.2			110.2			451.3
Approach LOS		A				C			F			F

Intersection Summary			
HCM 2000 Control Delay	59.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

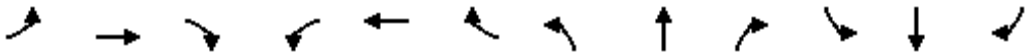
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	122	1267	179	1861	205	175	25	256
v/c Ratio	0.73	0.57	0.60	0.85	1.05	0.35	0.14	0.61
Control Delay	82.4	18.1	25.7	19.6	156.0	8.9	66.7	74.6
Queue Delay	0.0	0.0	0.0	15.0	0.0	0.0	0.0	0.0
Total Delay	82.4	18.1	25.7	34.6	156.0	8.9	66.7	74.6
Queue Length 50th (ft)	120	357	44	616	300	0	29	302
Queue Length 95th (ft)	198	514	m129	342	#482	71	61	406
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	192	2239	353	2189	219	542	207	464
Starvation Cap Reductn	0	38	0	115	0	0	0	0
Spillback Cap Reductn	0	0	0	361	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.58	0.51	1.02	0.94	0.32	0.12	0.55

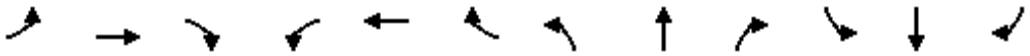
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1126	40	165	1706	6	60	129	161	23	113	122
Future Volume (vph)	112	1126	40	165	1706	6	60	129	161	23	113	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3524		1805	3537			1870	1615	1805	1752	
Flt Permitted	0.04	1.00		0.16	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	61	3524		299	3537			859	1615	815	1752	
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)	122	1224	43	179	1854	7	65	140	175	25	123	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	135	0	19	0
Lane Group Flow (vph)	122	1266	0	179	1861	0	0	205	40	25	237	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	155.1	138.8		148.1	135.3			49.1	49.1	49.1	49.1	
Effective Green, g (s)	157.1	139.8		150.1	136.3			50.1	50.1	50.1	50.1	
Actuated g/C Ratio	0.71	0.64		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	166	2239		298	2191			195	367	185	398	
v/s Ratio Prot	c0.06	0.36		0.04	c0.53						0.14	
v/s Ratio Perm	0.47			0.37				c0.24	0.02	0.03		
v/c Ratio	0.73	0.57		0.60	0.85			1.05	0.11	0.14	0.60	
Uniform Delay, d1	70.0	22.8		18.2	33.6			85.0	67.3	67.7	75.9	
Progression Factor	1.10	0.71		1.91	0.47			1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.5	1.0		1.9	2.5			78.6	0.1	0.3	2.4	
Delay (s)	91.5	17.1		36.7	18.4			163.6	67.4	68.0	78.3	
Level of Service	F	B		D	B			F	E	E	E	
Approach Delay (s)		23.7			20.0			119.3			77.4	
Approach LOS		C			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



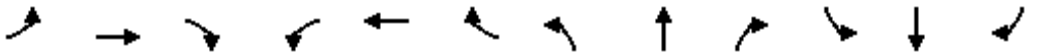
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	232	934	30	149	1597	118	129	547	117	176	557	357
v/c Ratio	0.77	0.48	0.03	0.90	0.81	0.12	1.06	0.86	0.23	0.63	0.78	0.71
Control Delay	145.2	23.0	0.0	114.1	31.2	6.7	187.7	101.6	5.5	153.7	90.5	32.1
Queue Delay	0.0	0.2	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	3.8	1.3
Total Delay	145.2	23.2	0.0	114.1	53.4	6.7	187.7	101.6	5.5	153.7	94.2	33.4
Queue Length 50th (ft)	182	254	0	223	1195	46	~204	410	0	136	267	85
Queue Length 95th (ft)	#244	276	0	m#281	1282	m43	#372	484	40	184	321	233
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	307	1934	1021	166	1973	992	122	683	509	340	815	503
Starvation Cap Reductn	0	315	0	0	432	0	0	0	0	0	175	42
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.58	0.03	0.90	1.04	0.12	1.06	0.80	0.23	0.52	0.87	0.77

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	897	29	143	1533	113	124	525	112	169	535	343
Future Volume (vph)	223	897	29	143	1533	113	124	525	112	169	535	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	232	934	30	149	1597	118	129	547	117	176	557	357
RTOR Reduction (vph)	0	0	12	0	0	21	0	0	85	0	0	61
Lane Group Flow (vph)	232	934	18	149	1597	97	129	547	32	176	557	296
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.7	118.7	132.1	19.2	119.9	136.6	13.4	38.1	57.3	16.7	42.3	60.0
Effective Green, g (s)	19.2	120.2	135.1	20.7	121.4	139.6	14.9	39.6	60.3	18.2	43.8	63.0
Actuated g/C Ratio	0.09	0.55	0.61	0.09	0.55	0.63	0.07	0.18	0.27	0.08	0.20	0.29
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	302	1933	991	166	1972	958	122	637	430	281	711	453
v/s Ratio Prot	c0.07	0.26	0.00	0.08	c0.45	0.01	c0.07	c0.15	0.01	0.05	c0.16	0.06
v/s Ratio Perm			0.01			0.06			0.01			0.13
v/c Ratio	0.77	0.48	0.02	0.90	0.81	0.10	1.06	0.86	0.07	0.63	0.78	0.65
Uniform Delay, d1	98.2	30.8	16.6	98.6	39.9	15.7	102.5	87.5	59.2	97.6	83.6	68.9
Progression Factor	1.33	0.70	1.00	0.87	0.71	0.85	1.00	1.00	1.00	1.48	0.99	0.49
Incremental Delay, d2	10.5	0.8	0.0	26.1	2.0	0.0	97.7	11.1	0.1	4.3	5.6	3.3
Delay (s)	141.0	22.5	16.6	112.2	30.3	13.3	200.2	98.6	59.2	148.4	88.1	36.9
Level of Service	F	C	B	F	C	B	F	F	E	F	F	D
Approach Delay (s)		45.3			35.7			109.3			81.0	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	59.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	88.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1186	24	2159	55	11
v/c Ratio	0.40	0.38	0.68	0.52	0.08
Control Delay	3.1	129.1	3.0	46.8	1.2
Queue Delay	0.2	0.0	0.2	1.5	0.0
Total Delay	3.2	129.1	3.3	48.4	1.2
Queue Length 50th (ft)	287	35	59	15	0
Queue Length 95th (ft)	113	m46	m142	68	0
Internal Link Dist (ft)	199		798	108	109
Turn Bay Length (ft)		100			
Base Capacity (vph)	2990	63	3160	182	224
Starvation Cap Reductn	778	0	335	0	0
Spillback Cap Reductn	0	0	130	49	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.38	0.76	0.41	0.05

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1102	1	22	2006	2	39	0	12	0	0	10
Future Volume (veh/h)	0	1102	1	22	2006	2	39	0	12	0	0	10
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1185	1	24	2157	2	42	0	13	0	0	11
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	3047	3	43	3218	3	78	2	16	0	0	81
Arrive On Green	0.00	0.84	0.84	0.05	1.00	1.00	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	1774	3629	3	1774	3628	3	955	46	310	0	0	1583
Grp Volume(v), veh/h	0	578	608	24	1052	1107	55	0	0	0	0	11
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1862	1311	0	0	0	0	1583
Q Serve(g_s), s	0.0	17.1	17.1	2.9	0.0	0.0	7.9	0.0	0.0	0.0	0.0	1.5
Cycle Q Clear(g_c), s	0.0	17.1	17.1	2.9	0.0	0.0	9.3	0.0	0.0	0.0	0.0	1.5
Prop In Lane	1.00		0.00	1.00		0.00	0.76		0.24	0.00		1.00
Lane Grp Cap(c), veh/h	1	1486	1564	43	1570	1652	96	0	0	0	0	81
V/C Ratio(X)	0.00	0.39	0.39	0.55	0.67	0.67	0.57	0.00	0.00	0.00	0.00	0.14
Avail Cap(c_a), veh/h	56	1486	1564	56	1570	1652	169	0	0	0	0	162
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.49	0.49	0.49	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.2	4.2	103.4	0.0	0.0	103.9	0.0	0.0	0.0	0.0	99.7
Incr Delay (d2), s/veh	0.0	0.8	0.7	5.2	1.1	1.1	5.3	0.0	0.0	0.0	0.0	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	0.0	8.5	8.9	1.5	0.5	0.5	3.5	0.0	0.0	0.0	0.0	0.7
LnGrp Delay(d),s/veh	0.0	5.0	4.9	108.7	1.1	1.1	109.2	0.0	0.0	0.0	0.0	100.5
LnGrp LOS		A	A	F	A	A	F					F
Approach Vol, veh/h		1186			2183			55			11	
Approach Delay, s/veh		4.9			2.3			109.2			100.5	
Approach LOS		A			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	191.9		17.8	0.0	202.2		17.8
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	171.9		22.5	7.0	171.9		22.5
Max Q Clear Time (g_c+I1), s	4.9	19.1		11.3	0.0	2.0		3.5
Green Ext Time (p_c), s	0.0	18.7		0.1	0.0	94.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		5.2
HCM 2010 LOS		A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	157	99	6	1124	26	2132
v/c Ratio	0.84	0.61	0.05	0.44	0.07	0.81
Control Delay	128.9	37.8	2.2	2.8	7.1	11.7
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	128.9	37.8	2.2	2.9	7.1	11.7
Queue Length 50th (ft)	226	16	0	76	6	331
Queue Length 95th (ft)	#350	88	m1	83	m14	682
Internal Link Dist (ft)	48	220		755		141
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	198	213	134	2578	365	2625
Starvation Cap Reductn	0	0	0	446	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.46	0.04	0.53	0.07	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	138	8	4	24	40	0	30	6	1057	10	25	1871
Future Volume (vph)	138	8	4	24	40	0	30	6	1057	10	25	1871
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.96		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1745					1708		1805	3534		1805	3423
Flt Permitted	0.96					0.97		0.04	1.00		0.21	1.00
Satd. Flow (perm)	1745					1708		79	3534		396	3423
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	8	4	25	42	0	32	6	1113	11	26	1969
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	0	0	0	0
Lane Group Flow (vph)	157	0	0	0	0	15	0	6	1124	0	26	2132
Confl. Peds. (#/hr)		4	2	2	2			2		4	4	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	9%	0%	2%	0%	0%	4%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	22.2					8.4		158.2	157.0		166.2	161.0
Effective Green, g (s)	23.7					9.9		161.2	159.0		169.2	163.0
Actuated g/C Ratio	0.11					0.05		0.73	0.72		0.77	0.74
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	187					76		79	2554		347	2536
v/s Ratio Prot	c0.09					c0.01		0.00	0.32		c0.00	c0.62
v/s Ratio Perm								0.05			0.06	
v/c Ratio	0.84					0.20		0.08	0.44		0.07	0.84
Uniform Delay, d1	96.3					101.2		25.0	12.4		7.9	19.6
Progression Factor	1.00					1.00		0.21	0.18		1.06	0.53
Incremental Delay, d2	26.8					1.3		0.4	0.5		0.1	2.7
Delay (s)	123.0					102.5		5.7	2.7		8.5	13.1
Level of Service	F					F		A	A		A	B
Approach Delay (s)	123.0					102.5			2.7			13.0
Approach LOS	F					F			A			B

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

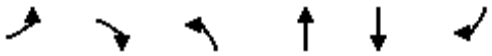
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	146	9
Future Volume (vph)	146	9
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	154	9
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	2	
Heavy Vehicles (%)	4%	25%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	16	895	1077
v/c Ratio	0.06	0.18	0.22
Control Delay	0.4	0.1	0.6
Queue Delay	0.0	0.0	0.1
Total Delay	0.4	0.1	0.7
Queue Length 50th (ft)	0	0	34
Queue Length 95th (ft)	0	0	38
Internal Link Dist (ft)	220	381	225
Turn Bay Length (ft)			
Base Capacity (vph)	340	5085	4849
Starvation Cap Reductn	0	0	2116
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.05	0.18	0.39

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	0	868	1043	2
Future Volume (vph)	0	16	0	868	1043	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5084	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5084	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	16	0	895	1075	2
RTOR Reduction (vph)	16	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	895	1077	0
Confl. Peds. (#/hr)	1		3			3
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	4.2			220.0	205.8	
Effective Green, g (s)	4.2			220.0	205.8	
Actuated g/C Ratio	0.02			1.00	0.94	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	30			5085	4755	
v/s Ratio Prot	0.00			0.18	c0.21	
v/s Ratio Perm						
v/c Ratio	0.01			0.18	0.23	
Uniform Delay, d1	105.9			0.0	0.6	
Progression Factor	1.00			1.00	0.93	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	106.0			0.1	0.6	
Level of Service	F			A	A	
Approach Delay (s)	106.0			0.1	0.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	1.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	451	443	31	912	477	1075
v/c Ratio	0.72	0.77	0.60	0.37	0.51	1.27	0.46
Control Delay	124.1	5.4	5.0	151.5	13.3	171.8	42.6
Queue Delay	0.0	47.5	54.3	0.0	0.8	0.0	0.0
Total Delay	124.1	52.9	59.2	151.5	14.1	171.8	42.6
Queue Length 50th (ft)	132	75	92	48	73	~678	404
Queue Length 95th (ft)	#244	m41	m60	92	83	#930	461
Internal Link Dist (ft)	420	47			216		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	130	589	739	198	1785	377	2315
Starvation Cap Reductn	0	173	335	0	516	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	0.72	1.08	1.10	0.16	0.72	1.27	0.46

Intersection Summary

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

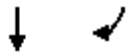
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	52	98	708	12	17	836	39	2	456
Future Volume (vph)	27	45	18	52	98	708	12	17	836	39	2	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1612	1534		1805	4993			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.18
Satd. Flow (perm)		1810			1612	1534		1805	4993			345
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	54	102	738	12	18	871	41	2	475
RTOR Reduction (vph)	0	4	0	0	32	211	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	419	232	0	31	912	0	0	477
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	pm+pt	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases							2				6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.1	77.2			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.1	78.7			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			547	520		74	1786			377
v/s Ratio Prot		c0.05			c0.26	0.15		0.02	0.18			c0.17
v/s Ratio Perm												c0.48
v/c Ratio		0.72			0.77	0.45		0.42	0.51			1.27
Uniform Delay, d1		100.2			64.9	56.5		102.9	55.5			43.6
Progression Factor		1.00			0.08	0.31		1.38	0.22			1.00
Incremental Delay, d2		18.1			0.7	0.1		3.8	1.0			138.9
Delay (s)		118.3			5.8	17.6		146.0	13.2			182.6
Level of Service		F			A	B		F	B			F
Approach Delay (s)		118.3			11.7				17.6			
Approach LOS		F			B				B			

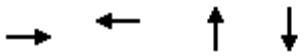
Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	956	76
Future Volume (vph)	956	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5036	
Flt Permitted	1.00	
Satd. Flow (perm)	5036	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	996	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1075	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	98.3	
Effective Green, g (s)	99.8	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2284	
v/s Ratio Prot	0.21	
v/s Ratio Perm		
v/c Ratio	0.47	
Uniform Delay, d1	41.8	
Progression Factor	1.00	
Incremental Delay, d2	0.7	
Delay (s)	42.4	
Level of Service	D	
Approach Delay (s)	85.5	
Approach LOS	F	

Intersection Summary



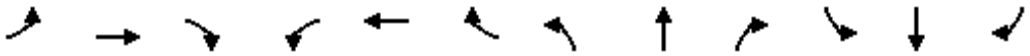
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	575	825	20	158
v/c Ratio	0.27	1.10	0.28	0.89
Control Delay	1.4	133.1	83.8	85.5
Queue Delay	21.8	0.5	0.0	0.4
Total Delay	23.1	133.6	83.8	85.9
Queue Length 50th (ft)	8	~703	19	102
Queue Length 95th (ft)	m7	#847	55	#246
Internal Link Dist (ft)	47	1664	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1558	0	0	0
Spillback Cap Reductn	0	62	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.01	1.20	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Future Volume (vph)	141	388	11	0	725	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3458			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3458			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	413	12	0	771	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	574	0	0	823	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.23			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.28			1.10			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.07			0.91			1.00			1.00	
Incremental Delay, d2		0.0			63.7			0.6			32.1	
Delay (s)		1.5			142.8			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.5			142.8			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	90.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1727	8	1617	627	6	218	50	14
v/c Ratio	0.15	0.53	0.05	0.75	0.58	0.07	0.80	0.12	0.12
Control Delay	23.1	20.5	6.3	22.5	11.8	69.3	101.4	7.3	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	20.5	6.3	22.5	11.8	69.3	101.4	7.3	63.7
Queue Length 50th (ft)	7	233	1	883	432	6	226	5	13
Queue Length 95th (ft)	m21	542	m2	#1191	660	22	#336	26	34
Internal Link Dist (ft)		810		1202		100		1663	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	152	3281	169	2170	1090	94	282	419	264
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	0.14	0.53	0.05	0.75	0.58	0.06	0.77	0.12	0.05

Intersection Summary

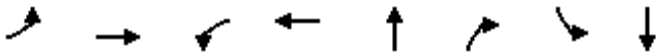
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1585	4	6	1	1488	577	4	0	2	201	2
Future Volume (vph)	20	1585	4	6	1	1488	577	4	0	2	201	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5035			1621	3539	1583		1756		1787	1626
Flt Permitted	0.05	1.00			0.08	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	93	5035			141	3539	1583		1756		1787	1626
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)	22	1723	4	7	1	1617	627	4	0	2	218	2
RTOR Reduction (vph)	0	0	0	0	0	0	143	0	0	0	0	42
Lane Group Flow (vph)	22	1727	0	0	8	1617	484	0	6	0	218	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	85.0	81.1			80.0	78.6	78.6		1.5		21.8	21.8
Effective Green, g (s)	87.0	83.1			82.0	80.6	80.6		2.5		22.8	22.8
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	109	2789			100	1901	850		29		271	247
v/s Ratio Prot	c0.01	0.34			0.00	c0.46			c0.00		c0.12	0.00
v/s Ratio Perm	0.11				0.04		0.31					
v/c Ratio	0.20	0.62			0.08	0.85	0.57		0.21		0.80	0.03
Uniform Delay, d1	25.7	22.7			18.2	29.6	23.1		72.8		61.4	54.2
Progression Factor	1.49	1.10			0.37	0.79	0.83		1.00		1.31	1.00
Incremental Delay, d2	0.7	0.8			0.3	4.2	2.3		3.5		17.5	0.1
Delay (s)	39.0	25.8			7.1	27.6	21.6		76.3		98.0	54.3
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		26.0				25.8			76.3			89.9
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

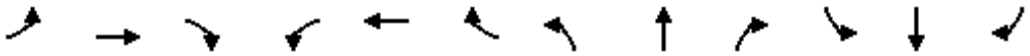
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	176	1550	151	1402	143	105	46	269
v/c Ratio	0.53	0.71	0.57	0.67	0.78	0.28	0.25	0.79
Control Delay	35.0	13.9	47.8	10.6	84.7	9.7	53.1	65.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	13.9	47.8	10.6	84.7	9.7	53.1	65.8
Queue Length 50th (ft)	57	164	80	69	135	0	39	221
Queue Length 95th (ft)	m138	884	m139	231	204	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	469	2188	455	2104	292	535	294	523
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.71	0.33	0.67	0.49	0.20	0.16	0.51

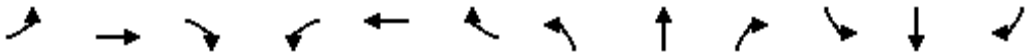
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1393	33	139	1280	10	27	105	97	42	118	130
Future Volume (vph)	162	1393	33	139	1280	10	27	105	97	42	118	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3527		1805	3536			1881	1568	1719	1694	
Flt Permitted	0.11	1.00		0.09	1.00			0.52	1.00	0.55	1.00	
Satd. Flow (perm)	205	3527		179	3536			996	1568	1001	1694	
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)	176	1514	36	151	1391	11	29	114	105	46	128	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	30	0
Lane Group Flow (vph)	176	1549	0	151	1402	0	0	143	19	46	239	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	107.8	92.0		100.4	88.3			26.6	26.6	26.6	26.6	
Effective Green, g (s)	109.8	93.0		102.4	89.3			27.6	27.6	27.6	27.6	
Actuated g/C Ratio	0.73	0.62		0.68	0.60			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	329	2186		264	2105			183	288	184	311	
v/s Ratio Prot	c0.06	c0.44		0.05	0.40						0.14	
v/s Ratio Perm	0.33			0.34				c0.14	0.01	0.05		
v/c Ratio	0.53	0.71		0.57	0.67			0.78	0.07	0.25	0.77	
Uniform Delay, d1	16.6	19.3		17.7	20.3			58.3	50.6	52.3	58.2	
Progression Factor	2.88	0.57		2.88	0.42			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.4	1.6		2.0	1.1			19.2	0.1	0.7	10.8	
Delay (s)	49.3	12.5		52.9	9.6			77.5	50.7	53.1	69.0	
Level of Service	D	B		D	A			E	D	D	E	
Approach Delay (s)		16.3			13.8			66.1			66.7	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

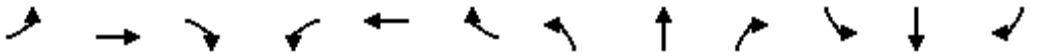


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	318	1195	52	154	1145	95	118	568	165	191	618	408
v/c Ratio	0.72	0.74	0.06	0.94	0.78	0.12	0.70	0.76	0.31	0.56	0.79	0.66
Control Delay	84.2	34.0	0.9	102.4	30.8	3.2	87.8	62.8	7.9	95.2	78.2	28.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1
Total Delay	84.2	34.0	0.9	102.4	30.8	3.2	87.8	62.8	7.9	95.2	78.6	28.5
Queue Length 50th (ft)	169	356	1	141	166	0	113	277	20	101	260	275
Queue Length 95th (ft)	199	626	m5	#293	472	m18	#195	334	56	144	356	466
Internal Link Dist (ft)		798			1037			554			381	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	455	1614	880	164	1472	845	177	854	533	411	948	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	71	9
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.74	0.06	0.94	0.78	0.11	0.67	0.67	0.31	0.46	0.70	0.67

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	1147	50	148	1099	91	113	545	158	183	593	392
Future Volume (vph)	305	1147	50	148	1099	91	113	545	158	183	593	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1535	1805	3539	1536	1787	3539	1519	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	318	1195	52	154	1145	95	118	568	165	191	618	408
RTOR Reduction (vph)	0	0	23	0	0	40	0	0	89	0	0	80
Lane Group Flow (vph)	318	1195	29	154	1145	55	118	568	76	191	618	328
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.9	67.0	79.6	12.2	61.0	74.5	12.6	30.0	42.2	13.5	31.8	49.7
Effective Green, g (s)	19.4	68.5	82.6	13.7	62.5	77.5	14.1	31.5	45.2	15.0	33.3	52.7
Actuated g/C Ratio	0.13	0.46	0.55	0.09	0.42	0.52	0.09	0.21	0.30	0.10	0.22	0.35
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	444	1616	845	164	1474	793	167	743	457	343	785	551
v/s Ratio Prot	0.09	c0.34	0.00	0.09	c0.32	0.01	c0.07	0.16	0.02	0.06	c0.17	0.08
v/s Ratio Perm			0.02			0.03			0.03			0.13
v/c Ratio	0.72	0.74	0.03	0.94	0.78	0.07	0.71	0.76	0.17	0.56	0.79	0.59
Uniform Delay, d1	62.7	33.4	15.4	67.7	37.7	18.2	65.9	55.8	38.5	64.3	55.0	39.9
Progression Factor	1.21	0.90	1.25	0.81	0.70	0.64	1.00	1.00	1.00	1.39	1.29	0.94
Incremental Delay, d2	4.7	2.7	0.0	43.8	3.1	0.0	12.8	4.7	0.2	1.9	5.2	1.7
Delay (s)	80.6	32.6	19.3	98.8	29.4	11.6	78.7	60.5	38.7	91.4	76.3	39.1
Level of Service	F	C	B	F	C	B	E	E	D	F	E	D
Approach Delay (s)		41.9			35.9			58.8			66.2	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	1538	28	1648	50	12
v/c Ratio	0.53	0.31	0.53	0.35	0.06
Control Delay	5.1	62.7	3.8	13.3	0.6
Queue Delay	0.1	0.0	0.1	0.0	0.0
Total Delay	5.2	62.7	3.8	13.3	0.6
Queue Length 50th (ft)	134	27	151	0	0
Queue Length 95th (ft)	258	m38	268	26	0
Internal Link Dist (ft)	171		798	125	94
Turn Bay Length (ft)		80			
Base Capacity (vph)	2914	90	3096	265	334
Starvation Cap Reductn	237	0	230	0	0
Spillback Cap Reductn	0	0	151	2	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.31	0.58	0.19	0.04

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1489	3	27	1592	7	35	0	14	0	0	12
Future Volume (veh/h)	0	1489	3	27	1592	7	35	0	14	0	0	12
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	0	1535	3	28	1641	7	36	0	14	0	0	12
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1	2882	6	57	3111	13	84	3	18	0	0	77
Arrive On Green	0.00	0.80	0.80	0.06	1.00	1.00	0.05	0.00	0.05	0.00	0.00	0.05
Sat Flow, veh/h	1774	3624	7	1774	3614	15	884	70	371	0	0	1583
Grp Volume(v), veh/h	0	749	789	28	803	845	50	0	0	0	0	12
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1860	1325	0	0	0	0	1583
Q Serve(g_s), s	0.0	22.6	22.6	2.3	0.0	0.0	4.6	0.0	0.0	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.0	22.6	22.6	2.3	0.0	0.0	5.7	0.0	0.0	0.0	0.0	1.1
Prop In Lane	1.00		0.00	1.00		0.01	0.72		0.28	0.00		1.00
Lane Grp Cap(c), veh/h	1	1407	1480	57	1523	1601	106	0	0	0	0	77
V/C Ratio(X)	0.00	0.53	0.53	0.49	0.53	0.53	0.47	0.00	0.00	0.00	0.00	0.16
Avail Cap(c_a), veh/h	83	1407	1480	83	1523	1601	252	0	0	0	0	238
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.59	0.59	0.59	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.4	5.5	69.0	0.0	0.0	70.9	0.0	0.0	0.0	0.0	68.4
Incr Delay (d2), s/veh	0.0	1.4	1.4	3.8	0.8	0.7	3.3	0.0	0.0	0.0	0.0	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	0.0	11.4	12.0	1.2	0.3	0.3	2.2	0.0	0.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	0.0	6.9	6.8	72.8	0.8	0.7	74.1	0.0	0.0	0.0	0.0	69.3
LnGrp LOS		A	A	E	A	A	E					E
Approach Vol, veh/h		1538			1676			50			12	
Approach Delay, s/veh		6.9			2.0			74.1			69.3	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	126.4		13.8	0.0	136.2		13.8
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	101.9		22.5	7.0	101.9		22.5
Max Q Clear Time (g_c+I1), s	4.3	24.6		7.7	0.0	2.0		3.1
Green Ext Time (p_c), s	0.0	30.8		0.1	0.0	36.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	5.6
HCM 2010 LOS	A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	101	46	8	1551	18	1692
v/c Ratio	0.57	0.23	0.04	0.61	0.08	0.64
Control Delay	76.7	2.5	5.1	5.8	3.4	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.7	2.5	5.1	5.8	3.4	6.0
Queue Length 50th (ft)	96	0	1	90	3	198
Queue Length 95th (ft)	158	0	m4	298	m2	376
Internal Link Dist (ft)	53	220		755		169
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	215	310	291	2528	310	2644
Starvation Cap Reductn	0	0	0	36	0	22
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.15	0.03	0.62	0.06	0.65

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	90	1	6	14	9	0	21	8	1474	15	17	1560
Future Volume (vph)	90	1	6	14	9	0	21	8	1474	15	17	1560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.94		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1794					1732		1805	3534		1805	3518
Flt Permitted	0.96					0.97		0.09	1.00		0.11	1.00
Satd. Flow (perm)	1794					1732		177	3534		205	3518
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	1	6	15	9	0	22	8	1535	16	18	1625
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	101	0	0	0	0	2	0	8	1551	0	18	1692
Confl. Peds. (#/hr)			7	7	3			3		4	4	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	13.3					4.5		102.5	101.3		107.5	103.8
Effective Green, g (s)	14.8					6.0		105.5	103.3		110.5	105.8
Actuated g/C Ratio	0.10					0.04		0.70	0.69		0.74	0.71
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	177					69		153	2433		206	2481
v/s Ratio Prot	c0.06					c0.00		0.00	0.44		c0.00	c0.48
v/s Ratio Perm								0.04			0.06	
v/c Ratio	0.57					0.03		0.05	0.64		0.09	0.68
Uniform Delay, d1	64.6					69.2		11.0	13.0		9.9	12.5
Progression Factor	1.00					1.00		0.88	0.37		0.52	0.46
Incremental Delay, d2	4.4					0.2		0.1	1.1		0.2	1.4
Delay (s)	69.0					69.4		9.8	5.9		5.3	7.1
Level of Service	E					E		A	A		A	A
Approach Delay (s)	69.0					69.4			5.9			7.1
Approach LOS	E					E			A			A

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

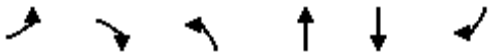
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	59	6
Future Volume (vph)	59	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	61	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	8	1018	1237
v/c Ratio	0.04	0.20	0.25
Control Delay	0.4	0.1	0.4
Queue Delay	0.0	0.0	0.0
Total Delay	0.4	0.1	0.4
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	0	0	6
Internal Link Dist (ft)	220	381	237
Turn Bay Length (ft)			
Base Capacity (vph)	337	5085	4965
Starvation Cap Reductn	0	0	585
Spillback Cap Reductn	0	0	44
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.02	0.20	0.28

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	8	0	967	1170	5
Future Volume (vph)	0	8	0	967	1170	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.86			1.00	1.00	
Flt Protected	1.00			1.00	1.00	
Satd. Flow (prot)	1611			5085	5082	
Flt Permitted	1.00			1.00	1.00	
Satd. Flow (perm)	1611			5085	5082	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	8	0	1018	1232	5
RTOR Reduction (vph)	8	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	1018	1237	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	1.4			150.0	138.6	
Effective Green, g (s)	1.4			150.0	138.6	
Actuated g/C Ratio	0.01			1.00	0.92	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	15			5085	4695	
v/s Ratio Prot	0.00			0.20	c0.24	
v/s Ratio Perm						
v/c Ratio	0.00			0.20	0.26	
Uniform Delay, d1	73.6			0.0	0.6	
Progression Factor	1.00			1.00	0.88	
Incremental Delay, d2	0.1			0.1	0.1	
Delay (s)	73.7			0.1	0.6	
Level of Service	E			A	A	
Approach Delay (s)	73.7			0.1	0.6	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	0.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	174	329	25	953	409	1192
v/c Ratio	0.30	0.30	0.45	0.25	0.71	1.36	0.63
Control Delay	56.6	1.2	4.5	92.0	46.7	214.0	42.8
Queue Delay	0.0	1.0	2.0	0.0	0.0	0.3	0.0
Total Delay	56.6	2.2	6.5	92.0	46.7	214.3	42.8
Queue Length 50th (ft)	52	0	69	26	164	~479	375
Queue Length 95th (ft)	98	0	121	60	243	#819	#498
Internal Link Dist (ft)	420	47			204		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	218	615	772	165	1340	301	1900
Starvation Cap Reductn	0	254	296	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	8	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.48	0.69	0.15	0.71	1.40	0.63

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	35	39	414	12	13	898	26	5	392
Future Volume (vph)	25	23	14	35	39	414	12	13	898	26	5	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1538	1504		1750	5065			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.11
Satd. Flow (perm)		1807			1538	1504		1750	5065			215
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)	26	24	14	36	40	427	12	13	926	27	5	404
RTOR Reduction (vph)	0	6	0	0	36	215	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	138	114	0	25	953	0	0	409
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.4			50.8	50.8		5.3	38.1			64.1
Effective Green, g (s)		17.4			51.8	51.8		6.3	39.6			65.1
Actuated g/C Ratio		0.12			0.35	0.35		0.04	0.26			0.43
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		209			531	519		73	1337			305
v/s Ratio Prot		c0.03			c0.09	0.08		0.01	0.19			c0.18
v/s Ratio Perm												c0.40
v/c Ratio		0.28			0.26	0.22		0.34	0.71			1.34
Uniform Delay, d1		60.6			35.3	34.8		69.8	50.0			42.9
Progression Factor		1.00			0.00	0.93		1.29	0.87			1.00
Incremental Delay, d2		0.9			0.6	0.5		2.8	3.2			173.9
Delay (s)		61.4			0.6	32.6		93.0	46.6			216.9
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.4			21.5				47.8			
Approach LOS		E			C				D			

Intersection Summary			
HCM 2000 Control Delay	63.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1124	32
Future Volume (vph)	1124	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5067	
Flt Permitted	1.00	
Satd. Flow (perm)	5067	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1159	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1192	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	52.0	
Effective Green, g (s)	53.5	
Actuated g/C Ratio	0.36	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1807	
v/s Ratio Prot	0.24	
v/s Ratio Perm		
v/c Ratio	0.66	
Uniform Delay, d1	40.6	
Progression Factor	1.00	
Incremental Delay, d2	1.9	
Delay (s)	42.5	
Level of Service	D	
Approach Delay (s)	87.0	
Approach LOS	F	

Intersection Summary

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	485	444	14	119
v/c Ratio	0.23	0.60	0.17	0.47
Control Delay	2.4	65.6	59.0	6.2
Queue Delay	56.0	0.3	0.0	0.0
Total Delay	58.4	65.9	59.0	6.2
Queue Length 50th (ft)	10	187	10	0
Queue Length 95th (ft)	m10	286	35	0
Internal Link Dist (ft)	47	1663	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2065	827	137	299
Starvation Cap Reductn	1636	0	0	0
Spillback Cap Reductn	0	73	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.13	0.59	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	349	7	0	386	22	8	1	4	20	0	89
Future Volume (vph)	90	349	7	0	386	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3537			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3537			3482			1738			1649	
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)	98	379	8	0	420	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	484	0	0	441	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.4			30.8			5.8			5.2	
Effective Green, g (s)		82.5			31.8			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1945			738			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.60			0.13			0.07	
Uniform Delay, d1		17.6			53.3			68.8			69.1	
Progression Factor		0.15			1.19			1.00			1.00	
Incremental Delay, d2		0.0			1.8			0.3			0.2	
Delay (s)		2.7			65.5			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.7			65.5			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	74	359	349	225	12	367	365	51	18	393	41	46
Average Queue (ft)	12	117	117	97	0	172	171	4	1	246	8	4
95th Queue (ft)	44	268	266	203	5	330	330	27	10	363	30	25
Link Distance (ft)		766	766			1199	1199	1199	114	1617	1617	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		7	2	1		21						
Queuing Penalty (veh)		3	11	5		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	63	302	308	162	292	249	394	249	96	252		
Average Queue (ft)	18	130	143	65	82	68	201	109	13	121		
95th Queue (ft)	50	261	277	134	316	280	355	201	57	222		
Link Distance (ft)		982	982		766	766	447	447		235		
Upstream Blk Time (%)					0	0	1			2		
Queuing Penalty (veh)					1	1	0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)		0		1	9				0	17		
Queuing Penalty (veh)		0		2	6				0	1		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	199	213	527	535	29	475	955	912	84	186	511	504
Average Queue (ft)	106	127	311	333	2	421	519	260	22	23	325	326
95th Queue (ft)	176	191	478	500	15	566	1171	814	65	109	505	512
Link Distance (ft)			774	774			982	982			515	515
Upstream Blk Time (%)							11	1			1	2
Queuing Penalty (veh)							34	3			0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			0	1		56	3	0		0	37	28
Queuing Penalty (veh)			0	0		116	4	0		0	7	32

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	88	173	160	344	356	225
Average Queue (ft)	122	7	81	81	244	254	127
95th Queue (ft)	300	92	151	142	359	380	295
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)					6	11	
Queuing Penalty (veh)					19	34	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					38	0
Queuing Penalty (veh)	1					93	1

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	154	163	62	56	81	86	29
Average Queue (ft)	51	55	13	10	13	27	2
95th Queue (ft)	136	144	43	39	48	67	15
Link Distance (ft)	160	160		774	774	254	128
Upstream Blk Time (%)	0	0					
Queuing Penalty (veh)	3	3					
Storage Bay Dist (ft)			80				
Storage Blk Time (%)	0		1	0			
Queuing Penalty (veh)	0		2	0			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	T	TR	L	T	TR>
Maximum Queue (ft)	86	128	194	202	53	129	142
Average Queue (ft)	54	46	49	56	13	40	58
95th Queue (ft)	76	106	140	148	37	105	131
Link Distance (ft)	43	226	747	747		126	126
Upstream Blk Time (%)	88					0	2
Queuing Penalty (veh)	176					2	6
Storage Bay Dist (ft)					150		
Storage Blk Time (%)			1			0	
Queuing Penalty (veh)			0			0	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B8
Directions Served	LR	T	T	TR	T
Maximum Queue (ft)	35	14	75	126	10
Average Queue (ft)	5	0	7	11	0
95th Queue (ft)	25	8	41	63	6
Link Distance (ft)	235	244	244	244	226
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B8	B8	B8	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	451	56	56	138	295	301	306	38	76	80	494	811
Average Queue (ft)	308	19	44	18	163	187	196	1	7	8	382	399
95th Queue (ft)	501	51	61	78	285	329	329	15	44	46	567	854
Link Distance (ft)	434	38	38		226	226	226	244	244	244		958
Upstream Blk Time (%)	16	7	56		2	4	5					4
Queuing Penalty (veh)	0	21	163		7	15	18					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)				0	11						21	0
Queuing Penalty (veh)				0	1						64	1

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	756	564
Average Queue (ft)	368	255
95th Queue (ft)	743	454
Link Distance (ft)	958	958
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	62	45	518	502	84	316
Average Queue (ft)	27	6	329	319	25	283
95th Queue (ft)	47	28	545	533	64	330
Link Distance (ft)	38	38	1617	1617	158	259
Upstream Blk Time (%)	5	1				92
Queuing Penalty (veh)	12	3				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 872

Intersection: 1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	61	244	237	144	50	1252	1248	1251	48	988	576	62
Average Queue (ft)	8	74	72	55	3	928	954	628	10	665	161	11
95th Queue (ft)	36	202	199	128	24	1593	1614	1583	36	1049	496	38
Link Distance (ft)		765	765			1192	1192	1192	111	1663	1663	213
Upstream Blk Time (%)		0	0			7	11	3				
Queuing Penalty (veh)		3	3			53	90	24				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)	0	3	1	1		24						
Queuing Penalty (veh)	1	0	4	4		1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	217	396	384	174	448	470	430	153	126	283		
Average Queue (ft)	91	144	150	82	186	197	227	61	32	219		
95th Queue (ft)	177	301	296	172	391	410	392	116	107	330		
Link Distance (ft)		980	980		765	765	447	447		268		
Upstream Blk Time (%)		0	0				2			13		
Queuing Penalty (veh)		0	0				0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)		0		1	22					46		
Queuing Penalty (veh)		0		8	36					10		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	203	206	342	340	34	474	775	802	375	225	512	494
Average Queue (ft)	108	126	193	199	7	178	349	386	110	198	336	305
95th Queue (ft)	183	195	323	324	28	407	743	785	373	269	528	485
Link Distance (ft)			774	774			980	980			515	515
Upstream Blk Time (%)											5	1
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)						0	7	14	0	44	18	19
Queuing Penalty (veh)						0	10	15	1	116	23	21

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	75	153	169	309	347	225
Average Queue (ft)	92	29	67	73	175	207	159
95th Queue (ft)	276	247	130	137	291	345	275
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)		2			1	4	
Queuing Penalty (veh)		0			3	15	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					18	12
Queuing Penalty (veh)	0					62	32

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	221	211	84	254	291	136	47
Average Queue (ft)	76	71	27	58	67	60	10
95th Queue (ft)	205	196	68	172	196	122	34
Link Distance (ft)	204	204		774	774	125	133
Upstream Blk Time (%)	1	1				3	
Queuing Penalty (veh)	4	3				0	
Storage Bay Dist (ft)			100				
Storage Blk Time (%)	1		1	5			
Queuing Penalty (veh)	0		6	1			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	66	210	30	163	147	92	188	198
Average Queue (ft)	49	98	5	55	54	11	137	140
95th Queue (ft)	60	189	22	133	127	51	238	235
Link Distance (ft)	46	226		747	747		160	160
Upstream Blk Time (%)	78	1				0	16	18
Queuing Penalty (veh)	116	0				0	161	181
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				2		0	17	
Queuing Penalty (veh)				0		0	4	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B8	B8
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	38	22	100	134	3	9
Average Queue (ft)	13	1	6	12	0	0
95th Queue (ft)	38	10	49	71	3	9
Link Distance (ft)	235	245	245	245	223	223
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	249	53	57	93	130	130	151	495	1002	976	966
Average Queue (ft)	125	17	41	30	45	54	75	494	966	791	442
95th Queue (ft)	242	47	59	74	109	114	137	497	1039	1308	1022
Link Distance (ft)	433	36	36		223	223	223		958	958	958
Upstream Blk Time (%)		9	54						79	11	0
Queuing Penalty (veh)		38	232						0	0	0
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)				0	0			86	0		
Queuing Penalty (veh)				0	0			275	1		

Intersection: 51: Warwick Road & McLean Ave

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	136	3	142
Average Queue (ft)	101	0	66
95th Queue (ft)	163	3	165
Link Distance (ft)	116	46	202
Upstream Blk Time (%)	25		8
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	61	49	1177	1181	61	292
Average Queue (ft)	28	11	969	980	19	258
95th Queue (ft)	52	36	1224	1243	54	323
Link Distance (ft)	36	36	1663	1663	158	259
Upstream Blk Time (%)	30	13				74
Queuing Penalty (veh)	82	34				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1674

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	123	445	443	225	58	912	947	666	39	418	205	60
Average Queue (ft)	12	243	231	173	7	381	400	117	6	207	53	14
95th Queue (ft)	57	464	459	257	35	963	997	575	26	579	263	52
Link Distance (ft)		764	764			1190	1190	1190	109	1668	1668	213
Upstream Blk Time (%)		4	4			0	1	0		1		
Queuing Penalty (veh)		29	30			3	5	1		2		
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		22	11	8	0	25						
Queuing Penalty (veh)		4	61	43	0	2						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	238	370	384	164	602	607	218	149	143	242		
Average Queue (ft)	101	153	161	105	255	267	106	60	49	183		
95th Queue (ft)	202	438	440	203	668	683	190	164	125	263		
Link Distance (ft)		980	980		764	764	447	447		205		
Upstream Blk Time (%)		3	3		1	2		2		16		
Queuing Penalty (veh)		24	24		11	14		0		0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)		4		3	21				2	34		
Queuing Penalty (veh)		6		18	30				6	14		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	200	212	496	503	74	437	914	921	340	225	336	344
Average Queue (ft)	111	127	315	324	17	268	599	615	189	98	186	188
95th Queue (ft)	182	196	503	504	52	585	1138	1155	483	202	294	325
Link Distance (ft)			769	769			980	980			515	515
Upstream Blk Time (%)			3	3			1	1				2
Queuing Penalty (veh)			20	20			8	9				0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			3	3		1	32	44	0	1	7	3
Queuing Penalty (veh)			8	1		8	48	40	1	4	8	4

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	71	158	166	343	355	225
Average Queue (ft)	60	14	66	74	158	171	114
95th Queue (ft)	185	175	149	164	300	326	254
Link Distance (ft)		697		340	340	340	
Upstream Blk Time (%)		2		2	1	2	
Queuing Penalty (veh)		0		8	5	8	
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	3		0	2		10	4
Queuing Penalty (veh)	7		0	2		40	13

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	182	188	93	227	254	110	42
Average Queue (ft)	108	103	26	92	111	33	10
95th Queue (ft)	197	195	71	196	225	82	34
Link Distance (ft)	174	174		769	769	134	122
Upstream Blk Time (%)	4	4				0	
Queuing Penalty (veh)	32	30				0	
Storage Bay Dist (ft)			80				
Storage Blk Time (%)	4		1	7			
Queuing Penalty (veh)	0		8	2			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	64	94	28	214	219	75	201	221
Average Queue (ft)	48	23	3	81	80	8	118	138
95th Queue (ft)	66	62	17	263	262	41	231	242
Link Distance (ft)	51	226		747	747		186	186
Upstream Blk Time (%)	46			2	2	0	3	4
Queuing Penalty (veh)	45			15	15	0	21	33
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				4			5	
Queuing Penalty (veh)				0			1	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B14	B14	B14
Directions Served	LR	T	T	TR	T	T	T
Maximum Queue (ft)	36	57	159	206	17	34	36
Average Queue (ft)	6	5	9	16	1	0	1
95th Queue (ft)	27	66	75	108	18	14	20
Link Distance (ft)	235	256	256	256	213	213	213
Upstream Blk Time (%)		1	0	0		0	
Queuing Penalty (veh)		4	1	2		0	
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B14	B14	B14	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	121	60	57	105	230	265	278	3	18	23	495	992
Average Queue (ft)	50	18	34	20	142	160	181	0	1	1	466	765
95th Queue (ft)	101	51	64	70	219	243	264	3	12	11	586	1277
Link Distance (ft)	434	37	37		213	213	213	256	256	256		958
Upstream Blk Time (%)		5	20		2	4	10					43
Queuing Penalty (veh)		12	47		7	13	31					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					26						66	0
Queuing Penalty (veh)					7						248	0

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	976	901
Average Queue (ft)	716	530
95th Queue (ft)	1236	997
Link Distance (ft)	958	958
Upstream Blk Time (%)	10	1
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 51: Warwick Road & McLean Ave

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	135	9	56
Average Queue (ft)	40	0	17
95th Queue (ft)	104	7	48
Link Distance (ft)	127	51	251
Upstream Blk Time (%)	2	0	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	50	36	261	255	47	172
Average Queue (ft)	29	10	149	155	14	70
95th Queue (ft)	44	33	252	257	42	137
Link Distance (ft)	37	37	1668	1668	158	259
Upstream Blk Time (%)	5	1				
Queuing Penalty (veh)	11	2				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1174

Appendix J

Vehicular Capacity Analysis Worksheets – Future (2027) Conditions with Development Phase 2

Queues

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

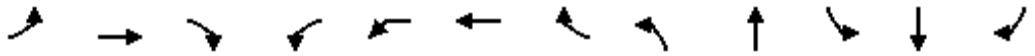
Timing Plan: 2027 TF AM

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2247	1	687	258	1	280	11	5
v/c Ratio	0.09	0.68	0.01	0.35	0.25	0.02	0.83	0.02	0.06
Control Delay	5.5	9.9	45.0	42.2	22.3	89.0	123.2	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.5	10.2	45.0	42.2	22.3	89.0	123.2	0.1	82.2
Queue Length 50th (ft)	3	55	1	339	117	1	321	0	6
Queue Length 95th (ft)	m16	#1211	m4	439	211	9	m417	m0	22
Internal Link Dist (ft)		810		1204		100		1665	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	487	3305	119	1971	1025	67	379	487	175
Starvation Cap Reductn	0	360	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	0.76	0.01	0.35	0.25	0.01	0.74	0.02	0.03

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

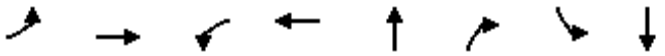


Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2066	1	1	0	632	237	1	0	258	1	9
Future Volume (vph)	37	2066	1	1	0	632	237	1	0	258	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	1.00	1.00	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1687	1641	
Flt Permitted	0.32	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	604	4987			73	3223	1524		1805	1687	1641	
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)	40	2246	1	1	0	687	258	1	0	280	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	108	0	0	0	9	0
Lane Group Flow (vph)	40	2247	0	0	1	687	150	0	1	280	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	114.0	107.9			104.2	103.0	103.0		1.3	36.9	36.9	
Effective Green, g (s)	116.0	109.9			106.2	105.0	105.0		2.3	37.9	37.9	
Actuated g/C Ratio	0.61	0.58			0.56	0.55	0.55		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	413	2884			60	1781	842		21	336	327	
v/s Ratio Prot	c0.00	c0.45			0.00	0.21			c0.00	c0.17	0.00	
v/s Ratio Perm	0.06				0.01		0.10					
v/c Ratio	0.10	0.78			0.02	0.39	0.18		0.05	0.83	0.01	
Uniform Delay, d1	15.9	30.7			27.0	24.2	21.1		92.8	73.0	61.0	
Progression Factor	0.33	0.33			2.18	1.83	5.30		1.00	1.41	1.00	
Incremental Delay, d2	0.1	1.4			0.1	0.6	0.5		0.9	17.2	0.0	
Delay (s)	5.3	11.4			58.9	45.0	112.2		93.7	120.4	61.0	
Level of Service	A	B			E	D	F		F	F	E	
Approach Delay (s)		11.3				63.3			93.7		118.2	
Approach LOS		B				E			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

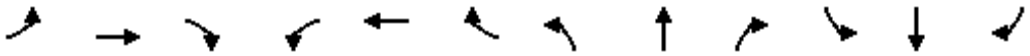
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	2012	75	619	156	185	7	126
v/c Ratio	0.08	0.84	0.49	0.27	0.91	0.47	0.08	0.49
Control Delay	2.9	11.3	63.6	5.2	126.6	15.3	65.3	70.3
Queue Delay	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.9	12.1	63.6	5.2	126.6	15.3	65.3	70.3
Queue Length 50th (ft)	8	202	48	45	195	21	8	132
Queue Length 95th (ft)	m12	247	138	56	277	96	24	194
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	710	2405	243	2315	230	475	112	345
Starvation Cap Reductn	0	3	0	0	0	0	0	0
Spillback Cap Reductn	0	150	0	0	0	7	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.89	0.31	0.27	0.68	0.40	0.06	0.37

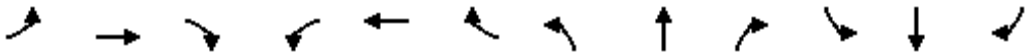
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1838	13	69	569	1	33	110	170	6	78	38
Future Volume (vph)	47	1838	13	69	569	1	33	110	170	6	78	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1352	1599	1081	1554	
Flt Permitted	0.41	1.00		0.04	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	774	3433		81	3195			1067	1599	522	1554	
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)	51	1998	14	75	618	1	36	120	185	7	85	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	139	0	10	0
Lane Group Flow (vph)	51	2012	0	75	619	0	0	156	46	7	116	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	137.8	132.1		144.6	135.5			29.5	29.5	29.5	29.5	
Effective Green, g (s)	139.8	133.1		146.6	136.5			30.5	30.5	30.5	30.5	
Actuated g/C Ratio	0.74	0.70		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	605	2404		154	2295			171	256	83	249	
v/s Ratio Prot	0.00	c0.59		c0.03	0.19						0.07	
v/s Ratio Perm	0.06			0.35				c0.15	0.03	0.01		
v/c Ratio	0.08	0.84		0.49	0.27			0.91	0.18	0.08	0.47	
Uniform Delay, d1	6.9	20.6		32.2	9.3			78.4	68.9	67.9	72.4	
Progression Factor	0.46	0.36		3.07	0.49			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	2.6		2.3	0.3			44.2	0.3	0.4	1.4	
Delay (s)	3.2	10.1		101.3	4.8			122.6	69.3	68.3	73.7	
Level of Service	A	B		F	A			F	E	E	E	
Approach Delay (s)		9.9			15.2			93.7			73.4	
Approach LOS		A			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



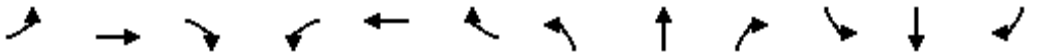
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	269	1562	7	146	449	76	49	664	118	174	605	257
v/c Ratio	0.70	0.82	0.01	1.42	0.26	0.10	0.49	0.91	0.25	0.79	0.73	0.35
Control Delay	109.9	29.7	0.0	281.5	21.9	3.5	102.9	90.7	9.9	133.7	108.9	8.9
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.5
Total Delay	109.9	30.3	0.0	281.5	21.9	3.5	102.9	90.7	9.9	133.7	111.8	9.4
Queue Length 50th (ft)	175	482	0	~249	69	1	60	429	13	118	284	1
Queue Length 95th (ft)	208	712	m0	#399	246	m13	112	#530	59	m#175	488	m107
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1916	960	103	1747	730	110	748	479	222	828	768
Starvation Cap Reductn	0	101	0	0	0	0	0	0	0	0	129	208
Spillback Cap Reductn	0	64	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.86	0.01	1.42	0.26	0.10	0.45	0.89	0.25	0.78	0.87	0.46

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	1515	7	142	436	74	48	644	114	169	587	249
Future Volume (vph)	261	1515	7	142	436	74	48	644	114	169	587	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	269	1562	7	146	449	76	49	664	118	174	605	257
RTOR Reduction (vph)	0	0	3	0	0	29	0	0	72	0	0	145
Lane Group Flow (vph)	269	1562	4	146	449	47	49	664	46	174	605	112
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	19.9	100.1	108.1	11.2	91.1	103.5	8.0	39.0	50.2	12.4	44.3	64.2
Effective Green, g (s)	21.4	101.6	111.1	12.7	92.6	106.5	9.5	40.5	53.2	13.9	45.8	67.2
Actuated g/C Ratio	0.11	0.53	0.58	0.07	0.49	0.56	0.05	0.21	0.28	0.07	0.24	0.35
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	386	1892	912	103	1724	704	88	754	429	220	828	559
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.13	0.00	0.03	c0.19	0.01	c0.06	c0.18	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.05
v/c Ratio	0.70	0.83	0.00	1.42	0.26	0.07	0.56	0.88	0.11	0.79	0.73	0.20
Uniform Delay, d1	81.2	36.8	16.4	88.7	28.6	19.1	88.2	72.4	50.8	86.6	66.4	42.7
Progression Factor	1.26	0.72	1.00	0.80	0.76	0.64	1.00	1.00	1.00	1.29	1.53	1.13
Incremental Delay, d2	4.5	3.5	0.0	234.1	0.4	0.0	7.4	11.7	0.1	17.0	3.3	0.2
Delay (s)	106.6	30.2	16.4	305.1	21.9	12.2	95.6	84.1	50.9	128.5	105.0	48.5
Level of Service	F	C	B	F	C	B	F	F	D	F	F	D
Approach Delay (s)		41.4			82.5			80.1			95.0	
Approach LOS		D			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	90.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	1812	10	750	34	29
v/c Ratio	0.40	0.59	0.15	0.25	0.30	0.24
Control Delay	107.8	1.9	93.0	3.2	13.3	8.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	107.8	1.9	93.0	3.2	13.3	8.2
Queue Length 50th (ft)	42	71	13	43	0	0
Queue Length 95th (ft)	m63	114	m38	98	18	10
Internal Link Dist (ft)		217		798	247	105
Turn Bay Length (ft)	200		80			
Base Capacity (vph)	82	3097	75	2943	218	236
Starvation Cap Reductn	0	207	0	0	0	0
Spillback Cap Reductn	0	34	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.63	0.13	0.25	0.16	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1757	1	10	670	57	27	0	6	8	0	20
Future Volume (veh/h)	31	1757	1	10	670	57	27	0	6	8	0	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	32	1811	1	10	691	59	28	0	6	8	0	21
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	3113	2	27	2781	237	74	0	8	35	3	36
Arrive On Green	0.03	0.86	0.86	0.03	1.00	1.00	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1774	3630	2	1774	3300	282	1337	0	286	353	113	1222
Grp Volume(v), veh/h	32	883	929	10	370	380	34	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1812	1623	0	0	1688	0	0
Q Serve(g_s), s	3.4	26.9	26.9	1.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	26.9	26.9	1.1	0.0	0.0	3.7	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.82		0.18	0.28		0.72
Lane Grp Cap(c), veh/h	53	1518	1597	27	1491	1527	82	0	0	74	0	0
V/C Ratio(X)	0.60	0.58	0.58	0.37	0.25	0.25	0.41	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	75	1518	1597	75	1491	1527	216	0	0	218	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	91.0	3.8	3.8	91.2	0.0	0.0	91.2	0.0	0.0	91.0	0.0	0.0
Incr Delay (d2), s/veh	10.4	1.6	1.6	8.1	0.4	0.4	3.3	0.0	0.0	3.4	0.0	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	1.8	13.7	14.4	0.6	0.2	0.2	1.9	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	101.4	5.5	5.4	99.3	0.4	0.4	94.5	0.0	0.0	94.4	0.0	0.0
LnGrp LOS	F	A	A	F	A	A	F			F		
Approach Vol, veh/h		1844			760			34			29	
Approach Delay, s/veh		7.1			1.7			94.5			94.4	
Approach LOS		A			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	170.0		12.1	10.7	167.2		12.1
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	8.0	139.9		23.5	8.0	139.9		23.5
Max Q Clear Time (g_c+I1), s	3.1	28.9		5.7	5.4	2.0		5.1
Green Ext Time (p_c), s	0.0	51.1		0.1	0.0	8.7		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		7.6
HCM 2010 LOS		A

Lane Group	EBL	NBT	NET	SWL	SWT
Lane Group Flow (vph)	205	64	1723	22	721
v/c Ratio	0.86	0.43	0.66	0.13	0.27
Control Delay	73.9	10.7	3.5	6.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.2
Total Delay	73.9	10.7	3.6	6.4	4.7
Queue Length 50th (ft)	130	0	33	3	47
Queue Length 95th (ft)	#247	9	148	13	112
Internal Link Dist (ft)	50	220	755		123
Turn Bay Length (ft)				150	
Base Capacity (vph)	270	223	2599	233	2712
Starvation Cap Reductn	0	0	65	0	1064
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.29	0.68	0.09	0.44

Intersection Summary

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

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	181	12	6	9	17	0	36	0	1657	15	21	640
Future Volume (vph)	181	12	6	9	17	0	36	0	1657	15	21	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5					6.5			7.1		7.1	7.1
Lane Util. Factor	1.00					1.00			0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Frt	0.99					0.92			1.00		1.00	0.99
Flt Protected	0.96					0.98			1.00		0.95	1.00
Satd. Flow (prot)	1664					1696			3535		1770	3488
Flt Permitted	0.96					0.98			1.00		0.09	1.00
Satd. Flow (perm)	1664					1696			3535		161	3488
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	12	6	9	18	0	37	0	1708	15	22	660
RTOR Reduction (vph)	93	0	0	0	0	62	0	0	0	0	0	0
Lane Group Flow (vph)	112	0	0	0	0	2	0	0	1723	0	22	721
Confl. Peds. (#/hr)		1	1	1	1			1				
Heavy Vehicles (%)	2%	100%	2%	0%	0%	2%	2%	0%	2%	2%	2%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	16.5					5.7			136.8		147.7	147.7
Effective Green, g (s)	16.5					5.7			136.8		147.7	147.7
Actuated g/C Ratio	0.09					0.03			0.72		0.78	0.78
Clearance Time (s)	6.5					6.5			7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0			4.0		3.0	4.0
Lane Grp Cap (vph)	144					50			2545		157	2711
v/s Ratio Prot	c0.07					c0.00			c0.49		0.00	c0.21
v/s Ratio Perm											0.11	
v/c Ratio	0.78					0.04			0.68		0.14	0.27
Uniform Delay, d1	84.9					89.5			14.5		13.2	5.9
Progression Factor	1.00					1.00			0.16		0.89	0.69
Incremental Delay, d2	22.6					0.3			1.2		0.4	0.2
Delay (s)	107.6					89.8			3.6		12.2	4.4
Level of Service	F					F			A		B	A
Approach Delay (s)	107.6					89.8			3.6			4.6
Approach LOS	F					F			A			A

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.2
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

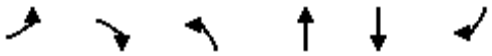
Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	53	6
Future Volume (vph)	53	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	55	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	1	
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	116	1088	1100
v/c Ratio	0.85	0.21	0.25
Control Delay	117.4	0.1	1.8
Queue Delay	44.1	0.0	0.1
Total Delay	161.5	0.1	2.0
Queue Length 50th (ft)	123	0	56
Queue Length 95th (ft)	#245	0	m63
Internal Link Dist (ft)	220	36	226
Turn Bay Length (ft)			
Base Capacity (vph)	141	5085	4402
Starvation Cap Reductn	0	0	1818
Spillback Cap Reductn	30	83	644
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.05	0.22	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	51	0	1001	971	41
Future Volume (vph)	56	51	0	1001	971	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.99	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1699			5085	5050	
Flt Permitted	0.97			1.00	1.00	
Satd. Flow (perm)	1699			5085	5050	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	55	0	1088	1055	45
RTOR Reduction (vph)	17	0	0	0	2	0
Lane Group Flow (vph)	99	0	0	1088	1098	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	13.4			190.0	165.6	
Effective Green, g (s)	13.4			190.0	165.6	
Actuated g/C Ratio	0.07			1.00	0.87	
Clearance Time (s)	6.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	119			5085	4401	
v/s Ratio Prot	c0.06			0.21	c0.22	
v/s Ratio Perm						
v/c Ratio	0.83			0.21	0.25	
Uniform Delay, d1	87.2			0.0	2.0	
Progression Factor	1.00			1.00	0.87	
Incremental Delay, d2	37.0			0.1	0.1	
Delay (s)	124.2			0.1	1.9	
Level of Service	F			A	A	
Approach Delay (s)	124.2			0.1	1.9	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	281	363	13	1116	393	1094
v/c Ratio	1.00	0.50	0.49	0.19	0.96	1.09	0.53
Control Delay	138.3	2.2	3.9	137.4	47.6	129.4	43.4
Queue Delay	0.0	5.4	20.8	0.0	1.7	0.0	0.0
Total Delay	138.3	7.6	24.7	137.4	49.3	129.4	43.4
Queue Length 50th (ft)	285	0	74	17	412	~501	351
Queue Length 95th (ft)	#486	m0	m60	m44	#587	#733	460
Internal Link Dist (ft)	420	47			215		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	558	744	161	1165	360	2064
Starvation Cap Reductn	0	213	374	0	16	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	1.00	0.81	0.98	0.08	0.97	1.09	0.53

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

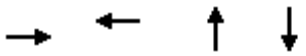
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	43	43	506	7	5	999	28	4	358
Future Volume (vph)	85	99	25	43	43	506	7	5	999	28	4	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1518	1475		1602	4951			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1518	1475		1602	4951			146
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)	92	108	27	47	47	550	8	5	1086	30	4	389
RTOR Reduction (vph)	0	3	0	0	38	239	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	243	124	0	13	1116	0	0	393
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		3.5	43.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		4.5	44.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.02	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			519	504		37	1164			360
v/s Ratio Prot		c0.13			c0.16	0.08		0.01	0.23			c0.20
v/s Ratio Perm												c0.29
v/c Ratio		1.00			0.47	0.25		0.35	0.96			1.09
Uniform Delay, d1		83.0			49.0	44.9		91.3	71.7			63.9
Progression Factor		1.00			0.02	0.75		1.51	0.40			1.00
Incremental Delay, d2		60.6			0.8	0.3		5.6	17.9			74.3
Delay (s)		143.5			1.6	34.2		143.4	47.0			138.3
Level of Service		F			A	C		F	D			F
Approach Delay (s)		143.5			19.9				48.1			
Approach LOS		F			B				D			

Intersection Summary			
HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	990	17
Future Volume (vph)	990	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4932	
Flt Permitted	1.00	
Satd. Flow (perm)	4932	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1076	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1094	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	73.9	
Effective Green, g (s)	75.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1957	
v/s Ratio Prot	0.22	
v/s Ratio Perm		
v/c Ratio	0.56	
Uniform Delay, d1	44.4	
Progression Factor	1.00	
Incremental Delay, d2	1.2	
Delay (s)	45.6	
Level of Service	D	
Approach Delay (s)	70.1	
Approach LOS	E	

Intersection Summary



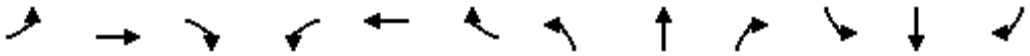
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	530	500	32	201
v/c Ratio	0.26	0.80	0.14	1.10
Control Delay	0.7	88.7	1.2	140.3
Queue Delay	24.3	2.4	0.0	0.7
Total Delay	25.0	91.1	1.2	141.0
Queue Length 50th (ft)	3	284	0	~194
Queue Length 95th (ft)	m3	396	0	#393
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2061	628	272	183
Starvation Cap Reductn	1537	0	0	0
Spillback Cap Reductn	0	52	2	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.01	0.87	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	438	6	0	437	23	8	0	21	39	1	145
Future Volume (vph)	43	438	6	0	437	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3397			3356			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3397			3356			1456			1347	
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)	47	476	7	0	475	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	530	0	0	498	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.2			5.4			15.4	
Effective Green, g (s)		109.3			35.2			6.4			16.4	
Actuated g/C Ratio		0.58			0.19			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1954			621			49			116	
v/s Ratio Prot		c0.16			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.80			0.02			1.15	
Uniform Delay, d1		20.3			74.1			88.8			86.8	
Progression Factor		0.04			1.05			1.00			1.00	
Incremental Delay, d2		0.0			8.6			0.1			129.5	
Delay (s)		0.7			86.7			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.7			86.7			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2027 TF PM

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1466	4	2077	547	7	349	99	16
v/c Ratio	0.18	0.40	0.02	0.84	0.47	0.12	1.54	0.30	0.18
Control Delay	19.5	6.7	13.5	21.7	7.4	106.8	323.1	33.6	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.5	6.7	13.5	21.7	7.4	106.8	323.1	33.6	101.3
Queue Length 50th (ft)	2	66	1	420	114	10	~722	49	23
Queue Length 95th (ft)	m8	194	m3	#1828	188	33	m#956	m94	53
Internal Link Dist (ft)		810		1202		100		1663	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	97	3670	293	2459	1161	63	226	328	189
Starvation Cap Reductn	0	590	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	0.16	0.48	0.01	0.84	0.47	0.11	1.54	0.30	0.08

Intersection Summary

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

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

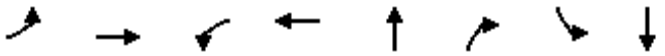
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1346	3	4	0	1911	503	3	0	4	321	8
Future Volume (vph)	15	1346	3	4	0	1911	503	3	0	4	321	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1736	1641
Flt Permitted	0.03	1.00			0.14	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	50	5084			268	3539	1583		1717		1736	1641
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)	16	1463	3	4	0	2077	547	3	0	4	349	9
RTOR Reduction (vph)	0	0	0	0	0	0	70	0	0	0	0	86
Lane Group Flow (vph)	16	1466	0	0	4	2077	477	0	7	0	349	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	147.5	143.6			142.1	140.9	140.9		3.0		27.7	27.7
Effective Green, g (s)	149.5	145.6			144.1	142.9	142.9		4.0		28.7	28.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	71	3364			190	2298	1028		31		226	214
v/s Ratio Prot	c0.01	c0.29			0.00	c0.59			c0.00		c0.20	0.01
v/s Ratio Perm	0.15				0.01		0.30					
v/c Ratio	0.23	0.44			0.02	0.90	0.46		0.23		1.54	0.06
Uniform Delay, d1	44.0	17.7			14.3	32.7	19.3		106.5		95.7	83.8
Progression Factor	1.27	0.44			0.97	0.62	0.53		1.00		1.10	9.68
Incremental Delay, d2	1.4	0.4			0.0	5.4	1.2		3.7		265.1	0.2
Delay (s)	57.4	8.1			13.9	25.6	11.5		110.2		370.8	811.9
Level of Service	E	A			B	C	B		F		F	F
Approach Delay (s)		8.6				22.7			110.2			468.3
Approach LOS		A				C			F			F

Intersection Summary			
HCM 2000 Control Delay	62.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

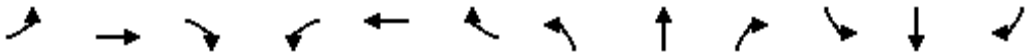
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	122	1292	179	1896	205	175	25	256
v/c Ratio	0.76	0.58	0.61	0.87	1.05	0.35	0.14	0.61
Control Delay	91.5	18.5	27.9	20.3	156.0	8.9	66.7	74.6
Queue Delay	0.0	0.0	0.0	37.6	0.0	0.0	0.0	0.0
Total Delay	91.5	18.5	27.9	57.9	156.0	8.9	66.7	74.6
Queue Length 50th (ft)	130	381	50	644	300	0	29	302
Queue Length 95th (ft)	206	538	m133	348	#482	71	61	406
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	186	2236	347	2189	219	542	207	464
Starvation Cap Reductn	0	30	0	113	0	0	0	0
Spillback Cap Reductn	0	0	0	431	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.59	0.52	1.08	0.94	0.32	0.12	0.55

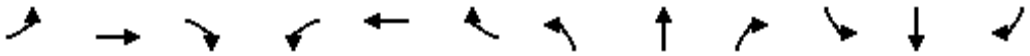
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1149	40	165	1738	6	60	129	161	23	113	122
Future Volume (vph)	112	1149	40	165	1738	6	60	129	161	23	113	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3524		1805	3538			1870	1615	1805	1752	
Flt Permitted	0.03	1.00		0.15	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	53	3524		286	3538			859	1615	815	1752	
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)	122	1249	43	179	1889	7	65	140	175	25	123	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	135	0	19	0
Lane Group Flow (vph)	122	1291	0	179	1896	0	0	205	40	25	237	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	154.9	138.6		148.3	135.3			49.1	49.1	49.1	49.1	
Effective Green, g (s)	156.9	139.6		150.3	136.3			50.1	50.1	50.1	50.1	
Actuated g/C Ratio	0.71	0.63		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	161	2236		292	2191			195	367	185	398	
v/s Ratio Prot	c0.06	0.37		0.04	c0.54						0.14	
v/s Ratio Perm	0.48			0.38				c0.24	0.02	0.03		
v/c Ratio	0.76	0.58		0.61	0.87			1.05	0.11	0.14	0.60	
Uniform Delay, d1	74.6	23.2		18.9	34.3			85.0	67.3	67.7	75.9	
Progression Factor	1.08	0.71		2.09	0.47			1.00	1.00	1.00	1.00	
Incremental Delay, d2	17.0	1.0		2.1	2.8			78.6	0.1	0.3	2.4	
Delay (s)	97.4	17.5		41.5	19.0			163.6	67.4	68.0	78.3	
Level of Service	F	B		D	B			F	E	E	E	
Approach Delay (s)		24.4			21.0			119.3			77.4	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



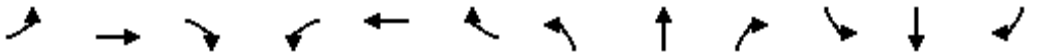
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	232	943	30	149	1630	118	173	547	117	193	591	366
v/c Ratio	0.77	0.49	0.03	0.90	0.83	0.12	1.33	0.85	0.24	0.66	0.83	0.73
Control Delay	146.4	23.4	0.1	112.8	33.0	6.7	259.8	101.0	11.8	148.1	95.8	35.6
Queue Delay	0.0	0.2	0.0	0.0	33.8	0.0	0.0	0.0	0.0	0.0	7.6	1.3
Total Delay	146.4	23.6	0.1	112.8	66.8	6.7	259.8	101.0	11.8	148.1	103.4	36.9
Queue Length 50th (ft)	182	256	0	223	1221	46	~323	410	22	149	301	107
Queue Length 95th (ft)	#244	278	0	m#276	1315	m42	#509	484	67	m197	366	171
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	305	1917	1006	166	1956	986	130	680	488	340	799	503
Starvation Cap Reductn	0	308	0	0	429	0	0	0	0	0	168	38
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.59	0.03	0.90	1.07	0.12	1.33	0.80	0.24	0.57	0.94	0.79

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	905	29	143	1565	113	166	525	112	185	567	351
Future Volume (vph)	223	905	29	143	1565	113	166	525	112	185	567	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1571	3400	3574	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	232	943	30	149	1630	118	173	547	117	193	591	366
RTOR Reduction (vph)	0	0	12	0	0	21	0	0	67	0	0	61
Lane Group Flow (vph)	232	943	18	149	1630	97	173	547	50	193	591	305
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.6	117.7	132.1	19.2	119.0	136.5	14.4	38.3	57.5	17.5	42.3	59.9
Effective Green, g (s)	19.1	119.2	135.1	20.7	120.5	139.5	15.9	39.8	60.5	19.0	43.8	62.9
Actuated g/C Ratio	0.09	0.54	0.61	0.09	0.55	0.63	0.07	0.18	0.28	0.09	0.20	0.29
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	1917	991	166	1957	957	130	640	432	293	711	452
v/s Ratio Prot	c0.07	0.27	0.00	0.08	c0.46	0.01	c0.10	0.15	0.01	0.06	c0.17	0.06
v/s Ratio Perm			0.01			0.06			0.02			0.13
v/c Ratio	0.77	0.49	0.02	0.90	0.83	0.10	1.33	0.85	0.12	0.66	0.83	0.68
Uniform Delay, d1	98.3	31.5	16.6	98.6	41.4	15.7	102.0	87.3	59.7	97.4	84.6	69.5
Progression Factor	1.34	0.70	0.03	0.87	0.72	0.86	1.00	1.00	1.00	1.41	1.01	0.54
Incremental Delay, d2	11.0	0.8	0.0	25.3	2.2	0.0	192.0	10.8	0.1	5.1	8.0	3.9
Delay (s)	142.3	22.9	0.6	111.1	32.0	13.5	294.1	98.1	59.9	142.9	93.6	41.2
Level of Service	F	C	A	F	C	B	F	F	E	F	F	D
Approach Delay (s)		45.3			37.1			133.3			85.2	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	65.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	46	1186	24	2248	55	47
v/c Ratio	0.55	0.40	0.38	0.78	0.56	0.42
Control Delay	141.5	2.9	124.8	5.2	50.2	33.9
Queue Delay	0.0	0.2	0.0	0.8	1.9	1.0
Total Delay	141.5	3.1	124.8	6.1	52.1	34.9
Queue Length 50th (ft)	63	284	36	126	15	3
Queue Length 95th (ft)	m#149	110	m43	m217	69	53
Internal Link Dist (ft)		199		798	108	109
Turn Bay Length (ft)	200		100			
Base Capacity (vph)	83	2990	63	2893	168	199
Starvation Cap Reductn	0	774	0	329	0	0
Spillback Cap Reductn	0	0	0	114	45	55
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.54	0.38	0.88	0.45	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1102	1	22	2014	76	39	0	12	8	0	35
Future Volume (veh/h)	43	1102	1	22	2014	76	39	0	12	8	0	35
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	46	1185	1	24	2166	82	42	0	13	9	0	38
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	3056	3	43	2903	109	79	2	16	30	6	67
Arrive On Green	0.03	0.84	0.84	0.05	1.00	1.00	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1774	3629	3	1774	3478	131	1027	34	329	210	115	1373
Grp Volume(v), veh/h	46	578	608	24	1095	1153	55	0	0	47	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1839	1390	0	0	1698	0	0
Q Serve(g_s), s	5.7	16.8	16.9	2.9	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.7	16.8	16.9	2.9	0.0	0.0	8.6	0.0	0.0	6.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.07	0.76		0.24	0.19		0.81
Lane Grp Cap(c), veh/h	56	1490	1568	43	1477	1535	97	0	0	103	0	0
V/C Ratio(X)	0.81	0.39	0.39	0.55	0.74	0.75	0.57	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	56	1490	1568	56	1477	1535	172	0	0	185	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.40	0.40	0.40	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	105.9	4.1	4.1	103.4	0.0	0.0	103.6	0.0	0.0	102.4	0.0	0.0
Incr Delay (d2), s/veh	58.5	0.8	0.7	4.3	1.4	1.4	5.1	0.0	0.0	3.2	0.0	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	3.7	8.5	8.9	1.5	0.6	0.6	3.5	0.0	0.0	2.9	0.0	0.0
LnGrp Delay(d),s/veh	164.4	4.8	4.8	107.8	1.4	1.4	108.7	0.0	0.0	105.6	0.0	0.0
LnGrp LOS	F	A	A	F	A	A	F			F		
Approach Vol, veh/h		1232			2272			55			47	
Approach Delay, s/veh		10.8			2.5			108.7			105.6	
Approach LOS		B			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	192.4		17.3	12.0	190.7		17.3
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	171.9		22.5	7.0	171.9		22.5
Max Q Clear Time (g_c+I1), s	4.9	18.9		10.6	7.7	2.0		8.0
Green Ext Time (p_c), s	0.0	18.7		0.1	0.0	105.9		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	157	99	6	1169	26	2167
v/c Ratio	0.84	0.61	0.05	0.45	0.08	0.83
Control Delay	128.9	37.8	2.2	2.8	7.6	13.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	1.1
Total Delay	128.9	37.8	2.2	2.9	7.6	14.0
Queue Length 50th (ft)	226	16	0	77	7	410
Queue Length 95th (ft)	#350	88	m1	84	m13	545
Internal Link Dist (ft)	48	220		755		141
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	198	213	128	2578	350	2626
Starvation Cap Reductn	0	0	0	401	0	228
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.46	0.05	0.54	0.07	0.90

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	138	8	4	24	40	0	30	6	1100	10	25	1904
Future Volume (vph)	138	8	4	24	40	0	30	6	1100	10	25	1904
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.96		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1745					1708		1805	3534		1805	3424
Flt Permitted	0.96					0.97		0.04	1.00		0.20	1.00
Satd. Flow (perm)	1745					1708		72	3534		373	3424
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	8	4	25	42	0	32	6	1158	11	26	2004
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	0	0	0	0
Lane Group Flow (vph)	157	0	0	0	0	15	0	6	1169	0	26	2167
Confl. Peds. (#/hr)		4	2	2	2			2		4	4	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	9%	0%	2%	0%	0%	4%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	22.2					8.4		158.2	157.0		166.2	161.0
Effective Green, g (s)	23.7					9.9		161.2	159.0		169.2	163.0
Actuated g/C Ratio	0.11					0.05		0.73	0.72		0.77	0.74
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	187					76		74	2554		330	2536
v/s Ratio Prot	c0.09					c0.01		0.00	0.33		c0.00	c0.63
v/s Ratio Perm								0.06			0.06	
v/c Ratio	0.84					0.20		0.08	0.46		0.08	0.85
Uniform Delay, d1	96.3					101.2		26.8	12.6		8.2	20.1
Progression Factor	1.00					1.00		0.20	0.17		1.15	0.59
Incremental Delay, d2	26.8					1.3		0.4	0.6		0.1	2.6
Delay (s)	123.0					102.5		5.8	2.7		9.5	14.4
Level of Service	F					F		A	A		A	B
Approach Delay (s)	123.0					102.5			2.7			14.4
Approach LOS	F					F			A			B

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

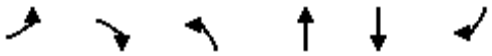
Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	146	9
Future Volume (vph)	146	9
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	154	9
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	2	
Heavy Vehicles (%)	4%	25%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	138	895	1156
v/c Ratio	0.86	0.18	0.26
Control Delay	124.7	0.1	2.0
Queue Delay	0.0	0.0	0.1
Total Delay	124.7	0.1	2.1
Queue Length 50th (ft)	171	0	58
Queue Length 95th (ft)	#295	0	64
Internal Link Dist (ft)	220	36	242
Turn Bay Length (ft)			
Base Capacity (vph)	172	5085	4396
Starvation Cap Reductn	0	0	1741
Spillback Cap Reductn	0	0	14
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.80	0.18	0.44

Intersection Summary

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



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	72	0	868	1064	57
Future Volume (vph)	62	72	0	868	1064	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.93			1.00	0.99	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1689			5085	5046	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1689			5085	5046	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	74	0	895	1097	59
RTOR Reduction (vph)	19	0	0	0	2	0
Lane Group Flow (vph)	119	0	0	895	1154	0
Confl. Peds. (#/hr)	1		3			
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	18.4			220.0	191.6	
Effective Green, g (s)	18.4			220.0	191.6	
Actuated g/C Ratio	0.08			1.00	0.87	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	141			5085	4394	
v/s Ratio Prot	c0.07			0.18	c0.23	
v/s Ratio Perm						
v/c Ratio	0.84			0.18	0.26	
Uniform Delay, d1	99.4			0.0	2.4	
Progression Factor	1.00			1.00	0.79	
Incremental Delay, d2	34.2			0.1	0.1	
Delay (s)	133.6			0.1	2.0	
Level of Service	F			A	A	
Approach Delay (s)	133.6			0.1	2.0	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	38.0%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	460	443	31	976	477	1146
v/c Ratio	0.72	0.79	0.61	0.37	0.55	1.32	0.49
Control Delay	123.7	6.2	5.0	147.0	22.1	196.6	43.4
Queue Delay	0.0	53.1	55.3	0.0	1.0	0.0	0.0
Total Delay	123.7	59.3	60.4	147.0	23.2	196.6	43.4
Queue Length 50th (ft)	132	90	94	46	120	~724	439
Queue Length 95th (ft)	#244	m50	m55	m89	134	#975	498
Internal Link Dist (ft)	420	47			199		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	130	587	735	198	1783	362	2316
Starvation Cap Reductn	0	170	332	0	514	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	0.72	1.10	1.10	0.16	0.77	1.32	0.49

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

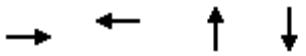
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	60	98	708	12	17	890	47	2	456
Future Volume (vph)	27	45	18	60	98	708	12	17	890	47	2	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1614	1534		1805	4988			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.16
Satd. Flow (perm)		1810			1614	1534		1805	4988			306
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	62	102	738	12	18	927	49	2	475
RTOR Reduction (vph)	0	4	0	0	30	207	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	430	236	0	31	976	0	0	477
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	pm+pt	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases							2				6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.1	77.3			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.1	78.8			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.36			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			548	520		74	1786			361
v/s Ratio Prot		c0.05			c0.27	0.15		0.02	0.20			c0.18
v/s Ratio Perm												c0.50
v/c Ratio		0.72			0.79	0.45		0.42	0.55			1.32
Uniform Delay, d1		100.2			65.4	56.7		102.9	56.3			47.9
Progression Factor		1.00			0.09	0.30		1.34	0.37			1.00
Incremental Delay, d2		18.1			0.8	0.1		3.8	1.2			162.8
Delay (s)		118.3			6.5	17.0		141.4	22.0			210.7
Level of Service		F			A	B		F	C			F
Approach Delay (s)		118.3			11.7				25.7			
Approach LOS		F			B				C			

Intersection Summary			
HCM 2000 Control Delay	54.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1024	76
Future Volume (vph)	1024	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5040	
Flt Permitted	1.00	
Satd. Flow (perm)	5040	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	1067	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1146	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	98.3	
Effective Green, g (s)	99.8	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2286	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.50	
Uniform Delay, d1	42.5	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	43.3	
Level of Service	D	
Approach Delay (s)	92.5	
Approach LOS	F	

Intersection Summary



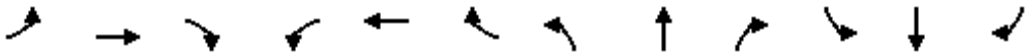
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	583	834	20	158
v/c Ratio	0.27	1.11	0.28	0.89
Control Delay	1.3	136.7	83.8	85.5
Queue Delay	28.8	0.5	0.0	0.4
Total Delay	30.0	137.2	83.8	85.9
Queue Length 50th (ft)	7	~717	19	102
Queue Length 95th (ft)	m7	#862	55	#246
Internal Link Dist (ft)	47	1663	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1564	0	0	0
Spillback Cap Reductn	0	61	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	1.21	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	396	11	0	733	51	9	3	7	22	3	124
Future Volume (vph)	141	396	11	0	733	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3459			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3459			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	421	12	0	780	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	582	0	0	832	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.24			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.29			1.11			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.06			0.91			1.00			1.00	
Incremental Delay, d2		0.0			68.1			0.6			32.1	
Delay (s)		1.4			147.3			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.4			147.3			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	92.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2027 TF SAT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1758	8	1659	637	6	229	50	14
v/c Ratio	0.15	0.54	0.05	0.77	0.59	0.07	0.84	0.12	0.12
Control Delay	23.1	20.6	6.1	22.6	12.0	69.3	104.9	7.6	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	20.6	6.1	22.6	12.0	69.3	104.9	7.6	63.7
Queue Length 50th (ft)	7	224	1	906	439	6	237	6	13
Queue Length 95th (ft)	m21	#576	m2	#1236	671	22	#365	28	34
Internal Link Dist (ft)		810		1202		100		1665	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	152	3274	164	2165	1087	94	282	419	264
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	0.14	0.54	0.05	0.77	0.59	0.06	0.81	0.12	0.05

Intersection Summary

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

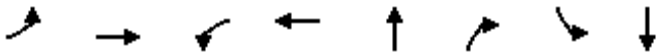
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1614	4	6	1	1526	586	4	0	2	211	2
Future Volume (vph)	20	1614	4	6	1	1526	586	4	0	2	211	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		1.00	1.00
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5035			1621	3539	1583		1756		1787	1626
Flt Permitted	0.05	1.00			0.08	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	93	5035			134	3539	1583		1756		1787	1626
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)	22	1754	4	7	1	1659	637	4	0	2	229	2
RTOR Reduction (vph)	0	0	0	0	0	0	142	0	0	0	0	42
Lane Group Flow (vph)	22	1758	0	0	8	1659	495	0	6	0	229	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	84.8	80.9			79.8	78.4	78.4		1.5		22.0	22.0
Effective Green, g (s)	86.8	82.9			81.8	80.4	80.4		2.5		23.0	23.0
Actuated g/C Ratio	0.58	0.55			0.55	0.54	0.54		0.02		0.15	0.15
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	109	2782			96	1896	848		29		274	249
v/s Ratio Prot	c0.01	0.35			0.00	c0.47			c0.00		c0.13	0.00
v/s Ratio Perm	0.11				0.04		0.31					
v/c Ratio	0.20	0.63			0.08	0.88	0.58		0.21		0.84	0.03
Uniform Delay, d1	27.1	23.1			18.5	30.4	23.5		72.8		61.7	54.0
Progression Factor	1.50	1.10			0.36	0.77	0.81		1.00		1.31	1.00
Incremental Delay, d2	0.7	0.8			0.3	5.0	2.4		3.5		20.9	0.1
Delay (s)	41.3	26.2			7.0	28.4	21.5		76.3		101.9	54.1
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		26.3				26.4			76.3			93.4
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

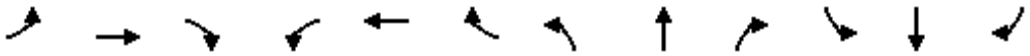
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	176	1582	151	1444	143	105	46	269
v/c Ratio	0.55	0.72	0.59	0.69	0.78	0.28	0.25	0.79
Control Delay	39.1	14.6	50.7	11.6	84.7	9.7	53.1	65.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	14.6	50.7	11.6	84.7	9.7	53.1	65.8
Queue Length 50th (ft)	70	175	83	69	135	0	39	221
Queue Length 95th (ft)	m138	906	m139	249	204	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	460	2188	449	2104	292	535	294	523
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.72	0.34	0.69	0.49	0.20	0.16	0.51

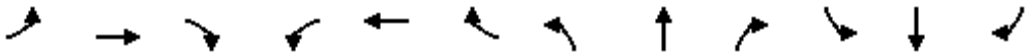
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1422	33	139	1318	10	27	105	97	42	118	130
Future Volume (vph)	162	1422	33	139	1318	10	27	105	97	42	118	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3527		1805	3536			1881	1568	1719	1694	
Flt Permitted	0.10	1.00		0.09	1.00			0.52	1.00	0.55	1.00	
Satd. Flow (perm)	188	3527		167	3536			996	1568	1001	1694	
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)	176	1546	36	151	1433	11	29	114	105	46	128	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	30	0
Lane Group Flow (vph)	176	1581	0	151	1444	0	0	143	19	46	239	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	107.8	92.0		100.4	88.3			26.6	26.6	26.6	26.6	
Effective Green, g (s)	109.8	93.0		102.4	89.3			27.6	27.6	27.6	27.6	
Actuated g/C Ratio	0.73	0.62		0.68	0.60			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	318	2186		257	2105			183	288	184	311	
v/s Ratio Prot	c0.06	c0.45		0.05	0.41						0.14	
v/s Ratio Perm	0.34			0.35				c0.14	0.01	0.05		
v/c Ratio	0.55	0.72		0.59	0.69			0.78	0.07	0.25	0.77	
Uniform Delay, d1	18.3	19.6		19.0	20.8			58.3	50.6	52.3	58.2	
Progression Factor	2.72	0.58		2.72	0.45			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	1.7		2.2	1.2			19.2	0.1	0.7	10.8	
Delay (s)	51.5	13.1		53.7	10.5			77.5	50.7	53.1	69.0	
Level of Service	D	B		D	B			E	D	D	E	
Approach Delay (s)		16.9			14.6			66.1			66.7	
Approach LOS		B			B			E			E	

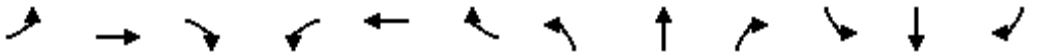
Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	318	1205	52	154	1184	95	165	568	165	210	657	419
v/c Ratio	0.73	0.78	0.06	0.88	0.83	0.12	0.93	0.73	0.30	0.59	0.80	0.67
Control Delay	85.8	37.4	1.0	88.7	32.7	3.1	117.7	60.2	7.4	91.4	75.2	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1
Total Delay	85.8	37.4	1.0	88.7	32.7	3.1	117.7	60.2	7.4	91.4	75.9	26.1
Queue Length 50th (ft)	169	376	1	138	187	0	163	273	19	111	271	39
Queue Length 95th (ft)	200	598	m5	m#273	539	m17	#311	334	56	156	381	246
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	447	1540	850	176	1430	827	177	854	556	411	948	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	86	11
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.78	0.06	0.88	0.83	0.11	0.93	0.67	0.30	0.51	0.76	0.68

Intersection Summary

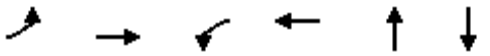
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	1157	50	148	1137	91	158	545	158	202	631	402
Future Volume (vph)	305	1157	50	148	1137	91	158	545	158	202	631	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1536	1805	3539	1536	1787	3539	1519	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1536	1805	3539	1536	1787	3539	1519	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	318	1205	52	154	1184	95	165	568	165	210	657	419
RTOR Reduction (vph)	0	0	24	0	0	41	0	0	87	0	0	80
Lane Group Flow (vph)	318	1205	28	154	1184	54	165	568	78	210	657	339
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.6	63.8	77.2	13.2	59.1	73.3	13.4	31.5	44.7	14.2	33.2	50.8
Effective Green, g (s)	19.1	65.3	80.2	14.7	60.6	76.3	14.9	33.0	47.7	15.7	34.7	53.8
Actuated g/C Ratio	0.13	0.44	0.53	0.10	0.40	0.51	0.10	0.22	0.32	0.10	0.23	0.36
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	437	1540	821	176	1429	781	177	778	483	359	818	563
v/s Ratio Prot	0.09	c0.34	0.00	0.09	c0.33	0.01	c0.09	0.16	0.02	0.06	c0.19	0.08
v/s Ratio Perm			0.01			0.03			0.04			0.14
v/c Ratio	0.73	0.78	0.03	0.88	0.83	0.07	0.93	0.73	0.16	0.58	0.80	0.60
Uniform Delay, d1	62.9	36.3	16.5	66.7	40.0	18.8	67.0	54.4	36.8	64.0	54.4	39.4
Progression Factor	1.22	0.90	1.29	0.83	0.68	0.61	1.00	1.00	1.00	1.33	1.24	0.84
Incremental Delay, d2	5.2	3.5	0.0	27.9	4.3	0.0	48.2	3.5	0.2	2.3	5.5	1.8
Delay (s)	82.0	36.3	21.4	83.1	31.6	11.5	115.2	57.9	36.9	87.3	73.2	34.7
Level of Service	F	D	C	F	C	B	F	E	D	F	E	C
Approach Delay (s)		45.0			35.8			64.6			63.0	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	50.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	48	1538	28	1745	50	53
v/c Ratio	0.47	0.53	0.31	0.62	0.34	0.34
Control Delay	75.1	5.0	60.3	8.3	12.8	14.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	75.1	5.1	60.3	8.3	12.8	14.5
Queue Length 50th (ft)	48	133	27	198	0	0
Queue Length 95th (ft)	m80	252	m36	326	26	30
Internal Link Dist (ft)		171		798	125	94
Turn Bay Length (ft)	200		80			
Base Capacity (vph)	102	2913	90	2805	274	290
Starvation Cap Reductn	0	282	0	63	0	0
Spillback Cap Reductn	0	0	0	54	1	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.58	0.31	0.64	0.18	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1489	3	27	1602	90	35	0	14	10	0	42
Future Volume (veh/h)	47	1489	3	27	1602	90	35	0	14	10	0	42
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	48	1535	3	28	1652	93	36	0	14	10	0	43
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	2900	6	57	2698	151	90	1	19	38	4	60
Arrive On Green	0.04	0.80	0.80	0.06	1.00	1.00	0.04	0.00	0.04	0.04	0.00	0.04
Sat Flow, veh/h	1774	3624	7	1774	3407	191	1106	32	442	224	94	1366
Grp Volume(v), veh/h	48	749	789	28	853	892	50	0	0	53	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1828	1580	0	0	1683	0	0
Q Serve(g_s), s	4.0	22.0	22.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.0	22.0	22.0	2.3	0.0	0.0	4.5	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.10	0.72		0.28	0.19		0.81
Lane Grp Cap(c), veh/h	72	1416	1489	57	1401	1448	110	0	0	102	0	0
V/C Ratio(X)	0.67	0.53	0.53	0.49	0.61	0.62	0.45	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	83	1416	1489	83	1401	1448	261	0	0	266	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.50	0.50	0.50	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	71.0	5.2	5.2	69.0	0.0	0.0	70.7	0.0	0.0	70.8	0.0	0.0
Incr Delay (d2), s/veh	15.8	1.4	1.4	3.2	1.0	1.0	2.9	0.0	0.0	4.0	0.0	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	2.3	11.2	11.7	1.2	0.4	0.4	2.1	0.0	0.0	2.3	0.0	0.0
LnGrp Delay(d),s/veh	86.8	6.6	6.6	72.2	1.0	1.0	73.6	0.0	0.0	74.8	0.0	0.0
LnGrp LOS	F	A	A	E	A	A	E			E		
Approach Vol, veh/h		1586			1773			50			53	
Approach Delay, s/veh		9.0			2.1			73.6			74.8	
Approach LOS		A			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	127.1		13.1	11.1	125.9		13.1
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	101.9		22.5	7.0	101.9		22.5
Max Q Clear Time (g_c+I1), s	4.3	24.0		6.5	6.0	2.0		6.5
Green Ext Time (p_c), s	0.0	30.8		0.1	0.0	42.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	101	46	8	1600	18	1734
v/c Ratio	0.57	0.23	0.04	0.63	0.08	0.66
Control Delay	76.7	2.5	5.2	6.1	2.6	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	76.7	2.5	5.2	6.1	2.6	4.2
Queue Length 50th (ft)	96	0	1	90	1	46
Queue Length 95th (ft)	158	0	m4	327	m2	291
Internal Link Dist (ft)	53	220		755		169
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	215	310	282	2528	299	2644
Starvation Cap Reductn	0	0	0	36	0	104
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.15	0.03	0.64	0.06	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	90	1	6	14	9	0	21	8	1521	15	17	1600
Future Volume (vph)	90	1	6	14	9	0	21	8	1521	15	17	1600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.94		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1794					1732		1805	3534		1805	3518
Flt Permitted	0.96					0.97		0.09	1.00		0.10	1.00
Satd. Flow (perm)	1794					1732		164	3534		189	3518
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	1	6	15	9	0	22	8	1584	16	18	1667
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	101	0	0	0	0	2	0	8	1600	0	18	1734
Confl. Peds. (#/hr)			7	7	3			3		4	4	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	13.3					4.5		102.5	101.3		107.5	103.8
Effective Green, g (s)	14.8					6.0		105.5	103.3		110.5	105.8
Actuated g/C Ratio	0.10					0.04		0.70	0.69		0.74	0.71
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	177					69		144	2433		195	2481
v/s Ratio Prot	c0.06					c0.00		0.00	0.45		c0.00	c0.49
v/s Ratio Perm								0.04			0.06	
v/c Ratio	0.57					0.03		0.06	0.66		0.09	0.70
Uniform Delay, d1	64.6					69.2		11.6	13.3		10.5	12.8
Progression Factor	1.00					1.00		0.89	0.38		0.37	0.28
Incremental Delay, d2	4.4					0.2		0.1	1.2		0.2	1.4
Delay (s)	69.0					69.4		10.5	6.2		4.1	5.0
Level of Service	E					E		B	A		A	A
Approach Delay (s)	69.0					69.4			6.3			5.0
Approach LOS	E					E			A			A

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

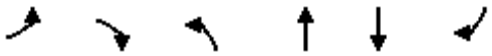
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	59	6
Future Volume (vph)	59	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	61	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	NBT	SBT
Lane Group Flow (vph)	161	1018	1331
v/c Ratio	0.77	0.20	0.32
Control Delay	77.1	0.1	1.2
Queue Delay	0.1	0.0	0.1
Total Delay	77.2	0.1	1.2
Queue Length 50th (ft)	129	0	10
Queue Length 95th (ft)	209	0	27
Internal Link Dist (ft)	220	36	223
Turn Bay Length (ft)			
Base Capacity (vph)	249	5085	4155
Starvation Cap Reductn	0	0	1126
Spillback Cap Reductn	1	0	258
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.65	0.20	0.44

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	75	0	967	1195	69
Future Volume (vph)	78	75	0	967	1195	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	5.0	
Lane Util. Factor	1.00			0.91	0.91	
Frpb, ped/bikes	1.00			1.00	1.00	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.93			1.00	0.99	
Flt Protected	0.98			1.00	1.00	
Satd. Flow (prot)	1696			5085	5037	
Flt Permitted	0.98			1.00	1.00	
Satd. Flow (perm)	1696			5085	5037	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	79	0	1018	1258	73
RTOR Reduction (vph)	24	0	0	0	4	0
Lane Group Flow (vph)	137	0	0	1018	1327	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot			NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases						
Actuated Green, G (s)	16.4			150.0	123.6	
Effective Green, g (s)	16.4			150.0	123.6	
Actuated g/C Ratio	0.11			1.00	0.82	
Clearance Time (s)	5.0				5.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	185			5085	4150	
v/s Ratio Prot	c0.08			0.20	c0.26	
v/s Ratio Perm						
v/c Ratio	0.74			0.20	0.32	
Uniform Delay, d1	64.7			0.0	3.2	
Progression Factor	1.00			1.00	0.30	
Incremental Delay, d2	14.7			0.1	0.2	
Delay (s)	79.4			0.1	1.1	
Level of Service	E			A	A	
Approach Delay (s)	79.4			0.1	1.1	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	183	329	25	1033	409	1274
v/c Ratio	0.29	0.32	0.44	0.25	0.77	1.44	0.68
Control Delay	56.4	1.3	4.4	88.2	50.3	250.8	44.1
Queue Delay	0.0	1.0	2.0	0.0	0.0	0.4	0.0
Total Delay	56.4	2.4	6.4	88.2	50.3	251.3	44.1
Queue Length 50th (ft)	51	0	67	25	201	~514	412
Queue Length 95th (ft)	98	0	117	m59	278	#843	#560
Internal Link Dist (ft)	420	47			218		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	220	615	773	165	1339	284	1887
Starvation Cap Reductn	0	244	296	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	10	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.49	0.69	0.15	0.77	1.49	0.68

Intersection Summary

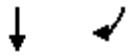
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

m Volume for 95th percentile queue is metered by upstream signal.

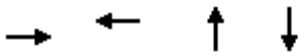
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	44	39	414	12	13	966	36	5	392
Future Volume (vph)	25	23	14	44	39	414	12	13	966	36	5	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	0.99			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1544	1504		1750	5060			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.09
Satd. Flow (perm)		1807			1544	1504		1750	5060			169
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)	26	24	14	45	40	427	12	13	996	37	5	404
RTOR Reduction (vph)	0	6	0	0	32	215	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	151	114	0	25	1033	0	0	409
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.5			50.9	50.9		5.3	38.3			63.9
Effective Green, g (s)		17.5			51.9	51.9		6.3	39.8			64.9
Actuated g/C Ratio		0.12			0.35	0.35		0.04	0.27			0.43
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		210			534	520		73	1342			286
v/s Ratio Prot		c0.03			c0.10	0.08		0.01	0.20			c0.19
v/s Ratio Perm												c0.43
v/c Ratio		0.28			0.28	0.22		0.34	0.77			1.43
Uniform Delay, d1		60.5			35.6	34.7		69.8	50.9			46.9
Progression Factor		1.00			0.00	0.90		1.24	0.90			1.00
Incremental Delay, d2		0.8			0.6	0.5		2.8	4.2			212.6
Delay (s)		61.3			0.7	31.8		89.1	50.0			259.4
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.3			20.7				50.9			
Approach LOS		E			C				D			

Intersection Summary			
HCM 2000 Control Delay	69.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1204	32
Future Volume (vph)	1204	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5068	
Flt Permitted	1.00	
Satd. Flow (perm)	5068	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1241	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1274	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	51.8	
Effective Green, g (s)	53.3	
Actuated g/C Ratio	0.36	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1800	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	0.71	
Uniform Delay, d1	41.6	
Progression Factor	1.00	
Incremental Delay, d2	2.4	
Delay (s)	44.0	
Level of Service	D	
Approach Delay (s)	96.4	
Approach LOS	F	

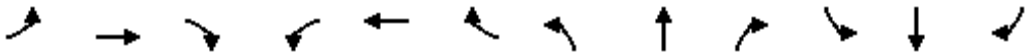
Intersection Summary



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	496	453	14	119
v/c Ratio	0.24	0.61	0.17	0.47
Control Delay	2.4	65.9	59.0	6.1
Queue Delay	56.2	0.3	0.0	0.0
Total Delay	58.6	66.1	59.0	6.2
Queue Length 50th (ft)	10	192	10	0
Queue Length 95th (ft)	m10	292	35	0
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2059	827	137	299
Starvation Cap Reductn	1637	0	0	0
Spillback Cap Reductn	0	71	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.18	0.60	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	359	7	0	395	22	8	1	4	20	0	89
Future Volume (vph)	90	359	7	0	395	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3538			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3538			3482			1738			1649	
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)	98	390	8	0	429	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	495	0	0	450	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.3			30.9			5.8			5.2	
Effective Green, g (s)		82.4			31.9			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1943			740			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.61			0.13			0.07	
Uniform Delay, d1		17.7			53.4			68.8			69.1	
Progression Factor		0.16			1.20			1.00			1.00	
Incremental Delay, d2		0.0			1.9			0.3			0.2	
Delay (s)		2.8			65.8			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.8			65.8			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	128	399	425	224	22	443	523	74	19	436	45	35
Average Queue (ft)	13	132	137	113	1	206	209	6	1	270	8	4
95th Queue (ft)	66	303	314	223	13	421	437	35	9	393	31	21
Link Distance (ft)		764	764			1199	1199	1199	114	1669	1669	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		10	3	2		25						
Queuing Penalty (veh)		4	23	17		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	56	260	264	171	366	349	425	287	119	251		
Average Queue (ft)	18	114	119	75	123	106	213	125	14	126		
95th Queue (ft)	47	240	245	161	453	427	389	245	64	229		
Link Distance (ft)		984	984		764	764	447	447		235		
Upstream Blk Time (%)					3	3	3	1		2		
Queuing Penalty (veh)					9	8	0	0		0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				1	16				1	19		
Queuing Penalty (veh)				3	11				1	1		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	203	223	517	525	23	475	940	930	75	225	513	529
Average Queue (ft)	117	137	322	337	3	422	534	319	18	83	338	332
95th Queue (ft)	184	203	476	488	15	568	1222	947	55	218	528	528
Link Distance (ft)			774	774			984	984			515	515
Upstream Blk Time (%)							16	2			4	4
Queuing Penalty (veh)							53	8			0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)				1		54	6			0	39	30
Queuing Penalty (veh)				0		118	8			1	19	34

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	118	190	210	291	296	225
Average Queue (ft)	120	37	98	111	245	252	141
95th Queue (ft)	300	239	180	198	325	332	300
Link Distance (ft)		697		229	229	229	
Upstream Blk Time (%)			0	1	33	33	1
Queuing Penalty (veh)			0	2	113	113	0
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0		0	1		43	0
Queuing Penalty (veh)	0		0	1		108	1

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	85	163	158	51	96	125	94	75
Average Queue (ft)	35	58	61	13	26	35	25	21
95th Queue (ft)	75	146	151	39	78	97	67	56
Link Distance (ft)		160	160		774	774	254	128
Upstream Blk Time (%)		1	0					
Queuing Penalty (veh)		5	4					
Storage Bay Dist (ft)	200			80				
Storage Blk Time (%)		1		0	1			
Queuing Penalty (veh)		0		0	0			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	T	TR	L	T	TR>
Maximum Queue (ft)	91	134	179	176	42	130	142
Average Queue (ft)	54	41	48	50	11	49	65
95th Queue (ft)	78	101	128	131	32	119	140
Link Distance (ft)	43	226	747	747		126	126
Upstream Blk Time (%)	88					1	2
Queuing Penalty (veh)	176					3	7
Storage Bay Dist (ft)					150		
Storage Blk Time (%)			1			1	
Queuing Penalty (veh)			0			0	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	NB	NB	NB	SB	SB	SB	B15	B15
Directions Served	LR	T	T	T	T	T	TR	T	T
Maximum Queue (ft)	232	8	10	14	105	179	218	3	4
Average Queue (ft)	130	1	1	2	18	49	69	0	0
95th Queue (ft)	242	11	16	22	62	133	175	3	4
Link Distance (ft)	241	67	67	67	244	244	244	225	225
Upstream Blk Time (%)	9	0	0	0		0	1		
Queuing Penalty (veh)	0	0	0	1		0	2		
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B15	B15	B15	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	452	67	59	111	300	309	311	138	183	191	494	831
Average Queue (ft)	332	19	43	16	212	230	238	25	37	40	396	400
95th Queue (ft)	512	51	61	65	341	360	364	118	144	149	563	878
Link Distance (ft)	433	37	37		225	225	225	244	244	244		958
Upstream Blk Time (%)	18	6	52		10	12	15	0	0	1		5
Queuing Penalty (veh)	0	19	153		37	43	51	1	1	2		0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					29						22	0
Queuing Penalty (veh)					4						74	0

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	761	554
Average Queue (ft)	376	295
95th Queue (ft)	751	497
Link Distance (ft)	958	958
Upstream Blk Time (%)	0	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	56	52	527	533	87	318
Average Queue (ft)	26	6	332	320	25	287
95th Queue (ft)	46	32	596	584	64	317
Link Distance (ft)	37	37	1669	1669	158	259
Upstream Blk Time (%)	4	2				96
Queuing Penalty (veh)	9	4				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1251

Intersection: 1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	93	157	148	129	52	1266	1256	1262	50	1240	637	60
Average Queue (ft)	8	65	65	55	4	1079	1098	777	10	803	217	15
95th Queue (ft)	45	148	146	126	27	1483	1492	1695	34	1300	663	44
Link Distance (ft)		764	764			1192	1192	1192	111	1666	1666	213
Upstream Blk Time (%)						9	16	5				
Queuing Penalty (veh)						70	132	37				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)	0	2				28						
Queuing Penalty (veh)	0	0				1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	234	320	333	174	440	452	428	121	145	283		
Average Queue (ft)	93	145	145	89	198	211	235	58	35	219		
95th Queue (ft)	187	294	300	176	364	371	408	108	119	333		
Link Distance (ft)		982	982		764	764	447	447		268		
Upstream Blk Time (%)							4			13		
Queuing Penalty (veh)							0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				1	25					44		
Queuing Penalty (veh)				5	41					10		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	197	202	337	326	42	475	795	830	375	225	586	588
Average Queue (ft)	116	130	190	193	10	168	392	428	114	220	550	303
95th Queue (ft)	181	192	334	331	34	366	769	820	377	230	620	667
Link Distance (ft)			774	774			982	982			515	515
Upstream Blk Time (%)											65	4
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)							7	16	0	95	6	18
Queuing Penalty (veh)							11	18	1	248	9	20

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	736	181	186	293	293	225
Average Queue (ft)	57	533	79	87	199	221	173
95th Queue (ft)	215	1010	150	163	298	324	280
Link Distance (ft)		697		229	229	229	
Upstream Blk Time (%)		52	0	0	13	18	4
Queuing Penalty (veh)		0	0	0	47	66	0
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0		0	0		22	12
Queuing Penalty (veh)	0		0	0		76	33

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	160	218	211	83	358	349	129	99
Average Queue (ft)	49	80	78	28	91	110	56	36
95th Queue (ft)	110	210	206	68	257	275	114	81
Link Distance (ft)		204	204		774	774	125	133
Upstream Blk Time (%)	0	1	1				3	0
Queuing Penalty (veh)	0	5	5				0	0
Storage Bay Dist (ft)	200			100				
Storage Blk Time (%)	0	1		1	8			
Queuing Penalty (veh)	0	0		8	2			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	70	200	31	174	161	70	192	197
Average Queue (ft)	50	87	4	53	51	10	142	143
95th Queue (ft)	65	177	20	126	124	39	236	234
Link Distance (ft)	46	226		747	747		160	160
Upstream Blk Time (%)	82	1				0	17	19
Queuing Penalty (veh)	122	0				0	178	196
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				1		0	18	
Queuing Penalty (veh)				0		0	5	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB
Directions Served	LR	T	T	TR
Maximum Queue (ft)	266	82	192	221
Average Queue (ft)	160	13	60	82
95th Queue (ft)	275	51	165	207
Link Distance (ft)	241	260	260	260
Upstream Blk Time (%)	8			0
Queuing Penalty (veh)	0			0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	223	52	58	114	162	168	198	495	997	973	971
Average Queue (ft)	112	18	42	33	88	87	99	494	965	781	404
95th Queue (ft)	209	47	62	83	147	146	174	497	1051	1317	913
Link Distance (ft)	434	38	38		209	209	209		958	958	958
Upstream Blk Time (%)		9	54			0	0		77	9	0
Queuing Penalty (veh)		41	235			0	1		0	0	0
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)					4			86	1		
Queuing Penalty (veh)					1			293	3		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	51	47	1191	1183	76	296
Average Queue (ft)	23	8	964	968	20	250
95th Queue (ft)	46	31	1258	1281	59	336
Link Distance (ft)	38	38	1666	1666	158	259
Upstream Blk Time (%)	5	2				69
Queuing Penalty (veh)	15	4				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1941

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	TR>	<LR
Maximum Queue (ft)	118	463	467	225	59	962	1031	652	46	312	103	50
Average Queue (ft)	12	252	241	182	6	381	398	103	9	181	39	10
95th Queue (ft)	58	407	405	261	29	914	936	562	32	284	82	34
Link Distance (ft)		764	764			1190	1190	1190	109	1669	1669	213
Upstream Blk Time (%)						1	1	0				
Queuing Penalty (veh)						4	6	2				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		21	10	6	0	28						
Queuing Penalty (veh)		4	52	32	0	2						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	225	372	394	175	777	780	259	133	145	242
Average Queue (ft)	103	111	123	130	390	403	110	52	55	182
95th Queue (ft)	190	248	261	217	776	789	211	105	139	260
Link Distance (ft)		981	981		764	764	447	447		205
Upstream Blk Time (%)					2	2				17
Queuing Penalty (veh)					12	15				0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				2	37				1	39
Queuing Penalty (veh)				13	52				2	16

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	221	222	524	519	110	475	1008	1005	375	225	447	400
Average Queue (ft)	114	129	324	333	18	331	774	788	242	183	277	233
95th Queue (ft)	187	193	474	483	76	626	1196	1201	525	272	464	374
Link Distance (ft)			769	769			981	981			515	515
Upstream Blk Time (%)							2	2			1	
Queuing Penalty (veh)							14	18			0	
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			0	0		1	46	58	0	37	6	5
Queuing Penalty (veh)			0	0		4	68	53	1	100	9	8

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	134	143	239	252	225
Average Queue (ft)	74	62	71	148	160	126
95th Queue (ft)	217	119	131	255	272	254
Link Distance (ft)			229	229	229	
Upstream Blk Time (%)				5	7	1
Queuing Penalty (veh)				20	31	0
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				11	4
Queuing Penalty (veh)	0				44	13

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	127	188	192	99	307	329	100	106
Average Queue (ft)	42	110	109	26	183	211	34	39
95th Queue (ft)	98	193	190	68	303	318	79	83
Link Distance (ft)		174	174		769	769	134	122
Upstream Blk Time (%)	0	2	2				0	1
Queuing Penalty (veh)	0	17	14				0	0
Storage Bay Dist (ft)	200			80				
Storage Blk Time (%)	0	2		1	17			
Queuing Penalty (veh)	0	1		8	5			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	66	90	31	175	174	64	206	212
Average Queue (ft)	48	28	6	70	70	9	87	107
95th Queue (ft)	68	71	24	142	139	39	182	197
Link Distance (ft)	51	226		747	747		186	186
Upstream Blk Time (%)	47						1	2
Queuing Penalty (veh)	46						8	13
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				2			2	
Queuing Penalty (veh)				0			0	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	SB	SB	SB	B16	B16
Directions Served	LR	T	T	TR	T	T
Maximum Queue (ft)	244	34	172	257	33	94
Average Queue (ft)	124	5	17	33	1	4
95th Queue (ft)	221	23	84	135	23	49
Link Distance (ft)	241	240	240	240	227	227
Upstream Blk Time (%)	1		0	0		0
Queuing Penalty (veh)	0		0	2		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B16	B16	B16	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	119	73	65	142	279	278	293	7	14	24	495	983
Average Queue (ft)	50	22	35	25	182	187	199	0	0	1	489	878
95th Queue (ft)	102	57	65	85	260	263	276	4	8	12	542	1229
Link Distance (ft)	434	37	37		227	227	227	240	240	240		958
Upstream Blk Time (%)		5	19		7	9	14					60
Queuing Penalty (veh)		12	47		23	31	49					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)				0	42						79	0
Queuing Penalty (veh)				0	10						317	0

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	979	972
Average Queue (ft)	838	601
95th Queue (ft)	1218	1076
Link Distance (ft)	958	958
Upstream Blk Time (%)	16	1
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	53	32	289	288	47	188
Average Queue (ft)	29	7	167	171	12	74
95th Queue (ft)	45	28	254	256	38	154
Link Distance (ft)	37	37	1669	1669	158	259
Upstream Blk Time (%)	4	0				0
Queuing Penalty (veh)	9	1				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1212

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

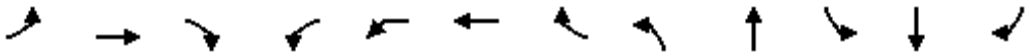
Timing Plan: 2027 TF AM MIT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	40	2247	1	687	258	1	280	11	5
v/c Ratio	0.09	0.69	0.01	0.35	0.25	0.02	0.85	0.03	0.06
Control Delay	5.3	9.7	45.0	42.7	22.5	89.0	124.9	0.1	82.2
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	9.9	45.0	42.7	22.5	89.0	124.9	0.1	82.2
Queue Length 50th (ft)	3	49	1	344	117	1	332	0	6
Queue Length 95th (ft)	m16	#1211	m4	439	211	9	m449	m0	22
Internal Link Dist (ft)		810		1204		100		1665	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	482	3279	119	1953	1018	67	360	469	175
Starvation Cap Reductn	0	351	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	0.77	0.01	0.35	0.25	0.01	0.78	0.02	0.03

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.

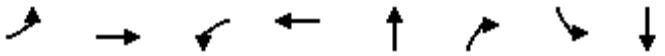


Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR2
Lane Configurations												
Traffic Volume (vph)	37	2066	1	1	0	632	237	1	0	258	1	9
Future Volume (vph)	37	2066	1	1	0	632	237	1	0	258	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0	6.3	6.3	
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00	0.95	0.95	
Frt	1.00	1.00			1.00	1.00	0.85		1.00	1.00	0.86	
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (prot)	1805	4987			1805	3223	1524		1805	1603	1559	
Flt Permitted	0.32	1.00			0.04	1.00	1.00		0.95	0.95	1.00	
Satd. Flow (perm)	601	4987			74	3223	1524		1805	1603	1559	
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)	40	2246	1	1	0	687	258	1	0	280	1	10
RTOR Reduction (vph)	0	0	0	0	0	0	109	0	0	0	9	0
Lane Group Flow (vph)	40	2247	0	0	1	687	149	0	1	280	2	0
Heavy Vehicles (%)	0%	4%	0%	0%	0%	12%	6%	0%	0%	7%	0%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA	Split	NA	
Protected Phases	5	2		1	1	6		7	7	3	3	
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	113.0	106.9			103.2	102.0	102.0		1.3	37.9	37.9	
Effective Green, g (s)	115.0	108.9			105.2	104.0	104.0		2.3	38.9	38.9	
Actuated g/C Ratio	0.61	0.57			0.55	0.55	0.55		0.01	0.20	0.20	
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0	7.3	7.3	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0	5.0	5.0	
Lane Grp Cap (vph)	408	2858			61	1764	834		21	328	319	
v/s Ratio Prot	c0.00	c0.45			0.00	0.21			c0.00	c0.17	0.00	
v/s Ratio Perm	0.06				0.01		0.10					
v/c Ratio	0.10	0.79			0.02	0.39	0.18		0.05	0.85	0.01	
Uniform Delay, d1	16.3	31.5			27.7	24.7	21.6		92.8	72.8	60.2	
Progression Factor	0.31	0.31			2.18	1.83	5.32		1.00	1.41	1.00	
Incremental Delay, d2	0.1	1.4			0.1	0.6	0.5		0.9	19.9	0.0	
Delay (s)	5.2	11.2			60.3	45.9	115.2		93.7	122.6	60.2	
Level of Service	A	B			E	D	F		F	F	E	
Approach Delay (s)		11.0				64.8			93.7		120.3	
Approach LOS		B				E			F		F	

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NEL2	NEL	NER
Lane Configurations			
Traffic Volume (vph)	2	0	3
Future Volume (vph)	2	0	3
Ideal Flow (vphpl)	1900	1900	1900
Total Lost time (s)		5.6	
Lane Util. Factor		1.00	
Frt		0.92	
Flt Protected		0.98	
Satd. Flow (prot)		1427	
Flt Permitted		0.98	
Satd. Flow (perm)		1427	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	2	0	3
RTOR Reduction (vph)	0	0	0
Lane Group Flow (vph)	0	5	0
Heavy Vehicles (%)	50%	0%	0%
Turn Type	Prot	Prot	
Protected Phases	4	4	
Permitted Phases			
Actuated Green, G (s)		5.8	
Effective Green, g (s)		6.8	
Actuated g/C Ratio		0.04	
Clearance Time (s)		6.6	
Vehicle Extension (s)		3.0	
Lane Grp Cap (vph)		51	
v/s Ratio Prot		c0.00	
v/s Ratio Perm			
v/c Ratio		0.10	
Uniform Delay, d1		88.6	
Progression Factor		1.00	
Incremental Delay, d2		0.8	
Delay (s)		89.5	
Level of Service		F	
Approach Delay (s)		89.5	
Approach LOS		F	

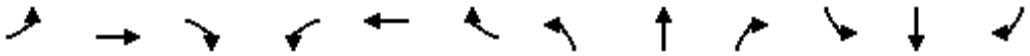
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	51	2012	75	619	156	185	7	126
v/c Ratio	0.08	0.84	0.49	0.27	0.91	0.47	0.08	0.49
Control Delay	3.1	11.6	63.6	5.2	126.6	15.3	65.3	70.3
Queue Delay	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.1	12.4	63.6	5.2	126.6	15.3	65.3	70.3
Queue Length 50th (ft)	8	202	49	45	195	21	8	132
Queue Length 95th (ft)	m12	247	137	54	277	96	24	194
Internal Link Dist (ft)		1037		810	420			201
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	710	2405	243	2315	230	475	112	345
Starvation Cap Reductn	0	37	0	0	0	0	0	0
Spillback Cap Reductn	0	150	0	0	0	7	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.89	0.31	0.27	0.68	0.40	0.06	0.37

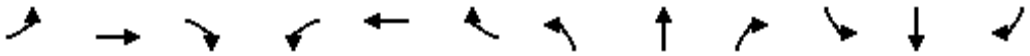
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1838	13	69	569	1	33	110	170	6	78	38
Future Volume (vph)	47	1838	13	69	569	1	33	110	170	6	78	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3433		1805	3195			1352	1599	1081	1554	
Flt Permitted	0.41	1.00		0.04	1.00			0.78	1.00	0.46	1.00	
Satd. Flow (perm)	774	3433		81	3195			1067	1599	522	1554	
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)	51	1998	14	75	618	1	36	120	185	7	85	41
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	139	0	10	0
Lane Group Flow (vph)	51	2012	0	75	619	0	0	156	46	7	116	0
Heavy Vehicles (%)	0%	5%	10%	0%	13%	0%	2%	50%	1%	67%	0%	50%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	137.8	132.1		144.6	135.5			29.5	29.5	29.5	29.5	
Effective Green, g (s)	139.8	133.1		146.6	136.5			30.5	30.5	30.5	30.5	
Actuated g/C Ratio	0.74	0.70		0.77	0.72			0.16	0.16	0.16	0.16	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	605	2404		154	2295			171	256	83	249	
v/s Ratio Prot	0.00	c0.59		c0.03	0.19						0.07	
v/s Ratio Perm	0.06			0.35				c0.15	0.03	0.01		
v/c Ratio	0.08	0.84		0.49	0.27			0.91	0.18	0.08	0.47	
Uniform Delay, d1	6.9	20.6		32.2	9.3			78.4	68.9	67.9	72.4	
Progression Factor	0.49	0.37		3.07	0.48			1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	2.6		2.3	0.3			44.2	0.3	0.4	1.4	
Delay (s)	3.4	10.3		101.3	4.8			122.6	69.3	68.3	73.7	
Level of Service	A	B		F	A			F	E	E	E	
Approach Delay (s)		10.1			15.2			93.7			73.4	
Approach LOS		B			B			F			E	

Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



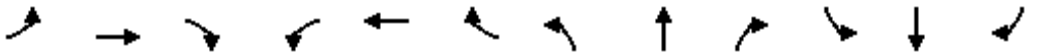
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	269	1562	7	146	449	76	49	664	118	174	605	257
v/c Ratio	0.70	0.82	0.01	1.42	0.26	0.11	0.45	0.89	0.24	0.79	0.73	0.35
Control Delay	110.6	31.1	0.0	281.2	23.1	4.3	98.6	87.2	9.6	132.5	110.4	8.3
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.5
Total Delay	110.6	31.6	0.0	281.2	23.1	4.3	98.6	87.2	9.6	132.5	113.9	8.8
Queue Length 50th (ft)	175	538	0	~248	70	1	60	423	13	118	280	2
Queue Length 95th (ft)	209	732	m0	#399	257	m17	111	505	58	#176	488	100
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	458	1897	968	103	1728	723	129	786	488	222	831	769
Starvation Cap Reductn	0	96	0	0	0	0	0	0	0	0	142	211
Spillback Cap Reductn	0	63	0	0	0	0	0	0	1	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.87	0.01	1.42	0.26	0.11	0.38	0.84	0.24	0.78	0.88	0.46

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	261	1515	7	142	436	74	48	644	114	169	587	249
Future Volume (vph)	261	1515	7	142	436	74	48	644	114	169	587	249
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1560	1543	3539	1256	1770	3539	1534	3019	3438	1583
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)	269	1562	7	146	449	76	49	664	118	174	605	257
RTOR Reduction (vph)	0	0	3	0	0	29	0	0	71	0	0	145
Lane Group Flow (vph)	269	1562	4	146	449	47	49	664	47	174	605	112
Confl. Peds. (#/hr)	1		2	2		1			2	2		
Heavy Vehicles (%)	2%	2%	2%	17%	2%	27%	2%	2%	4%	16%	5%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	19.9	99.0	107.9	11.2	90.0	102.4	8.9	40.1	51.3	12.4	44.5	64.4
Effective Green, g (s)	21.4	100.5	110.9	12.7	91.5	105.4	10.4	41.6	54.3	13.9	46.0	67.4
Actuated g/C Ratio	0.11	0.53	0.58	0.07	0.48	0.55	0.05	0.22	0.29	0.07	0.24	0.35
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	386	1871	910	103	1704	696	96	774	438	220	832	561
v/s Ratio Prot	0.08	c0.44	0.00	c0.09	0.13	0.00	0.03	c0.19	0.01	c0.06	c0.18	0.02
v/s Ratio Perm			0.00			0.03			0.02			0.05
v/c Ratio	0.70	0.83	0.00	1.42	0.26	0.07	0.51	0.86	0.11	0.79	0.73	0.20
Uniform Delay, d1	81.2	37.7	16.5	88.7	29.2	19.6	87.3	71.4	50.0	86.6	66.2	42.6
Progression Factor	1.27	0.74	1.00	0.79	0.77	0.76	1.00	1.00	1.00	1.27	1.56	1.05
Incremental Delay, d2	4.5	3.8	0.0	234.1	0.4	0.0	4.5	9.3	0.1	17.1	3.1	0.2
Delay (s)	107.3	31.6	16.5	304.3	23.0	15.0	91.8	80.7	50.1	127.3	106.4	45.0
Level of Service	F	C	B	F	C	B	F	F	D	F	F	D
Approach Delay (s)		42.6			83.3			77.0			94.7	
Approach LOS		D			F			E			F	

Intersection Summary					
HCM 2000 Control Delay	67.7	HCM 2000 Level of Service		E	
HCM 2000 Volume to Capacity ratio	0.89				
Actuated Cycle Length (s)	190.0	Sum of lost time (s)		21.6	
Intersection Capacity Utilization	90.8%	ICU Level of Service		E	
Analysis Period (min)	15				

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	32	1812	10	750	34	29
v/c Ratio	0.05	0.58	0.04	0.25	0.30	0.24
Control Delay	1.0	1.8	2.0	2.8	13.3	8.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	1.0	1.9	2.0	2.8	13.3	8.2
Queue Length 50th (ft)	2	71	1	41	0	0
Queue Length 95th (ft)	m5	113	m5	84	18	10
Internal Link Dist (ft)		217		798	247	105
Turn Bay Length (ft)	200		80			
Base Capacity (vph)	639	3103	244	2972	218	236
Starvation Cap Reductn	0	208	0	0	0	0
Spillback Cap Reductn	0	54	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.63	0.04	0.25	0.16	0.12

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	1757	1	10	670	57	27	0	6	8	0	20
Future Volume (veh/h)	31	1757	1	10	670	57	27	0	6	8	0	20
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	32	1811	1	10	691	59	28	0	6	8	0	21
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	688	3113	2	249	2781	237	74	0	8	35	3	36
Arrive On Green	0.03	0.86	0.86	0.03	1.00	1.00	0.03	0.00	0.03	0.03	0.00	0.03
Sat Flow, veh/h	1774	3630	2	1774	3300	282	1337	0	286	353	113	1222
Grp Volume(v), veh/h	32	883	929	10	370	380	34	0	0	29	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1812	1623	0	0	1688	0	0
Q Serve(g_s), s	0.4	26.9	26.9	0.2	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	26.9	26.9	0.2	0.0	0.0	3.7	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.16	0.82		0.18	0.28		0.72
Lane Grp Cap(c), veh/h	688	1518	1597	249	1491	1527	82	0	0	74	0	0
V/C Ratio(X)	0.05	0.58	0.58	0.04	0.25	0.25	0.41	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	710	1518	1597	297	1491	1527	216	0	0	218	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	3.8	3.8	3.5	0.0	0.0	91.2	0.0	0.0	91.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.6	1.6	0.1	0.4	0.4	3.3	0.0	0.0	3.4	0.0	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	0.2	13.7	14.4	0.1	0.2	0.2	1.9	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	1.6	5.5	5.4	3.5	0.4	0.4	94.5	0.0	0.0	94.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F			F		
Approach Vol, veh/h		1844			760			34			29	
Approach Delay, s/veh		5.4			0.4			94.5			94.4	
Approach LOS		A			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	170.0		12.1	10.7	167.2		12.1
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	8.0	139.9		23.5	8.0	139.9		23.5
Max Q Clear Time (g_c+I1), s	2.2	28.9		5.7	2.4	2.0		5.1
Green Ext Time (p_c), s	0.0	51.1		0.1	0.0	8.7		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	6.1
HCM 2010 LOS	A

Lane Group	EBL	NBT	NET	SWL	SWT
Lane Group Flow (vph)	205	64	1723	22	721
v/c Ratio	0.86	0.43	0.66	0.13	0.27
Control Delay	73.9	10.7	3.5	6.4	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.2
Total Delay	73.9	10.7	3.6	6.4	4.8
Queue Length 50th (ft)	130	0	33	3	48
Queue Length 95th (ft)	#247	9	148	13	112
Internal Link Dist (ft)	50	220	755		123
Turn Bay Length (ft)				150	
Base Capacity (vph)	270	223	2599	233	2712
Starvation Cap Reductn	0	0	65	0	1077
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.76	0.29	0.68	0.09	0.44

Intersection Summary

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

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	181	12	6	9	17	0	36	0	1657	15	21	640
Future Volume (vph)	181	12	6	9	17	0	36	0	1657	15	21	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5					6.5			7.1		7.1	7.1
Lane Util. Factor	1.00					1.00			0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00			1.00		1.00	1.00
Frt	0.99					0.92			1.00		1.00	0.99
Flt Protected	0.96					0.98			1.00		0.95	1.00
Satd. Flow (prot)	1664					1696			3535		1770	3488
Flt Permitted	0.96					0.98			1.00		0.09	1.00
Satd. Flow (perm)	1664					1696			3535		161	3488
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	12	6	9	18	0	37	0	1708	15	22	660
RTOR Reduction (vph)	93	0	0	0	0	62	0	0	0	0	0	0
Lane Group Flow (vph)	112	0	0	0	0	2	0	0	1723	0	22	721
Confl. Peds. (#/hr)		1	1	1	1			1				
Heavy Vehicles (%)	2%	100%	2%	0%	0%	2%	2%	0%	2%	2%	2%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	16.5					5.7			136.8		147.7	147.7
Effective Green, g (s)	16.5					5.7			136.8		147.7	147.7
Actuated g/C Ratio	0.09					0.03			0.72		0.78	0.78
Clearance Time (s)	6.5					6.5			7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0			4.0		3.0	4.0
Lane Grp Cap (vph)	144					50			2545		157	2711
v/s Ratio Prot	c0.07					c0.00			c0.49		0.00	c0.21
v/s Ratio Perm											0.11	
v/c Ratio	0.78					0.04			0.68		0.14	0.27
Uniform Delay, d1	84.9					89.5			14.5		13.2	5.9
Progression Factor	1.00					1.00			0.16		0.89	0.70
Incremental Delay, d2	22.6					0.3			1.2		0.4	0.2
Delay (s)	107.6					89.8			3.6		12.1	4.4
Level of Service	F					F			A		B	A
Approach Delay (s)	107.6					89.8			3.6			4.6
Approach LOS	F					F			A			A

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	27.2
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

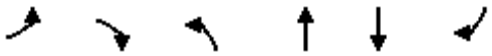
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	53	6
Future Volume (vph)	53	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	55	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	1	
Heavy Vehicles (%)	2%	2%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		
Intersection Summary		

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	61	55	1088	1100
v/c Ratio	0.58	0.37	0.21	0.25
Control Delay	107.0	24.8	0.1	1.6
Queue Delay	0.0	1.2	0.0	0.1
Total Delay	107.0	26.0	0.1	1.8
Queue Length 50th (ft)	76	0	0	55
Queue Length 95th (ft)	132	51	0	m63
Internal Link Dist (ft)	220		36	226
Turn Bay Length (ft)		150		
Base Capacity (vph)	130	167	5085	4455
Starvation Cap Reductn	0	0	0	1852
Spillback Cap Reductn	0	33	74	650
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.41	0.22	0.42

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	51	0	1001	971	41
Future Volume (vph)	56	51	0	1001	971	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	5050	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	5050	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	55	0	1088	1055	45
RTOR Reduction (vph)	0	52	0	0	2	0
Lane Group Flow (vph)	61	3	0	1088	1098	0
Confl. Peds. (#/hr)			2			2
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5		190.0	167.5	
Effective Green, g (s)	11.5	11.5		190.0	167.5	
Actuated g/C Ratio	0.06	0.06		1.00	0.88	
Clearance Time (s)	6.0	6.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	
Lane Grp Cap (vph)	107	95		5085	4451	
v/s Ratio Prot	c0.03			0.21	c0.22	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.04		0.21	0.25	
Uniform Delay, d1	86.8	84.0		0.0	1.7	
Progression Factor	1.00	1.00		1.00	0.88	
Incremental Delay, d2	7.1	0.2		0.1	0.1	
Delay (s)	94.0	84.2		0.1	1.6	
Level of Service	F	F		A	A	
Approach Delay (s)	89.3			0.1	1.6	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	227	281	363	13	1116	393	1094
v/c Ratio	1.00	0.50	0.49	0.19	0.94	1.12	0.53
Control Delay	138.3	2.2	3.9	136.3	45.3	139.4	43.4
Queue Delay	0.0	5.4	20.8	0.0	2.4	0.0	0.0
Total Delay	138.3	7.6	24.7	136.3	47.7	139.4	43.4
Queue Length 50th (ft)	285	0	74	17	412	~513	351
Queue Length 95th (ft)	#486	m0	m60	m44	#540	#745	460
Internal Link Dist (ft)	420	47			215		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	227	558	744	161	1191	350	2064
Starvation Cap Reductn	0	213	374	0	31	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	1.00	0.81	0.98	0.08	0.96	1.12	0.53

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.

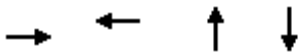
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	85	99	25	43	43	506	7	5	999	28	4	358
Future Volume (vph)	85	99	25	43	43	506	7	5	999	28	4	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.98			0.90	0.85		1.00	1.00			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1770			1518	1475		1602	4951			1736
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.08
Satd. Flow (perm)		1770			1518	1475		1602	4951			143
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)	92	108	27	47	47	550	8	5	1086	30	4	389
RTOR Reduction (vph)	0	3	0	0	38	239	0	0	0	0	0	0
Lane Group Flow (vph)	0	224	0	0	243	124	0	13	1116	0	0	393
Confl. Peds. (#/hr)			2	2						1		1
Heavy Vehicles (%)	0%	5%	8%	8%	13%	4%	0%	33%	4%	15%	0%	4%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		23.1			64.0	64.0		3.5	44.2			84.2
Effective Green, g (s)		24.1			65.0	65.0		4.5	45.7			85.2
Actuated g/C Ratio		0.13			0.34	0.34		0.02	0.24			0.45
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		224			519	504		37	1190			350
v/s Ratio Prot		c0.13			c0.16	0.08		0.01	0.23			c0.20
v/s Ratio Perm												c0.30
v/c Ratio		1.00			0.47	0.25		0.35	0.94			1.12
Uniform Delay, d1		83.0			49.0	44.9		91.3	70.8			64.0
Progression Factor		1.00			0.02	0.75		1.50	0.43			1.00
Incremental Delay, d2		60.6			0.8	0.3		5.6	14.7			85.6
Delay (s)		143.5			1.6	34.2		142.3	44.9			149.6
Level of Service		F			A	C		F	D			F
Approach Delay (s)		143.5			19.9				46.0			
Approach LOS		F			B				D			

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	990	17
Future Volume (vph)	990	17
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	4932	
Flt Permitted	1.00	
Satd. Flow (perm)	4932	
Peak-hour factor, PHF	0.92	0.92
Adj. Flow (vph)	1076	18
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1094	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	5%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	73.9	
Effective Green, g (s)	75.4	
Actuated g/C Ratio	0.40	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1957	
v/s Ratio Prot	0.22	
v/s Ratio Perm		
v/c Ratio	0.56	
Uniform Delay, d1	44.4	
Progression Factor	1.00	
Incremental Delay, d2	1.2	
Delay (s)	45.6	
Level of Service	D	
Approach Delay (s)	73.1	
Approach LOS	E	

Intersection Summary



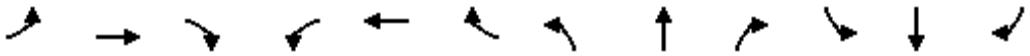
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	530	500	32	201
v/c Ratio	0.26	0.80	0.14	1.10
Control Delay	0.6	88.7	1.2	140.3
Queue Delay	28.8	2.4	0.0	0.7
Total Delay	29.5	91.1	1.2	141.0
Queue Length 50th (ft)	2	273	0	~194
Queue Length 95th (ft)	m3	396	0	#393
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2061	628	272	183
Starvation Cap Reductn	1545	0	0	0
Spillback Cap Reductn	0	52	2	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.03	0.87	0.12	1.10

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	438	6	0	437	23	8	0	21	39	1	145
Future Volume (vph)	43	438	6	0	437	23	8	0	21	39	1	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.94			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.90			0.89	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3397			3356			1456			1347	
Flt Permitted		1.00			1.00			0.99			0.99	
Satd. Flow (perm)		3397			3356			1456			1347	
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)	47	476	7	0	475	25	9	0	23	42	1	158
RTOR Reduction (vph)	0	0	0	0	2	0	0	31	0	0	68	0
Lane Group Flow (vph)	0	530	0	0	498	0	0	1	0	0	133	0
Confl. Peds. (#/hr)	1		2	2		1	1		8	8		1
Heavy Vehicles (%)	12%	5%	0%	0%	7%	0%	0%	0%	13%	100%	0%	3%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		114.2			34.2			5.4			15.4	
Effective Green, g (s)		109.3			35.2			6.4			16.4	
Actuated g/C Ratio		0.58			0.19			0.03			0.09	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1954			621			49			116	
v/s Ratio Prot		c0.16			c0.15			c0.00			c0.10	
v/s Ratio Perm												
v/c Ratio		0.27			0.80			0.02			1.15	
Uniform Delay, d1		20.3			74.1			88.8			86.8	
Progression Factor		0.04			1.05			1.00			1.00	
Incremental Delay, d2		0.0			8.6			0.1			129.5	
Delay (s)		0.7			86.7			88.8			216.3	
Level of Service		A			F			F			F	
Approach Delay (s)		0.7			86.7			88.8			216.3	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	71.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2027 TF PM MIT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	16	1466	4	2077	547	7	349	99	16
v/c Ratio	0.18	0.40	0.02	0.85	0.47	0.12	1.57	0.31	0.18
Control Delay	19.4	6.9	14.0	22.3	7.8	106.8	334.0	34.2	101.3
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	6.9	14.0	22.3	7.8	106.8	334.0	34.2	101.3
Queue Length 50th (ft)	2	69	1	427	115	10	~765	54	23
Queue Length 95th (ft)	m9	212	m3	#1841	194	33	m#1012	m102	53
Internal Link Dist (ft)		810		1202		100		1663	220
Turn Bay Length (ft)	130		80						
Base Capacity (vph)	97	3647	290	2443	1154	63	222	324	189
Starvation Cap Reductn	0	583	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	0.16	0.48	0.01	0.85	0.47	0.11	1.57	0.31	0.08

Intersection Summary

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

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

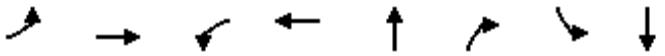
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	15	1346	3	4	0	1911	503	3	0	4	321	8
Future Volume (vph)	15	1346	3	4	0	1911	503	3	0	4	321	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85		0.92		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.98		0.95	1.00
Satd. Flow (prot)	1719	5084			1805	3539	1583		1717		1649	1559
Flt Permitted	0.03	1.00			0.14	1.00	1.00		0.98		0.95	1.00
Satd. Flow (perm)	50	5084			266	3539	1583		1717		1649	1559
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)	16	1463	3	4	0	2077	547	3	0	4	349	9
RTOR Reduction (vph)	0	0	0	0	0	0	70	0	0	0	0	86
Lane Group Flow (vph)	16	1466	0	0	4	2077	477	0	7	0	349	13
Heavy Vehicles (%)	5%	2%	0%	0%	0%	2%	2%	0%	0%	0%	4%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	146.5	142.6			141.1	139.9	139.9		3.0		28.7	28.7
Effective Green, g (s)	148.5	144.6			143.1	141.9	141.9		4.0		29.7	29.7
Actuated g/C Ratio	0.68	0.66			0.65	0.65	0.65		0.02		0.13	0.13
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	70	3341			188	2282	1021		31		222	210
v/s Ratio Prot	c0.01	c0.29			0.00	c0.59			c0.00		c0.21	0.01
v/s Ratio Perm	0.15				0.01		0.30					
v/c Ratio	0.23	0.44			0.02	0.91	0.47		0.23		1.57	0.06
Uniform Delay, d1	45.0	18.2			14.7	33.6	19.8		106.5		95.2	83.0
Progression Factor	1.23	0.44			0.98	0.62	0.54		1.00		1.11	9.95
Incremental Delay, d2	1.4	0.4			0.0	5.8	1.3		3.7		277.5	0.3
Delay (s)	56.9	8.3			14.5	26.6	12.0		110.2		383.1	826.0
Level of Service	E	A			B	C	B		F		F	F
Approach Delay (s)		8.8				23.6			110.2			480.9
Approach LOS		A				C			F			F

Intersection Summary			
HCM 2000 Control Delay	63.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	83	10	2	3
Future Volume (vph)	83	10	2	3
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.97	
Flt Protected			0.96	
Satd. Flow (prot)			1780	
Flt Permitted			0.96	
Satd. Flow (perm)			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	11	2	3
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	16	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.6	
Effective Green, g (s)			8.6	
Actuated g/C Ratio			0.04	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			69	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.23	
Uniform Delay, d1			102.5	
Progression Factor			1.00	
Incremental Delay, d2			1.7	
Delay (s)			104.2	
Level of Service			F	
Approach Delay (s)			104.2	
Approach LOS			F	

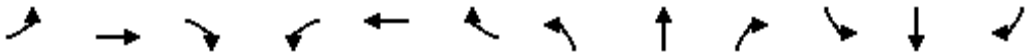
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	122	1292	179	1896	205	175	25	256
v/c Ratio	0.76	0.58	0.61	0.87	1.05	0.35	0.14	0.61
Control Delay	88.4	18.3	27.9	20.0	156.0	8.9	66.7	74.6
Queue Delay	0.0	0.0	0.0	41.5	0.0	0.0	0.0	0.0
Total Delay	88.4	18.3	27.9	61.5	156.0	8.9	66.7	74.6
Queue Length 50th (ft)	124	372	49	644	300	0	29	302
Queue Length 95th (ft)	201	525	m131	337	#482	71	61	406
Internal Link Dist (ft)		1037		810	420			236
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	186	2236	347	2189	219	542	207	464
Starvation Cap Reductn	0	27	0	113	0	0	0	0
Spillback Cap Reductn	0	0	0	446	0	0	0	2
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.58	0.52	1.09	0.94	0.32	0.12	0.55

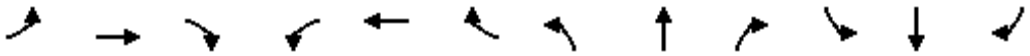
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1149	40	165	1738	6	60	129	161	23	113	122
Future Volume (vph)	112	1149	40	165	1738	6	60	129	161	23	113	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1626	3524		1805	3538			1870	1615	1805	1752	
Flt Permitted	0.03	1.00		0.15	1.00			0.45	1.00	0.43	1.00	
Satd. Flow (perm)	53	3524		286	3538			859	1615	815	1752	
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)	122	1249	43	179	1889	7	65	140	175	25	123	133
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	135	0	19	0
Lane Group Flow (vph)	122	1291	0	179	1896	0	0	205	40	25	237	0
Heavy Vehicles (%)	11%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	154.9	138.6		148.3	135.3			49.1	49.1	49.1	49.1	
Effective Green, g (s)	156.9	139.6		150.3	136.3			50.1	50.1	50.1	50.1	
Actuated g/C Ratio	0.71	0.63		0.68	0.62			0.23	0.23	0.23	0.23	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	161	2236		292	2191			195	367	185	398	
v/s Ratio Prot	c0.06	0.37		0.04	c0.54						0.14	
v/s Ratio Perm	0.48			0.38				c0.24	0.02	0.03		
v/c Ratio	0.76	0.58		0.61	0.87			1.05	0.11	0.14	0.60	
Uniform Delay, d1	74.6	23.2		18.9	34.3			85.0	67.3	67.7	75.9	
Progression Factor	1.03	0.70		2.10	0.47			1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.9	1.0		2.1	2.7			78.6	0.1	0.3	2.4	
Delay (s)	93.7	17.3		41.7	18.7			163.6	67.4	68.0	78.3	
Level of Service	F	B		D	B			F	E	E	E	
Approach Delay (s)		23.9			20.7			119.3			77.4	
Approach LOS		C			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	96.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

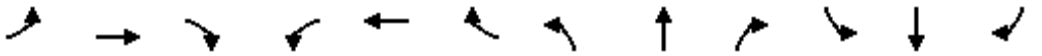


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	232	943	30	149	1630	118	173	547	117	193	591	366
v/c Ratio	0.77	0.51	0.03	0.90	0.86	0.13	0.97	0.77	0.23	0.65	0.86	0.75
Control Delay	148.1	25.4	0.1	111.2	35.6	6.9	153.3	91.6	11.4	146.2	96.3	34.7
Queue Delay	0.0	0.2	0.0	0.0	42.2	0.0	0.0	0.0	0.0	0.0	12.7	1.2
Total Delay	148.1	25.6	0.1	111.2	77.9	6.9	153.3	91.6	11.4	146.2	109.0	35.8
Queue Length 50th (ft)	182	264	0	223	1227	47	255	400	22	150	291	91
Queue Length 95th (ft)	#244	287	0	m#276	1325	m42	#436	478	67	198	365	169
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	304	1847	1018	166	1887	964	179	718	515	355	750	492
Starvation Cap Reductn	0	289	0	0	390	0	0	0	0	0	145	30
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.61	0.03	0.90	1.09	0.12	0.97	0.76	0.23	0.54	0.98	0.79

Intersection Summary

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

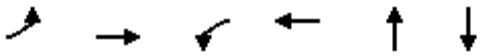
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	223	905	29	143	1565	113	166	525	112	185	567	351
Future Volume (vph)	223	905	29	143	1565	113	166	525	112	185	567	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.98	1.00	1.00	0.98	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	1615	1770	3574	1510	1805	3539	1570	3400	3574	1584
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	1615	1770	3574	1510	1805	3539	1570	3400	3574	1584
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	232	943	30	149	1630	118	173	547	117	193	591	366
RTOR Reduction (vph)	0	0	11	0	0	22	0	0	64	0	0	61
Lane Group Flow (vph)	232	943	19	149	1630	96	173	547	53	193	591	305
Confl. Peds. (#/hr)	4					4	1		7	7		1
Heavy Vehicles (%)	1%	2%	0%	2%	1%	5%	0%	2%	1%	3%	1%	1%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	17.6	113.2	133.6	19.3	114.6	132.3	20.4	42.5	61.8	17.7	40.7	58.3
Effective Green, g (s)	19.1	114.7	136.6	20.8	116.1	135.3	21.9	44.0	64.8	19.2	42.2	61.3
Actuated g/C Ratio	0.09	0.52	0.62	0.09	0.53	0.62	0.10	0.20	0.29	0.09	0.19	0.28
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	1845	1002	167	1886	928	179	707	462	296	685	441
v/s Ratio Prot	c0.07	0.27	0.00	0.08	c0.46	0.01	c0.10	0.15	0.01	0.06	c0.17	0.06
v/s Ratio Perm			0.01			0.05			0.02			0.13
v/c Ratio	0.77	0.51	0.02	0.89	0.86	0.10	0.97	0.77	0.11	0.65	0.86	0.69
Uniform Delay, d1	98.3	34.4	16.0	98.5	45.1	17.4	98.7	83.3	56.7	97.2	86.1	70.9
Progression Factor	1.35	0.70	0.04	0.85	0.71	0.81	1.00	1.00	1.00	1.40	0.97	0.48
Incremental Delay, d2	11.0	1.0	0.0	24.5	2.9	0.0	56.9	5.3	0.1	5.0	10.7	4.5
Delay (s)	143.8	25.0	0.6	108.4	34.9	14.2	155.6	88.6	56.8	141.3	93.8	38.9
Level of Service	F	C	A	F	C	B	F	F	E	F	F	D
Approach Delay (s)		47.2			39.4			98.0			84.3	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	61.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	92.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	46	1186	24	2248	55	47
v/c Ratio	0.32	0.39	0.06	0.75	0.56	0.42
Control Delay	14.4	2.5	0.8	5.0	50.2	33.9
Queue Delay	0.0	0.2	0.0	0.6	1.9	1.0
Total Delay	14.4	2.6	0.8	5.6	52.1	34.9
Queue Length 50th (ft)	5	238	1	142	15	3
Queue Length 95th (ft)	m25	110	m3	246	69	53
Internal Link Dist (ft)		199		798	108	109
Turn Bay Length (ft)	200		100			
Base Capacity (vph)	144	3005	411	2985	168	199
Starvation Cap Reductn	0	777	0	348	0	0
Spillback Cap Reductn	0	0	0	110	45	55
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.53	0.06	0.85	0.45	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1102	1	22	2014	76	39	0	12	8	0	35
Future Volume (veh/h)	43	1102	1	22	2014	76	39	0	12	8	0	35
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	46	1185	1	24	2166	82	42	0	13	9	0	38
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	3056	3	436	2910	109	79	2	16	30	6	67
Arrive On Green	0.03	0.84	0.84	0.05	1.00	1.00	0.05	0.00	0.05	0.05	0.00	0.05
Sat Flow, veh/h	1774	3629	3	1774	3478	131	1027	34	329	210	115	1373
Grp Volume(v), veh/h	46	578	608	24	1095	1153	55	0	0	47	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1862	1774	1770	1839	1390	0	0	1698	0	0
Q Serve(g_s), s	0.8	16.8	16.9	0.4	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	16.8	16.9	0.4	0.0	0.0	8.6	0.0	0.0	6.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.07	0.76		0.24	0.19		0.81
Lane Grp Cap(c), veh/h	226	1490	1568	436	1480	1539	97	0	0	103	0	0
V/C Ratio(X)	0.20	0.39	0.39	0.06	0.74	0.75	0.57	0.00	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	230	1490	1568	449	1480	1539	172	0	0	185	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.41	0.41	0.41	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.0	4.1	4.1	2.7	0.0	0.0	103.6	0.0	0.0	102.4	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.8	0.7	0.0	1.4	1.4	5.1	0.0	0.0	3.2	0.0	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	0.4	8.5	8.9	0.2	0.6	0.6	3.5	0.0	0.0	2.9	0.0	0.0
LnGrp Delay(d),s/veh	2.4	4.8	4.8	2.7	1.4	1.4	108.7	0.0	0.0	105.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	F			F		
Approach Vol, veh/h		1232			2272			55			47	
Approach Delay, s/veh		4.7			1.4			108.7			105.6	
Approach LOS		A			A			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	192.4		17.3	11.6	191.2		17.3
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	171.9		22.5	7.0	171.9		22.5
Max Q Clear Time (g_c+I1), s	2.4	18.9		10.6	2.8	2.0		8.0
Green Ext Time (p_c), s	0.0	18.7		0.1	0.0	105.9		0.1

Intersection Summary		
HCM 2010 Ctrl Delay		5.5
HCM 2010 LOS		A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	157	99	6	1169	26	2167
v/c Ratio	0.84	0.61	0.05	0.45	0.08	0.83
Control Delay	128.9	37.8	2.2	2.8	7.7	12.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.7
Total Delay	128.9	37.8	2.2	2.9	7.7	13.6
Queue Length 50th (ft)	226	16	0	77	7	403
Queue Length 95th (ft)	#350	88	m1	84	m14	532
Internal Link Dist (ft)	48	220		755		141
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	198	213	128	2578	350	2626
Starvation Cap Reductn	0	0	0	401	0	176
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.46	0.05	0.54	0.07	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	138	8	4	24	40	0	30	6	1100	10	25	1904
Future Volume (vph)	138	8	4	24	40	0	30	6	1100	10	25	1904
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.96		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1745					1708		1805	3534		1805	3424
Flt Permitted	0.96					0.97		0.04	1.00		0.20	1.00
Satd. Flow (perm)	1745					1708		72	3534		373	3424
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	145	8	4	25	42	0	32	6	1158	11	26	2004
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	0	0	0	0
Lane Group Flow (vph)	157	0	0	0	0	15	0	6	1169	0	26	2167
Confl. Peds. (#/hr)		4	2	2	2			2		4	4	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	9%	0%	2%	0%	0%	4%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	22.2					8.4		158.2	157.0		166.2	161.0
Effective Green, g (s)	23.7					9.9		161.2	159.0		169.2	163.0
Actuated g/C Ratio	0.11					0.05		0.73	0.72		0.77	0.74
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	187					76		74	2554		330	2536
v/s Ratio Prot	c0.09					c0.01		0.00	0.33		c0.00	c0.63
v/s Ratio Perm								0.06			0.06	
v/c Ratio	0.84					0.20		0.08	0.46		0.08	0.85
Uniform Delay, d1	96.3					101.2		26.8	12.6		8.2	20.1
Progression Factor	1.00					1.00		0.20	0.17		1.16	0.58
Incremental Delay, d2	26.8					1.3		0.4	0.6		0.1	2.7
Delay (s)	123.0					102.5		5.8	2.7		9.6	14.4
Level of Service	F					F		A	A		A	B
Approach Delay (s)	123.0					102.5			2.7			14.3
Approach LOS	F					F			A			B

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

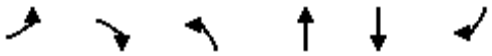
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	146	9
Future Volume (vph)	146	9
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	154	9
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	2	
Heavy Vehicles (%)	4%	25%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	64	74	895	1156
v/c Ratio	0.60	0.45	0.18	0.26
Control Delay	122.5	24.9	0.1	1.5
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	122.5	24.9	0.1	1.7
Queue Length 50th (ft)	93	0	0	58
Queue Length 95th (ft)	152	62	0	67
Internal Link Dist (ft)	220		36	242
Turn Bay Length (ft)		150		
Base Capacity (vph)	168	218	5085	4512
Starvation Cap Reductn	0	0	0	1872
Spillback Cap Reductn	0	0	0	29
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.34	0.18	0.44

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	62	72	0	868	1064	57
Future Volume (vph)	62	72	0	868	1064	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	5046	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	5046	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	64	74	0	895	1097	59
RTOR Reduction (vph)	0	70	0	0	2	0
Lane Group Flow (vph)	64	4	0	895	1154	0
Confl. Peds. (#/hr)	1		3			
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases		4				
Actuated Green, G (s)	13.3	13.3		220.0	196.7	
Effective Green, g (s)	13.3	13.3		220.0	196.7	
Actuated g/C Ratio	0.06	0.06		1.00	0.89	
Clearance Time (s)	5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	
Lane Grp Cap (vph)	107	95		5085	4511	
v/s Ratio Prot	c0.04			0.18	c0.23	
v/s Ratio Perm		0.00				
v/c Ratio	0.60	0.05		0.18	0.26	
Uniform Delay, d1	100.7	97.4		0.0	1.6	
Progression Factor	1.00	1.00		1.00	0.85	
Incremental Delay, d2	8.7	0.2		0.1	0.1	
Delay (s)	109.4	97.6		0.1	1.5	
Level of Service	F	F		A	A	
Approach Delay (s)	103.1			0.1	1.5	
Approach LOS	F			A	A	

Intersection Summary			
HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	94	460	443	31	976	477	1146
v/c Ratio	0.72	0.79	0.59	0.37	0.58	1.25	0.49
Control Delay	123.7	6.2	5.0	147.7	25.8	172.2	43.4
Queue Delay	0.0	53.1	54.3	0.0	1.2	0.0	0.0
Total Delay	123.7	59.3	59.3	147.7	27.0	172.2	43.4
Queue Length 50th (ft)	132	90	94	46	154	~712	439
Queue Length 95th (ft)	#244	m50	m55	93	137	#964	498
Internal Link Dist (ft)	420	47			199		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	130	587	750	198	1692	382	2316
Starvation Cap Reductn	0	170	346	0	457	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	0.72	1.10	1.10	0.16	0.79	1.25	0.49

Intersection Summary

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

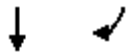
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	27	45	18	60	98	708	12	17	890	47	2	456
Future Volume (vph)	27	45	18	60	98	708	12	17	890	47	2	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frpb, ped/bikes		0.99			1.00	1.00		1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			1.00
Frt		0.97			0.90	0.85		1.00	0.99			1.00
Flt Protected		0.99			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1810			1614	1534		1805	4988			1787
Flt Permitted		0.99			0.99	1.00		0.95	1.00			0.15
Satd. Flow (perm)		1810			1614	1534		1805	4988			288
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	28	47	19	62	102	738	12	18	927	49	2	475
RTOR Reduction (vph)	0	4	0	0	30	222	0	0	0	0	0	0
Lane Group Flow (vph)	0	90	0	0	430	221	0	31	976	0	0	477
Confl. Peds. (#/hr)			4	4								
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	0%	0%	3%	7%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	pm+pt	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases							2				6	6
Actuated Green, G (s)		14.4			73.7	73.7		8.1	73.3			113.2
Effective Green, g (s)		15.4			74.7	74.7		9.1	74.8			114.2
Actuated g/C Ratio		0.07			0.34	0.34		0.04	0.34			0.52
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		126			548	520		74	1695			381
v/s Ratio Prot		c0.05			c0.27	0.14		0.02	0.20			c0.19
v/s Ratio Perm												c0.45
v/c Ratio		0.72			0.79	0.43		0.42	0.58			1.25
Uniform Delay, d1		100.2			65.4	56.1		102.9	59.6			53.1
Progression Factor		1.00			0.09	0.36		1.34	0.41			1.00
Incremental Delay, d2		18.1			0.8	0.1		3.8	1.4			133.3
Delay (s)		118.3			6.5	20.5		142.1	25.7			186.4
Level of Service		F			A	C		F	C			F
Approach Delay (s)		118.3			13.4				29.3			
Approach LOS		F			B				C			

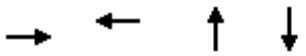
Intersection Summary			
HCM 2000 Control Delay	52.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1024	76
Future Volume (vph)	1024	76
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	5040	
Flt Permitted	1.00	
Satd. Flow (perm)	5040	
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	1067	79
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1146	0
Confl. Peds. (#/hr)		
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	98.3	
Effective Green, g (s)	99.8	
Actuated g/C Ratio	0.45	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	2286	
v/s Ratio Prot	0.23	
v/s Ratio Perm		
v/c Ratio	0.50	
Uniform Delay, d1	42.5	
Progression Factor	1.00	
Incremental Delay, d2	0.8	
Delay (s)	43.3	
Level of Service	D	
Approach Delay (s)	85.4	
Approach LOS	F	

Intersection Summary



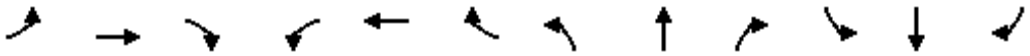
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	583	834	20	158
v/c Ratio	0.27	1.11	0.28	0.89
Control Delay	1.2	136.5	83.8	85.5
Queue Delay	20.7	0.5	0.0	0.4
Total Delay	21.9	137.1	83.8	85.9
Queue Length 50th (ft)	7	~717	19	102
Queue Length 95th (ft)	m7	#862	55	#246
Internal Link Dist (ft)	47	1663	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2130	749	80	187
Starvation Cap Reductn	1548	0	0	0
Spillback Cap Reductn	0	62	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.00	1.21	0.25	0.85

Intersection Summary

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

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	396	11	0	733	51	9	3	7	22	3	124
Future Volume (vph)	141	396	11	0	733	51	9	3	7	22	3	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.96			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.95			0.89	
Flt Protected		0.99			1.00			0.98			0.99	
Satd. Flow (prot)		3459			3537			1702			1642	
Flt Permitted		0.99			1.00			0.98			0.99	
Satd. Flow (perm)		3459			3537			1702			1642	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	150	421	12	0	780	54	10	3	7	23	3	132
RTOR Reduction (vph)	0	1	0	0	2	0	0	7	0	0	84	0
Lane Group Flow (vph)	0	582	0	0	832	0	0	13	0	0	74	0
Confl. Peds. (#/hr)			2	2					12	12		
Heavy Vehicles (%)	2%	3%	0%	0%	1%	2%	0%	0%	0%	13%	0%	0%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		134.5			45.5			7.5			11.7	
Effective Green, g (s)		129.6			46.5			8.5			12.7	
Actuated g/C Ratio		0.59			0.21			0.04			0.06	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		2037			747			65			94	
v/s Ratio Prot		c0.17			c0.24			c0.01			c0.05	
v/s Ratio Perm												
v/c Ratio		0.29			1.11			0.20			0.79	
Uniform Delay, d1		22.3			86.8			102.5			102.3	
Progression Factor		0.06			0.91			1.00			1.00	
Incremental Delay, d2		0.0			68.1			0.6			32.1	
Delay (s)		1.3			147.1			103.0			134.4	
Level of Service		A			F			F			F	
Approach Delay (s)		1.3			147.1			103.0			134.4	
Approach LOS		A			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	92.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Timing Plan: 2027 TF SAT MIT

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	NEL
Lane Group Flow (vph)	22	1758	8	1659	637	6	229	50	14
v/c Ratio	0.15	0.54	0.05	0.77	0.59	0.07	0.87	0.12	0.12
Control Delay	23.0	20.6	6.1	22.6	12.0	69.3	111.8	7.7	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	20.6	6.1	22.6	12.0	69.3	111.8	7.7	63.7
Queue Length 50th (ft)	7	224	1	906	439	6	250	5	13
Queue Length 95th (ft)	m21	#576	m2	#1236	671	22	#400	31	34
Internal Link Dist (ft)		810		1202		100		1665	220
Turn Bay Length (ft)	130		80		600				
Base Capacity (vph)	151	3266	164	2159	1085	94	268	406	264
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	0.15	0.54	0.05	0.77	0.59	0.06	0.85	0.12	0.05

Intersection Summary

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

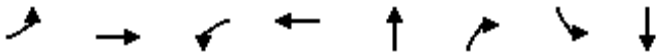
m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	20	1614	4	6	1	1526	586	4	0	2	211	2
Future Volume (vph)	20	1614	4	6	1	1526	586	4	0	2	211	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	6.0			7.0	6.0	6.0		6.0		6.3	6.3
Lane Util. Factor	1.00	0.91			1.00	0.95	1.00		1.00		0.95	0.95
Frt	1.00	1.00			1.00	1.00	0.85		0.95		1.00	0.86
Flt Protected	0.95	1.00			0.95	1.00	1.00		0.97		0.95	1.00
Satd. Flow (prot)	1805	5035			1621	3539	1583		1756		1698	1545
Flt Permitted	0.05	1.00			0.08	1.00	1.00		0.97		0.95	1.00
Satd. Flow (perm)	93	5035			133	3539	1583		1756		1698	1545
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)	22	1754	4	7	1	1659	637	4	0	2	229	2
RTOR Reduction (vph)	0	0	0	0	0	0	143	0	0	0	0	42
Lane Group Flow (vph)	22	1758	0	0	8	1659	494	0	6	0	229	8
Heavy Vehicles (%)	0%	3%	0%	13%	0%	2%	2%	0%	0%	0%	1%	0%
Turn Type	pm+pt	NA		pm+pt	pm+pt	NA	Perm	Split	NA		Split	NA
Protected Phases	5	2		1	1	6		7	7		3	3
Permitted Phases	2			6	6		6					
Actuated Green, G (s)	84.5	80.6			79.5	78.1	78.1		1.5		22.3	22.3
Effective Green, g (s)	86.5	82.6			81.5	80.1	80.1		2.5		23.3	23.3
Actuated g/C Ratio	0.58	0.55			0.54	0.53	0.53		0.02		0.16	0.16
Clearance Time (s)	8.0	8.0			8.0	8.0	8.0		7.0		7.3	7.3
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		5.0	5.0
Lane Grp Cap (vph)	109	2772			96	1889	845		29		263	239
v/s Ratio Prot	c0.01	0.35			0.00	c0.47			c0.00		c0.13	0.01
v/s Ratio Perm	0.11				0.04		0.31					
v/c Ratio	0.20	0.63			0.08	0.88	0.58		0.21		0.87	0.03
Uniform Delay, d1	27.3	23.3			18.6	30.7	23.7		72.8		61.9	53.8
Progression Factor	1.49	1.09			0.36	0.77	0.81		1.00		1.35	1.00
Incremental Delay, d2	0.7	0.9			0.3	5.2	2.4		3.5		26.8	0.1
Delay (s)	41.3	26.3			7.1	28.7	21.7		76.3		110.1	53.9
Level of Service	D	C			A	C	C		E		F	D
Approach Delay (s)		26.5				26.6			76.3			100.0
Approach LOS		C				C			E			F

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.9
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR2	NEL2	NEL	NER
Lane Configurations				
Traffic Volume (vph)	44	3	1	9
Future Volume (vph)	44	3	1	9
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)			5.6	
Lane Util. Factor			1.00	
Frt			0.90	
Flt Protected			0.99	
Satd. Flow (prot)			1693	
Flt Permitted			0.99	
Satd. Flow (perm)			1693	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	3	1	10
RTOR Reduction (vph)	0	0	0	0
Lane Group Flow (vph)	0	0	14	0
Heavy Vehicles (%)	0%	0%	0%	0%
Turn Type		Prot	Prot	
Protected Phases		4	4	
Permitted Phases				
Actuated Green, G (s)			7.3	
Effective Green, g (s)			8.3	
Actuated g/C Ratio			0.06	
Clearance Time (s)			6.6	
Vehicle Extension (s)			3.0	
Lane Grp Cap (vph)			93	
v/s Ratio Prot			c0.01	
v/s Ratio Perm				
v/c Ratio			0.15	
Uniform Delay, d1			67.5	
Progression Factor			1.00	
Incremental Delay, d2			0.8	
Delay (s)			68.2	
Level of Service			E	
Approach Delay (s)			68.2	
Approach LOS			E	

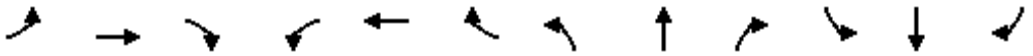
Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	176	1582	151	1444	143	105	46	269
v/c Ratio	0.55	0.72	0.59	0.69	0.78	0.28	0.25	0.79
Control Delay	39.6	14.2	50.6	11.6	84.7	9.7	53.1	65.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	14.2	50.6	11.6	84.7	9.7	53.1	65.8
Queue Length 50th (ft)	75	175	83	80	135	0	39	221
Queue Length 95th (ft)	m134	907	m138	271	204	50	75	305
Internal Link Dist (ft)		1037		810	420			173
Turn Bay Length (ft)	450		150				120	
Base Capacity (vph)	460	2188	449	2104	292	535	294	523
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.72	0.34	0.69	0.49	0.20	0.16	0.51

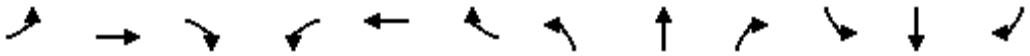
Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	162	1422	33	139	1318	10	27	105	97	42	118	130
Future Volume (vph)	162	1422	33	139	1318	10	27	105	97	42	118	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2	5.2		5.2	5.2			5.9	5.9	5.9	5.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00	0.95	1.00	
Satd. Flow (prot)	1805	3527		1805	3536			1881	1568	1719	1694	
Flt Permitted	0.10	1.00		0.09	1.00			0.52	1.00	0.55	1.00	
Satd. Flow (perm)	188	3527		167	3536			996	1568	1001	1694	
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)	176	1546	36	151	1433	11	29	114	105	46	128	141
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	86	0	30	0
Lane Group Flow (vph)	176	1581	0	151	1444	0	0	143	19	46	239	0
Heavy Vehicles (%)	0%	2%	2%	0%	2%	0%	0%	0%	3%	5%	7%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Actuated Green, G (s)	107.8	92.0		100.4	88.3			26.6	26.6	26.6	26.6	
Effective Green, g (s)	109.8	93.0		102.4	89.3			27.6	27.6	27.6	27.6	
Actuated g/C Ratio	0.73	0.62		0.68	0.60			0.18	0.18	0.18	0.18	
Clearance Time (s)	6.2	6.2		6.2	6.2			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	
Lane Grp Cap (vph)	318	2186		257	2105			183	288	184	311	
v/s Ratio Prot	c0.06	c0.45		0.05	0.41						0.14	
v/s Ratio Perm	0.34			0.35				c0.14	0.01	0.05		
v/c Ratio	0.55	0.72		0.59	0.69			0.78	0.07	0.25	0.77	
Uniform Delay, d1	18.3	19.6		19.0	20.8			58.3	50.6	52.3	58.2	
Progression Factor	2.77	0.56		2.71	0.45			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.6	1.6		2.2	1.2			19.2	0.1	0.7	10.8	
Delay (s)	52.4	12.7		53.6	10.5			77.5	50.7	53.1	69.0	
Level of Service	D	B		D	B			E	D	D	E	
Approach Delay (s)		16.7			14.6			66.1			66.7	
Approach LOS		B			B			E			E	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	87.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

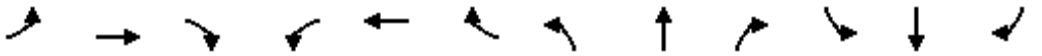


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	318	1205	52	154	1184	95	165	568	165	210	657	419
v/c Ratio	0.77	0.80	0.06	0.88	0.84	0.12	0.74	0.69	0.29	0.59	0.86	0.70
Control Delay	89.1	39.3	1.0	88.6	33.2	3.1	82.4	57.4	6.5	94.3	74.1	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.1
Total Delay	89.1	39.3	1.0	88.6	33.2	3.1	82.4	57.4	6.5	94.3	75.8	23.9
Queue Length 50th (ft)	170	378	1	138	245	0	156	261	15	110	213	40
Queue Length 95th (ft)	200	602	5	m#273	539	m17	239	334	52	155	365	418
Internal Link Dist (ft)		798			1037			554			265	
Turn Bay Length (ft)	600		500	450		350	200		225	300		200
Base Capacity (vph)	423	1498	891	176	1413	821	248	865	576	411	807	603
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	53	7
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.80	0.06	0.88	0.84	0.12	0.67	0.66	0.29	0.51	0.87	0.70

Intersection Summary

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

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	305	1157	50	148	1137	91	158	545	158	202	631	402
Future Volume (vph)	305	1157	50	148	1137	91	158	545	158	202	631	402
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.6	4.2	5.1	6.3	4.2	6.0	5.1	4.8	6.3	6.0	4.8	6.6
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	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	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	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	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1536	1805	3539	1536	1787	3539	1519	3433	3539	1570
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1536	1805	3539	1536	1787	3539	1519	3433	3539	1570
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	318	1205	52	154	1184	95	165	568	165	210	657	419
RTOR Reduction (vph)	0	0	23	0	0	41	0	0	89	0	0	87
Lane Group Flow (vph)	318	1205	29	154	1184	54	165	568	76	210	657	332
Confl. Peds. (#/hr)	1		1	1		1	1		4	4		1
Heavy Vehicles (%)	2%	2%	4%	0%	2%	4%	1%	2%	5%	2%	2%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	1
Permitted Phases			6			2			4			8
Actuated Green, G (s)	16.5	62.0	79.4	13.2	58.4	72.6	17.4	33.3	46.5	14.2	31.0	47.5
Effective Green, g (s)	18.0	63.5	82.4	14.7	59.9	75.6	18.9	34.8	49.5	15.7	32.5	50.5
Actuated g/C Ratio	0.12	0.42	0.55	0.10	0.40	0.50	0.13	0.23	0.33	0.10	0.22	0.34
Clearance Time (s)	8.1	5.7	6.6	7.8	5.7	7.5	6.6	6.3	7.8	7.5	6.3	8.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	411	1498	843	176	1413	774	225	821	501	359	766	528
v/s Ratio Prot	0.09	c0.34	0.00	0.09	c0.33	0.01	c0.09	0.16	0.01	0.06	c0.19	0.08
v/s Ratio Perm			0.01			0.03			0.04			0.14
v/c Ratio	0.77	0.80	0.03	0.88	0.84	0.07	0.73	0.69	0.15	0.58	0.86	0.63
Uniform Delay, d1	64.0	37.8	15.5	66.7	40.7	19.1	63.1	52.7	35.4	64.0	56.5	41.9
Progression Factor	1.21	0.90	1.66	0.83	0.68	0.61	1.00	1.00	1.00	1.37	1.11	0.66
Incremental Delay, d2	7.7	4.1	0.0	27.9	4.6	0.0	11.7	2.5	0.1	2.4	9.1	2.3
Delay (s)	85.1	38.2	25.9	83.1	32.1	11.7	74.8	55.2	35.6	90.2	71.8	29.8
Level of Service	F	D	C	F	C	B	E	E	D	F	E	C
Approach Delay (s)		47.3			36.2			55.2			61.1	
Approach LOS		D			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.6
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	48	1538	28	1745	50	53
v/c Ratio	0.20	0.53	0.09	0.61	0.34	0.34
Control Delay	4.0	4.9	2.7	7.5	12.8	14.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	4.0	5.0	2.7	7.6	12.8	14.5
Queue Length 50th (ft)	3	133	2	180	0	0
Queue Length 95th (ft)	m18	252	m6	316	26	30
Internal Link Dist (ft)		171		798	125	94
Turn Bay Length (ft)	200		80			
Base Capacity (vph)	241	2928	298	2842	274	290
Starvation Cap Reductn	0	295	0	114	0	0
Spillback Cap Reductn	0	0	0	56	1	1
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.58	0.09	0.64	0.18	0.18

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1489	3	27	1602	90	35	0	14	10	0	42
Future Volume (veh/h)	47	1489	3	27	1602	90	35	0	14	10	0	42
Number	5	2	12	1	6	16	7	4	14	3	8	18
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
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	48	1535	3	28	1652	93	36	0	14	10	0	43
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	2900	6	324	2698	151	90	1	19	38	4	60
Arrive On Green	0.04	0.80	0.80	0.06	1.00	1.00	0.04	0.00	0.04	0.04	0.00	0.04
Sat Flow, veh/h	1774	3624	7	1774	3407	191	1106	32	442	224	94	1366
Grp Volume(v), veh/h	48	749	789	28	853	892	50	0	0	53	0	0
Grp Sat Flow(s),veh/h/ln	1774	1770	1861	1774	1770	1828	1580	0	0	1683	0	0
Q Serve(g_s), s	0.7	22.0	22.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.7	22.0	22.0	0.4	0.0	0.0	4.5	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.10	0.72		0.28	0.19		0.81
Lane Grp Cap(c), veh/h	337	1416	1489	324	1401	1448	110	0	0	102	0	0
V/C Ratio(X)	0.14	0.53	0.53	0.09	0.61	0.62	0.45	0.00	0.00	0.52	0.00	0.00
Avail Cap(c_a), veh/h	349	1416	1489	350	1401	1448	261	0	0	266	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.51	0.51	0.51	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.2	5.2	5.2	3.8	0.0	0.0	70.7	0.0	0.0	70.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	1.4	1.4	0.1	1.0	1.0	2.9	0.0	0.0	4.0	0.0	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	0.4	11.2	11.7	0.2	0.4	0.4	2.1	0.0	0.0	2.3	0.0	0.0
LnGrp Delay(d),s/veh	2.4	6.6	6.6	3.9	1.0	1.0	73.6	0.0	0.0	74.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E			E		
Approach Vol, veh/h		1586			1773			50			53	
Approach Delay, s/veh		6.5			1.1			73.6			74.8	
Approach LOS		A			A			E			E	

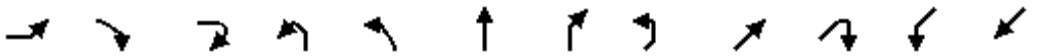
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	127.1		13.1	11.1	125.9		13.1
Change Period (Y+Rc), s	5.0	7.1		6.5	5.0	7.1		6.5
Max Green Setting (Gmax), s	7.0	101.9		22.5	7.0	101.9		22.5
Max Q Clear Time (g_c+I1), s	2.4	24.0		6.5	2.7	2.0		6.5
Green Ext Time (p_c), s	0.0	30.8		0.1	0.0	42.7		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		5.7
HCM 2010 LOS		A

Lane Group	EBL	NBT	NEL2	NET	SWL	SWT
Lane Group Flow (vph)	101	46	8	1600	18	1734
v/c Ratio	0.57	0.23	0.04	0.63	0.08	0.66
Control Delay	76.7	2.5	5.2	6.1	2.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	76.7	2.5	5.2	6.1	2.6	4.5
Queue Length 50th (ft)	96	0	1	90	1	213
Queue Length 95th (ft)	158	0	m4	327	m2	310
Internal Link Dist (ft)	53	220		755		169
Turn Bay Length (ft)			120		150	
Base Capacity (vph)	215	310	282	2528	299	2644
Starvation Cap Reductn	0	0	0	36	0	104
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.15	0.03	0.64	0.06	0.68

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBR	EBR2	NBL2	NBL	NBT	NBR	NEL2	NET	NER	SWL	SWT
Lane Configurations												
Traffic Volume (vph)	90	1	6	14	9	0	21	8	1521	15	17	1600
Future Volume (vph)	90	1	6	14	9	0	21	8	1521	15	17	1600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0					5.0		5.6	5.1		5.6	5.1
Lane Util. Factor	1.00					1.00		1.00	0.95		1.00	0.95
Frpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00					1.00		1.00	1.00		1.00	1.00
Frt	0.99					0.94		1.00	1.00		1.00	0.99
Flt Protected	0.96					0.97		0.95	1.00		0.95	1.00
Satd. Flow (prot)	1794					1732		1805	3534		1805	3518
Flt Permitted	0.96					0.97		0.09	1.00		0.10	1.00
Satd. Flow (perm)	1794					1732		164	3534		189	3518
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	1	6	15	9	0	22	8	1584	16	18	1667
RTOR Reduction (vph)	0	0	0	0	0	44	0	0	0	0	0	0
Lane Group Flow (vph)	101	0	0	0	0	2	0	8	1600	0	18	1734
Confl. Peds. (#/hr)			7	7	3			3		4	4	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	2%
Turn Type	Prot			Perm	Split	NA		pm+pt	NA		pm+pt	NA
Protected Phases	3				7	7		1	6		5	2
Permitted Phases				7				6			2	
Actuated Green, G (s)	13.3					4.5		102.5	101.3		107.5	103.8
Effective Green, g (s)	14.8					6.0		105.5	103.3		110.5	105.8
Actuated g/C Ratio	0.10					0.04		0.70	0.69		0.74	0.71
Clearance Time (s)	6.5					6.5		7.1	7.1		7.1	7.1
Vehicle Extension (s)	3.0					3.0		3.0	4.0		3.0	4.0
Lane Grp Cap (vph)	177					69		144	2433		195	2481
v/s Ratio Prot	c0.06					c0.00		0.00	0.45		c0.00	c0.49
v/s Ratio Perm								0.04			0.06	
v/c Ratio	0.57					0.03		0.06	0.66		0.09	0.70
Uniform Delay, d1	64.6					69.2		11.6	13.3		10.5	12.8
Progression Factor	1.00					1.00		0.89	0.38		0.38	0.31
Incremental Delay, d2	4.4					0.2		0.1	1.2		0.2	1.4
Delay (s)	69.0					69.4		10.5	6.2		4.2	5.3
Level of Service	E					E		B	A		A	A
Approach Delay (s)	69.0					69.4			6.3			5.3
Approach LOS	E					E			A			A

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

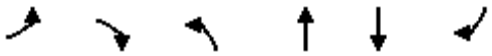
c Critical Lane Group

Movement	SWR	SWR2
Lane Configurations		
Traffic Volume (vph)	59	6
Future Volume (vph)	59	6
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)		
Lane Util. Factor		
Frpb, ped/bikes		
Flpb, ped/bikes		
Frt		
Flt Protected		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	61	6
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)		3
Heavy Vehicles (%)	0%	0%
Turn Type		
Protected Phases		
Permitted Phases		
Actuated Green, G (s)		
Effective Green, g (s)		
Actuated g/C Ratio		
Clearance Time (s)		
Vehicle Extension (s)		
Lane Grp Cap (vph)		
v/s Ratio Prot		
v/s Ratio Perm		
v/c Ratio		
Uniform Delay, d1		
Progression Factor		
Incremental Delay, d2		
Delay (s)		
Level of Service		
Approach Delay (s)		
Approach LOS		

Intersection Summary

Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	82	79	1018	1331
v/c Ratio	0.57	0.39	0.20	0.31
Control Delay	80.7	17.9	0.1	1.0
Queue Delay	0.0	0.0	0.0	0.1
Total Delay	80.7	17.9	0.1	1.1
Queue Length 50th (ft)	79	0	0	8
Queue Length 95th (ft)	134	52	0	27
Internal Link Dist (ft)	220		36	223
Turn Bay Length (ft)		150		
Base Capacity (vph)	236	279	5085	4292
Starvation Cap Reductn	0	0	0	1265
Spillback Cap Reductn	0	0	0	28
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.35	0.28	0.20	0.44

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	78	75	0	967	1195	69
Future Volume (vph)	78	75	0	967	1195	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		4.0	5.0	
Lane Util. Factor	1.00	1.00		0.91	0.91	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	
Frt	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	1770	1583		5085	5037	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	1770	1583		5085	5037	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	79	0	1018	1258	73
RTOR Reduction (vph)	0	73	0	0	3	0
Lane Group Flow (vph)	82	6	0	1018	1328	0
Confl. Peds. (#/hr)	1		4			4
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4!			Free!	2	
Permitted Phases		4				
Actuated Green, G (s)	12.3	12.3		150.0	127.7	
Effective Green, g (s)	12.3	12.3		150.0	127.7	
Actuated g/C Ratio	0.08	0.08		1.00	0.85	
Clearance Time (s)	5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	
Lane Grp Cap (vph)	145	129		5085	4288	
v/s Ratio Prot	c0.05			0.20	c0.26	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.05		0.20	0.31	
Uniform Delay, d1	66.3	63.5		0.0	2.3	
Progression Factor	1.00	1.00		1.00	0.37	
Incremental Delay, d2	5.0	0.2		0.1	0.1	
Delay (s)	71.3	63.6		0.1	1.0	
Level of Service	E	E		A	A	
Approach Delay (s)	67.5			0.1	1.0	
Approach LOS	E			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	183	329	25	1033	409	1274
v/c Ratio	0.29	0.32	0.44	0.25	0.81	1.33	0.68
Control Delay	56.4	1.3	4.5	86.0	55.2	204.1	44.1
Queue Delay	0.0	1.0	2.0	0.0	0.0	0.3	0.0
Total Delay	56.4	2.4	6.4	86.0	55.2	204.3	44.1
Queue Length 50th (ft)	51	0	70	25	212	~491	412
Queue Length 95th (ft)	98	0	117	61	294	#815	#560
Internal Link Dist (ft)	420	47			218		920
Turn Bay Length (ft)				135		470	
Base Capacity (vph)	220	615	773	165	1272	308	1887
Starvation Cap Reductn	0	244	296	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	7	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.49	0.69	0.15	0.81	1.36	0.68

Intersection Summary

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

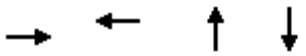
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	25	23	14	44	39	414	12	13	966	36	5	392
Future Volume (vph)	25	23	14	44	39	414	12	13	966	36	5	392
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.9			3.5	3.5		5.8	5.3			5.8
Lane Util. Factor		1.00			0.95	0.95		1.00	0.91			1.00
Frt		0.97			0.92	0.85		1.00	0.99			1.00
Flt Protected		0.98			0.99	1.00		0.95	1.00			0.95
Satd. Flow (prot)		1807			1544	1504		1750	5060			1787
Flt Permitted		0.98			0.99	1.00		0.95	1.00			0.09
Satd. Flow (perm)		1807			1544	1504		1750	5060			175
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)	26	24	14	45	40	427	12	13	996	37	5	404
RTOR Reduction (vph)	0	6	0	0	32	215	0	0	0	0	0	0
Lane Group Flow (vph)	0	58	0	0	151	114	0	25	1033	0	0	409
Heavy Vehicles (%)	0%	0%	0%	3%	20%	2%	0%	6%	2%	1%	0%	1%
Turn Type	Split	NA		Split	NA	Prot	Prot	Prot	NA		pm+pt	pm+pt
Protected Phases	3	3		4 7 8	4 7 8	4 7 8	5	5	2		1	1
Permitted Phases											6	6
Actuated Green, G (s)		16.5			50.9	50.9		5.3	36.3			63.9
Effective Green, g (s)		17.5			51.9	51.9		6.3	37.8			64.9
Actuated g/C Ratio		0.12			0.35	0.35		0.04	0.25			0.43
Clearance Time (s)		6.9						6.8	6.8			6.8
Vehicle Extension (s)		3.5						3.0	3.0			3.0
Lane Grp Cap (vph)		210			534	520		73	1275			309
v/s Ratio Prot		c0.03			c0.10	0.08		0.01	0.20			c0.19
v/s Ratio Perm												c0.38
v/c Ratio		0.28			0.28	0.22		0.34	0.81			1.32
Uniform Delay, d1		60.5			35.6	34.7		69.8	52.7			47.4
Progression Factor		1.00			0.00	0.92		1.20	0.93			1.00
Incremental Delay, d2		0.8			0.6	0.5		2.8	5.6			166.5
Delay (s)		61.3			0.7	32.4		86.8	54.7			213.9
Level of Service		E			A	C		F	D			F
Approach Delay (s)		61.3			21.1				55.5			
Approach LOS		E			C				E			

Intersection Summary			
HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	29.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1204	32
Future Volume (vph)	1204	32
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.3	
Lane Util. Factor	0.91	
Frt	1.00	
Flt Protected	1.00	
Satd. Flow (prot)	5068	
Flt Permitted	1.00	
Satd. Flow (perm)	5068	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	1241	33
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	1274	0
Heavy Vehicles (%)	2%	0%
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	51.8	
Effective Green, g (s)	53.3	
Actuated g/C Ratio	0.36	
Clearance Time (s)	6.8	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	1800	
v/s Ratio Prot	0.25	
v/s Ratio Perm		
v/c Ratio	0.71	
Uniform Delay, d1	41.6	
Progression Factor	1.00	
Incremental Delay, d2	2.4	
Delay (s)	44.0	
Level of Service	D	
Approach Delay (s)	85.3	
Approach LOS	F	

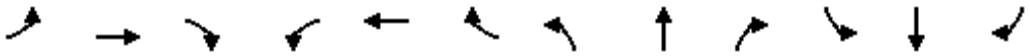
Intersection Summary



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	496	453	14	119
v/c Ratio	0.24	0.61	0.17	0.47
Control Delay	2.2	67.0	59.0	6.1
Queue Delay	55.7	0.3	0.0	0.0
Total Delay	57.9	67.3	59.0	6.2
Queue Length 50th (ft)	10	198	10	0
Queue Length 95th (ft)	m10	292	35	0
Internal Link Dist (ft)	47	1665	120	220
Turn Bay Length (ft)				
Base Capacity (vph)	2059	827	137	299
Starvation Cap Reductn	1616	0	0	0
Spillback Cap Reductn	0	72	0	3
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.12	0.60	0.10	0.40

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	359	7	0	395	22	8	1	4	20	0	89
Future Volume (vph)	90	359	7	0	395	22	8	1	4	20	0	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.8			3.5			3.5			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			0.89	
Flt Protected		0.99			1.00			0.97			0.99	
Satd. Flow (prot)		3538			3482			1738			1649	
Flt Permitted		0.99			1.00			0.97			0.99	
Satd. Flow (perm)		3538			3482			1738			1649	
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)	98	390	8	0	429	24	9	1	4	22	0	97
RTOR Reduction (vph)	0	1	0	0	3	0	0	4	0	0	114	0
Lane Group Flow (vph)	0	495	0	0	450	0	0	10	0	0	5	0
Confl. Peds. (#/hr)									8	8		
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	0%	2%
Turn Type	Split	NA			NA		Split	NA		Split	NA	
Protected Phases	1 2 3	1 2 3			4		7	7		8	8	
Permitted Phases				4								
Actuated Green, G (s)		87.3			30.9			5.8			5.2	
Effective Green, g (s)		82.4			31.9			6.8			6.2	
Actuated g/C Ratio		0.55			0.21			0.05			0.04	
Clearance Time (s)					4.5			4.5			5.0	
Vehicle Extension (s)					5.5			2.0			2.0	
Lane Grp Cap (vph)		1943			740			78			68	
v/s Ratio Prot		c0.14			c0.13			c0.01			c0.00	
v/s Ratio Perm												
v/c Ratio		0.25			0.61			0.13			0.07	
Uniform Delay, d1		17.7			53.4			68.8			69.1	
Progression Factor		0.14			1.22			1.00			1.00	
Incremental Delay, d2		0.0			1.9			0.3			0.2	
Delay (s)		2.5			67.0			69.0			69.3	
Level of Service		A			E			E			E	
Approach Delay (s)		2.5			67.0			69.0			69.3	
Approach LOS		A			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	37.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	30.5
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	LTR>	<LR
Maximum Queue (ft)	86	258	265	210	7	385	388	82	25	214	228	36
Average Queue (ft)	8	81	84	78	0	144	145	7	1	130	150	4
95th Queue (ft)	41	198	199	178	5	314	316	40	12	196	210	20
Link Distance (ft)		764	764			1199	1199	1199	114	1669	1669	213
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		4	0	0		16						
Queuing Penalty (veh)		2	3	2		0						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	61	319	301	155	424	417	418	222	94	261		
Average Queue (ft)	18	135	144	65	119	100	195	104	14	124		
95th Queue (ft)	47	275	284	150	429	387	349	186	59	233		
Link Distance (ft)		984	984		764	764	447	447		235		
Upstream Blk Time (%)					1	1	0			2		
Queuing Penalty (veh)					3	2	0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				1	16				0	21		
Queuing Penalty (veh)				2	11				0	1		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	199	220	540	558	82	475	942	951	89	225	489	492
Average Queue (ft)	110	130	322	345	4	401	512	318	20	85	301	301
95th Queue (ft)	183	195	490	505	59	588	1173	929	62	220	450	448
Link Distance (ft)			774	774			984	984			515	515
Upstream Blk Time (%)							15	4			0	0
Queuing Penalty (veh)							47	12			0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			0	1		54	6			0	33	23
Queuing Penalty (veh)			0	0		119	8			0	16	26

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	250	180	201	306	296	225
Average Queue (ft)	116	94	100	250	254	140
95th Queue (ft)	291	169	182	332	333	298
Link Distance (ft)			229	229	229	
Upstream Blk Time (%)		0	1	36	34	1
Queuing Penalty (veh)		0	2	122	116	0
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0	0	1		44	0
Queuing Penalty (veh)	0	0	0		109	1

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	51	145	144	43	93	120	98	79
Average Queue (ft)	13	49	48	9	23	33	28	24
95th Queue (ft)	37	128	128	33	67	92	71	59
Link Distance (ft)		160	160		774	774	254	128
Upstream Blk Time (%)		0	0					
Queuing Penalty (veh)		1	1					
Storage Bay Dist (ft)	200			80				
Storage Blk Time (%)		0		0	0			
Queuing Penalty (veh)		0		0	0			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	T	TR	L	T	TR>
Maximum Queue (ft)	90	140	169	179	68	134	144
Average Queue (ft)	53	48	51	56	11	46	62
95th Queue (ft)	74	110	125	136	40	119	141
Link Distance (ft)	43	226	747	747		126	126
Upstream Blk Time (%)	88	0			0	1	2
Queuing Penalty (veh)	176	0			0	2	8
Storage Bay Dist (ft)					150		
Storage Blk Time (%)			1		0	1	
Queuing Penalty (veh)			0		0	0	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	EB	SB	SB	SB	B15	B15	B15
Directions Served	L	R	T	T	TR	T	T	T
Maximum Queue (ft)	152	113	71	169	209	5	10	12
Average Queue (ft)	57	37	12	42	56	0	0	0
95th Queue (ft)	116	83	45	113	145	5	7	7
Link Distance (ft)	241		244	244	244	225	225	225
Upstream Blk Time (%)					0			
Queuing Penalty (veh)					0			
Storage Bay Dist (ft)		150						
Storage Blk Time (%)	1	0						
Queuing Penalty (veh)	0	0						

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B15	B15	B15	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	428	56	58	115	299	303	308	106	132	116	494	853
Average Queue (ft)	327	17	42	16	208	224	227	11	23	23	398	401
95th Queue (ft)	522	47	62	66	332	362	362	58	85	84	572	885
Link Distance (ft)	433	37	37		225	225	225	244	244	244		958
Upstream Blk Time (%)	27	6	53		6	9	10					4
Queuing Penalty (veh)	0	18	156		21	30	34					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					23						23	0
Queuing Penalty (veh)					3						78	1

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	819	605
Average Queue (ft)	373	298
95th Queue (ft)	768	522
Link Distance (ft)	958	958
Upstream Blk Time (%)	1	0
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	53	52	501	466	91	320
Average Queue (ft)	26	9	293	282	25	287
95th Queue (ft)	46	34	475	459	68	320
Link Distance (ft)	37	37	1669	1669	158	259
Upstream Blk Time (%)	4	2				98
Queuing Penalty (veh)	9	5				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1149

Intersection: 1: Lobster Ln & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	LTR>	<LR
Maximum Queue (ft)	39	192	207	183	49	1268	1258	1262	52	310	334	63
Average Queue (ft)	6	64	63	52	5	1041	1059	799	12	230	249	14
95th Queue (ft)	25	155	152	131	29	1571	1588	1702	39	304	321	44
Link Distance (ft)		764	764			1192	1192	1192	111	1666	1666	213
Upstream Blk Time (%)						10	16	4				
Queuing Penalty (veh)						78	131	32				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		3	0	0		27						
Queuing Penalty (veh)		0	1	0		1						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB		
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR		
Maximum Queue (ft)	250	318	348	174	450	467	382	143	144	283		
Average Queue (ft)	100	145	154	81	175	192	215	61	32	221		
95th Queue (ft)	201	281	299	166	360	374	370	110	105	331		
Link Distance (ft)		982	982		764	764	447	447		268		
Upstream Blk Time (%)							1			12		
Queuing Penalty (veh)							0			0		
Storage Bay Dist (ft)	450			150					120			
Storage Blk Time (%)				1	21				0	45		
Queuing Penalty (veh)				11	35				0	10		

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	192	210	349	343	45	475	756	775	375	225	545	537
Average Queue (ft)	96	117	199	205	6	204	376	422	115	210	393	324
95th Queue (ft)	170	184	328	334	28	445	752	790	380	255	591	532
Link Distance (ft)			774	774			982	982			515	515
Upstream Blk Time (%)											10	1
Queuing Penalty (veh)											0	0
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)						0	8	15	0	56	15	22
Queuing Penalty (veh)						0	12	17	0	147	25	24

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	B127	SB	SB	SB	SB	SB
Directions Served	R	T	L	L	T	T	R
Maximum Queue (ft)	250	280	142	160	289	294	225
Average Queue (ft)	100	68	79	88	205	225	172
95th Queue (ft)	285	370	136	148	299	320	276
Link Distance (ft)		697		229	229	229	
Upstream Blk Time (%)		3			15	21	3
Queuing Penalty (veh)		0			56	77	0
Storage Bay Dist (ft)	225		300				200
Storage Blk Time (%)	0					26	10
Queuing Penalty (veh)	0					91	28

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	115	177	168	58	345	335	132	112
Average Queue (ft)	39	48	43	12	90	101	59	45
95th Queue (ft)	89	141	131	43	246	262	127	97
Link Distance (ft)		204	204		774	774	125	133
Upstream Blk Time (%)		0	0				6	2
Queuing Penalty (veh)		1	1				0	0
Storage Bay Dist (ft)	200			100				
Storage Blk Time (%)		0			8			
Queuing Penalty (veh)		0			2			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	65	209	28	138	162	105	195	192
Average Queue (ft)	48	94	5	53	52	12	140	140
95th Queue (ft)	58	184	21	121	124	51	241	238
Link Distance (ft)	46	226		747	747		160	160
Upstream Blk Time (%)	77	1				0	17	20
Queuing Penalty (veh)	114	0				0	180	205
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				1		0	18	
Queuing Penalty (veh)				0		0	5	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	EB	SB	SB	SB
Directions Served	L	R	T	T	TR
Maximum Queue (ft)	163	125	62	187	244
Average Queue (ft)	72	43	9	50	76
95th Queue (ft)	139	86	38	149	204
Link Distance (ft)	241		260	260	260
Upstream Blk Time (%)	0				0
Queuing Penalty (veh)	0				0
Storage Bay Dist (ft)		150			
Storage Blk Time (%)	1	0			
Queuing Penalty (veh)	1	0			

Intersection: 7: Chain Bridge Road & CBR West Service/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	UL	T	T	TR
Maximum Queue (ft)	260	60	54	100	180	199	196	495	999	986	973
Average Queue (ft)	142	18	42	33	94	94	104	491	935	777	436
95th Queue (ft)	290	48	61	79	163	169	184	521	1178	1290	966
Link Distance (ft)	434	38	38		209	209	209		958	958	958
Upstream Blk Time (%)	0	5	53		0	0	0		68	7	0
Queuing Penalty (veh)	0	21	232		0	0	1		0	0	0
Storage Bay Dist (ft)				135				470			
Storage Blk Time (%)					4			81	0		
Queuing Penalty (veh)					1			277	0		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	59	50	1197	1192	72	292
Average Queue (ft)	24	12	967	971	19	245
95th Queue (ft)	48	37	1250	1264	55	338
Link Distance (ft)	38	38	1666	1666	158	259
Upstream Blk Time (%)	6	2				71
Queuing Penalty (veh)	16	6				0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1841

Intersection: 1: Red Lobster & Autobody/Eaton Place & Fairfax Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	SB	SB	NE
Directions Served	L	T	T	TR	<L	T	T	R	LTR	L	LTR>	<LR
Maximum Queue (ft)	111	397	403	225	58	1007	1021	769	46	171	192	44
Average Queue (ft)	11	228	218	174	5	486	496	241	7	100	122	9
95th Queue (ft)	52	358	352	258	35	1174	1181	961	28	157	179	31
Link Distance (ft)		764	764			1190	1190	1190	109	1669	1669	213
Upstream Blk Time (%)						3	4	2				
Queuing Penalty (veh)						23	29	12				
Storage Bay Dist (ft)	130			200	80							
Storage Blk Time (%)		18	7	4		32						
Queuing Penalty (veh)		3	39	20		2						

Intersection: 2: University Drive/University Plaza & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	L	TR
Maximum Queue (ft)	206	253	247	175	771	783	222	144	145	232
Average Queue (ft)	99	121	129	126	421	433	106	54	46	176
95th Queue (ft)	183	207	214	213	893	899	190	110	121	256
Link Distance (ft)		981	981		764	764	447	447		205
Upstream Blk Time (%)					5	7				14
Queuing Penalty (veh)					43	54				0
Storage Bay Dist (ft)	450			150					120	
Storage Blk Time (%)				2	41				0	33
Queuing Penalty (veh)				17	58				1	14

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	208	259	525	529	207	475	1006	1005	375	225	356	345
Average Queue (ft)	120	139	356	359	21	316	758	770	228	139	190	180
95th Queue (ft)	191	225	501	503	125	630	1198	1202	516	234	296	283
Link Distance (ft)			769	769			981	981			515	515
Upstream Blk Time (%)							3	3				
Queuing Penalty (veh)							19	24				
Storage Bay Dist (ft)	600	600			500	450			350	200		
Storage Blk Time (%)			0	1	0	0	44	58	0	4	6	3
Queuing Penalty (veh)			0	0	0	0	65	53	1	11	10	4

Intersection: 3: Chain Bridge Road & Fairfax Blvd

Movement	NB	SB	SB	SB	SB	SB
Directions Served	R	L	L	T	T	R
Maximum Queue (ft)	248	128	136	242	262	225
Average Queue (ft)	49	64	72	162	173	137
95th Queue (ft)	148	115	125	265	280	262
Link Distance (ft)			229	229	229	
Upstream Blk Time (%)				8	11	1
Queuing Penalty (veh)				31	45	0
Storage Bay Dist (ft)	225	300				200
Storage Blk Time (%)	0				16	4
Queuing Penalty (veh)	0				63	12

Intersection: 4: Farr Ave & Fairfax Blvd

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	80	181	185	93	289	316	98	102
Average Queue (ft)	22	93	95	18	148	184	33	35
95th Queue (ft)	56	180	180	56	260	295	78	79
Link Distance (ft)		174	174		769	769	134	122
Upstream Blk Time (%)		1	1				0	0
Queuing Penalty (veh)		9	9				0	0
Storage Bay Dist (ft)	200			80				
Storage Blk Time (%)		1		0	13			
Queuing Penalty (veh)		1		0	4			

Intersection: 5: Fairfax Blvd & McLean Avenue & Warwick Road

Movement	EB	NB	NE	NE	NE	SW	SW	SW
Directions Served	<LR>	<LTR	<	T	TR	L	T	TR>
Maximum Queue (ft)	67	81	36	208	204	64	208	223
Average Queue (ft)	48	26	6	68	66	10	104	125
95th Queue (ft)	67	64	25	151	141	36	212	223
Link Distance (ft)	51	226		747	747		186	186
Upstream Blk Time (%)	47					0	2	3
Queuing Penalty (veh)	46					0	15	21
Storage Bay Dist (ft)			120			150		
Storage Blk Time (%)				2			3	
Queuing Penalty (veh)				0			1	

Intersection: 6: Chain Bridge Road & Orchard Street

Movement	EB	EB	NB	SB	SB	SB	B16	B16	B16
Directions Served	L	R	T	T	T	TR	T	T	T
Maximum Queue (ft)	178	144	2	56	253	310	36	82	171
Average Queue (ft)	73	50	0	5	37	56	2	7	12
95th Queue (ft)	138	102	2	34	160	208	36	67	99
Link Distance (ft)	241		55	240	240	240	227	227	227
Upstream Blk Time (%)	0			0	1	2	0	0	1
Queuing Penalty (veh)	0			0	4	8	0	1	2
Storage Bay Dist (ft)		150							
Storage Blk Time (%)	0	1							
Queuing Penalty (veh)	0	0							

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	EB	WB	WB	NB	NB	NB	NB	B16	B16	B16	SB	SB
Directions Served	LTR	LTR	R	UL	T	T	TR	T	T	T	UL	T
Maximum Queue (ft)	128	56	58	129	292	292	299	22	17	28	495	1001
Average Queue (ft)	53	16	34	27	204	210	222	2	1	2	464	753
95th Queue (ft)	106	49	63	91	281	284	299	16	8	17	583	1259
Link Distance (ft)	434	37	37		227	227	227	240	240	240		958
Upstream Blk Time (%)		4	18		12	15	22					43
Queuing Penalty (veh)		10	44		43	53	75					0
Storage Bay Dist (ft)				135							470	
Storage Blk Time (%)					50						64	0
Queuing Penalty (veh)					13						257	1

Intersection: 7: Chain Bridge Road & Norman Avenue/Eaton Place

Movement	SB	SB
Directions Served	T	TR
Maximum Queue (ft)	977	972
Average Queue (ft)	718	554
95th Queue (ft)	1213	1007
Link Distance (ft)	958	958
Upstream Blk Time (%)	11	1
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 71: Marriott/NE Service Rd & Eaton Place

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	52	34	254	246	58	183
Average Queue (ft)	29	9	157	164	15	74
95th Queue (ft)	46	32	236	237	45	147
Link Distance (ft)	37	37	1669	1669	158	259
Upstream Blk Time (%)	3	1				
Queuing Penalty (veh)	8	2				
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Zone Summary

Zone wide Queuing Penalty: 1281

Appendix K

Crash Data

Crash Data for the Intersection of Fairfax Blvd and Eaton Pl (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
140565132	2/21/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	yes	no	VEHICLE 2 WAS STOPPED IN THE #2 TRAFFIC LANE OF WESTBOUND FAIRFAX BLVD NEAR THE INTERSECTION OF EATON PLACE. VEHICLE 1 WAS ALSO IN THE #2 TRAFFIC LANE AND WAS FOLLOWING TOO CLOSE TO VEHICLE 2. VEHICLE 1 STRUCK THE REAR END OF VEHICLE 2. THERE WERE NO INJURIES REPORTED ON SCENE. NO VEHICLES WERE TOWED FROM THE SCENE.
141435164	5/20/2014	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	yes	Vehicles 2 and 3 were starting from a stopped position in the left east bound lane of Fairfax Blvd prior to Eaton Place when vehicle #1 struck vehicle #2 in the rear. The impact between vehicles 1 and 2 forced #2 into the rear of #3. Vehicle #1 was traveling in the left east bound lane of Fairfax Blvd at the time of the incident.Driver's Ac. on (P1) #37 "Other" is, Fail to Pay Full Time & Attention
141845162	7/2/2014	PDO.Property Damage Only	2. Angle	0	0	0	West,East	no	no	no	On 07-02-14 at 0758 hours, Vehicle #2 was headed eastbound on Fairfax Blvd. Vehicle #1 was headed westbound on Fairfax Blvd. At the intersection of Fairfax Blvd and Eaton Place, Vehicle #1 attempted to pull into the parking lot of 10325 Fairfax Blvd, by making a left turn, but failed to yield the right of way. Vehicle #1 was struck Vehcile #2 (POI#1)
142335061	8/13/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West,West	no	no	no	Vehicles 2 and 3 were stopped for traffic in the left west bound lane of Fairfax Blvd prior to Eaton Place when vehicle #1 struck vehicle #2 in the rear. The impact between vehicles 1 and 2, forced #2 into the rear of #3. Vehicle #1 was traveling in the left west bound lane of Fairfax Blvd at the time of the incident.
150555131	2/21/2015	PDO.Property Damage Only	2. Angle	0	0	0	West,East	no	yes	no	The Driver of Vehicle 2 stated she was East bound on Eaton Place stopped in the left turn lane at Fairfax Blvd. V2's drvier stated that a vehicle west bound on Fairfax Blvd. made a right turn from Fairfax Blvd onto west bound Eaton Place and drove into her vehicle. V2's driver stated the left front corner of her car was impacted by the front of the other vehicle. V2's driver stated she was not injured.The Driver of Vehicle 1 stated she was west bound Fairfax Blvd. in the right turn lane to turn right onto west bound Eaton Place. V1's driver stated that as she made her turn her car skidded into the stopped vehicle in the left turn lane from Eaton Place onto Fairfax Blvd. impacting the left front corner of V2 with the front of her vehicle. V1's driver stated she was not injured.
150705166	2/24/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	yes	Vehicles 1, 2, and 3. were traveling eastbound on Fairfax Blvd just prior to Eaton Place in the left through lane. Vehicle 3 was slowing due to a red light and so was vehicle 2. The light turned green and both vehicles 2 and 3 began to move again. Vehicle 1 misjudged the speeds of vehicles 2 and 3 and subsequently struck vehicle 2 in the rear. Vehicle 2 subsequently struck vehicle 3 in the rear.
150935114	3/26/2015	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	yes	no	Vehicle #1 was turning left onto east bound Fairfax Blvd from the left turn lane of south bound Easton Place when it was struck by vehicle #2. Vehicle #2 was traveling in the left east bound lane of Fairfax Blvd at Eaton Place at the time of the incident. The intersection of Fairfax Blvd and Eaton Place was working on flash at the time of the incident.
151685141	6/9/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	yes	Vehicles one and two were traveling east on Fairfax Blvd in lane two(left through lane) prior to Eaton Place. Prior to approaching the light at Eaton Place vehicle one collided with the rear end of vehicle two. Vehicle two was traveling at a lower speed do to slower traffic ahead. Driver of vehicle one stated that he was looking to the roadside in an attempt to locate a potential businesses to apply for work.Driver/Vehicle Info; Driver's Actions (P1); Other 37-Failure to pay full time and attention (98-14).
151875118	7/2/2015	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	Both vehicles were traveling in the right westbound lane of Fairfax Blvd, west of Eaton Pl. The driver of vehicle 1 failed to see vehicle 2 stopping to the front, causing vehicle 1 to strike the rear of vehicle 2.
152515356	9/7/2015	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	no	no	Vehicle #1 was turning left onto eastbound Eaton Pl from southbound Chain Bridge Rd. Vehicle #2 was traveling in the center northbound lane of Chain Bridge Rd. Vehicle #2 struck Vehicle #1 after Vehicle #1 failed to yield the right of way.
160115305	12/13/2015	B.Visible Injury	4. Sideswipe - Same Direction	0	1	0	West,West	no	no	no	VEHICLE ONE AND VEHICLE TWO WERE TRAVELING WEST ON FAIRFAX BLVD APPROACHING EATON PLACE. VEHICLE TWO WAS IN THE RIGHT TURN LANE WHEN VEHICLE ONE ATTEMPTED TO CHANGE LANES FROM THE CENTER LANE INTO THE RIGHT LANE STRIKING VEHICLE TWO IN THE FRONT DRIVER SIDE (POI 1).

160045325	12/29/2015	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	VEHICLE #1 AND #2 WERE TRAVELING WESTBOUND ON FAIRFAX BLVD. AS VEHICLE #2 WAS SLOWING FOR A RED LIGHT, VEHICLE #1 STRUCK VEHICLE #2. #37: FAIL TO PAY FULL TIME AND ATTENTION
160405230	2/2/2016	B.Visible Injury	3. Head On	0	1	0	West	no	no	no	VEHICLE 1 WAS TRAVELING IN THE #2 LANE OF FAIRFAX BLVD NEARING THE INTERSECTION OF EATON PLACE. VEHICLE 1 WAS DRIVING IN A RECKLESS MANNER AND AT A REPORTEDLY HIGH RATE OF SPEED. VEHICLE 1 THEN LOST CONTROL AND LEFT THE ROADWAY WITHIN THE INTERSECTION OF FAIRFAX BLVD AT EATON PLACE. VEHICLE 1 STRUCK A GUARDRAIL WHERE THE VEHICLE CAME TO REST. VEHICLE 1, PRIOR TO THIS INCIDENT, HAD BEEN STOPPED BY FAIRFAX COUNTY POLICE AND FLED THE SCENE OF THE TRAFFIC STOP. FAIRFAX COUNTY POLICE WAS ACTIVELY SEEKING VEHICLE 1 AT THE TIME OF THE CRASH. DRIVER ACTION-RECKLESS DRIVING
161555122	6/2/2016	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLE #2 WAS TRAVELING IN THE RIGHT WESTBOUND LANE ON EATON PLACE WHEN VEHICLE #1 WAS PULLING OUT OF THE PARKING LOT AND SIDESWIPED VEHICLE #2.
161735361	6/16/2016	B.Visible Injury	1. Rear End	0	2	0	West,West,West	no	yes	yes	V1, V2, AND V3 WERE ALL TRAVELING WESTBOUND ON FAIRFAX BLVD. V1 AND V2 WERE IN THE MIDDLE THROUGH LANE AND V3 WAS IN THE RIGHT LANE JUST EAST OF EATON PL ON FAIRFAX BLVD. DRIVER OF V3 MADE AN UNSAFE LANE CHANGE AND SLOWED IN THE INTERSECTION OF FAIRFAX BLVD AND EATON PL CAUSING V2 TO QUICKLY STOP AND ATTEMPT TO SWERVE AROUND V3 TO AVOID A COLLISION. V1, WHICH WAS BEHIND V2, WAS FOLLOWING TOO CLOSE TO V2 AND STRUCK V2 AFTER V3 MADE THE UNSAFE LANE CHANGE.
163135736	9/13/2016	C.Non-visible Injury	1. Rear End	0	1	0	West,West,West,West	no	no	yes	Vehicle 1 was traveling West on Fairfax Blvd in the #2 lane, when it struck the rear of vehicle 2. Vehicle 1 driver stated he was daydreaming and didn't notice vehicle 2 stopping. Vehicle 2 was coming to a stop when it was struck by vehicle 1. Vehicle 2 then struck the rear of vehicle 3 due to the impact. Vehicle 3 was stopped in traffic, when it was struck by vehicle 2. Vehicle 3 then struck the rear of vehicle 4 due to the impact. Vehicle 4 was stopped in traffic, when it was struck by vehicle 3. Vehicle 3 driver was transported to the hospital with a complaint of injuries.
162955155	10/10/2016	C.Non-visible Injury	2. Angle	0	1	0	South,West	no	no	no	VEHICLE #1 WAS TRAVELING EASTBOUND IN THE LEFT TURN LANE OF FAIRFAX BLVD. VEHICLE #2 WAS TRAVELING IN THE LEFT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE #1 ATTEMPTED TO MAKE A LEFT TURN FROM FAIRFAX BLVD ONTO NORTHBOUND EATON PLACE. WHILE DOING, VEHICLE #1 FAILED TO YIELD THE RIGHT OF WAY TO VEHICLE #2 WHICH RESULTED IN VEHICLE #2 STRIKING VEHICLE #1.
170125229	1/3/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	yes	no	Vehicle 1 was traveling East on Fairfax Blvd, when it struck the rear of vehicle 2. Vehicle 1 driver stated she was about 1 car length behind vehicle 2, when it came to a stop. Vehicle 2 was coming to a stop on Fairfax Blvd and Eaton Pl for the traffic light, when vehicle 1 struck it from the rear. No injuries were reported at the time of the crash.
170685140	2/28/2017	C.Non-visible Injury	2. Angle	0	1	0	East,East	yes	no	no	Both vehicles were turning left from Eaton Place onto eastbound Fairfax Boulevard. Vehicle one changed lanes into the side of vehicle two just as both vehicles were coming out of the turn.
171925210	3/24/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	VEHICLES 1 AND 2 WERE IN THE #1 TRAFFIC LANE OF FAIRFAX BLVD NEAR 10287. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2. VEHICLE 1 ATTEMPTED TO BRAKE AND HIT AND GAS PEDAL AND REAR ENDED VEHICLE 2.
171355001	5/3/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLES 1 AND 2 WERE TRAVELING IN THE LEFT EASTBOUND LANE OF EATON PL. VEHICLE 1 DID NOT SEE THAT VEHICLE 2 HAD COME TO A STOP AND STRUCK VEHICLE 2 IN THE REAR.
172235262	5/30/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	VEHICLE 1 AND VEHICLE 2 WERE TRAVELING IN THE LEFT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE 2 BEGAN SLOWING FOR TRAFFIC CONDITIONS THAT WERE YIELDING FOR AN EMERGENCY VEHICLE. VEHICLE 1 THEN STRUCK VEHICLE 2 IN THE REAR. VEHICLE 2 DRIVER WAS OPERATING THE VEHICLE AS PART OF A SERVICE

172215247	7/21/2017	A.Ambulatory Injury	2. Angle	0	2	0	West,North	no	no	no	Vehicle one was traveling west on Fairfax Blvd making a left turn at Eaton Place under a red traffic signal. Vehicle two was traveling south on Eaton Place making a left turn onto Fairfax Blvd through a green traffic signal. Vehicle one failed to obey the red traffic signal, crossed the center median and struck vehicle two. Prior to the collision, vehicle one struck a median sign within the median.
172285218	8/3/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	no	VEHICLES 1, 2 AND 3 WERE ALL IN THE #1, LEFT TURN LANE OF FAIRFAX BLVD CLOSE TO THE INTERSECTION OF EATON PLACE. VEHICLE 1 STRUCK THE REAR END OF VEHICLE 2. VEHICLE 2 THEN STRUCK THE REAR END OF VEHICLE 3.
172275320	8/6/2017	A.Ambulatory Injury	3. Head On	0	2	0	South,West	no	no	no	V1 was attempting to turn left from the left turn lane of eastbound Fairfax Blvd onto Eaton Place. V2 was traveling in the left westbound lane of Fairfax Blvd at Eaton Place. Both vehicle collided in the intersection. Each driver gave conflicting statements.
182405355	8/20/2018	PDO.Property Damage Only	2. Angle	0	0	0	West,West	no	no	no	V1 and V2 were westbound on Fairfax Boulevard approaching the intersection with Boulevard Marketplace and stopped at a red light. V1 began merging left from the right turn lane into the right center through lane. V1 merged into V2's blind spot. The traffic signal turned green and V1 accelerated in front of V2 to finish merging into the lane. V2 had begun accelerating once the traffic signal turned green. V1's rear driver's side bumper made contact with V2's passenger side bumper.
182615318	9/7/2018	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	V2 was traveling in the right lane of westbound Fairfax Blvd. just west of Eaton Pl. V2 slowed with traffic. V1 was traveling in the right lane of westbound Fairfax Blvd. just west of Eaton Pl. V1 did not stop in time and rear ended V2.
182715178	9/25/2018	B.Visible Injury	2. Angle	0	2	0	South,West	no	no	no	VEHICLE #1 WAS TRAVELING EASTBOUND ON FAIRFAX BLVD ATTEMPTING TO MAKE A LEFT TURN ON TO EATON PLACE. VEHICLE #2 WAS TRAVELING IN THE RIGHT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE #1 FAILED TO YIELD THE RIGHT OF WAY TO VEHICLE #2. VEHICLE #2 STRUCK VEHICLE #1. VEHICLE #2 OCCUPANTS WERE TRANSPORTED TO THE HOSPITAL WITH MINOR INJURIES.
183055204	11/1/2018	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLE 2 WAS STOPPED IN THE #1 LANE OF FAIRFAX BLVD JUST EAST OF EATON PLACE. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2 AND ATTEMPTING TO MAKE A LANE CHANGE IN THE #2LANE. VEHICLE 1 WAS FOLLOWING TOO CLOSELY AND STRUCK THE REAR END OF VEHICLE 2 WHEN VEHICLE 2 STOPPED IN THE TRAFFIC LANE.

Crash Data for the Intersection of Fairfax Blvd and University Dr (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
140525059	2/14/2014	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	no	no	Vehicle one was turning left from west bound Fairfax Blvd onto south bound University Dr. Vehicle two was traveling east on Fairfax Blvd approaching University Drive. Vehicle one failed to yield when making a left and entered into the path of vehicle two causing the crash. Vehicle one was proceeding through the intersection under a steady green light without the left turn arrow. Vehicle two was proceeding straight through the intersec. on under a green light.
140555061	2/21/2014	B.Visible Injury	1. Rear End	0	2	0	East,East,East	no	no	no	All vehs were east on Fairfax Blvd in the 10300 blk of Fairfax Blvd. Vehs # 2 & 3 were stopped for heat traffic in front of them. The driver of Veh#1 observed Veh#2 stopped in traffic. The driver of Veh#1 applied the brakes to his veh, but could not stop in time. Veh #1 struck the rear of Veh #2 which in turn struck Veh#3.No independent witnesses.
140565199	2/24/2014	B.Visible Injury	1. Rear End	0	1	0	South,South	no	no	no	VEHICLE 2 WAS MAKING A RIGHT TURN FROM NORTHBOUND UNIVERSITY DR INTO A GAS STATION PARKING LOT (10383 FAIRFAX BLVD). VEHICLE 2 MADE A SUDDEN STOP HALFWAY THROUGH THE TURN. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2 AND WAS UNABLE TO STOP IN TIME AND STRUCK THE LEFT REAR CORNER OF VEHICLE 2. THE DRIVER OF VEHICLE 2 INITIALLY REFUSED MEDICAL ATTENTION AND TOWARDS THE END OF MY INVESTIGATION, DRIVER 2 COMPLAINED OF LOWER BACK PAIN. SHE WAS TRANSPORTED TO A LOCAL MEDICAL FACILITY. VEHICLE 2 WAS TOWED FROM THE SCENE. DRIVER'S ACTION VEHICLE 1 IS #37-OTHER-FAIL TO PAY FULL TIME AND ATTENTION
141055079	4/9/2014	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	no	VEH 2 WAS TRAVELLING WEST ON FAIRFAX BLVD AND WAS SLOWING FOR TRAFFIC. DRIVER OF VEH 1 WAS DRIVING WEST ON FAIRFAX BLVD AND STATED SHE WAS UNABLE TO STOP BEFORE MAKING CONTACT WITH VEH 2, WHICH WAS SLOWING/STOPPING FOR TRAFFIC.
141295053	5/8/2014	PDO.Property Damage Only	6. Fixed Object in Road	0	0	0	East	no	no	no	On 05-08-14 at 1630 hours, vehicle # 1 was east bound on Fairfax Blvd. At the intersection of Fairfax Blvd and University Driver, Vehicle #1 attempted to turn left into the University Shopping Center. During that turn, Vehicle # 1 struck a traffic sign that was posted in the median POI#1).
141545128	5/27/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West,West	no	no	no	Vehicle # 1, Vehicle # 2, and Vehicle # 3 were westbound on Fairfax Blvd approaching University Drive. Vehicle # 1 and Vehicle # 2 stopped in traffic. Driver of Vehicle # 3 did not see Vehicle # 1 and Vehicle # 2 stop and struck Vehicle # 2 in the rear, pushing Vehicle # 2 into Vehicle # 1.
141615046	6/3/2014	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	no	Both vehicles were traveling west on Fairfax Blvd in the right through lane. Vehicle #1 advised that they were stopping for the traffic light that was turning red at University Dr.Vehicle #2 a motorcycle advised that the vehicles were stopping abruptly and that he tried to stop and was unable to, as he applied his brakes the motorcycle laid down on the left side. Vehicle #2 slid on its left side, striking the rear of vehicle #1 with the right side of his motorcycle as well as his right shoulder and arm.The roads were wet from an earlier rain.Vehicle #1 suffered minor damage to the rear corner bumper, and quarter panel.Vehicle #2 suffered damage to the left side, shifter, foot peg, handle bar, turn signal front and rear, damage to the right side brake pedal, foot peg.Vehicle #2, POI #1 was the roadway.Vehicle #2 was transported to Fairfax Hospital by Medic #433.
142095160	6/17/2014	PDO.Property Damage Only	1. Rear End	0	0	0	East,West	no	no	yes	Vehicle #1 was traveling eastbound on Fairfax Blvd and made a U-turn onto westbound Fairfax Blvd at the intersection of University Dr. Vehicle #2 was traveling westbound on Fairfax Blvd and had the right of way. The front of Vehicle #2 struck the rear of Vehicle #1. Vehicle #1 then struck the signal pole at the north west corner of this intersection. Driver #1 was issued a summons for 98-14 Fail to pay full time and attention.
141915299	7/2/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	Vehicles one and two were traveling west on Fairfax Blvd in lane two (right lane). Vehicle two came to a stop with traffic and was struck by vehicle one in the rear end. Driver of vehicle one stated that the traffic was heavy and was stop and go. Driver one advised that as traffic came to a stop he was unable to stop in time striking vehicle two in the rear end.
142675186	9/23/2014	PDO.Property Damage Only	9. Fixed Object - Off Road	0	0	0	East,Not Provided	no	no	no	Vehicle 1 was traveling NB on University Drive approaching Fairfax Boulevard. Vehicle 1 made a right turn onto Fairfax Boulevard (EB). Vehicle 1 lost control and entered gas station located at 10383 Fairfax Boulevard. Vehicle 1 struck a gas pump (POI 1) then struck vehicle 2 (POI 2) which was parked.Vehicle 1 had front end and fire damage estimated at $3,000.00. Vehicle 2 had left side damage estimated at $2,500.00. A gas pump was struck with damage estimated at $25,000.00.
142695103	9/24/2014	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	no	Vehicle 1 was traveling WB on Fairfax Blvd. Vehicle 2 was stopped in traffic WB on Fairfax Blvd. Vehicle 1 collided with rear of Vehicle 2 causing the accident.

143105281	11/3/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West,West	no	no	no	Vehicle one was westbound on Fairfax Blvd. Vehicles two and three were westbound on Fairfax Blvd. stopped in traffic approaching University Blvd. Driver one stated that the brakes in his vehicle were not working as they should causing him to strike vehicle two subsequently causing vehicle two to move forward striking vehicle three. Driver one advised that he had been aware of the problems with the brakes prior to the crash.
143435283	11/21/2014	PDO.Property Damage Only	2. Angle	0	0	0	South,East	no	no	no	Vehicle #1 was traveling north in the right turn lane on University Dr. Vehicle #2 was south on University Dr, making a left turn into the Sunoco station.The traffic in the left lane was stopped on the north bound side, and had left enough room for vehicle #2 to turn. Vehicle #2 never saw vehicle #1 approaching, and struck him in the driver side door.Vehicle #1sustained damage to the driver and rear side door.Vehicle #2 sustained damage to the front bumper, grill.Vehicle #2 had just been repaired at Collision Specialists of Fairfax and was being transported to be cleaned for the owner.
151325154	5/7/2015	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	VEHICLE 1 WAS TRAVELING WEST ON FAIRFAX BLVD, JUST PAST UNIVERSITY DR, WHEN IT STRUCK THE REAR OF VEHICLE 2. VEHICLE 1 DRIVER STATED HE LOOKED IN HIS MIRROR TO CHANGE LANES FROM THE #2 TO THE #1 LANE, WHEN HE STRUCK VEHICLE 2.VEHICLE 2 WAS STOPPED IN THE STRAIGHT TRAVEL LANE OF FAIRFAX BLVD, WHEN IT WAS STRUCK BY VEHICLE 1.NO INJURIES WERE REPORTED AT THE TIME OF THE CRASH. VEHICLE 1 IS AT FAULT FOR THE CRASH.
151335231	5/12/2015	C.Non-visible Injury	2. Angle	0	1	0	East,West	no	no	no	Vehicle 1 was traveling East on Fairfax Blvd and attempted a right turn to the parking lot at University Dr. Vehicle 1 made the left turn and struck vehicle 2.Vehicle 2 was traveling West on Fairfax Blvd and had a green light. Vehicle 2 was then struck by vehicle 1.Vehicle 1 made the left turn in front of vehicle 2.Vehicle 1 was issued a summons for fail to yield the right of way. Vehicle 2 driver was transported to the hospital with minor injures.
151815190	6/24/2015	A.Ambulatory Injury	12. Ped	1	1	0	East	no	no	yes	Vehicle one was traveling eastbound on Fairfax Blvd. Pedestrian one was crossing the intersection northbound across Fairfax Blvd. Vehicle one subsequently struck pedestrian one. After striking the pedestrian, the vehicle applied the brakes and left approximately thirty nine feet of skid marks.
152655277	8/20/2015	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,East	no	no	no	Vehicle 1 was stopped at the red light of University Dr and Fairfax Blvd, when the driver moved the vehicle forward to observe East Fairfax Blvd for traffic. When the vehicle moved forward, vehicle 2 struck it. Vehicle 1 driver stated that vehicle 2 was a large truck. Vehicle 1 driver could not provide any further information on vehicle 2.Vehicle 2 was traveling East on Fairfax Blvd and struck vehicle 1. Vehicle 2 did have the right of way when the crash occurred. Vehicle 2 then fled the scene East on Fairfax Blvd and did not report the crash. Vehicle 2 information is unknown at this time.There is no further information at this point.
153085158	11/2/2015	PDO.Property Damage Only	2. Angle	0	0	0	South,West	no	no	yes	VEHICLE #2 WAS TRAVELING WESTBOUND ON FAIRFAX BLVD. VEHICLE #1 WAS TRAVELING EASTBOUND ON FAIRFAX BLVD AND MADE A LEFT TURN INTO A SHOPPING COMPLEX FROM A LEFT TURN LANE. VEHICLE #1 FAILED TO YIELD THE RIGHT OF WAY TO VEHICLE #2 WHILE TURNING LEFT. VEHICLE #2 STRUCK VEHICLE #1.
153145152	11/5/2015	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle 1 was traveling in the left westbound lane on Fairfax Blvd approaching University Dr when a vehicle in the right westbound lane swerved into the lane in front of vehicle 1. The driver swerved to the left to avoid the vehicle, striking vehicle 2 in the process. Vehicle 2 was stopped at the traffic signal in the left-turn lane westbound on Fairfax Blvd at University Drive at the time of the incident.
160215205	1/20/2016	PDO.Property Damage Only	2. Angle	0	0	0	East,East	no	no	no	VEHICLE 2 WAS TRAVELING EAST BOUND ON FAIRFAX BLVD IN THE FAR RIGHT LANE. VEHICLE 1 WAS TRAVELING NORTHBOUND ON UNIVERSITY DR ATTEMPTING TO MAKE A RIGHT TURN ON TO FAIRFAX BLVD EASTBOUND. AS VEHICLE 2 CONTINUED THROUGH THE GREEN LIGHT, VEHICLE 1 MADE A RIGHT TURN IN TO THE FAR RIGHT LANE ONTO EASTBOUND FAIRFAX BLVD, STRIKING THE RIGHT REAR CORNER OF VEHICLE 2.
160885170	3/25/2016	B.Visible Injury	1. Rear End	0	1	0	East,East	no	no	yes	VEHICLE 2 WAS STOPPED IN THE FAR LEFT THROUGH LANE OF FAIRFAX BLVD EASTBOUND. VEHICLE 1 WAS TRAVELING EASTBOUND IN THE SAME LANE. VEHICLE 1 DID NOT SEE VEHICLE 2 STOPPED IN THE LANE AND STRUCK VEHICLE 2 IN THE REAR.
161245279	4/29/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	V1 was traveling north on University Drive in the left lane. V2 was starting from a stopped position in the right lane of northbound University Drive/Fairfax Boulevard. The vehicles in front of V1 stopped suddenly, despite having a green light, because traffic on Fairfax Boulevard was blocking the intersection. V1 braked hard and drifted into the right lane, subsequently striking V2.

161895244	7/6/2016	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	V1 was traveling east on Fairfax Blvd at University Dr. V1 was slowing for a light that was changing to red. V1 was traveling at approximatly 5mph when it was struck from behind from V2. V2 is an unidentified vehicle who struck V1 from the rear at the intersection of Fairfax Blvd and University Dr. while traveling east on Fairfax Blvd.
162365171	8/2/2016	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	V2 WAS STOPPED IN THE RIGHT WESTBOUND LANE OF FAIRFAX BLVD FOR HEAVY TRAFFIC CONDITIONS. V1 FAILED TO MAINTAIN PROPER CONTROL AND STRUCK THE REAR OF V2.
162235209	8/4/2016	PDO.Property Damage Only	2. Angle	0	0	0	East,East	no	no	no	Vehicle one was northbound on University Drive stopped at the red light at Fairfax Blvd. Vehicle two was eastbound on Fairfax Blvd. in the left lane. Vehicle one attempted to make a right turn on red to go eastbound on Fairfax Blvd. Vehicle one made the right turn and went wide into the left lane encroaching on vehicle two subsequently striking it.
162665205	9/18/2016	PDO.Property Damage Only	2. Angle	0	0	0	East,East	no	no	no	VEHICLE 2 WAS TRAVELING IN THE LEFT EASTBOUND LANE OF FAIRFAX BLVD AT UNIVERSITY DR WHEN IT WAS STRUCK BY VEHICLE 1. VEHICLE 1 WAS TURNING RIGHT (WIDE TURN) ONTO EASTBOUND FAIRFAX BLVD FROM THE RIGHT TURN LANE OF NORTHBOUND UNIVERSITY DR AT THE TIME OF THE INCIDENT.
163125304	11/4/2016	PDO.Property Damage Only	2. Angle	0	0	0	South,East	no	no	no	VEHICLE 2 WAS TRAVELING EAST ON FAIRFAX BLVD WITH A GREEN LIGHT. VEHICLE 1 ATTEMPTED TO TURN RIGHT FROM UNIVERSITY DR ONTO FAIRFAX BLVD. VEHICLE 2 STRUCK VEHICLE 1. VEHICLE 1 DID NOT HAVE THE RIGHT OF WAY.
170605226	1/26/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	no	no	Vehicle one was traveling east in lane two, right through lane, on Fairfax Blvd at University Dr. Vehicle two was turning left onto University Driver from west bound Fairfax Blvd. As vehicle two made the left turn onto University Drive vehicle one struck the right rear quarter panel. Vehicle one and vehicle two both claimed to have a green traffic signals with vehicle two's signal being a left green arrow. A witness, Matthew Johnson, stated he was traveling in the same direction as vehicle one and indicated that the light had just changed to red for vehicle one when the accident occurred. After observing the light cycles, I found that the traffic signals for both east and west bound Fairfax Blvd change to red before cycling to green for University Drive. This cycle takes place before the green left turn arrow for east bound Fairfax Blvd. Therefore, I could not determine who was at fault.
171395245	2/13/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	yes	yes	VEHICLES 1 AND 2 WERE TRAVELING IN THE LEFT EASTBOUND LANE OF FAIRFAX BLVD. VEHICLE 2 SLOWED TO A STOP FOR A RED LIGHT AND VEHICLE 1 STRUCK VEHICLE 2 IN THE REAR.
172115260	4/4/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	yes	VEHICLES 1, 2 AND 3 WERE TRAVELING IN THE LEFT EASTBOUND LANE OF FAIRFAX BLVD. ALL VEHICLES WERE STOPPED AT A RED TRAFFIC SIGNAL. AS THE LIGHT TURNED GREEN, VEHICLE 3 (INCLUDING A TRAILER) BEGAN TO ACCELERATE FROM A STOPPED POSITION. VEHICLE 2 DID THE SAME. WHILE DOING SO, VEHICLE 1 STRUCK VEHICLE 2, WHICH CAUSED VEHICLE 2 DRIVER TO PRESS THE ACCELERATOR. THIS CAUSED VEHICLE 2 TO STRIKE VEHICLE 3.
172275316	8/4/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLE 1 AND 2 WERE TRAVELING IN THE LEFT EASTBOUND LANE OF FAIRFAX BLVD. VEHICLE 2 WAS STOPPED FOR TRAFFIC CONDITIONS WHEN VEHICLE 1 REAR ENDED VEHICLE 2 IN THE REAR.
173125365	8/25/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	VEHICLE 1 AND VEHICLE 2 WERE TRAVELING IN THE RIGHT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE 2 CAME TO A STOP FOR TRAFFIC CONDITIONS WHEN VEHICLE 1 STRUCK VEHICLE 2 IN THE REAR.
180225302	12/8/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle one was westbound on Fairfax Blvd in the left straight through lane approaching University Drive. Vehicle two was westbound in the right straight through lane. Vehicle two had crossed over the lane markings into the left lane striking vehicle one. Vehicle two then continued on without stopping and reporting the crash. Only information on vehicle two was it was described as a "little black car."

Crash Data for the Intersection of Fairfax Blvd and Chain Bridge Road (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
140165082	1/9/2014	PDO.Property Damage Only	2. Angle	0	0	0	West,West	no	no	no	Veh #1 was west on Fairfax Blvd in the right through lane. Veh #2 was west on Fairfax Blvd in the left through lane. The driver of Veh #1 came upon a stopped utility truck, which was occupying the right through lane. The driver of Veh #1 attempted to change lanes and get into the left through lane. The driver of Veh #1 made an unsafe lane change subsequently striking Veh #2 in the right front corner.No witnesses.
140165086	1/14/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	yes	yes	Both vehicles were traveling west on Fairfax Blvd, in the left through lane. Vehicle #1 advises that he was going about 30 mph when he was struck from the back side of his truck. Vehicle #2 advised that he has not slept much in the past couple of days, and that when he looked up he was unable to stop. Vehicle #2 advised that he was unsure of how fast he was traveling.Inves. gation revealed that vehicle #2 never hit his brakes, when he rear ended vehicle #1. Vehicle #1 advised that someone told him that the other driver was looking to the left and never hit his brakes.Vehicle #1 suffered damage to the metal step bumper. Vehicle #2 suffered extensive damage to the front end, plus both front air bags deployed.No injuries reported.
140525063	2/18/2014	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	yes	Both vehicles were in the left through lane east on Fairfax Blvd. Vehicle #1 advises that she was stopped and was just starting to go when she was struck. Vehicle #2 advises that she was not paying attention, because her purse had fell onto the floor, and she tried to retrieve it.Vehicle #2 struck vehicle #1 in the rear bumper.Vehicle #1 suffered minor damage to the rear bumper.Vehicle #2 suffered damage to the front bumper, grill, and hood.Vehicle #1 advised at the end of the accident that she was sore in the chest and shoulder area, refusing Rescue.
140915039	3/31/2014	B.Visible Injury	1. Rear End	0	1	0	South,South	no	no	no	Vehicle #1 was starting from a stop in the right turn lane of north bound Chain Bridge Road at Fairfax Blvd when it struck vehicle #2 in the rear. Vehicle #2 was stopped in the right turn lane of north bound Chain Bridge Road at the time of the incident. Light was red at the time of the incident. Driver's Action (P1) #37 "Other" is, Fail to Pay Full Time & Attention
141605124	6/6/2014	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	no	Vehicle's #1 and #2 were both traveling westbound on Fairfax Boulevard. Vehicle #2 had stopped for traffic. The driver of vehicle #1 momentarily fell asleep, which caused vehicle #1 to strike vehicle #2, in the rear. Driver
141605127	6/7/2014	C.Non-visible Injury	1. Rear End	0	1	0	West,West	no	no	no	VEHICLE 1 WAS TRAVELING WEST ON FAIRFAX BLVD, APPROACHING CHAIN BRIDGE RD WHEN TRAFFIC CAME TO A STOP DUE TO A RED LIGHT. VEHICLE 1 THEN STRUCK THE REAR OF VEHICLE 2. VEHICLE 1 DRIVER STATED "MY VEHICLE SLID" WHEN THE BRAKES WERE APPLIED. VEHICLE 1 DRIVER STATED SHE WAS NOT DISTRACTED AND WAS TWO CAR LENGTHS AWAY FROM VEHICLE 2 WHEN IT BEGAN TO BRAKE.VEHICLE 2 WAS STOPPED IN THE TRAVEL LANE DUE TO A RED LIGHT AT CHAIN BRIDGE RD.VEHICLE 2 DRIVER WAS TRANSPORTED TO THE HOSPITAL WITH A POSSIBLE BACK INJURY.VEHICLE 1 IS THE AT FAULT VEHICLE.
141985071	7/12/2014	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	Vehicle 1 was traveling West bound on Fairfax Blvd. as Vehicle 2 was traveling South bound on Chain Bridge Road. Each driver claimed to have a green light as they proceeded through the intersection where Vehicle 2's front impacted the passenger rear area of Vehicle 1. I attempted to obtain video surveillance of the intersection however the camera was not oriented on that area of the intersection at the time of the crash. I am unable to determine which Driver is responsible for the crash.
142115102	7/24/2014	B.Visible Injury	3. Head On	0	3	0	West,North,North	no	no	no	V1 was traveling west bound in the left through lane when it disregarded a red light at Fairfax Boulevard and Chain Bridge Road. V2 and V3 were traveling south bound on Chain Bridge Road and had a green light at the intersection of Chain Bridge Road and Fairfax Boulevard. V1 struck V2 on the left front side. V1 then struck V3 on the front left side. After V1 struck V2, the right front of V2 struck the left side of V3 at an angle.
142245198	7/25/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West,West	no	no	no	VEHICLES 1,2,3 WERE ALL IN THE #3 LANE OF WESTBOUND FAIRFAX BLVD NEARING THE INTERSECTION WITH CHAIN BRIDGE RD. VEHICLES 2 AND 3 WERE STOPPED IN THE TRAFFIC LANE AWAITING TRAFFIC TO CLEAR. VEHICLE 1 WAS BEHIND VEHICLE 2 AND STRUCK THE REAR END OF VEHICLE 2. AS A RESULT, VEHICLE 2 THEN STRUCK THE REAR END OF VEHICLE 3. DRIVERS ACTION-OTHER-FAIL TO PAY FULL TIME AND ATTENTION
142095097	7/25/2014	C.Non-visible Injury	1. Rear End	0	1	0	West,West	no	no	no	Vehicle # 1 and Vehicle # 2 were westbound on Fairfax Blvd. stopped in traffic for a red traffic signal at Chain Bridge Rd. The signal rotated to green and Vehicle # 2 accelerated while Vehicle # 1 was still stopped, striking Vehicle # 1 in the rear creating a rear end collision.
142465121	8/20/2014	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	North,North	no	no	no	Vehicles one an two were traveling south on Chain Bridge Road approaching Fairfax Blvd. Vehicle one was changing lanes from lane one(left through lane) to the left turn lane, lane one. Vehicle two traveling adjacent to
142475217	8/27/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	Vehicles one and two were traveling west on Fairfax Blvd in lane three(right through lane). Vehicle two came to a stop with traffic and was struck from behind by vehicle one. Driver of vehicle one stated that she was preparing to change lanes from lane three to lane four(right turn lane) and was unable to stop in time. Vehicle ones left front corner struck vehicle two in the right rear corner.
142805132	10/2/2014	B.Visible Injury	1. Rear End	0	1	0	North,North	no	no	yes	Vehicles 1 and 2 were stopped at a red light in the right lane of south bound Chain Bridge Road at Fairfax Blvd when vehicle #1 rolled forward into the rear of vehicle #2.
142955239	10/18/2014	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	no	Vehicle 1 was stopped behind Vehicle 2 on south bound Chain Bridge Road prior to Fairfax Blvd. The traffic signal controlling the south bound traffic was red however Vehicle 1 accelerated, from a stop, and hit Vehicle 2 in its rear. The Driver of Vehicle 1 was issued a VUS for failing to maintain proper control of her vehicle.

143425202	10/30/2014	C.Non-visible Injury	2. Angle	0	2	0	West,West	no	no	no	Vehicle 2 was in the northbound, left turn lane of Chain Bridge Rd. with a green light. Vehicle 2 made a left turn into the left lane of westbound Fairfax Blvd. Vehicle 1 was in the right turn lane of southbound Chain Bridge Rd. with a red light. Vehicle 1 stated she stopped at the red light. Vehicle 1 turned westbound onto Fairfax Blvd. failing to yield to vehicle 2. The vehicles collided pushing vehicle 2 onto the median.
143445220	12/3/2014	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	no	no	Vehicle 2's driver stated she was East bound Fairfax Blvd stopped at the light for Chain Bridge Road and that there was an SUV in the lane next to her. V2's driver stated the light turned green and she proceeded East bound into the intersection and did not see the car South bound on Chain Bridge Road until it drove in front of her. V2's driver stated she impacted the right side of V1 with the front of her car causing her right side and front side airbags to deploy. V2's driver stated she was not injured.Vehicles 1's driver stated he was South bound Chain Bridge Road at Fairfax Blvd. and entered the intersection at Fairfax Blvd. while the light was yellow. V1's vehicle was struck by V2 in the right side. V1's driver stated he was not injured.
150135110	12/30/2014	PDO.Property Damage Only	2. Angle	0	0	0	West,West	no	no	no	VEHICLE 1 WAS MAKING A RIGHT TURN FROM THE PARKING LOT OF 10480 FAIRFAX BLVD ONTO WESTBOUND FAIRFAX BLVD. VEHICLE 1 WAS ATTEMPTING TO GET INTO THE LEFT TURN LANE WHILE MAKING THE RIGHT TURN. VEHICLE 2 WAS TRAVELING WEST ON FAIRFAX BOULEVARD IN THE LEFT TURN LANE COMING TO A STOP AT THE RED LIGHT. VEHICLE 1 TURNED INTO THE LANE WHILE VEHICLE 2 WAS TRAVELING WITHIN IT AND STRUCK IT AT AN ANGLE (POI 1).
150505220	2/16/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	yes	The Driver of Vehicle 2 stated he was East bound Fairfax Blvd. in the left lane, before Chain Bridge Road, stopped for traffic when he was struck from behind by Vehicle 1. V2's driver stated he was not injured. The Driver of Vehicle 1 stated she was East bound Fairfax Blvd. in the left lane when she observed what appeared to be a disabled vehicle in the right lane. V1's driver stated she looked over at the stopped vehicle in the right lane, than looked forward and observed the vehicle in front of her was stopped. V1's driver stated she impacted the rear of V2 with the front of her vehicle. V2's driver stated she was not injured.
150855059	3/12/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLE 2 WAS STOPPED IN THE #3 TRAFFIC LANE OF EASTBOUND FAIRFAX BLVD NEAR THE INTERSECTION OF CHAIN BRIDGE RD AT A RED LIGHT. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2. THE DRIVER OF VEHICLE 1 SAW THE VEHICLES TO HER LEFT START TO MOVE DUE TO THE LEFT TURN LANE HAVING THE GREEN LIGHT. DRIVER1 ANTICIPATED VEHICLE 2 MOVING AND BEGAN TO MOVE AND THE STRUCK THE REAR END OF VEHICLE 2. DRIVERS ACTION-OTHER-FAIL TO PAY FULL TIME AND ATTENTION
150935104	3/27/2015	B.Visible Injury	2. Angle	0	1	0	North,East	no	no	no	Vehicle # 2 was traveling eastbound along Fairfax Blvd on the sidewalk. Vehicle # 1 was traveling southbound on Chain Bridge Road. Vehicle #1 attempted to make a right turn on red without yielding the right of way to vehicle #2 who had the cross symbol and a green light. Vehicle #1 subsequently pulled in front of vehicle # 2 and caused the crash.
151135211	4/15/2015	A.Ambulatory Injury	2. Angle	0	1	0	East,West,South	no	no	no	Vehicle 1 was traveling East on Fairfax Blvd approaching the intersection of Chain Bridge Rd, when the traffic light changed from green to yellow to red. Vehicle 1 was traveling in the #3 lane of Fairfax Blvd and violated the red traffic light, striking vehicle 2. Vehicle 1 driver stated "I think I ran the red light". Vehicle 1 driver stated the light changed from green to yellow and he accelerated to attempt to make the intersection before it changed to red. Vehicle 1 then drove off the roadway and struck a light pole. Vehicle 1 came to rest in a parking lot at the intersection.Vehicle 2 was making a left turn from the #1 turn lane on West Fairfax Blvd onto South Chain Bridge Rd, when it was struck by vehicle 1. Vehicle 1 driver stated he just received the left green arrow to make the turn before being struck by vehicle 1. Vehicle 2 then spun after being struck by vehicle 1 and struck the traffic sign in the median. Vehicle 2 then struck vehicle 3 after striking the sign.Vehicle 3 was stopped in the #1 left turn lane of North Chain Bridge Rd and Fairfax Blvd on a red light, when it was struck by vehicle 2.Vehicle 2 driver was transported to Fairfax Hospital with major injuries. Vehicle 1 driver was placed into critical care at the hospital and was conscious and alert. Vehicle 1 driver sustained several broken bones and possible internal injuries/bleeding.Vehicle 1 driver is at fault for the crash and no further injuries were reported at the time of the crash. All vehicles were towed from the scene.
151475154	5/26/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	yes	Vehicles one and two were eastbound in the left turn of Fairfax Blvd. preparing to turn left onto Chainbridge Road. Vehicle two slowed for the yellow light and was struck in the rear by vehicle one.

152045132	7/15/2015	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle 1 was traveling West on Fairfax Blvd, past Chain Bridge Rd when the driver attempted a lane change to the left. Vehicle 1 then struck vehicle 2. Vehicle 1 was then pushed into the curb, due to the crash. Vehicle 1 came to rest on the opposite side of Fairfax Blvd.Vehicle 2 was traveling straight on Fairfax Blvd in the left lane, when it was struck by vehicle 1.Vehicle 1 driver was issued a summons for the crash and no injuries were reported by either vehicles.
152515182	8/19/2015	B.Visible Injury	2. Angle	0	1	0	West,North	no	no	no	Vehicle 2 was stopped at a red light in the left turn lane of south bound Chain Bridge Road at Fairfax Blvd when it was struck by vehicle 1. Vehicle 1 was traveling at a high rate of speed in the right turn lane of west bound Fairfax Blvd attempting to turn right onto north bound Chain Bridge Road when it lost control and struck vehicle 2. Vehicle 1 then left the scene north bound on Chain Bridge Road without identifying himself.
152385148	8/21/2015	B.Visible Injury	1. Rear End	0	3	0	West,West,West	no	no	no	Vehicle # 1, Vehicle # 2, and Vehicle # 3 were westbound on Fairfax Blvd. Vehicle # 1 and Vehicle # 2 were stopped in traffic. Driver of Vehicle # 3 observed the brake lights and attempted to stop but it was too late. Vehicle # 3 struck Vehicle # 2 in the rear, shoving Vehicle # 2 into the rear of Vehicle # 1.
152475165	9/2/2015	B.Visible Injury	2. Angle	0	1	0	North,North	no	no	no	Vehicle two was stopped at a red light southbound on Rt. 123 in left turn lane to go to Rt. 50. Vehicle one was stopped at a red light southbound on Rt. 123 in straight through lane attempting to cut over into the left turn lane. When the light turned green for left turns from southbound Rt. 123 to eastbound Rt. 50, both vehicles proceeded to make the turn. Vehicle one got partially in front of vehicle two making the turn. Due to the size of vehicle two, the driver was unable to see the vehicle trying to get in front of him subsequently striking vehicle one.
152745170	9/30/2015	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	no	V2 was stopped at south bound Chain Bridge Road at the intersection with Fairfax Boulevard. The light for Chain Bridge Road was red. V2 was going to make a right turn onto west bound Fairfax Boulevard and came to a stop to yield to west bound traffic. V1's driver did not pay full time and attention and rear ended V2.
152785256	10/2/2015	C.Non-visible Injury	1. Rear End	0	2	0	West,West	no	yes	no	On 10-02-15 at 1707 hours, while traveling west on Fairfax Blvd, the driver of Vehicle #2 stopped for the traffic ahead due to the red traffic signal on Fairfax Blvd / Rt. 123. The driver of Vehicle #1 failed to maintain proper control and drove into the rear of Vehicle #2. (POI #1) The driver of Vehicle #1 was charged with Failing to Maintain Proper Control.
153345423	11/27/2015	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	yes	Vehicle one and two were both traveling eastbound on Fairfax Blvd. Both vehicle passed through the intersection of Fairfax Blvd/123. As they reached the east side of the intersection of Fairfax Blvd/123 a vehicle in front of vehicle two slowed down to turn into the parking lot of 10485 Fairfax Blvd. Vehicle two slowed down, driver one was talking with the passenger and didn't realize that vehicle two slowed down and struck vehicle two from behind.
160215229	1/6/2016	PDO.Property Damage Only	1. Rear End	0	0	0	South,South	no	no	no	VEHICLES 1 AND 2 WERE BOTH TRAVELING IN THE #2 NORTHBOUND LANE OF CHAIN BRIDGE RD JUST NORTH OF FAIRFAX BLVD. VEHICLE 2 CAME TO A STOP QUICKLY AND VEHICLE 1 WAS UNABLE TO STOP IN TIME AND STRUCK THE REAR END OF VEHICLE 2.
160505262	2/10/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,South	no	no	no	Vehicle 1 was attempting to make a left turn from the parking lot of 10485 Fairfax Blvd onto Chain Bridge Rd, when it struck vehicle 2. Vehicle 1 driver stated he didn't see vehicle 2 due to stopped vehicles on Chain Bridge Rd.Vehicle 2 was traveling straight on Chain Bridge Rd, when it was struck by vehicle 1.No injuries were reported at the time of the crash.
160605197	2/19/2016	C.Non-visible Injury	1. Rear End	0	2	0	South,South	no	no	no	Vehicle 2 was stopped at a red light on Chain Bridge Rd. at the intersection with Fairfax Blvd. heading north bound in the right lane. Vehicle 1 was headed north bound on Chain Bridge Rd. in the right lane approaching the red light. Vehicle 1 failed to stop his truck at the traffic signal and made contact with the rear end of Vehicle 2 at the red light.Neither driver stated they were injured as a result of the accident. The driver of Vehicle 1 was issued a summons for Failure to Pay Full Time and Attention (98-14).
160635197	2/19/2016	B.Visible Injury	1. Rear End	0	2	0	North,North	no	no	yes	Vehicle one and two were traveling south on Chain Bridge Road from Fairfax Blvd in lane one(left lane). Vehicle two came to a stop with traffic prior to Warwick Ave. Vehicle one, unable to stop in time, struck vehicle two in the rear end.
160575079	2/23/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	North,North	no	yes	no	VEHICLE #2 WAS TRAVELING IN THE LEFT TURN LANE OF SOUTHBOUND CHAIN BRIDGE RD. VEHICLE #1 WAS IN THE LEFT THROUGH LANE OF SOUTHBOUND CHAIN BRIDGE RD. VEHICLE #1 ATTEMPTED TO CHANGE LANES FROM THE THROUGH LANE TO THE TURN LANE. WHILE ATTEMPTING TO CHANGE LANES, VEHICLE #1 STRUCK VEHICLE #2.
160645211	3/2/2016	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	yes	V1 AND V2 WERE TRAVELING IN THE CENTER WESTBOUND LANE OF FAIRFAX BLVD. BOTH VEHICLES WERE STOPPED IN THE TRAFFIC LANE AT A RED LIGHT. AS THE LIGHT CHANGED FROM RED TO GREEN, V1 ACCELERATED AND STRUCK V2. V1 DRIVER WAS CITED.V1 (P1): FAIL TO PAY FULL TIME AND ATTENTION
160965104	3/31/2016	B.Visible Injury	1. Rear End	0	1	0	West,West	no	no	yes	VEHICLES 1 AND 2 WERE TURNING RIGHT ONTO WESTBOUND FAIRFAX BLVD FROM SOUTHBOUND CHAIN BRIDGE RD. VEHICLE 1 THOUGHT THAT VEHICLE 2 BEGAN TO TURN AND STRUCK VEHICLE 2 IN THE LEFT REAR CORNER.
161115221	4/18/2016	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	no	V1: A 2016 Freightliner M2 106 Medium Truck V2 was in the right lane of west bound Fairfax Boulevard approaching the intersection of Fairfax Boulevard and Chain Bridge Road. Traffic was reported by V1's driver to have slowed and she was moving at an estimated 26 MPH rate of speed. V2 reported that V1 rear ended the vehicle. V1's driver stated that sun glare made it difficult to see and that he rear ended V2. V1's driver reported that V2 may have been stopped in the roadway. A citation was issued to V1's driver for failure to pay full time and attention.
161205243	4/25/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,South	no	no	no	VEHICLE #1 WAS TRAVELING IN THE LEFT WESTBOUND LANE OF FAIRFAX BLVD AND MADE A LEFT TURN ONTO SOUTHBOUND CHAIN BRIDGE RD. VEHICLE #2 WAS STOPPED IN THE LEFT TURN LANE OF NORTHBOUND CHAIN BRIDGE RD. WHEN THE LIGHT CHANGED TO A GREEN SIGNAL, VEHICLE #2 ENTERED THE INTERSECTION AND STRUCK VEHICLE #1.

161465155	5/18/2016	B.Visible Injury	2. Angle	0	1	0	West,West	no	no	no	Vehicles one and two were traveling west on Fairfax Blvd approaching Chain Bridge Road. Vehicle one was stationary in the left turn lane (lane one) and vehicle two in the right through lane (lane two). Vehicle one changed lanes from the left turn lane and into the path of vehicle two traveling in lane two. Vehicle two, unable to avoid the collision, struck vehicle one in the right front passenger door.
161825162	6/22/2016	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	yes	VEHICLES ONE AND TWO WERE TRAVELING SOUTH ON CHAIN BRIDGE RD. VEHICLE TWO STOPPED FOR RED TRAFFIC SIGNAL PRIOR TO TURNING RIGHT. THE DRIVER OF VEHICLE ONE DID NOT NOTICE VEHICLE TWO HAD STOPPED AND STRUCK VEHICLE TWO IN THE REAR BUMPER.
162005335	6/30/2016	PDO.Property Damage Only	1. Rear End	0	0	0	North,North,North	no	no	yes	VEHICLES 1, 2 AND 3 WERE STOPPED IN TRAFFIC IN THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE 1 DRIVER THOUGHT THAT TRAFFIC WAS MOVING AND QUICKLY ACCELERATED. VEHICLE 2 HAD NOT STARTED MOVING YET AND VEHICLE 1 STRUCK VEHICLE 2. AS A RESULT OF THAT IMPACT, VEHICLE 2 STRUCK VEHICLE 3.
162175116	7/13/2016	PDO.Property Damage Only	1. Rear End	0	0	0	South,South,South	no	yes	no	Vehicles 1, 2 and 3 were traveling northbound on Chain Bridge Rd and attempting to make a left onto westbound Fairfax Blvd. Vehicle 3 stopped as the light turned red. Vehicle 2 stopped behind 3, Vehicle 1 struck Vehicle 2 in the rear, causing Vehicle 2 to strike Vehicle 3 in the rear.
162235230	7/27/2016	C.Non-visible Injury	1. Rear End	0	1	0	West,West	no	no	no	V2 as traveling westbound on Fairfax Boulevard in the far right straight lane. V1 was traveling behind V2. The driver of V1 looked down at her lunch and collided with the rear of V2.
162520117	8/25/2016	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	Veh 2 was traveling east on RT29/Lee Hwy and came to a stop for the red light at RT123/Jermantown Rd. Veh 1 was slowing behind Veh 2 when an insect flew in the window causing Veh 1 to lose control and strike Veh 2.
162875139	9/30/2016	PDO.Property Damage Only	1. Rear End	0	0	0	South,South	no	no	no	VEHICLE #1 WAS TRAVELING IN THE LEFT NORTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #2 WAS STOPPED IN THE LEFT NORTHBOUND LANE OF CHAIN BRIDGE RD. AS VEHICLE #1 BEGAN TO SLOW DOWN FOR TRAFFIC CONDITIONS, VEHICLE #1 DRIVER'S FOOT SLIPPED OFF THE BRAKE AND HIT THE ACCELERATOR, WHICH CAUSED VEHICLE #1 TO STRIKE VEHICLE #2 IN THE REAR.
162875146	10/4/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,South	no	no	no	Vehicle 1 was making a left turn from the parking lot of 10485 Fairfax Blvd to Chain Bridge Rd, when it struck vehicle 2. Vehicle 1 driver stated he couldn't see vehicle 2 because of stopped vehicles. Vehicle 2 was traveling in the left turn lane, when vehicle 1 struck it. No injuries were reported at the time of the crash.
163055255	10/25/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,South	no	no	no	Vehicle 1 was making a right turn to get into the left lane from 10485 Fairfax Blvd to Chain Bridge Rd. Vehicle 1 driver stated he could not see anyone in the left turn lane of Chain Bridge Rd, he then went forward and made contact with vehicle 2. Vehicle 2 possibly crossed over the double yellow solid line to get into the left turn lane on Chain Bridge Rd, before the lane started. Vehicle 2 was then struck by vehicle 1. I was unable to determine if vehicle 2 crossed the double yellow line to get into the left turn lane, although it didn't appear there was enough space in the left turn lane based off the location of the crash. Vehicle 1 driver stated he didn't see vehicle 2 in the left turn lane when he attempted to get into it. Neither driver was issued a summons because of conflicting statements and not able to determine if vehicle 2 crossed the double yellow line to get into the left turn lane early.
163215226	10/27/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	Vehicle 2 was stopped in the traffic lane, in the left north bound through lane of Chain Bridge Rd, prior to Fairfax Blvd. Vehicle 1 was traveling north bound on Chain Bridge Rd, when it struck Vehicle 2 (Point of Impact), while attempting to change into the left turning lane of Chain Bridge Rd south of Fairfax Blvd.
163215205	11/4/2016	B.Visible Injury	1. Rear End	0	3	0	West,West,West,West	no	no	no	Vehicle 1 was approaching the intersection of Fairfax Blvd and Chain Bridge Rd, when it struck the rear of vehicle 2. Vehicle 1 driver stated she was "close" to vehicle 2 and couldn't stop in time. Vehicle 2 was stopped in the right lane of Fairfax Blvd, when it was struck by vehicle 1. Vehicle 2 then struck the rear of vehicle 3 due to the impact. Vehicle 3 was stopped in the right lane of Fairfax Blvd, when it was struck by vehicle 2. Vehicle 3 then struck the rear of vehicle 4 due to the impact. Vehicle 4 was stopped in the right lane of Fairfax Blvd for a traffic light, when it was stuck from the rear by vehicle 3. Vehicle 1, vehicle 2 and vehicle 3 driver's were transported to the hospital with injuries.
163345261	11/16/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	VEHICLE #1 WAS TRAVELING IN THE LEFT NORTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #2 WAS TRAVELING IN THE CENTER NORTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #1 CONDUCTED AN UNSAFE LANE CHANGE AND STRUCK VEHICLE #2.
163415338	11/18/2016	C.Non-visible Injury	1. Rear End	0	1	0	North,North	no	no	no	VEHICLE #1 WAS TRAVELING IN THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #2 WAS TRAVELING IN THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #2 STOPPED FOR TRAFFIC CONDITIONS WHEN VEHICLE #1 REAR ENDED VEHICLE #2. VEHICLE #1 DRIVER WAS ATTEMPTING TO CHANGE LANES JUST PRIOR TO THE ACCIDENT.
163355246	11/18/2016	A.Ambulatory Injury	2. Angle	0	1	0	North,North,South	no	no	yes	VEHICLE #1 WAS TRAVELING SOUTHBOUND ON CHAIN BRIDGE RD. VEHICLE #2 WAS TRAVELING EASTBOUND ON FAIRFAX BLVD. VEHICLE #3 WAS STOPPED AT A RED TRAFFIC SIGNAL IN THE LEFT TURN LANE OF NORTHBOUND CHAIN BRIDGE RD WAITING TO TURN LEFT ONTO WESTBOUND FAIRFAX BLVD. VEHICLE #1 RAN THE RED TRAFFIC SIGNAL AS VEHICLE #2 BEGAN TO ACCELERATE FROM A STOPPED POSITION. VEHICLE #1 STRUCK VEHICLE #2. AFTER STRIKING VEHICLE #2, VEHICLE #1 CONTINUED FORWARD AND STRUCK VEHICLE #3. VEHICLE #1 DRIVER STATED THAT SHE HAD MISSED A PREVIOUS TURN AND THEREFORE WAS LOOKING AT HER GPS ON HER PHONE JUST PRIOR TO THE ACCIDENT.
163365377	11/19/2016	PDO.Property Damage Only	2. Angle	0	0	0	South,West	no	no	no	Vehicle 2 was traveling westbound at 10470 Fairfax Blvd. in the right turn lane. Vehicle 1 had exited the Toyota Dealership at 10441 Fairfax Blvd. and proceeded northbound across Fairfax Blvd. attempting to get into the same right turn lane as vehicle 2. The vehicles of the two thru lanes of westbound Fairfax Blvd. waived vehicle 1 across the lanes. The driver of vehicle 1 advised that she did not see vehicle 2 traveling in the right lane. Vehicle 1 collided with vehicle 2, as vehicle 1 attempted to enter the right turn lane.
180315408	1/20/2017	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	yes	no	Vehicle one was traveling west bound on Fairfax Blvd and ran the red light at the intersection with Chain Bridge Rd, striking vehicle two. Vehicle two was making a left from Chain Bridge Rd onto Fairfax Blvd when it was struck by vehicle one.

171365201	4/8/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,North,North	yes	no	yes	VEHICLE ONE WAS TRAVELING SOUTH BOUND CHAIN BRIDGE RD. AFTER STOPPING THE DRIVER REALIZED HE WAS IN A LEFT TURN LANE ONLY. HE THEN PLACED HIS RIGHT TURN SIGNAL ON AND PROCEEDED TO CHANGE LANES. DRIVER STATED HE DID NOT SEE THE VEHICLE IN THE THROUGH LANE. HE WAS STRUCK IN THE FRONT RIGHT QUARTER PANEL BY VEHICLE THREE WHICH LEFT THE SCENE OF THE ACCIDENT. WHEN VEHICLE ONE WAS STRUCK IN THE FRONT RIGHT QUARTER PANEL IT WAS FORCED INTO THE RIGHT REAR QUARTER PANEL OF VEHICLE TWO WHICH WAS IN THE LEFT TURN LANE STOPPED IN TRAFFIC.
180305338	4/8/2017	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	yes	Vehicle 2 was in the right lane of southbound Chain Bridge Rd. attempting to make a right turn onto westbound Fairfax Blvd. Driver of vehicle 2 stated that the light was red and she was sitting still when her vehicle was struck from behind. Vehicle 1 was in the right lane of Chain Bridge Rd. approaching Fairfax Blvd., where she was going to make a right turn. Driver of vehicle 1 stated that she saw that vehicle 2 was attempting to make the right hand turn, so she turned to look at westbound traffic, but when she looked forward vehicle 2 was still stopped. She advised that she thought the traffic light was red. No report of injuries. Vehicle 1 was towed by Henrys. Vehicle 1 was issued a summons for failing to pay full time and attention.
171975194	4/10/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	VEHICLE 2 WAS STOPPED IN THE #2 TRAFFIC LANE OF FAIRFAX BLVD JUST W OF CHAIN BRIDGE RD. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2. VEHICLE 1 WAS NOT PAYING ATTENTION AND STRUCK THE REAR END OF VEHICLE 2. DRIVERS ACTION-OTHER-FAIL TO PAY FULL TIME AND ATTENTION
171955169	4/29/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,East	yes	no	no	171955169 Vehicle one was traveling north on Chain Bridge Road at the red traffic signal for Fairfax Blvd. Vehicle two was traveling south on Chain Bridge Road proceeding to turn left onto Fairfax Blvd under a green traffic signal. Vehicle one made the right turn from Chain Bridge Road onto Fairfax Blvd under the red traffic signal after stopping. In doing so vehicle one failed to yield to vehicle two resulting in a crash.
172415350	5/17/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,East	yes	no	no	Vehicle 2 was traveling eastbound on Fairfax Blvd with a straight green light. Vehicle 1 was traveling northbound on 123 and making a right turn eastbound onto chain bridge with a solid red light. Vehicle 1 did not see vehicle 2 and they collided in the intersection.
172615314	6/2/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	yes	no	yes	VEHICLES 1 AND 2 WERE TRAVELING IN THE RIGHT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE 1 DRIVER WAS DISTRACTED BY CONSTRUCTION IN THE AREA AND STRUCK VEHICLE 2 IN THE REAR.
180225276	6/21/2017	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	V2 was stopped in the left travel lane on east bound Route 50 at the intersection with Route 123 due to a red light. V1 did not stop in time for the red light/traffic conditions and rear ended V2.
172615203	7/3/2017	PDO.Property Damage Only	2. Angle	0	0	0	South,East	no	no	no	VEHICLE 1 WAS TURNING RIGHT FROM NORTHBOUND CHAIN BRIDG RD ONTO EASTBOUND FAIRFAX BLVD. VEHICLE 2 WAS IN THE #1 LANE OF FAIRFAX BLVD JUST PASSING THE INTERSECTION OF CHAIN BRIDGE RD. VEHICLE 1 DID NOT YIELD RIGHT OF WAY AND TURNED IN THE #1 LANE OF FAIRFAX BLVD.
172005210	7/17/2017	C.Non-visible Injury	1. Rear End	0	1	0	North,North	no	no	yes	The driver of vehicle 1 was looking at traffic while turning right onto west bound Fairfax Blvd and failed to observe vehicle 2 stopped in front of her. Vehicle 1 struck the rear of vehicle 2 as a result.
172555192	8/30/2017	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	yes	V2 was traveling south bound on Chain Bridge Rd and stopped at the red light at Fairfax Blvd, attempting to make a right turn. V1 was traveling in the same direction but rear-ended V2. V1 stated he was looking at west bound traffic so that he could make a right turn onto Fairfax Blvd, but collided with V2. V1 stated that it was his fault and he is sorry. Information was exchanged between the two parties.
172625220	9/14/2017	PDO.Property Damage Only	2. Angle	0	0	0	West,West	no	no	no	The Driver of Vehicle 2 stated that she was westbound in the left lane of Fairfax Blvd. just past Chain Bridge Road. V2's driver stated that V1 merged into her lane striking the middle right side of her car. V2 stated that she was not injured. The Driver of Vehicle 1 stated that she was southbound Chain Bridge Road and made a right turn on red onto westbound Fairfax Blvd. V1's driver stated that she went to change lanes into the left westbound lane when V2's vehicle struck the left side of her car. V1 stated that she was not injured.
173205189	11/6/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	yes	no	no	Veh s 1 and 2 were west on Fairfax Blvd approaching Chain Bridge rd. Veh 1 was stopped for traffic, the driver of Veh 2 saw Veh 1 stopped but couldn't stop in time and struck her in the rear.
180525104	2/5/2018	B.Visible Injury	1. Rear End	0	3	0	South,South,South	no	no	no	Vehicle one was traveling northbound on Chain Bridge Road approaching backed up traffic from a red light. Vehicles two and three were stopped in the traffic northbound on Chain Bridge Road. Driver of vehicle one stated she was suffering from multiple health related issues and felt a spasm in her leg and when she thought she was hitting the brake, it was not working. Vehicle one had then struck vehicle two, driving that into vehicle three.
180545349	2/14/2018	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	no	VEHICLES #1, #2 AND #3 WERE TRAVELING IN THE RIGHT EASTBOUND LANE OF FAIRFAX BLVD. VEHICLE #2 AND #3 BEGAN SLOWING/STOPPING FOR A TRAFFIC SIGNAL THAT WAS CHANGING TO RED. VEHICLE #1 THEN STRUCK VEHICLE #2 IN THE REAR. VEHICLE #2 STRUCK VEHICLE #3 IN THE REAR.
181025220	4/9/2018	C.Non-visible Injury	1. Rear End	0	1	0	East,East	no	yes	yes	V1 AND V2 WERE TRAVELING EASTBOUND ON FAIRFAX BLVD IN THE FAR RIGHT LANE. V2 WAS STOPPED FOR A RED LIGHT. V1 WAS NOT PAYING ATTENTION AND STRUCK V2 IN THE REAR.
181065197	4/15/2018	C.Non-visible Injury	2. Angle	0	1	0	South,East	no	no	no	Vehicle #1 was turning left onto westbound Fairfax Blvd from the parking lot of 10485 Fairfax Blvd when it was struck by vehicle #2. Vehicle #2 was traveling in the left eastbound lane of Fairfax Blvd east of Chain Bridge Rd at the time of the incident.
182045309	4/20/2018	PDO.Property Damage Only	2. Angle	0	0	0	South,East	no	no	no	Vehicle one was leaving the parking lot of 10485 Fairfax Blvd attempting to turn into the left lane of travel. Vehicle two was traveling eastbound on Fairfax Blvd in the right lane. As vehicle one entered the roadway, it struck vehicle two in the passenger side.
181385231	5/16/2018	B.Visible Injury	2. Angle	0	3	0	West,South,East	no	yes	yes	Vehicle 1 was traveling WB on Fairfax Blvd. As vehicle 1 was nearing the intersection at Chain Bridge Rd, driver failed to obey a steady red traffic signal and struck vehicle 2 at an angle collision in the middle of the intersection. Vehicle 2 was traveling NB on Chain Bridge Rd on a green traffic signal. After that collision, vehicle 1 continued WB on Fairfax Blvd before the driver failed to maintain proper control, striking the center median and crossing over into the EB lanes. Vehicle 1 then struck vehicle 3 head on near the left turn lane. Vehicle 1 had significant front end damage.

182365271	8/20/2018	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	no	no	Vehicle one was traveling eastbound on Fairfax Blvd in the left lane. Vehicle two was traveling eastbound on Fairfax Blvd in the left lane. Vehicle three was traveling eastbound on Fairfax Blvd in the right lane. All three vehicles were eastbound approaching Chain Bridge Road. The traffic signal for Fairfax Blvd changed to yellow. Vehicles two and three began to slow and stop for the red light. Driver of vehicle one stated that he wanted to go and started accelerating. Driver of vehicle one stated he attempted to go between the two vehicles that were stopped and thought it might create less damage. Vehicle one then struck vehicle two and vehicle three simultaneously.
190115135	10/24/2018	C.Non-visible Injury	1. Rear End	0	1	0	East,East,East	no	no	no	Vehicle 3 (V3) was stopped as the first vehicle in line in the left thru lane on eastbound Fairfax Blvd. at the intersection of Chain Bridge Rd. Vehicle 2 (V2) was directly behind V3 and Vehicle 1 (V1) was directly behind V2. As the traffic light turned green, V3 hesitated because it appeared that another vehicle was going to enter the intersection from northbound Chain Bridge Rd. V1 proceeded straight, rear-ending V2. As V2 was struck, it was pushed into the back of V3.
190025191	12/3/2018	PDO.Property Damage Only	1. Rear End	0	0	0	South,South,South	no	no	no	V1 AND V2 WAS STOPPED AT A RED LIGHT NORTHBOUND CHAIN BRIDGE AT FAIRFAX BLVD WHEN V3 STRUCK V1. V1 THEN STRUCK V2. V3 FLED THE SCENE

Crash Data for the Intersection of Fairfax Blvd and Farr Ave (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
151135202	4/22/2015	PDO.Property Damage Only	2. Angle	0	0	0	West,West	no	no	yes	Vehicle 2 was stopped with traffic in the right west bound lane in front of 10570 Fairfax Blvd. Vehicle 1 was traveling west bound in the left lane, when the driver failed to maintain proper control of the vehicle, striking vehicle 2. Vehicle 1 then crossed the east bound lanes and struck bushes in front of 10579 Fairfax Blvd.
180275210	2/2/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	no	no	VEHICLE 1 WAS PULLING OUT OF A PRIVATE PARKING LOT (10570 FAIRFAX BLVD). VEHICLE 2 WAS TRAVELING IN THE LEFT EASTBOUND LANE OF FAIRFAX BLVD. VEHICLE 1 WAS ATTEMPTING TO MAKE A LEFT TURN ONTO EASTBOUND FAIRFAX BLVD. AS VEHICLE 1 PULLED INTO THE CENTER OF THE HIGHWAY, VEHICLE 1 STRUCK VEHICLE 2. THIS CAUSED VEHICLE 1 TO STRIKE THE CENTER MEDIAN, THEN A FAIRFAX CITY STREET SIGN BEFORE COMING TO REST CENTERED ON THE MEDIAN.
172305246	8/10/2017	C.Non-visible Injury	1. Rear End	0	3	0	West,West,West	no	no	yes	VEHICLES 2 AND 3 WERE STOPPED IN THE LEFT WESTBOUND LANE OF FAIRFAX BLVD. VEHICLE 1 WAS TRAVELING IN THE LEFT WESTBOUND LANE OF FAIRFAX BLVD WHEN IT STRUCK VEHICLE 2. THIS CAUSED VEHICLE 2 TO STRIKE VEHICLE 3.
172975134	10/10/2017	B.Visible Injury	1. Rear End	0	2	0	East,East,East	no	no	no	VEHICLES 1,2 AND 3 WERE ALL IN THE #1 EASTBOUND LANE OF FAIRFAX BLVD NEAR FARR AVE. VEHICLE 3 WAS STOPPED IN THE TRAFFIC LANE. VEHICLE 2 CAME TO A QUICK STOP DIRECTLY BEHIND VEHICLE 3. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2 AND WAS UNABLE TO COME TO A STOP. VEHICLE 1 CRASHED INTO THE REAR OF VEHICLE 2. VEHICLE 2 THEN CRASHED INTO THE REAR OF VEHICLE 3.
180035244	11/21/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Trailer Information: Power Unit Damage $00. Towed Unit Damage $500.00 Richard Harvey, 2017 Appalachian TL, XKN6603 (PA) VIN: 541FC4232HM000725 Vehicle 1 was parked unoccupied in the right through lane, in front of 10570 Fairfax Blvd. Vehicle 2 was traveling west bound on Fairfax Blvd, when it struck Vehicle 1 in rear left corner of the attached trailer unit. (Point of Impact). The driver of vehicle 2 fled the area westbound on Fairfax Blvd, making no attempt to identify themselves.
182575230	8/29/2018	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	no	no	Vehicle one was entering Warwick Avenue from the 10601 Fairfax Blvd. Vehicle two was traveling eastbound on Warwick Avenue. Driver of vehicle one stated when he looked there was no traffic and proceeded to go straight across the road to the parking lot of 10595 Warwick Avenue. Vehicle one then struck vehicle two as it was proceeding down the street.

Crash Data for the Intersection of Fairfax Blvd and McLean Ave (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
141845107	6/29/2014	B.Visible Injury	1. Rear End	0	3	0	West,West,West	no	no	yes	On 06-29-14 at 1430 hours, Vehicle #3, Vehicle #2 and Vehicle #1 were all headed west bound on Fairfax Blvd. The traffic signal on Fairfax Blvd at Warwick Ave, changed from green, to yellow and then to red. Vehicle #3 and Vehicle #2 both slowed down and stopped for the red traffic signal, directly behind each other. The driver of Vehicle #1 fell asleep and drove directly into Vehicle #2 (POI #1), causing Vehicle #2 to drive into Vehicle #3. (POI #2).This accident occurred just prior to the intersec. on of Fairfax Blvd and Warwick Ave, infront of 10620 Fairfax Blvd.
141895058	7/4/2014	PDO.Property Damage Only	14. Motorcyclist	0	0	0	East,West	no	no	no	Vehicle one was eastbound on Fairfax Blvd. Vehicle two was westbound on Fairfax Blvd. Vehicle one attempted to make a left turn onto McLean Ave. Driver one stated a westbound vehicle on Fairfax Blvd. was turning left to go southbound on McLean Ave. which blocked his vision of vehicle two. When vehicle one attempted the turn, the vehicle was in front of vehicle two which subsequently caused vehicle two to strike vehicle one.
141975262	7/14/2014	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	Both vehicles were traveling in the left through lane, west on Fairfax Blvd. Vehicle #1 advised that as she approached the traffic light at Warwick Ave the light was yellow and she came to a stop, so as not to run a red light. Vehicle #2 advised that he had taken his eyes off the road to check his mirrors and when he looked back, was when he saw that vehicle #1 had stopped for the traffic light.Vehicle #2 then hit vehicle #1, pushing her into the intersection.
153085172	10/24/2015	C.Non-visible Injury	2. Angle	0	2	0	West,South	no	no	no	Vehicle 1 was traveling West bound in the left through lane on Fairfax Blvd, when it mad contact with Vehicle 2, which was traveling North on Warwick Ave, approaching Fairfax Blvd. Both Drivers advised that they were proceeding with green lights.
163485245	10/27/2016	PDO.Property Damage Only	1. Rear End	0	0	0	East,East,East	no	yes	yes	Vehicle 1 was traveling East on Fairfax Blvd at Mclean Ave, when it struck the rear of vehicle 2. Vehicle 1 driver stated he went to pick something off the floor and struck vehicle 2. Vehicle 2 was stopped for traffic on Fairfax Blvd and was struck by vehicle 1. Vehicle 2 then struck vehicle 3 due to the impact. Vehicle 3 was stopped for traffic on Fairfax Blvd and was struck by vehicle 2. No injuries were reported at the time of the crash.
173065400	10/25/2017	PDO.Property Damage Only	1. Rear End	0	0	0	West,West	no	no	yes	Vehicle 1 rear ended Vehicle 2.
173415312	11/5/2017	A.Ambulatory Injury	1. Rear End	0	2	0	West,West	no	no	yes	Vehicle 1 rear ended Vehicle 2. Vehicle 1 was DUI (Case # 17-16969).
180035255	11/16/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle one and two were traveling west on Fairfax Blvd at Warwick Ave. Vehicle one was traveling in lane two, the left through lane, and vehicle two was traveling in lane one, the left turn lane. Vehicle one attempted to change lanes from lane two to lane one and struck vehicle two already occupying lane one.
181435331	1/19/2018	PDO.Property Damage Only	1. Rear End	0	0	0	West,East	no	no	no	Vehicles one and two were traveling east on Fairfax Blvd in the area of Mclean Ave in lane two. Vehicle two came to a stop with traffic prior to Mclean Ave. Vehicle one, failing to maintain proper control, rear ended vehicle two.
182495309	8/30/2018	PDO.Property Damage Only	2. Angle	0	0	0	East,East	no	no	no	Vehicle one was traveling eastbound on Fairfax Blvd. in the left lane. Vehicle two was traveling eastbound on Fairfax Blvd. in the left turn lane at the intersection of McLean Ave. and Warwick Ave. Vehicle one had stopped for the red light traffic and the driver decided she needed to make a left turn. Driver of vehicle one stated she looked but vehicle two entered her blind spot when she attempted to turn and change lanes. Vehicle one then struck vehicle two in the passenger side.
183245179	11/6/2018	PDO.Property Damage Only	1. Rear End	0	0	0	East,East	no	no	no	V2 WAS STOPPED IN THE RIGHT EASTBOUND LANE OF FAIRFAX BLVD. V1 WAS TRAVELING IN THE RIGHT EASTBOUND LANE OF FAIRFAX BLVD. V1 FAILED TO MAINTAIN PROPER CONTROL AND STRUCK V2 IN THE REAR. V1 DRIVER MAY HAVE BEEN TRAVELING TOO FAST FOR ROADWAY CONDITIONS (WET ROADS) WHICH MAY HAVE CONTRIBUTED TO THE CRASH.
183375381	11/28/2018	PDO.Property Damage Only	2. Angle	0	0	0	East,East	no	no	no	V2 WAS TRAVELING EAST BOUND FAIRFAX BLVD PASSING THE INTERSECTION OF WARWICK WHEN V1 TURNED LEFT FROM A PARKING LOT STRIKING V2. V2 WAS TOWED.

Crash Data for the Intersection of Chain Bridge Road and Orchard St (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
140315073	1/28/2014	PDO.Property Damage Only	2. Angle	0	0	0	North,North,North	no	no	no	Vehicle #2 was traveling in the middle south bound lane of Chain Bridge Road prior to Orchard Street when vehicle #1 changed lanes from the left south bound lane to the middle lane in front of vehicle #2. Vehicle #2 made an evasive move to the right to keep from crashing into vehicle #1. Vehicle #2's evasive move caused it to strike vehicle #3. Vehicle #3 was traveling in the right south bound lane of Chain Bridge Road at the time of the incident.Vehicle #2, Vehicle Maneuver (V1) #15, "Other" is, Avoiding Other Vehicle
140525079	2/19/2014	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle 1 was traveling south on Chain Bridge Road at the intersection with Orchard St. Vehicle 2 was traveling north on Chain Bridge Road. Vehicle 2 turned left in front of Vehicle 1 and struck Vehicle 1 in the front bumper. Vehicle 2 then fled the scene. Vehicle 2 failed to yield to Vehicle 1 when making a left turn, subsequently causing the crash. The driver, tag number, and make/model of Vehicle 2 are unknown.
140525074	2/19/2014	B.Visible Injury	2. Angle	0	1	0	West,North,North,North	no	yes	no	Vehicle #2 was traveling in the right south bound lane of Chain Bridge Road at Orchard Street when it was struck by vehicle #1. The impact between vehicles 1 and 2 forced #2 into #3 and #3 into #4. Vehicle #2 was turning left from the left turn lane of north bound Chain Bridge Road onto Orchard Street at the time of the incident. Vehicles 3 and 4 were stopped in the middle south bound lane of Chain Bridge Road at the time of the incident.
142235147	8/4/2014	B.Visible Injury	2. Angle	0	3	0	West,North	no	no	no	VEHICLE #1 WAS TURNING LEFT FROM NORTH BOUND CHAIN BRIDGE ROAD TO ORCHARD STREET. VEHICLES FROM SOUTH BOUND CHAIN BRIDGE ROAD HAD STOPPED TO ALLOW VEHICLES TO EXIT OR ENTER ORCHARD STREET. VEHICLE #2 WAS IN THE FAR RIGHT CURB LANE TRAVELING SOUTH ON CHAIN BRIDGE ROAD. VEHICLE #1 TURNED LEFT IN FRONT OF VEHICLE #2.
143445128	12/1/2014	B.Visible Injury	1. Rear End	0	1	0	South,South	no	yes	no	Vehicle # 2 was stopped facing northbound on Chain Bridge Road at a red light. Vehicle # 1 was traveling northbound on Chain Bridge Road. Driver # 1 advised he was having difficulty seeing and did not see vehicle # 2 stopped. Vehicle # 1 subsequently struck vehicle # 2 in the rear.
151245268	5/1/2015	B.Visible Injury	2. Angle	0	1	0	East,South	no	no	no	VEHICLE 1 WAS TURNING LEFT INTO 10485 FAIRFAX BLVD FROM THE LEFT SOUTH BOUND LANE OF CHAIN BRIDGE ROAD WHEN IT STRUCK VEHICLE 2. VEHICLE 2 WAS TRAVELING IN THE RIGHT TURN LANE OF NORTH BOUND CHAIN BRIDGE ROAD AT THE TIME OF THE INCIDNT.
151835213	6/22/2015	PDO.Property Damage Only	2. Angle	0	0	0	South,North	no	no	no	Vehicle 1 was making a left turn from Chain Bridge Rd to Orchard St, when it struck vehicle 2. Vehicle 1 driver stated that the #1 and #3 lanes of South Chain Bridge Rd had come to a stop, leaving the #2 lane open. Vehicle 1 then made the left turn from North Chain Bridge Rd and struck vehicle 2 in the #2 lane.Vehicle 2 was traveling South on Chain Bridge Rd in the #2 lane, when vehicle 1 turned in front of it causing the crash.No injuries were reported at the time of the crash. Vehicle 1 driver was issued a summons for the crash.
151835206	6/22/2015	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	no	no	Vehicle 1 was leaving Orchard St to make a left turn onto Chain Bridge Rd, when it struck vehicle #2. Vehicle #1 driver stated that the #1 and #3 lanes came to a stop and vehicle #2 did not stop in the #2 lane.Vehicle #2 was traveling South on Chain Bridge Rd in the #2 lane, when vehicle #1 pulled in front of it causing the crash.No injuries were reported at the time of the crash. Vehicle #1 driver was issued a summons for the crash.
152385159	8/25/2015	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	V2 was south bound on Chain Bridge Road in the center lane. V1 was in the left turn lane at north bound Chain Bridge Road and Orchard Street.V1's driver reported that a van had stopped prior to the intersec. on and waved him forward to turn west from Chain Bridge Road onto Orchard Street. V1 stated he did not see V2 (obstructed view of the roadway) as it was traveling south and V1 struck the front driver's side of V2. V2's driver advised she did not see V1 turn. There were skid marks at the approximate location of the point of impact from the left side tires.V1 did not yield the right of way while making a left turn to oncoming south bound traffic.
152475186	9/3/2015	C.Non-visible Injury	2. Angle	0	1	0	West,North	no	no	no	Vehicle #1 was turning left from northbound Chain Bridge Rd. on to Orchard St. Vehicle #2 was traveling in the right southbound lane of Chain Bridge Rd when Vehicle #2 struck Vehicle #1. Vehicle #1 failed to yield the right of way to Vehicle #2 at the time of the incident.

152595288	9/14/2015	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	Vehicle 1 was making a left turn from Chain Bridge Rd to Orchard St, when it struck vehicle 2. Vehicle 1 driver stated that the left two lanes of Chain Bridge Rd came to a stop and she attempted the left turn. Vehicle 2 then came in the right lane of Chain Bridge Rd, where the collision occurred.Vehicle 2 was traveling straight on Chain Bridge Rd in the right lane, when it was struck by vehicle 1.No injuries were reported at the time of the crash.
152815214	9/28/2015	PDO.Property Damage Only	1. Rear End	0	0	0	West,North	no	no	no	Vehicle one was turning left onto Orchard Street from north bound Chain Bridge Road through stationary traffic. Vehicle two was traveling south on Chain Bridge Road in lane three (far right lane) towards Fairfax Blvd. Vehicle one failed to yield when turning left and entered the path of vehicle two. Vehicle two, unable to stop in time, struck vehicle one in the right front corner.
152755191	10/1/2015	B.Visible Injury	2. Angle	0	1	0	West,North	no	no	no	Vehicle one was northbound on Chain Bridge Road preparing to make a left turn onto Orchard Street. Vehicle two was southbound on Chain Bridge Road. Two other lanes of traffic waved vehicle one to make the left turn and the driver began to make a left turn. While vehicle two was southbound, the vehicles in the two left lanes blocked the view of vehicle one turning until it was directly in front of vehicle two. Vehicle two then subsequently struck vehicle one.
170265231	8/31/2016	PDO.Property Damage Only	1. Rear End	0	0	0	South,South	no	no	no	Vehicles one and two were traveling north on Chain Bridge Road in lane one. Vehicle two came to a stop with traffic prior to Eaton Place. Vehicle one, unable to stop in time, struck vehicle two in the rear end.
162925739	9/1/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	VEHICLE 1 ATTEMPTED TO MAKE A LEFT TURN FROM CHAIN BRIDGE RD ONTO ORCHARD ST IN BETWEEN STOPPED TRAFFIC. VEHICLE 2 WAS TRAVELING SOUTH ON CHAIN BRIDGE RD IN THE FAR RIGHT LANE. VEHICLE 1 STRUCK VEHICLE 2 WHEN VEHICLE 1 ENTERED VEHICLE 2'S LANE OF TRAVEL.
162885217	9/28/2016	C.Non-visible Injury	2. Angle	0	1	0	West,North	no	yes	no	The driver of Vehicle 2 stated that she was South bound on Chain Bridge Road at Orchard Street. V2's driver stated that V1 turned in front of her causing the left front of her vehicle to impact the right front of V1. V2's driver complained of pain in her right breast area and lower left abdomen. V2's driver was transported to Fairfax Hospital. The driver of Vehicle 1 stated that she was North bound Chain Bridge Road in the left turn lane onto West bound Orchard Street. V1's driver stated that two lanes of South Chain Bridge Road were stopped in traffic and left an opening so that she could turn left onto Orchard Street. V1's driver stated that she slowly started making her left turn and entered into the curb lane when she was struck by V2. V1's driver stated that the right front of her vehicle impacted the left front of V2. V1's driver stated that the impact forced her off the road in between a utility pole and fire hydrant. V1's driver stated that she was not injured but since she was 31 weeks pregnant it was advised for her to be transported to Fairfax Hospital and examined.
162875142	10/3/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	VEHICLE #2 WAS TRAVELING IN THE RIGHT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #1 WAS TRAVELING NORTHBOUND ON CHAIN BRIDGE RD ATTEMPTING TO MAKE A LEFT TURN ON WESTBOUND ORCHARD ST. VEHICLE #2 DRIVER WAS STOPPED AND ALLOWED A VEHICLE TO TURN LEFT BEFORE CONTINUING ON CHAIN BRIDGE RD. VEHICLE #1 DRIVER FAILED TO YIELD THE RIGHT OF WAY WHILE TURNING LEFT TO VEHICLE #1 WHICH CAUSED THE TWO VEHICLE TO STRIKE EACH OTHER.
162955199	10/11/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	VEHICLE #1 WAS TRAVELING NORTHBOUND ON CHAIN BRIDGE RD. IN THE LEFT TURN LANE. VEHICLE #2 WAS TRAVELING IN THE RIGHT SOUTHBOUND LANE OF CHAIN BRIDGE RD. AS VEHICLE #1 MADE A LEFT TURN ONTO WESTBOUND ORCHARD ST., VEHICLE #1 FAILED TO YIELD THE RIGHT OF WAY TO VEHICLE #2. THIS CAUSED VEHICLE #2 TO STRIKE VEHICLE #1.
163215178	11/2/2016	PDO.Property Damage Only	2. Angle	0	0	0	West,North	no	no	no	Vehicle 1 was making a left turn to Orchard St from Chain Bridge Rd, when it struck vehicle 2. Vehicle 1 driver stated he couldn't see vehicle 2 due to a stopped vehicle letting him make the left. Vehicle 2 was traveling straight in the middle lane, when it was struck by vehicle 1. No injuries were reported at the time of the crash.
163135657	11/7/2016	C.Non-visible Injury	16. Other	0	2	0	West,North	no	no	no	Vehicle 1 made a left hand turn from the north bound lane of Chain Bridge Road. Vehicle 2 was traveling south bound on Chain Bridge Road. Vehicle 1 made a left turn and crossed into North Bound traffic. Vehicle 2 collided with Vehicle 1 in the intersection.
163405366	11/15/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,West	no	no	no	Driver of vehicle # 2 was turning left onto Orchard st from Chain Bridge rd. The Vehicles in two of the three lanes of Chain Bridge were stopped due to traffic. Driver of vehicle # 2 didn t see vehicle # 1, who was in the right lane of Chain Bridge rd south and pulled into her path causing a collision.
170185204	11/29/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,West	no	yes	no	Veh 1 was traveling south in the right lane of Chain Bridge rd. Veh 2 was making a left off of Chain Bridge rd onto Orchard st. Driver of veh 2 didn t see Veh 1 due to stopped traffic and pulled into the path of veh 1 causing a collision.

180255282	2/15/2017	C.Non-visible Injury	2. Angle	0	1	0	East,North	no	no	no	Vehicle one was turning left from Orchard Street onto north bound Chain Bridge Road. Vehicle two was traveling south on Chain Bridge Road in lane one, far left lane, approaching Orchard Street. Vehicle one failed to see vehicle two as vehicle one proceeded across Chain Bridge Road through stopped traffic, entering into the path of vehicle two. Vehicle two unable to avoid the collision, struck vehicle one on the left front corner. Drivers Actions (P1); Other (37) - Fail to pay full time and attention.
172615197	2/22/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	no	no	Vehicle one was turning left from Orchard Street onto north bound Chain Bridge Road, through stopped traffic. Vehicle two was traveling south on Chain Bridge Road towards Fairfax Blvd in lane two (middle though lane). Vehicle one failed to yield to vehicle two when entering the highway from a stop sign, resulting in the crash. Driver of vehicle one stated that he did not see vehicle two through stationary traffic in lane three (right turn lane).
180325090	4/24/2017	C.Non-visible Injury	2. Angle	0	2	0	North,East	yes	no	no	VEHICLE 1 WAS TRAVELING IN THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE 2 WAS ATTEMPTING TO MAKE A LEFT TURN ONTO NORTHBOUND CHAIN BRIDGE RD FROM ORCHARD ST. VEHICLE 2 FAILED TO YIELD TO VEHICLE 1. VEHICLE 2 DRIVER WAS UNABLE TO SEE VEHICLE 1 WHO WAS TRAVELING FASTER THAN THE POSTED SPEED LIMIT PRIOR TO IMPACT.
180235414	4/25/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,North	yes	yes	no	VEHICLE 1 WAS ATTEMPTING TO MAKE A RIGHT TURN FROM ORCHARD ST ONTO SOUTHBOUND CHAIN BRIDGE RD. VEHICLE 2 WAS TRAVELING IN THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE 1 FAILED TO YIELD TO VEHICLE 2 AND VEHICLE 2 STRUCK VEHICLE 1.
172235198	5/11/2017	PDO.Property Damage Only	16. Other	0	0	0	North,North	no	yes	no	VEHICLE 2 WAS TRAVELING SOUTH IN THE RIGHT LANE. VEHICLE 1 ATTEMPTED TO TURN RIGHT IN FRONT OF VEHICLE 1. VEHICLE 1 STRUCK VEHICLE 2 WHILE ATTEMPTING TO TURN INTO THE GAS STATION.
172155119	7/11/2017	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	no	no	Vehicle one was exiting the parking lot of 3570 Chain Bridge Road attempting to make a right turn into the far left lane. Vehicle two was driving southbound on Chain Bridge Road in the far left lane. Traffic southbound on Chain Bridge Road in the middle lane was backed up from a red traffic light. Driver 1 attempted to make the turn into the far left lane without being able to see the traffic coming subsequently striking vehicle two.
172585180	8/31/2017	PDO.Property Damage Only	1. Rear End	0	0	0	North,North,North	yes	no	yes	VEHICLES 1, 2, AND 3 WERE TRAVELING IN THE MIDDLE SOUTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLES 2 AND 3 SLOWED FOR TRAFFIC CONDITIONS. VEHICLE 1 DRIVER WAS ATTEMPTING TO CHANGE TO THE LEFT SOUTHBOUND LANE OF CHAIN BRIDGE RD. AS VEHICLE 1 DRIVER LOOKED OVER HIS SHOULDER, VEHICLES 2 AND 3 CAME TO A STOP. VEHICLE 1 THEN STRUCK VEHICLE 2 WHICH CAUSED VEHICLE 2 TO STRIKE VEHICLE 3.
182365269	8/21/2018	B.Visible Injury	16. Other	0	1	0	West,North	no	no	no	Vehicle 1 (V1) was traveling northbound on Chain Bridge Rd. and attempted to make a left turn onto Orchard St. The driver of V1 advised the vehicles in the first two lanes of southbound Chain Bridge Rd. were stopped. As V1 attempted to turn onto Orchard St., Vehicle 2 (V2) was traveling southbound in the third lane of Chain Bridge Rd. and struck V1. The driver of V1 stated that he did not see V2 approaching. The driver of V1 was issued a summons for Fail to Pay Full Time and Attention (98-14).
183485277	8/27/2018	PDO.Property Damage Only	2. Angle	0	0	0	North,West	no	no	no	Veh 1 was south on Chain Bridge Rd in the right lane. Veh 2 was north on Chain Bridge making a left onto Orchard St. Neither veh saw each other due to stopped cars and veh 2 crossed into the path of veh 1 causing a collision.
182575176	8/27/2018	PDO.Property Damage Only	2. Angle	0	0	0	North,North,West	no	no	no	Veh 2 was south on Chain Bridge rd in the right lane. Veh 3 was north on Chain Bridge making a left onto Orchard st. Neither veh 2 or 3 could see each other due to stopped traffic. Veh 3 crossed into the path of veh 2, veh 2 swerved to avoid hitting veh 3 and in doing so struck veh 1 which was sitting in traffic on Chain Bridge rd south. There was no collision involving veh 3.
183395149	12/3/2018	PDO.Property Damage Only	3. Head On	0	0	0	West,North	no	no	no	V1 was traveling Northbound on Chain bridge Rd. V2 was traveling Southbound on Chain bridge Rd. V1 made a left turn onto Orchard St through stopped traffic. V2 was traveling at normal speed in the third right turn lane and struck V1 as it traveled across the roadway.
183515302	12/7/2018	PDO.Property Damage Only	2. Angle	0	0	0	West,South	no	no	no	VEHICLE ONE WAS TRAVELING NORTHBOUND ON CHAIN BRIDGE ROAD MAKING A LEFT ONTO ORCHARD STREET. VEHICLE TWO WAS TRAVELING SOUTHBOUND ON CHAIN BRIDGE ROAD IN THE RIGHT LANE. STOPPED VEHICLES IN THE MIDDLE AND LEFT LANE WERE BLOCKING THE VIEWS OF EACH VEHICLE. VEHICLE ONE BEGAN TO MAKE THE LEFT TURN AND SUBSEQUENTLY STRUCK VEHICLE TWO. AFTER THE INITIAL COLLISION, VEHICLE TWO WAS PUSHED TO THE RIGHT OFF PARTIALLY OFF THE ROADWAY AND VEHICLE ONE ROLLED INTO THE BACK OF IT STRIKING IT AGAIN.

Crash Data for the Intersection of Chain Bridge Road and Eaton Place (2014 - 2018)

Document Number	Date	Crash Severity	Collsion Type	Pedestrain Injury	Persons Injured	Fatalities	Direction of Travel	Work Zone Related	Adverse Weather Conditions	Distracted Driver	Description
140495149	1/22/2014	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	no	no	Vehicle one was traveling south on Chain Bridge Road turning left onto Eaton Place. Vehicle two was traveling north on Chain Bridge Road in lane three(middle thru lane) approaching Eaton Place. Vehicle one turned left through the intersection and into the path of vehicle two causing the crash. Vehicle one and vehicle two both were proceeding through the intersection under a green light, however vehicle one did not have the left turn arrow and was required to yield to oncoming traffic.
140785230	3/15/2014	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle #1 was traveling south bound Chain Bridge Road. Vehicle #2 was traveling north bound on Chain Bridge Road. Vehicle #1 attempted to turn left onto eastbound Eaton Place. Vehicle #1 failed to see Vehicle #2 and struck it in the intersec. on.
141215184	4/28/2014	PDO.Property Damage Only	1. Rear End	0	0	0	South,South	no	yes	no	Vehicle 1 was traveling northbound on Chainbridge Rd when the driver failed to see vehicle 2 stopped in the lane of travel. As a result, vehicle 1 struck the rear of vehicle 2.
150540003	5/7/2014	B.Visible Injury	2. Angle	0	1	0	North,East	no	yes	no	VEHICLE #1 A PETERBILT DUMP TRUCK WAS NORTH ON CHAIN BRIDGE RD IN THE RIGHT THROUGH LANE. VEHICLE #2 A MINI COOPER WAS SOUTH ON CHAIN BRIDGE IN THE LEFT TURN LANE ATTEPTING TO PROCEED WEST ONTO EATON PL. VEHICLE #1 ADVISES THAT WHEN HE APPROACHED THE INTERSECTION HE BELIEVED THE TRAFFIC LIGHT WAS YELLOW. VEHICLE #2 ADVISED THAT SHE THOUGHT THE TRUCK WAS STOPPING FOR THE RED LIGHT WHEN SHE PROCEEDED THROUGH THE INTERSECTION. SCOTT (703) 627-8189 WITNESS DIRECTLY BEHIND PETERBILT DUMP TRUCK, ADVISED THAT HE SAW THE RED LIGHT AND WAS WONDERING WHY THE TRUCK WASN'T STOPPING OR ATTEMPTING TO STOP. LESLIE (703) 786-4275 WITNESS BEHIND MINI COOPER, ADVISES THAT SHE SAW THE CAR BEHIND THE STOP LINE WHEN THE LIGHT CHANGED FROM GREEN TO YELLOW AND POSSIBLE RED. SHE OBSERVED THE TRUCK NOT STOPPING, AND WAS SCREAMING AT AT THE CAR IN FRONT AS SHE SAW HER PROCEEDING THROUGH THE INTERSECTION. VEHICLE #2 WAS TRANSPORTED TO FAIR OAKS HOSPITAL BY RESCUE #433 WITH MINOR INJURIES.
141325157	5/9/2014	C.Non-visible Injury	2. Angle	0	1	0	East,South	no	no	no	VEH 1 TRAVELING SOUTH BOUND CHAIN BRIDGE RD MADE A LEFT TURN ONTO EATON PL. DRIVER DID NOT SEE VEH 2 AND WAS STRUCK BY THE VEH 2. VEH 2 WAS TRAVELING NORTH BOUND CHAIN BRIDGE RD AND STRUCK VEH 1 AS IT TURNED IN FRONT OF VEH 2. VEH 1 SUSTAINED DAMAGE TO THE RIGHT PASSENGER SIDE REAR DOOR. THE DRIVER OF VEH 1 WAS TRANSPORTED FOR EVALUATION AFTER COMPLAINING OF PAIN TO THE NECK AND BACK. VEH 2 SUSTAINED DAMAGE TO THE FRONT AND WAS TOWED FROM THE SCENE.
141715162	6/17/2014	B.Visible Injury	1. Rear End	0	1	0	North,North,North	no	no	yes	Vehicles 2 and 3 were stopped for traffic/red light in the left south bound lane of Chain Bridge Road prior to Eaton Place when vehicle #1 struck #2 in the rear. The impact between vehicles 1 and 2 forced #2 into the rear of vehicle #3. Vehicle #1 was traveling in the left south bound lane of Chain Bridge Road at the time of the incident.Driver's Action (P1) #37 "Other" is, Fail to Pay Full Time & Attention
141705085	6/18/2014	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	no	no	Driver of Veh 1 stated that he had a green light and was attempting to make a left turn from southbound Chain bridge Rd. onto eastbound Eaton Pl. Driver of Veh 2 stated that her light turned green and she proceeded to drive through the intersection when Veh 1 crossed in front of her. Driver of Veh 2 stated that she was unable to stop prior to making contact with Veh 1. Witness was driving behind Veh 2 and stated that they had the green light.
141835094	6/30/2014	PDO.Property Damage Only	2. Angle	0	0	0	South,South	no	no	no	VEHICLE 2 WAS TRAVELING IN THE #4 LANE OF CHAIN BRIDGE RD AT THE INTERSECTION OF EATON PLACE. VEHICLE 1 WAS IN THE #3 LANE OF NORTHBOUND CHAIN BRIDGE RD. VEHICLE 1 THEN ATTEMPTED TO MAKE A RIGHT TURN. VEHICLE 1'S PASSENGER SIDE STRUCK THE FRONT LEFT CORNER OF VEHICLE 2. THERE WERE NO INJURIES REPORTED AT THE CRASH SCENE. VEHICLE 1 WAS TOWED FROM THE SCENE.
142205118	8/5/2014	B.Visible Injury	2. Angle	0	1	0	South,East	no	no	no	Vehicle #1 was traveling in the right through lane north on Chain Bridge Rd, approaching Eaton Pl. Vehicle #2 was traveling south on Chain Bridge Rd attempting to turn left onto east bound Eaton Pl. Chain Bridge Rd had a green light for both North and South bound lanes.Vehicle #2 advised that she observed the vehicle in front of her turn left, and she felt that she could make it as well.Vehicle #2 turned in front of vehicle #1 and was struck in the passenger side middle of the vehicle causing vehicle #2 to slide into the curb and flipping onto its driver side then rolling over onto its roof.Vehicle #1 suffered damage to the front end.Vehicle #2 totaled.
142385150	8/19/2014	PDO.Property Damage Only	2. Angle	0	0	0	South,North,West	no	no	no	Vehicle one was northbound on Chainbridge Road. Vehicle two was turning left from southbound Chainbridge Road onto eastbound Eaton Place. Vehicle three was stopped westbound on Eaton Place at Chainbridge Road. Vehicle one struck vehicle two causing vehicle two to spin around and strike vehicle three. Both vehicle one and two entered the intersection on a yellow traffic signal.
142385104	8/22/2014	B.Visible Injury	2. Angle	0	1	0	East,South	no	no	no	VEHICLE 1 WAS TRAVELING SOUTH ON CHAIN BRIDGE ROAD APPROACHING THE INTERSECTION WITH EATON PLACE. VEHICLE 1 ADVISED SHE HAD A GREEN ARROW AND MADE A LEFT TURN TO TRAVEL EAST ON EATON PLACE. VEHICLE 2 WAS AT A RED LIGHT ON CHAIN BRIDGE ROAD FACING SOUTH AT THE INTERSECTION WITH EATON PLACE. VEHICLE 2 PROCEEDED INTO THE INTERSECTION WHEN HIS LIGHT TURNED GREEN AND WAS STRUCK BY VEHICLE 1 ON THE LEFT FRONT CORNER (POI 1). BOTH PARTIES ADVISED THEY HAD THE RIGHT OF WAY. VEHICLE 3 WAS SEVERAL CARS BACK BEHIND VEHICLE 2 AND CONFIRMED THAT VEHICLE 2 DID IN FACT HAVE A GREEN LIGHT AND HAD THE RIGHT OF WAY IN THE INTERSECTION.

150075139	9/25/2014	PDO.Property Damage Only	2. Angle	0	0	0	South,North,North,North	no	yes	no	Vehicle 1 made a left turn onto Chain Bridge Rd from Eaton Pl, when the driver failed to maintain proper control. Vehicle 1 struck the left rear of Vehicle 2, then struck Vehicle 3 head-on. The force of the impact on Vehicle 3 caused it to travel backwards and strike the front left of Vehicle 4.
143435282	11/21/2014	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	no	no	Both vehicles were traveling on Chain Bridge Rd in the right through lane south bound. Vehicle #1 had turned right onto Chain Bridge service Rd and had made a legal U turn to proceed onto Eaton Pl. Vehicle #2 had made the right turn to proceed into Assembly Dr. Vehicle #2 advised that she thought vehicle #1 was continuing onto the service road and she headed for Assembly Dr and was unable to stop.Vehicle #1 sustained damage to the driver side front quarter panel, and door.Vehicle #2 sustained damage to the passenger side front corner bumper, quarter panel.No injuries reported.
143525271	12/1/2014	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	North,North	no	yes	no	Both Vehicle # 1 and # 2 were traveling southbound on Chain Bridge Road. Vehicle # 1 was in the middle straight lane and vehicle # 2 was in the right (#3) lane. Vehicle # 1 changed lanes without checking for other vehicles and struck vehicle # 2 on its drivers side.
150145208	1/1/2015	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle 1 was headed south on Chainbridge Rd. and was turning left on to Eaton Pl. Vehicle 2 was headed north on Chainbridge Rd. Both vehicles had a yellow traffic signal. Vehicle 1 turned in front of the path of vehicle 2. The right front of vehicle 2 struck the right rear side of vehicle 1.
150145164	1/9/2015	B.Visible Injury	1. Rear End	0	1	0	North,North	no	no	yes	Both vehicles were in the left turn lane southbound on Chainbridge Road. Vehicle two was stopped for traffic when vehicle one struck vehicle two in the rear. Vehicle one left the area without providing any information.
150835173	3/21/2015	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	no	no	Vehicle 1 was turning left from the left turn lane of south bound Chain Bridge Road onto east bound Eaton Place when it was struck by vehicle 2. Vehicle 2 was traveling in the left north bound lane of Chain Bridge Road at Eaton Place at the time of the incident. Both vehicles were traveling on a green light at the time of the incident. Vehicle 1 was towing a vehicle vin# 1HGCR2F53EA069110.
151485175	5/19/2015	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle 1 was traveling South on Chain Bridge Rd and attempted a left turn to Eaton Pl. Vehicle 1 then struck vehicle 2 in the intersection. Vehicle 1 driver stated "I thought I had enough time" when making the left turn. Vehicle 2 was traveling North on Chain Bridge Rd with a steady green light, when it was struck by vehicle 1.No injuries were reported at the time of the crash and vehicle 1 driver was issued a summons for fail to yield the right of way.
151825137	7/1/2015	A.Ambulatory Injury	9. Fixed Object - Off Road	0	1	0	North	no	yes	yes	Vehicle 1 was traveling southbound on Chain Bridge Rd. at the intersection of Assembly Dr. Vehicle 1 was traveling at an unknown speed in rainy conditions when it entered the intersection and veered to the left. Vehicle 1 then jumped the center median, striking a road sign and then a tree. The driver stated that she blinked and the next thing she knew was the cabin was filled with smoke, she was in pain and attempting to get out of the vehicle. She advised that she was in the process of moving and has not slept since "yesterday". There were no signs of alcohol. Rescue 433 transported to Fairfax Hospital. Fairfax Towing towed the Uhual.
152055089	7/23/2015	B.Visible Injury	2. Angle	0	1	0	East,South	no	no	no	Vehicle one was southbound on Chain Bridge Road attempting to make a left turn westbound on Eaton Place. Vehicle two was northbound on Chain Bridge Road. The driver of vehicle one stated that he saw the north/south traffic light turn yellow and it appeared the vehicle in the left lane was stopping so that vehicle proceeded. Vehicle two continued through the intersection on the yellow light. As vehicle one was turning, it struck vehicle two as it was going through the intersection. The driver of vehicle one stated that he did not see another vehicle past the one that was in the left straight through lane.
152125084	7/30/2015	C.Non-visible Injury	2. Angle	0	2	0	East,South	no	no	no	VEHICLE 1 WAS TURNING LEFT ONTO EAST BOUND EATON PLACE FROM THE LEFT TURN LANE OF SOUTH BOUND CHAIN BRIDGE ROAD WHEN IT WAS STRUCK BY VEHICLE 2. VEHICLE 2 WAS TRAVELING IN THE RIGHT NORTHBOUND LANE OF CHAIN BRIDGE ROAD AT THE TIME OF THE INCIDENT. BOTH VEHICLES WERE TRAVELING ON A GREEN LIGHT AT THE TIME OF THE INCIDENT.
152185274	7/31/2015	C.Non-visible Injury	4. Sideswipe - Same Direction	0	1	0	North,North	no	no	no	Vehicle 1 was traveling South on Chain Bridge Rd, when the driver attempted a lane change to the right. Vehicle 1 then struck vehicle 2 inside the intersection of Eaton Place.Vehicle 2 was traveling straight in the right lane of Chain Bridge Rd, when it was struck by vehicle 1. Vehicle 2 driver was checked out by EMS and refused transportation to the hospital with a minor/possible injury to neck and shoulder.Vehicle 1 driver was issued a summons for the crash.

152245127	8/6/2015	C.Non-visible Injury	2. Angle	0	1	0	East,South	no	no	no	Vehicle #2 was traveling in the right northbound lane of Chain Bridge Rd. Vehicle #1 had made a left turn from southbound Chain Bridge Rd onto eastbound Eaton Pl. Vehicle #1 did not yield the right of way and was unable to clear the intersection before Vehicle #2 struck Vehicle #1.
152755187	10/1/2015	C.Non-visible Injury	2. Angle	0	2	0	North,South	no	yes	no	Vehicle 2 was traveling northbound on Chain Bridge Road, in the far right through lane, when it was struck by Vehicle 1, as it was making a left turn onto Eaton Place.
153095122	11/1/2015	PDO.Property Damage Only	2. Angle	0	0	0	South,South	no	no	no	Vehicle one was northbound in the middle lane of Chainbridge Road. Vehicle two was northbound in the right lane of Chainbridge Road. Vehicle one changed lanes into the right lane and struck vehicle two.
160125198	1/9/2016	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	yes	no	Vehicle 1 was turning left from the left turn lane of northbound Chain Bridge Road onto eastbound Eaton Place when it was struck by vehicle 2. Vehicle 2 was traveling in the left southbound lane of Chain Bridge Road at Eaton Place at the time of the incident. Both vehicles were traveling on a green light at the time of the incident.
160345195	2/2/2016	B.Visible Injury	16. Other	0	2	0	North,West	no	no	no	V1 was traveling south on Chain Bridge Rd. at Eaton Pl in the middle lane when it ran the red light at Eaton Pl. Vehicle 2 was traveling west on Eaton Pl. at Chain Bridge Rd. in the left lane on a green light. Vehicle 1 was struck on the left side by the front of vehicle 2.
160555255	2/23/2016	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	yes	yes	yes	Vehicle #1 was in the No #2 lane of southbound Chain Bridge Rd. approaching Eaton Place. Vehicle #2 was directly behind Vehicle #1. Driver #2 looked down at the car radio and when he looked back up, he struck Vehicle # 1 in the rear, creating a rear end collision.
160895172	3/18/2016	A.Ambulatory Injury	2. Angle	0	2	0	East,South	no	no	no	Vehicle 1 attempted to make a left turn from the left southbound lane of Chain Bridge Rd onto Eaton Pl. Vehicle 1 had a solid green light and did not have the right of way. Vehicle 2 was traveling in the center north bound lane of Chain Bridge Rd. Vehicle 1 made the left turn, striking vehicle 2.
160895170	3/28/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,North	no	no	yes	Vehicle one was stopped in the right lane of Chainbridge Road southbound at the intersection of Assembly Drive for the red traffic signal. Vehicle two was stopped in the middle lane of Chainbridge Road southbound at the intersection of Assembly Drive for the red traffic signal. Both drivers were alerted by an emergency vehicle approaching from behind them with emergency equipment activated. Vehicle two moved forward and to the right partially into the right lane in the intersection in order to let the emergency vehicle pass. Vehicle one also moved forward into the intersection. Driver one was looking in the rear view mirror for the emergency vehicle and failed to see vehicle two stopped ahead in the right lane. The left front corner of vehicle one struck the right side of vehicle two.
161805199	6/13/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,West	no	no	no	VEHICLE 1 WAS ATTEMPTING TO MAKE A LEFT TURN FROM 3535 CHAIN BRIDGE RD ONTO EASTBOUND EATON PL. VEHICLE 2 WAS IN THE #1 LANE OF WESTBOUND EATON PL. VEHICLE 1'S FRONT END STRUCK THE PASSENGER SIDE OF VEHICLE 2.
162175169	7/21/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,West	no	no	no	V1 was traveling south on Chain Bridge Rd. in the right lane approaching the intersection with Eaton Pl. V2 was traveling west on Eaton Pl. approaching Chain Bridge Rd., attempting to turn left onto Chain Bridge Rd. south bound. Both drivers stated that they had a green light upon entering the intersection. V1 and V2 collided in the middle of the intersection between Chain Bridge Rd. and Eaton Pl. Both drivers stated that they may have been at fault. After my on scene investigation and after not being able to obtain conclusive video footage of the incident, neither driver was issued a citation as a result of the incident.
162365089	8/10/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	VEHICLES #1 AND #2 WERE TRAVELING WESTBOUND ON EATON PL. AS THE VEHICLES SIMULTANEOUSLY MADE A RIGHT TURN ON TO NORTHBOUND CHAIN BRIDGE RD, VEHICLES #1 AND #2 SIDESWIPED EACH OTHER.
162935188	9/14/2016	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	VEHICLES #1 AND #2 WERE TRAVELING WESTBOUND ON EATON PLACE. AS BOTH VEHICLES MADE A RIGHT TURN ONTO NORTHBOUND CHAIN BRIDGE RD, VEHICLES #1 AND #2 STRUCK EACH OTHER.
162805263	9/23/2016	PDO.Property Damage Only	2. Angle	0	0	0	North,South,South	no	no	no	Vehicle 1 made a left from Chain Bridge Rd to Eaton Place and was struck by vehicle 2. Vehicle 1 did not have the right of way when making the left. Vehicle 2 was in the middle lane of Chain Bridge Rd, when it struck the left turning vehicle 1. Vehicle 2 was then struck from behind by vehicle 3. Vehicle 3 was behind vehicle 2 on Chain Bridge Rd, when it struck the rear of vehicle 2. Vehicle 3 did not have enough time to stop due to the crash between vehicle 1 and vehicle 2.
162875149	9/28/2016	PDO.Property Damage Only	2. Angle	0	0	0	East,South	no	yes	no	VEHICLE 2 WAS TRAVELING NORTHBOUND ON CHAIN BRIDGE RD IN THE #3 LANE OF CHAIN BRIDGE RD AT THE INTERSECTION OF EATON PL. VEHICLE 1 WAS MAKING A LEFT TURN FROM SOUTHBOUND CHAIN BRIDGE RD ONTO EATON PLACE. VEHICLE 1 DID NOT SEE VEHICLE 2 AND CRASHED INTO VEHICLE 2 WHILE MAKING THE TURN.
163475355	10/3/2016	PDO.Property Damage Only	3. Head On	0	0	0	South,East	no	no	no	VEHICLE ONE WAS TRAVELING NORTH BOUND ON CHAIN BRIDGE RD. DRIVER STATED HE WAS FOLLOWING BEHIND A LARGE TRUCK AND THEN HIT IN THE FRONT LEFT DRIVER'S SIDE. THE DRIVER STATED HE DID NOT RECALL WHAT COLOR THE LIGHT WAS WHEN HE WENT THROUGH THE INTERSECTION. THE DRIVER STATED HE ASSUMED IT WAS GREEN BECAUSE OTHER CARS WERE TRAVELING IN THE SAME DIRECTION. VEHCILE TWO WAS TRAVELING SOUTH BOUND CHAIN BRIDGE RD. AND ATTEMPTING TO MAKE A LEFT TURN AT THE INTERSECTION OF CHAIN BRIDGE RD. AND EATON PLACE. THE DRIVER OF VEHICLE TWO STATED HE HAD A GREEN LIGHT AND NORTH BOUND TRAFFIC HAD A RED LIGHT. THE DRIVER OF VEHICLE TWO STATED HE COULD NOT REMEMBER IF HE HAD A GREEN ARROW OR GREEN LIGHT. I REVIEWED VIDEO FOOTAGE FROM THE TRAFFIC CAMERAL LOCATED AT THE INTERSECTION. I DETERMINED VEHICLE ONE RAN A RED TRAFFIC LIGHT WHICH CAUSED THE ACCIDENT. I WILL SEEK A MAGISTRATE SUMMONS FOR THE DRIVER OF VEHICLE ONE.
163155121	11/9/2016	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	no	Vehicle 2 was stopped at a steady red traffic signal, In the left, south bound through lane of Chain Bridge road, at Eaton Place. Vehicle 1 was traveling south bound in the left through lane of Chain Bridge Road, when it disregarded the traffic signal at Eaton Place and struck Vehicle 2 in the rear(Point of Impact). Drivers Action #37 Other is Driver not paying attention.

163205184	11/12/2016	A.Ambulatory Injury	2. Angle	0	1	0	North,South	no	no	no	V1 WAS IN THE LEFT TURN LANE TO TURN EASTBOUND ON EATON PLACE FROM SOUTHBOUND CHAIN BRIDGE WHEN IT PULLED OUT IN FRONT OF V2 WHICH WAS TRAVELING NORTH BOUND ON CHAIN BRIDGE RD.
163375240	11/20/2016	PDO.Property Damage Only	1. Rear End	0	0	0	North,North	no	no	yes	Vehicle 1 was stopped at a steady red traffic signal, in the left through lane of Chain Bridge Road, at Eaton Place. Vehicle 2 was traveling south bound in the left through lane of Chain Bridge Road, at Eaton Place. Vehicle 2 disregarded the traffic signal and struck Vehicle 1 in the rear Point of Impact). Vehicle 2 fled the scene, traveling north bound on Chain Bridge Road, making no attempty to identify themselves.
170965114	3/13/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	North,North,North	no	yes	no	V2 and V3 were traveling south bound on Chain Bridge Road at the intersection of Eaton Place. V2 was in the third lane and V3 was in the fourth lane. V2 and V3 were stopped at the red light, V1 attempted to drive in-between V2 and V3 striking both vehicles.
180325099	3/27/2017	C.Non-visible Injury	4. Sideswipe - Same Direction	0	2	0	West,South	no	no	no	V1 WAS IN THE FAR RIGHT TURN ONLY LANE AT EATON PL ATTEMPTING TO GO STRAIGHT ACROSS THE INTERSECTION. V2 WAS IN THE LEFT RIGHT TURN LANE ATTEMPTING TO TURN NORTHBOUND ON CHAIN BRIDGE RD FROM EATON PL. V1 DID NOT SEE THE RIGHT TURN ONLY SIGN AND CONTINUED STRAIGHT CAUSING V1 TO STRIKE V2 WITH THEIR LEFT FRONT TIRE AND BUMPER.
172115262	4/6/2017	PDO.Property Damage Only	2. Angle	0	0	0	South,South	no	no	no	VEHICLE 1 WAS IN THE RIGHT WESTBOUND LANE OF EATON PL. VEHICLE 2 WAS IN THE LEFT WESTBOUND LANE OF EATON PL. BOTH VEHICLES WERE MAKING A RIGHT TURN ONTO NORTHBOUND CHAIN BRIDGE RD. VEHICLE 1 DRIVER ATTEMPTED TO CHANGE TO LANES TO THE FAR LEFT LANE OF CHAIN BRIDGE RD. WHILE DOING SO, SHE STRUCK VEHICLE 2.
180305314	4/19/2017	C.Non-visible Injury	9. Fixed Object - Off Road	0	1	0	South	no	no	no	VEHICLE 1 WAS DRIVING WESTBOUND ON EATON PL ATTEMPTING TO MAKE A RIGHT TURN ONTO NORTHBOUND CHAIN BRIDGE RD. DUE TO BEING UNFAMILIAR WITH THE AREA, VEHICLE 1 DRIVER WAS UNSURE OF WHERE TO GO. THIS CAUSED HER TO BEGIN TO PANIC, AND IN THE PROCESS OF DOING SO, LOST CONTROL OF HER VEHICLE AND STRUCK A TREE. P2: DRIVER WAS HAVING A MENTAL HEALTH EMERGENCY
171725147	4/25/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	Vehicle one and two were traveling west on Eaton Place at Chain Bridge Road. Vehicle one was in lane one making a right turn onto Chain Bridge Road and vehicle two was making a right turn onto Chain Bridge Road from lane two. At some point during the turn both vehicles collided. Both drivers stated that they were stationary and the other vehicle encroached on their lane. Video footage from the traffic camera at Chain Bridge and Eaton did not capture the accident or the events that lead up to it. Unable to determine fault due to conflicting statements and a lack of witnesses.
173205395	8/30/2017	PDO.Property Damage Only	2. Angle	0	0	0	South,South	no	no	no	V1 was in the right turn lane facing west on Eaton Place. V2 was in the far left turn lane facing West on Eaton Place. The far left lane has the ability to turn left, go straight ahead, or make a right turn. V2 and V1 both made right turns onto north Chain Bridge Road. V1 made a wide right turn and it's driver's side corner struck the front passenger side door of V2.
172625304	9/3/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,East	no	no	no	Vehicle one was traveling south on Chain Bridge Road approaching Eaton Place in lane two, the left through lane. Vehicle two was traveling east across Chain Bridge Road to Eaton Place under the direction of a green traffic signal. Driver of vehicle one stated that he observed his light cycle from green to red but was unable to stop in time to avoid colliding with vehicle two.
172935280	9/19/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	VEH 1 AND VEH 2 WERE DRIVING SIDE BY SIDE IN THE RIGHT TURN LANES OF EATON PLACE. BOTH VEHICLES MADE A RIGHT TURN FROM EATON PLACE ONTO CHAIN BRIDGE RD NORTH BOUND. WHILE TURNING IN THE INTERSECTION, VEH 1 AND VEH 2 MADE CONTACT. BOTH DRIVERS CLAIMED THE OTHER ENTERED THEIR LANE OF TRAVEL. AFTER ATTEMPTING TO REVIEW TRAFFIC CAMERAS OF THE INTERSECTION, I AM UNABLE TO DETERMINE WHICH VEHICLE IS AT FAULT.
172635147	9/20/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	V2 WAS TRAVELLING SOUTH BOUND ON RT123 IN THE AREA OF RT66 WHEN IT WAS SIDE SWIPPED BY V1. V1 WAS EXITING EAST BOUND RT66 TO CONTINUE SOUTH BOUND ON RT123 WHEN IT CROSSED OVER THE SOLID WHITE LANE MARKINGS INTO V2'S LANE OF TRAVEL CAUSING THE COLLISION.
172925241	9/22/2017	C.Non-visible Injury	1. Rear End	0	1	0	North,North	no	no	no	Vehicles one and two were traveling south in lane three (middle through lane). Vehicle two came to a stop with traffic prior to the light at 123 and Eaton Place. Vehicle one failed to stop in time striking vehicle two in the rear end.
173475337	9/30/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle 2 was traveling west bound on Eaton Place in the left west bound lane. Vehicle 1 was traveling west bound on Eaton Place in the right west bound lane. Vehicle 2 was making a Right Turn onto North Bound Chain Bridge Rd. Vehicle 1 proceeded straight in the right turn only lane, striking Vehicle 2 (Point of Impact). Trailer Unit Information Damage to Power Unit $00 Damage to Towed Unit $3000 Vehicle Owner Name: Heil Trailer International Co 2015 Heil Trailer International, Co Heil Trailer International Co VIN: 5HTAB4323D7H77898 Tag Number 419033TL (Virginia)
173205195	11/1/2017	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	yes	Vehicle 2 proceeded west bound on Eaton Place, in the straight/right option lane, prior to Chain Bridge Road. Vehicle 1 proceeded west bound in the far right turn lane of Eaton Place, prior to Chain Bridge Rd. Vehicle 2 made the right turn onto Chain Bridge Road and proceeded into the middle through lane of North Bound Chain Bridge Road, side swiping Vehicle 2 (Point of Impact).
173205191	11/2/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle 2 was traveling North bound in the right through lane of Chain Bridge Rd, prior to Eaton Place. Vehicle 1 was traveling South bound, in the left turn lane of Chain Bridge Rd, prior to Eaton Place. Vehicle 1 failed to yield the right of way while turning left on a solid green traffic signal and was struck by Vehicle 2 (Point of Impact).

180195243	11/17/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	yes	Vehicle one was traveling south on Chain Bridge Road, making a left onto Eaton Place under a solid green light without the left turn arrow. Vehicle two was traveling north on Chain Bridge Road in lane two, continuing through the intersection under a green light. Vehicle one failed to yield to vehicle two when making the left turn causing the crash.
180315400	11/30/2017	PDO.Property Damage Only	2. Angle	0	0	0	North,South	no	no	no	Vehicle one was traveling southbound on Chain Bridge Road preparing to make a left turn onto Eaton Pl. Vehicle two was traveling northbound on Chain Bridge Road in the right straight through lane. Vehicle one started to make the turn and did not yield the right of way to vehicle two subsequently striking it. Vehicle one then rolled to the north east corner of the intersection where it struck the curb and came to rest. Driver of vehicle one only had a learner's permit in her possession and no licensed driver in the vehicle.
180465194	2/5/2018	C.Non-visible Injury	1. Rear End	0	1	0	North,North	no	no	no	Vehicles one and two were traveling southbound on the Chain Bridge Road service road approaching the red light at Eaton Place. Vehicle two had stopped for the red light and vehicle one had subsequently struck the rear of the vehicle two. Driver of vehicle one had stated she was hit from behind by another vehicle causing her to strike the rear of the bus. There was some paint transfer on the rear bumper of the vehicle and possibly a broken license plate frame. The front of vehicle one had extensive damage from striking vehicle two. The reporting officer also witnessed vehicle one striking vehicle two, but there was not a prior collision beforehand. Only one collision was heard as well as being seen. The damage to vehicle one does not correlate with chain reaction rear end crash where it would be the middle vehicle.
180755256	2/26/2018	PDO.Property Damage Only	2. Angle	0	0	0	East,West	no	no	no	V1 was exiting the parking lot of 3535 Chain Bridge Rd. and attempting to make a left turn onto eastbound Eaton Pl. V2 was traveling westbound in the left lane of Eaton Pl. attempting to make a left turn into the parking lot of 3545 Chain Bridge Rd. V1 entered the highway after a vehicle in the right lane of westbound Eaton Pl. waived him to proceed. V1 struck V2 in the left lane of westbound Eaton Pl.
180685182	3/2/2018	A.Ambulatory Injury	1. Rear End	0	1	0	South,South,South	no	no	no	Vehicle 1 was traveling northbound on Chain Bridge Rd. Driver stated that he became light headed and blacked out. Vehicle 1 hit the rear end of vehicle 2 near the intersection of Eaton Pl. Vehicle 1 then to continued northbound on Chain Bridge Rd and rammed into the back of vehicle 3 and proceeded to strike a tree as it went over the median and into the southbound lanes. Vehicle 1 then went back over the median, struck another tree and rolled over in the northbound lanes.
180935126	4/2/2018	PDO.Property Damage Only	2. Angle	0	0	0	East,North	no	yes	no	Veh 1 was traveling east on Eaton Pl. Veh 2 was pulling out of a driveway to go east on Eaton Pl. The driver of veh 2 didn't see veh 1 due to stopped traffic and pulled into it's path causing a collision.
181495394	5/16/2018	PDO.Property Damage Only	2. Angle	0	0	0	East,South,West	no	yes	no	VEHICLE #1 WAS MAKING A LEFT TURN FROM SOUTHBOUND CHAIN BRIDGE RD ONTO EASTBOUND EATON PL. VEHICLE #2 WAS TRAVELING IN THE RIGHT NORTHBOUND LANE OF CHAIN BRIDGE RD. VEHICLE #3 WAS STOPPED AT A RED TRAFFIC SIGNAL ON WESTBOUND EATON PL. VEHICLE #1 MADE A LEFT TURN AND FAILED TO YIELD THE RIGHT OF WAY TO VEHICLE #2. VEHICLE #2 THEN STRUCK VEHICLE #1. THIS CAUSED VEHICLE #1 TO STRIKE VEHICLE #3.
182065274	6/8/2018	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	VEHICLE 2 WAS NORTHBOUND ON CHAIN BRIDGE RD (SERVICE ROAD) WITH THE INTERSECTION OF EATON PLACE GOING STRAIGHT. VEHICLE 1 WAS DIRECTLY BEHIND VEHICLE 2. VEHICLE 1 WAS IN A HURRY AND PASSED VEHICLE 2 ON THE LEFT AND THEN ATTEMPTED TO MAKE A RIGHT TURN IN FRONT OF VEHICLE 2. VEHICLE 1 THEN STRUCK VEHICLE 2.
182695288	6/27/2018	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	South,South	no	no	no	Vehicle 2 was traveling north bound in the right through lane of Chain Bridge Road, prior to Eaton Place. Vehicle 1 was traveling north bound in the left through lane of Chain Bridge Road, prior to Eaton Place. Vehicle 1 proceeded to change traffic lanes, striking Vehicle 2 (Point of Impact).
181905199	6/29/2018	C.Non-visible Injury	2. Angle	0	1	0	West,North	no	no	no	The driver of Vehicle 2 stated that she was South bound on the Chain Bridge Road Service Road at Eaton Place. V2's driver stated that she had a green light and was making a right turn from Chain Bridge Road onto East bound Eaton Place. V2's driver stated that as she was entering the intersection V1 impacted her vehicle from the left striking the left rear quarter panel of her car. V2's driver initially stated she was not injured but than complained of neck and back pain. V2's driver declined my offer to have rescue respond to the scene. The driver of Vehicle 1 stated that she was West bound on Eaton place in the number 1 lane at Chain Bridge Road. V1's driver stated that as she neared the intersection she did not see the first stop bar before the service road or the "Stop here on red sign" at the service road intersection. V1's driver stated that she also did not see the first set of red lights and was focused on the set of lights that were green at the main intersection of Chain Bridge Road. V1's driver and passenger both stated that they were not injured.
182705178	9/7/2018	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	VEHICLES ONE AND TWO WERE TURNING RIGHT FROM EATON PLACE ONTO CHAIN BRIDGE ROAD. VEHICLE ONE WAS TURNING FROM LANE ONE, THE LEFT, THROUGH OR RIGHT TURN LANE, AND VEHICLE TWO WAS TURNING FROM LANE TWO, THE RIGHT TURN ONLY LANE. DRIVERS OF VEHICLE ONE AND TWO BOTH STATED THAT THEY WERE ATTEMPTING TO TURN INTO THE SAME LANE, LANE TWO(MIDDLE LANE) OF NORTH BOUND CHAIN BRIDGE ROAD.

182705237	9/26/2018	PDO.Property Damage Only	2. Angle	0	0	0	South,North	no	no	no	VEHICLE ONE WAS TRAVELING SOUTHBOUND ON CHAIN BRIDGE ROAD AND IN THE LEFT TURN LANE FOR EATON PLACE. VEHICLE TWO WAS TRAVELING NORTHBOUND ON CHAIN BRIDGE ROAD IN THE LEFT LANE. THE TRAFFIC LIGHT FOR THE SOUTHBOUND TRAFFIC HAD THE GREEN ARROW AND THEN TURNED TO JUST THE GREEN BALL. THE NORTHBOUND CHAIN BRIDGE ROAD TRAFFIC THEN RECEIVED THE GREEN LIGHT AND VEHICLE TWO PROCEEDED TO GO STRAIGHT THROUGH THE INTERSECTION. DRIVER OF VEHICLE ONE STATED SHE JUST TRIED TO FOLLOW THE TURNING TRAFFIC AND DID NOT LOOK TO SEE IF THE GREEN ARROW WAS STILL THERE. VEHICLE ONE THEN ENTERED THE PATH OF VEHICLE TWO SUBSEQUENTLY CAUSING THEM TO COLLIDE.
182885453	9/30/2018	C.Non-visible Injury	1. Rear End	0	2	0	North,North	no	no	no	BOTH VEHICLE ONE AND TWO WERE STOPPED AT LIGHT AT THE INTERSECTION OF CHAIN BRIDGE RD AND EATON PL. THE DRIVER OF VEHICLE ONE STATED HER FOOT SLIPPED OFF THE BRAKE AND SHE STRUCK VEHICLE TWO IN THE REAR BUMPER. THE ONLY DAMAGE WAS PAINT TRANSFER FROM THE FRONT LICENSE PLATE OF VEHICLE ONE. THE DRIVER AND PASSENGER OF VEHICLE TWO COMPLAINED OF NECK PAIN AND THEN REFUSED TREATMENT FROM RESCUE.
183195332	10/26/2018	PDO.Property Damage Only	2. Angle	0	0	0	South,North	no	yes	no	VEH 1 WAS FACED SOUTHBOUND CHAIN BRIDGE ROAD AT EATON PLACE, AT THE TRAFFIC SIGNAL TO TURN LEFT ONTO EATON PLACE. VEH 2 WAS FACED NORTHBOUND CHAIN BRIDGE ROAD, IN THE FAR RIGHT LANE. VEH 1 MADE A LEFT HAND TURN FROM SB CHAIN BRIDGE ROAD ONTO EATON PLACE WHILE HAVING A YELLOW LIGHT, FAILING TO YIELD THE RIGHT OF WAY FOR NORTHBOUND CHAIN BRIDGE RD TRAFFIC, ULTIMATELY CAUSING VEH 2 TO STRIKE VEH 1 IN THE MIDDLE OF THE INTERSECTION. VEH 1 WAS ISSUED A SUMMONS FOR F-T-Y-T-R-O-W WHILE TURNING LEFT (46.2-825). NO INJURIES WERE REPORTED ON SCENE.
183465410	12/10/2018	PDO.Property Damage Only	4. Sideswipe - Same Direction	0	0	0	West,West	no	no	no	Vehicle (V1) was in the westbound lane of Eaton Pl. to make a right turn onto northbound Chain Bridge Rd. in the right turn lane. Vehicle 2 (V2) was in the westbound lane of Eaton Pl. to make a right turn onto northbound Chain Bridge Rd. in the lane to the left of V1 (drivers can make a left turn, right turn, or continue straight while in this lane). As V1 and V2 made the right turn, V1 made a wide right turn, striking V2.