

TRANSPORTATION IMPACT STUDY

Stafford Logistics Center

Aurora, Colorado

Prepared for:

Ware Malcomb
990 S. Broadway, Suite 230
Denver, CO 80209

Prepared by:

Felsburg Holt & Ullevig
6400 S Fiddlers Green Circle, Suite 1500
Greenwood Village, CO 80111
303.721.1440

Project Manager: Christopher J. Fasching, PE, PTOE
Project Engineer: Philip Dunham, PE, PTOE



FHU Reference No. 120346-01

March 2021

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	I
II. EXISTING CONDITIONS.....	4
II.A. Land Use.....	4
II.B. Roadway System.....	4
II.C. Traffic Volumes and Operations.....	4
III. PROPOSED CONDITIONS	8
III.A. Site Trip Generation.....	8
III.B. Trip Distribution and Traffic Assignment.....	9
IV. FUTURE CONDITIONS.....	18
IV.A. Short-Term Future Background without Picadilly Interchange.....	18
IV.B. Short-Term Future Background with Picadilly Interchange.....	21
IV.C. Long-term Future Background.....	24
IV.D. Total Traffic Conditions	28
V. SUMMARY AND RECOMMENDATIONS.....	49

Appendices

Appendix A.	Traffic Counts
Appendix B.	Existing Conditions LOS
Appendix C.	NCHRP 684 (Internal Capture) Worksheets
Appendix D.	Short-Term Background LOS
Appendix E.	Long-Term Background LOS
Appendix F.	Short-Term Total Traffic LOS
Appendix G.	Long-Term Total Traffic LOS
Appendix H.	Signal Warrants
Appendix I.	Progression Analysis

List of Figures

	<u>Page</u>
Figure 1. Vicinity Map.....	2
Figure 2. Conceptual Site Plan	3
Figure 3. Existing Traffic Volumes.....	5
Figure 4. Existing Traffic Conditions	7
Figure 5. Short-Term Site Trip Distribution without Picadilly Interchange.....	10
Figure 6. Short-Term Site Generated Traffic without Picadilly Interchange	11
Figure 7. Short-Term Site Trip Distribution with Picadilly Interchange	12
Figure 8. Short-Term Site Generated Traffic with Picadilly Interchange.....	13
Figure 9. Long-Term Site Trip Distribution (Industrial)	14
Figure 10. Long-Term Site Trip Distribution (Retail).....	15
Figure 11. Long-Term Site Generated Traffic Assignment (Industrial)	16
Figure 12. Long-Term Site Generated Traffic Assignment (Retail).....	17
Figure 13. Short-Term Future Background Traffic Volumes without Picadilly Interchange.....	19
Figure 14. Short-Term Future Background Traffic Conditions without Picadilly Interchange	20
Figure 15. Short-Term Future Background Traffic Volumes with Picadilly Interchange.....	22
Figure 16. Short-Term Future Background Traffic Conditions with Picadilly Interchange	23
Figure 17. Long-Term Future (2040) Background Traffic Volumes.....	26
Figure 18. Long-Term Future (2040) Background Traffic Conditions.....	27
Figure 19. Short-Term Future Total Traffic Volumes without Picadilly Interchange.....	29
Figure 20. Short-Term Future Total Traffic Conditions without Picadilly Interchange	30
Figure 21. Short-Term Future Total Traffic Volumes with Picadilly Interchange	34
Figure 22. Short-Term Future Total Traffic Conditions with Picadilly Interchange.....	35
Figure 23. Long-Term Future (2040) Total Traffic Volumes	40
Figure 24. Long-Term Future (2040) Total Traffic Conditions.....	41

List of Tables

	<u>Page</u>
Table 1. Stafford Trip Generation Estimates.....	8
Table 2. Short-term Future 95th Percentile Queueing without Picadilly Interchange.....	31
Table 3. Short-term Future 95th Percentile Queueing with Picadilly Interchange.....	36
Table 4. Long-term Future 95 th Percentile Queueing – Stafford.....	43
Table 5. Stafford CDOT Recommended Auxiliary Lane Length.....	47

I. INTRODUCTION

Ware Malcomb, on behalf of NorthPoint Development, is proposing to develop approximately 350 acres primarily in the southwest quadrant of the Picadilly Road and Colfax Avenue intersection in Aurora, Colorado. **Figure 1** illustrates the location of the site and the adjacent primary roadway network (existing and future planned roadways).

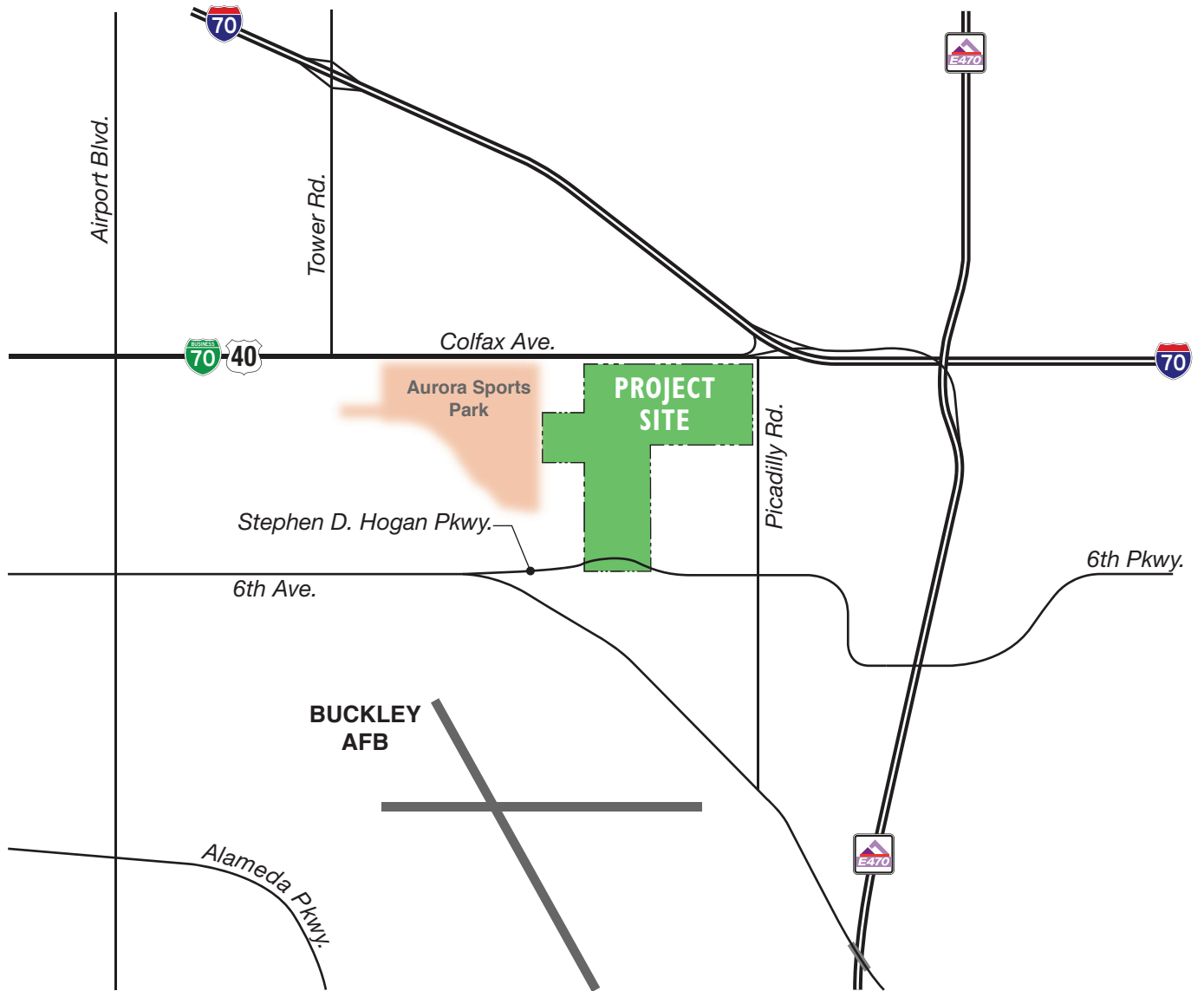
The proposed industrial development would consist of approximately 4.2 million square feet of industrial park, approximately 160,000 square feet of mixed retail, including a bank and a supermarket, a gas station, and two hotels with a total of 200 rooms. **Figure 2** depicts the current site plan concept.

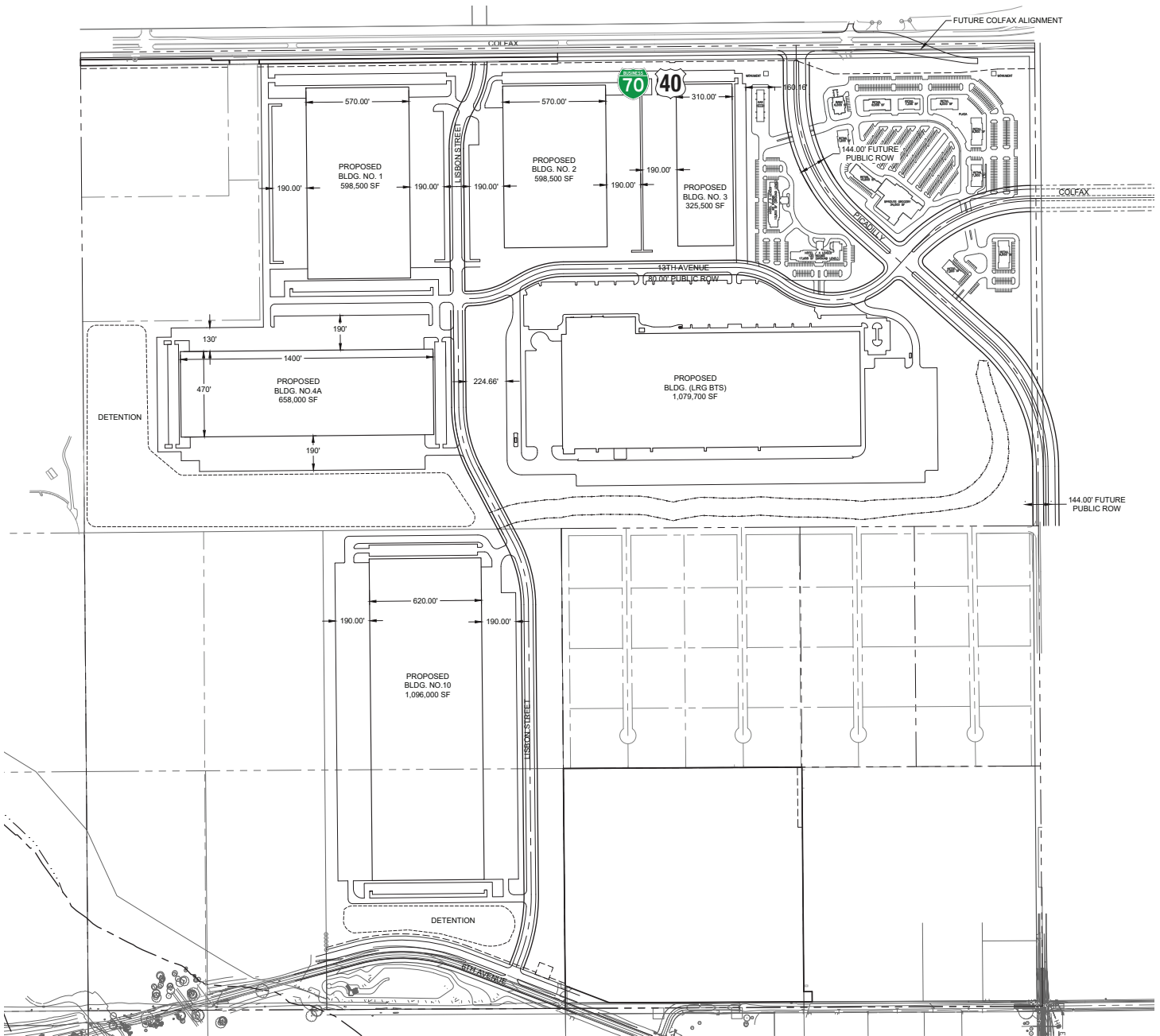
The purpose of this Transportation Impact Study (TIS) is to estimate the potential impacts specific to the proposed development and to identify any resultant required roadway and/or intersection improvements and traffic control needs. Three future planning horizons were evaluated:

- **Short-Term Future without interchange (2022).** This scenario examines the traffic impacts of the construction of three industrial buildings, the first of which is currently under construction and totals approximately 2.2 million square feet of industrial park, including a single user fulfillment center that will occupy approximately 1.1 million square feet. This scenario assumes the realignment of Picadilly Road and the construction of 13th Avenue east to the existing Picadilly Road alignment. The estimated build year of this scenario is 2022, prior to the construction of the new I-70/Picadilly Road interchange.
- **Short-Term Future with interchange (2022).** This scenario examines the same level of development explored in the year 2022 scenario described above, but with the construction of the new I-70/Picadilly Road interchange.
- **Long-Term Future.** This scenario examines the traffic impacts within the context of the year 2040 horizon and full buildout of the project site.

This TIS leverages the planning effort of the I-70/Picadilly Road interchange completed in May 2020 that provides additional information as compared to the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) originally prepared in 2007. As part of the City of Aurora's interchange study, year 2040 traffic projections have been developed, and this TIS was conducted in conformance with the interchange effort. The interchange recently received a \$25 million grant from the US Department of Transportation (USDOT), and the City of Aurora and the Colorado Department of Transportation (CDOT) now plan for construction to begin in 2021 with completion in 2023.

This TIS provides operational information, including intersection level of service (LOS) and peak hour queue lengths, both of which inform recommendations in achieving short- and long-term functionality. This TIS serves as an update to the Stafford Logistics Center Traffic Study completed in January 2020.





II. EXISTING CONDITIONS

II.A. Land Use

The proposed site is undeveloped. Limited development around the site exists, including the Aurora Sports Park and M & M Auto to its west, single-family housing to its north (which is set back from Colfax), and large-lot residential development southeast of the site. An approved mixed use development, referred to as Horizon Uptown, is planned east of the site across Picadilly Road.

II.B. Roadway System

Roadways near the site are further described as follows:

- **Colfax Avenue** is a four-lane divided east-west state highway (US 40 and Business I-70) along the site's northern boundary. This roadway is currently a four-lane median-separated highway adjacent to the site and extends west through Aurora to downtown Denver and further to Golden. To the east, Colfax Avenue directly merges with I-70. Drivers also have the option of using the I-70 Frontage Road along the south side of Colfax Avenue, which connects to Gun Club Road through the I-70/E-470 interchange and parallels I-70 along its south side to the east. The posted speed limit adjacent to the site is 55 miles per hour (MPH).
- **Picadilly Road** is a two-lane north-south road that currently extends along the site's east side. Picadilly Road extends approximately 2 miles south from the I-70 Frontage Road to State Highway 30 (SH 30). Longer term, this roadway's alignment is planned to shift west near Colfax Avenue, extend north to a new interchange with I-70, and connect with the existing Picadilly Road north of Smith Road. Its ultimate cross-section is planned to be a six-lane major arterial facility. Adjacent to the site, the existing posted speed limit is 45 MPH.

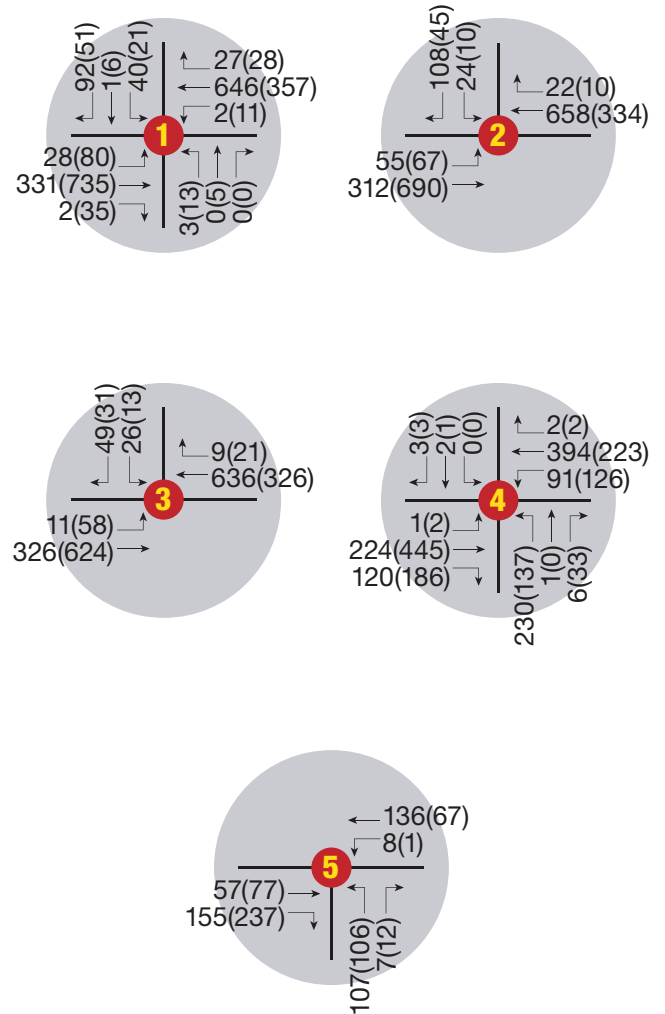
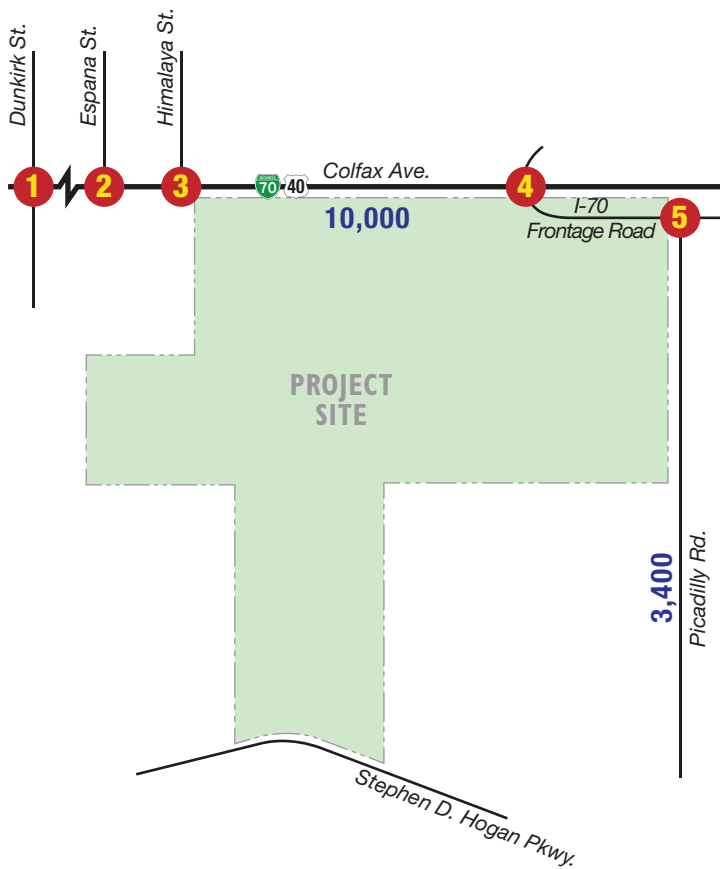
Another key future roadway in the area is Stephen D. Hogan Parkway. This roadway was recently completed and connects SH 30 (near the northeast corner of the Buckley Air Force Base) to the E-470/6th Parkway interchange. This roadway has initially been constructed as a two-lane facility, but long-term plans include eventual widening to a six-lane major arterial roadway.

II.C. Traffic Volumes and Operations

Weekday AM and PM peak hour turning movement counts were recently collected along Colfax Avenue. Traffic counts data along Picadilly Road were obtained from the 6th Avenue Extension study in support of the Stephen D. Hogan Parkway. **Figure 3** shows the data. These improvements have been developed based on the current understanding of the I-70/Picadilly Road interchange project. It is acknowledged that results of the interchange project study may provide additional recommendations at arterial intersections in the study area. **Appendix A** contains count data sheets.

As shown, Colfax Avenue serves 10,000 vehicles per day (VPD). Turning movements at the Colfax Avenue/Dunkirk Street and the Colfax Avenue/I-70 Frontage Road intersections show that Colfax Avenue serves 900 to 1,200 vehicles per hour during the peak hours. Picadilly Road serves a fraction of the traffic that Colfax Avenue serves at 3,400 VPD and approximately 300 vehicles per hour during the peak hours. Turning movements at the Picadilly Road/I-70 Frontage Road and the Colfax Avenue/I-70 Frontage Road intersections indicate a strong pattern between Colfax Avenue to the west and Picadilly Road to the south.

KEY MAP



LEGEND

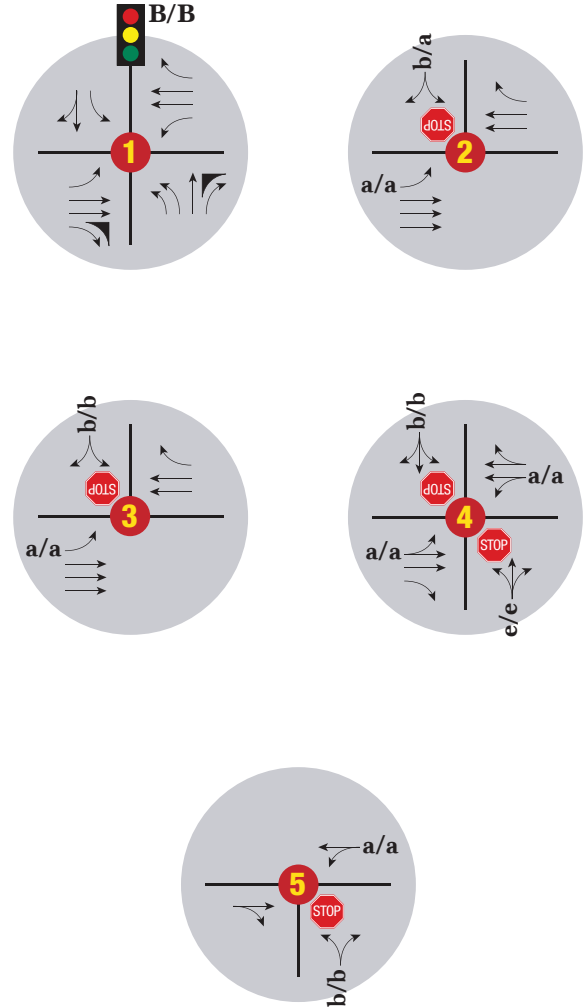
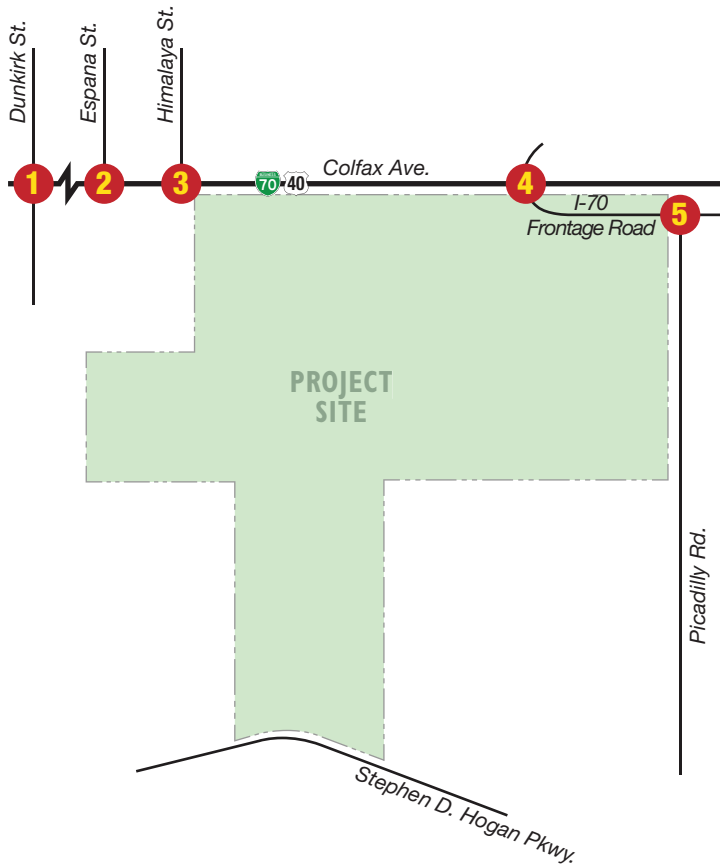
xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

xxxx = Daily Traffic Volumes



Traffic operations within the study area were evaluated according to techniques documented in the Highway Capacity Manual, 6th Edition (Transportation Research Board, 2016) using the existing traffic volumes, intersection geometry, and traffic control. Trafficware's Synchro traffic analysis software (Version 10.3) was used to perform the LOS calculations. LOS is a qualitative measure of traffic operational conditions based on roadway capacity and vehicle delay. LOS is described by a letter designation ranging from A to F, with LOS A representing almost free-flow travel, while LOS F represents congested conditions. For STOP controlled intersections, LOS is calculated for each movement that must yield the right-of-way. In urbanized areas, LOS D is typically considered to be acceptable for peak hour traffic operations and is the standard set in the City of Aurora TIS Guidelines.

Figure 4 shows the existing traffic control, intersection geometry and the results of the LOS analyses. **Appendix B** includes the analysis worksheets. As indicated, all intersections currently operate within acceptable parameters, at LOS B or better, during peak times with the exception of the northbound approach at the Colfax Avenue/I-70 Frontage Road intersection, which operates at LOS E during both the AM and PM peak hours due to heavy northbound left turns. Peak hour and four-hour warrants provided in **Appendix H** indicate that signalization at the intersection of Colfax Avenue/I-70 Frontage Road is warranted under current conditions. However, CDOT does not support signalization of this location as this intersection will be eliminated upon realignment of Picadilly Road, and the new intersection of Picadilly Road/Colfax Avenue should be signalized upon construction of the realignment.

KEY MAP



LEGEND

- X/X** = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** = AM/PM Peak Hour Unsignalized Intersection Level of Service
-  = Stop Sign
-  = Traffic Signal

III. PROPOSED CONDITIONS

III.A. Site Trip Generation

The current development proposal consists of approximately 4.2 million square feet of industrial park uses and related retail/commercial/hotel uses once built out with approximately 1.1 million square feet being dedicated to a single user fulfillment center. Phase I of the development will include the first three industrial park buildings, the first of which is currently under construction, and the third building is planned to be dedicated to a single user fulfillment center. NorthPoint Development does not intend to build the retail portions of the site until the Horizon Uptown development is well underway or construction of the Picadilly/I-70 interchange is nearly complete as the retail uses will not be supported under current surrounding land use and regional access conditions. A trip generation analysis for the proposed site plan was conducted using average weekday data contained in Trip Generation, 10th Edition, Institute of Transportation Engineers (ITE), 2017. **Table I** shows the trip generation estimates.

Table I. Stafford Trip Generation Estimates

Land Use	ITE Code	Quantity	Units	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Industrial Park (Bldg. 1 & 2) ³	130	1,118.1	KSF	3,295	362	85	447	93	354	447
Single User Fulfillment Center ³	Custom	1,079.7	KSF	2,128	161	119	280	240	254	494
Industrial Park (Total)	130	3,124.8	KSF	5,622	1,012	238	1,250	262	988	1,250
Shopping Center	820	75.6	KSF	4,971	118	72	190	212	230	442
Supermarket	850	34	KSF	3,623	78	52	130	178	171	349
Drive-in Bank	912	6	KSF	614	33	24	57	61	62	123
Hotel	310	200	Rooms	1,672	56	39	95	63	61	124
Gas/Service Station	945	16	Pumps	2,752	82	82	164	112	112	224
Short-Term Total Trips				5,423	523	204	727	333	608	941
Long-Term Total Trips				21,382	1,540	626	2,166	1,128	1,878	3,006
Internal Capture Reduction¹				380	5	5	10	19	19	38
Pass by Reduction²				1,376	41	41	82	56	56	112
Total New External Trips				19,626	1,494	580	2,074	1,053	1,803	2,856

Notes:

1. Daily internal capture is assumed to be 10 times the PM value as calculated using ITE methodology. See text relative to Peak Hour internal trip-making.
2. Pass by reduction of 50% for Gas/Service Station is assumed from traffic passing the site along Picadilly Road.
3. Use is part of the short-term timeframe development.

National Cooperative Highway Research Program (NCHRP) 684 provides the methodology for internal capture reductions based on the interactions of different land uses within mixed-use developments, including office, retail, restaurant, residential, cinema, and hotel. The methodology considers that mixed-use developments will keep a portion of the trips generated internal to the site, thus reducing impacts to the adjacent roadway network. Internal capture worksheets can be found in **Appendix C**.

As can be seen, the proposed development would generate approximately 19,600 external trips per day, with about 2,100 AM peak hour trips and about 2,900 PM peak hour external trips. The first phase of development includes the first two industrial park buildings, plus the single user fulfillment center, which

generates about 5,400 trips per day. Approximately 10 percent of the trip generation associated with the industrial park uses will be larger trucks based on data for warehousing and industrial parks provided in the Trip Generation Handbook, 3rd Edition, ITE, 2014.

III.B. Trip Distribution and Traffic Assignment

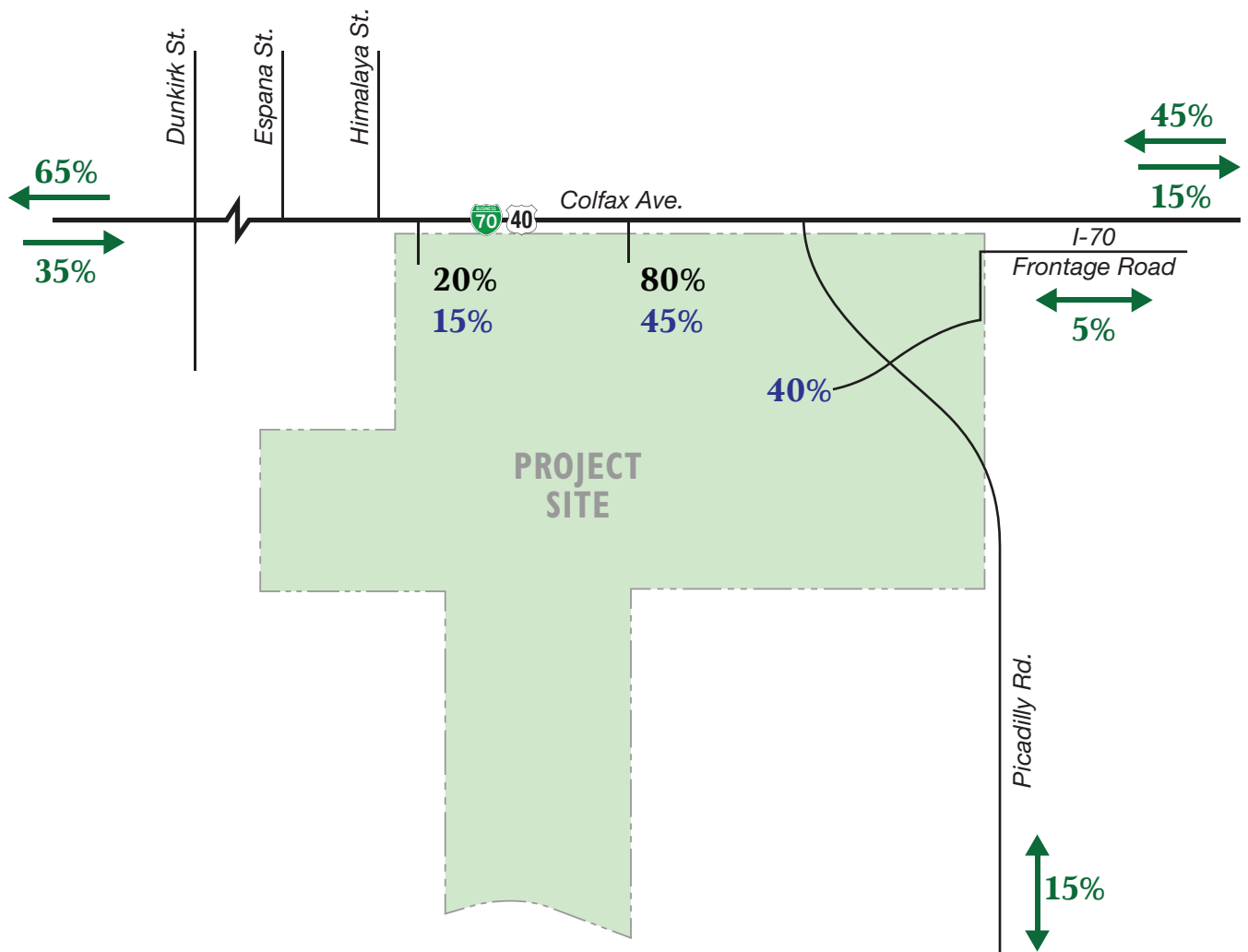
Trip distribution percentages for this site were based, in part, on the turning movement counts and on the Northeast Aurora Transportation Study (NEATS) travel demand model. While not fully in the NEATS study area, the site is immediately adjacent to the NEATS study area, and the City of Aurora has requested that land use model be used for this project. The geographic distribution is varied between the short- and long-term planning horizons realizing that the development will be only partially complete in the short-term and access will be limited to one right-in/right-out and two full movement accesses (one onto Colfax Avenue and one onto Picadilly Road). Over the short-term, site traffic will rely on Colfax Avenue and Picadilly Road for access. The short-term analysis further reflects a scenario in which the I-70/Picadilly Road interchange would not yet be built nor will the continuity of Picadilly Road across I-70 be established. Access to Picadilly Road is provided only in the third year of the short-term scenario. Longer term, site traffic will have more options including Picadilly Road's full connection to I-70 and an access onto Stephen D. Hogan Parkway along the site's south side.

Figure 5 shows the short-term site-trip distribution percentages, and **Figure 6** shows the short-term trip assignment resulting from applying the percentages without the Picadilly interchange. As indicated, the development's greatest impact in the short-term is expected to be onto Colfax Avenue, adding 2,300 VPD onto this roadway to the site's east and west upon completion of the first three buildings. Entering and exiting trips along Colfax Avenue differ due to the existing interchange not providing access onto westbound I-70, resulting in heavier exiting trips to the west to access I-70 via Tower Road.

Figure 7 shows the short-term site-trip distribution percentages, and **Figure 8** shows the short-term trip assignment resulting from applying the percentages with the Picadilly interchange. As indicated, the development's greatest impact in the short-term is expected to be onto Picadilly Road, adding 2,400 VPD onto this roadway to the site's north upon completion of the first three buildings.

Figure 9 and **Figure 10** show the long-term site-trip distribution percentages for the industrial and retail portions of the site, respectively. These vary as the industrial portion of the site will have more of a regional distribution while the retail will be focused more locally. These distributions are identical to the previously approved master traffic study; however, assignment to driveways differs slightly as a result of changes to building locations and the internal street network for the industrial portions of the site.

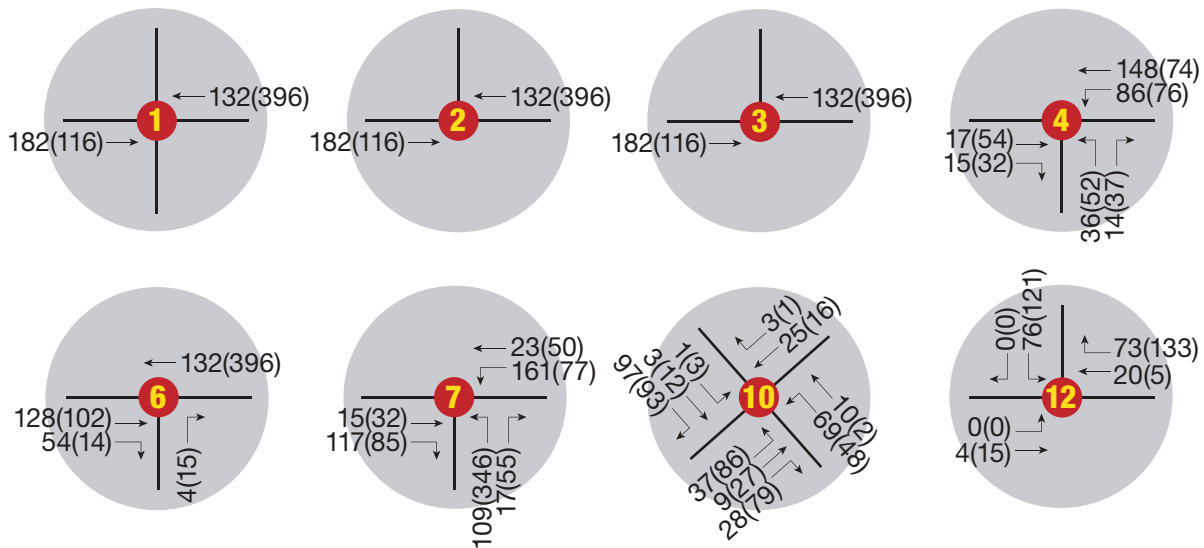
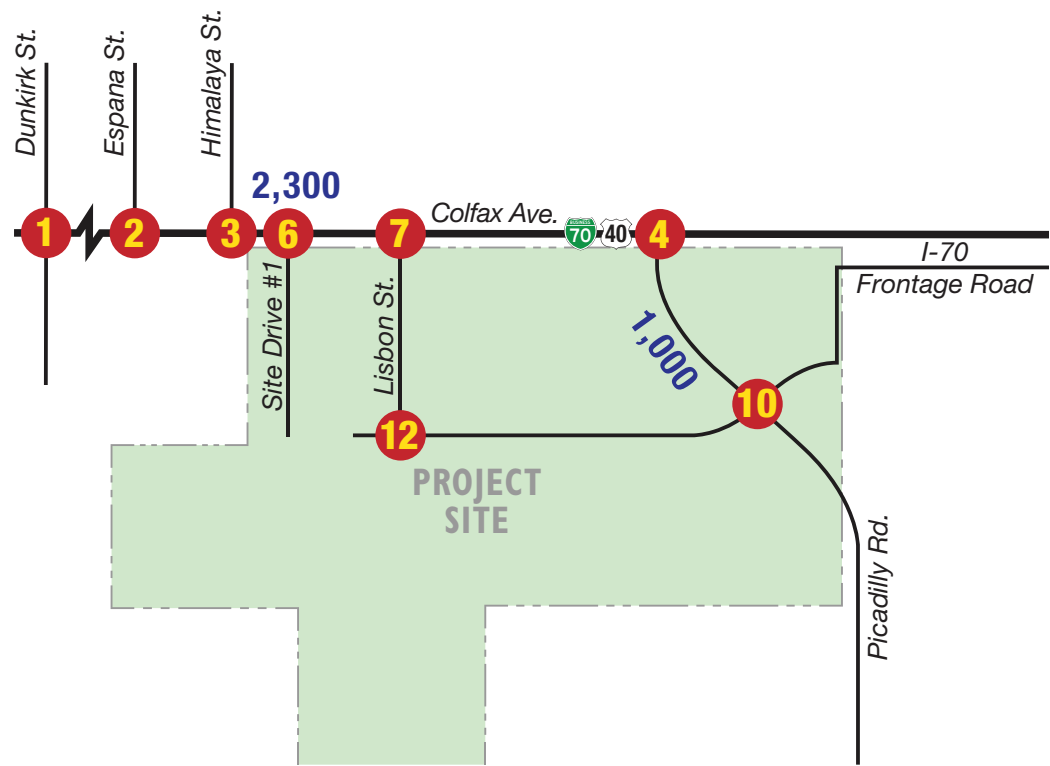
Figure 11 and **Figure 12** show the long-term trip assignments resulting from applying the percentages for the industrial and retail portions of the site, respectively. As indicated, from combining traffic volumes from **Figure 11** and **Figure 12**, the development's greatest impact in the long-term is expected to be onto Picadilly Road to the north, adding 7,400 VPD. Picadilly Road to the south would serve 3,900 VPD, Colfax Avenue to the west would serve 5,600 VPD, Colfax Avenue to the east would serve 3,400 VPD, and Stephen D. Hogan Parkway would serve 1,900 VPD.



LEGEND

- = Site Trip Distribution
- XX%** = Access Distribution 1 & 2
- XX%** = Access Distribution 3

KEY MAP



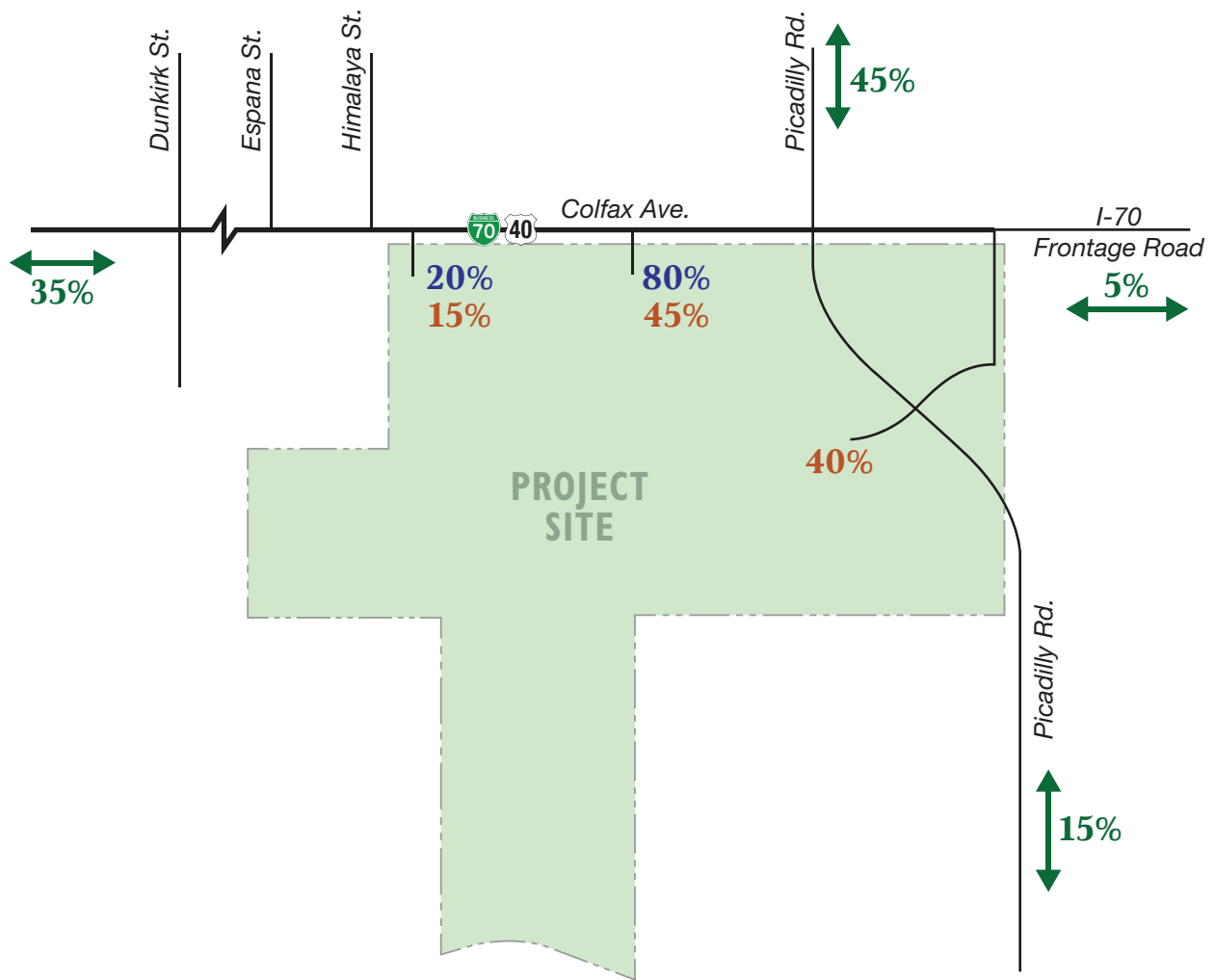
LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
XXXX = Daily Traffic Volumes

NOTE: ADT volumes may double count some trips due to trip routing



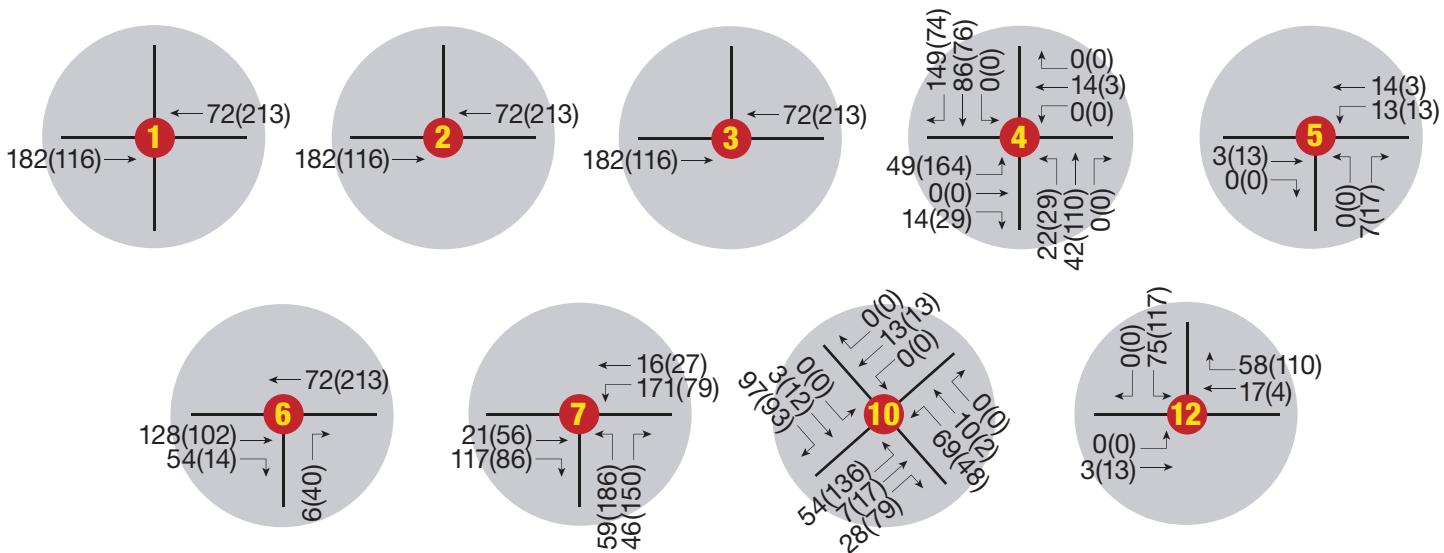
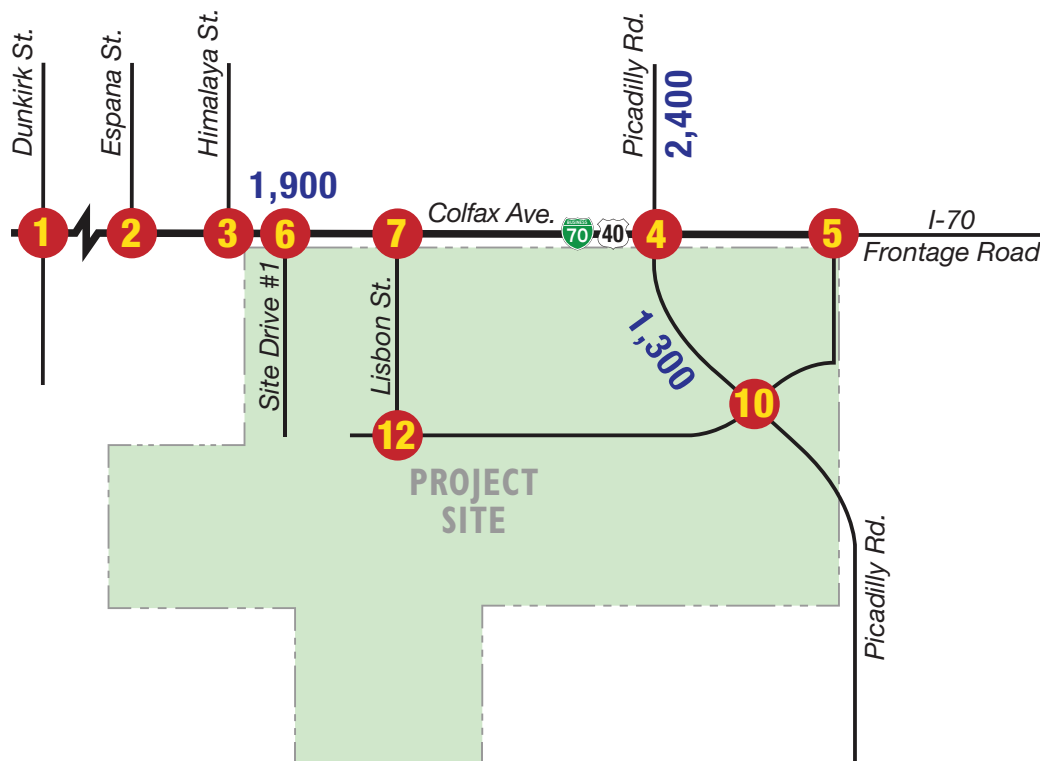
FIGURE 6
Short-Term
Short-Term Site Generated Traffic
without Picadilly Interchange



LEGEND

- XX% = Site Trip Distribution
- XX% = Access Distribution 1 and 2
- XX% = Access Distribution 3

KEY MAP



LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

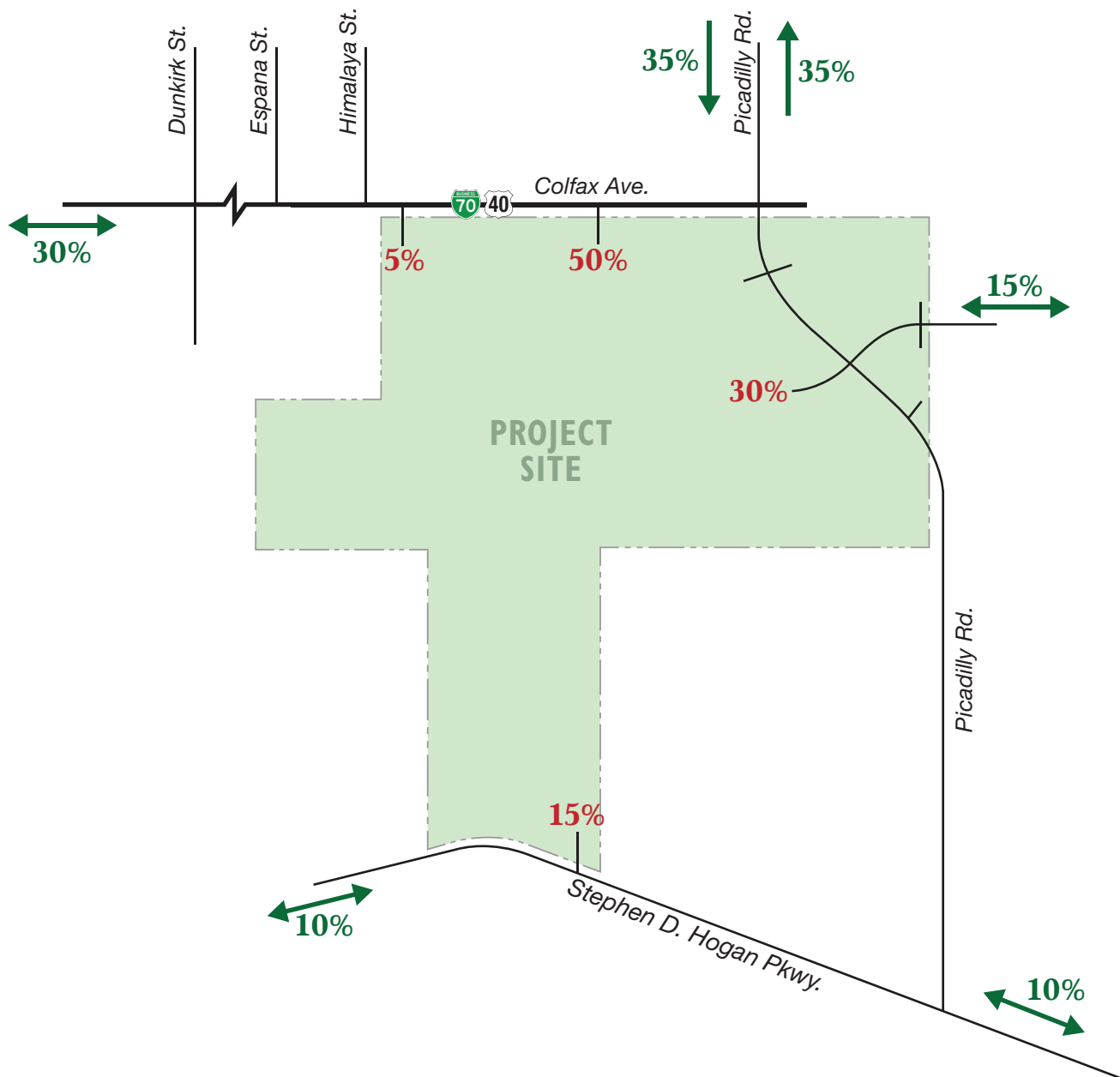
NOTE: ADT volumes may double count some trips due to trip routing



FIGURE 8

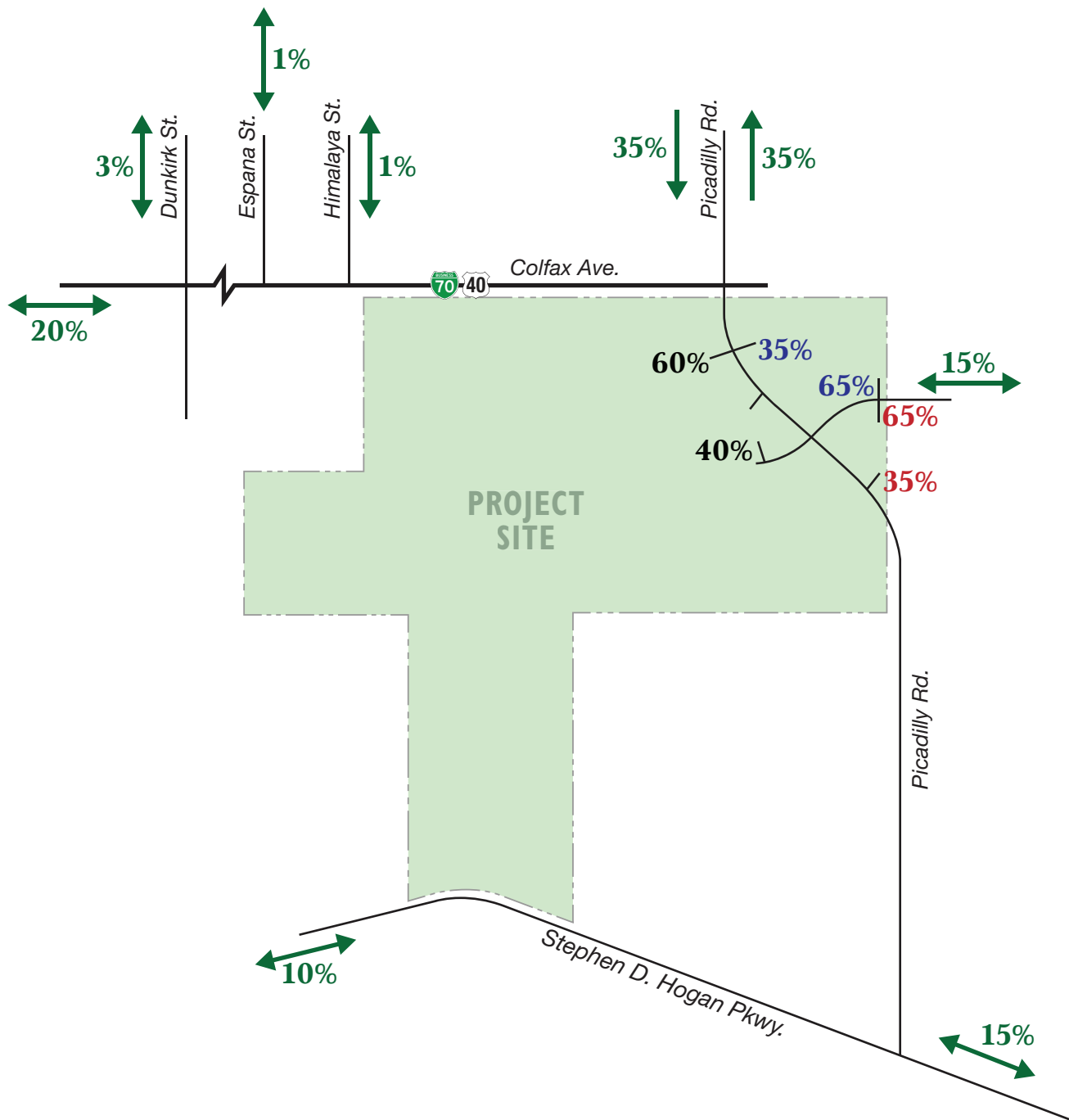
Short-Term Site Generated Traffic with Picadilly Interchange

Stafford Logistics Center TIS - FEB UPDATE 20-346 2/10/21



LEGEND

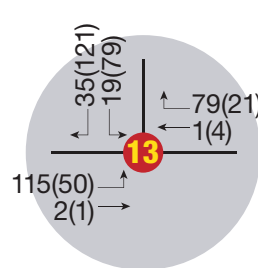
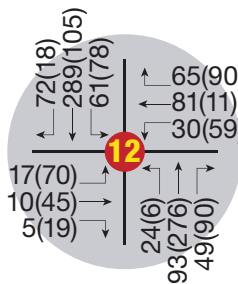
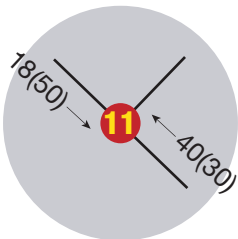
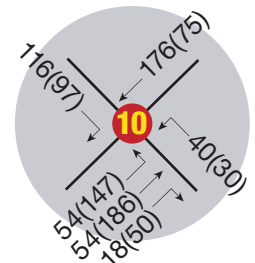
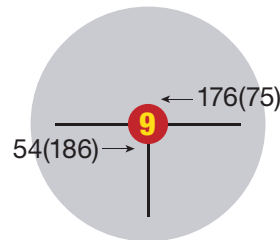
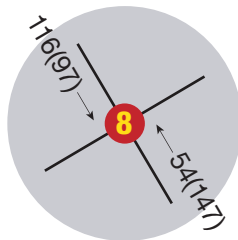
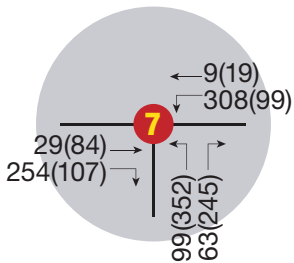
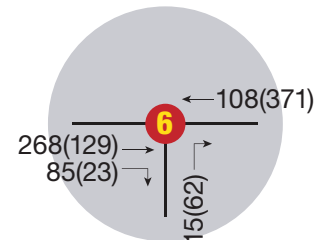
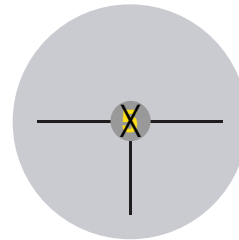
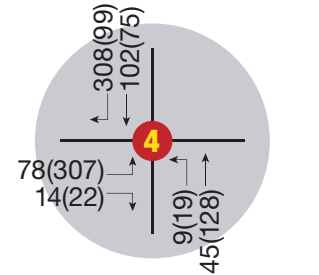
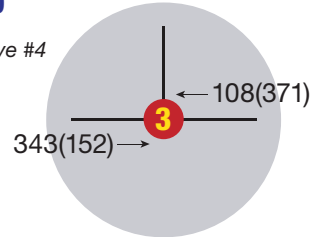
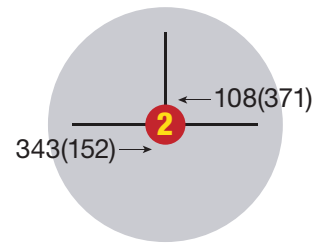
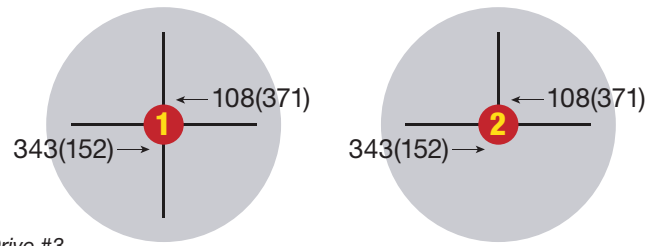
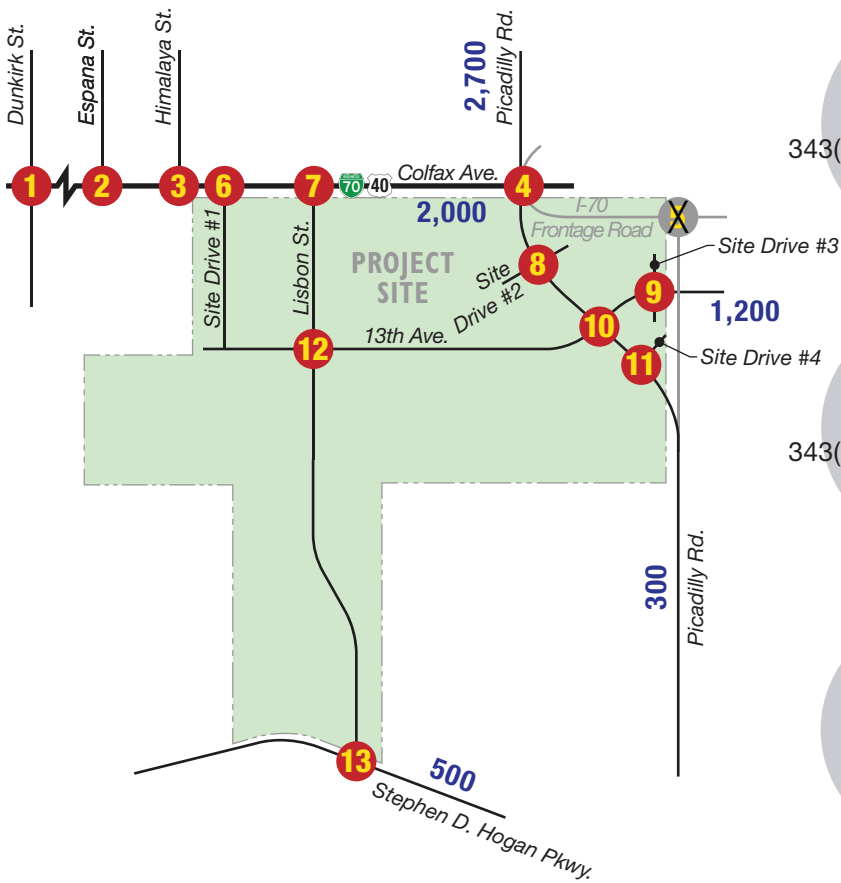
- XX% = Site Trip Distribution
- XX% = Access Distribution



LEGEND

- XX% = Site Trip Distribution
- XX% = Gas Station & Hotels Access Distribution
- XX% = Grocery, Restaurants & Retail Access Distribution
- XX% = Retail Access Distribution

KEY MAP



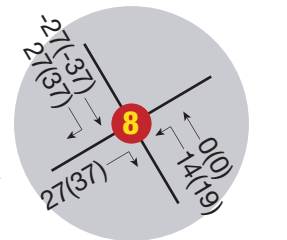
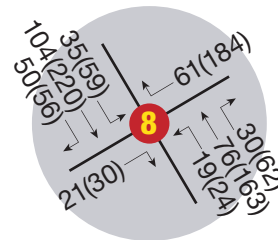
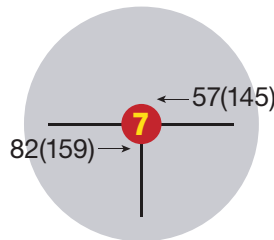
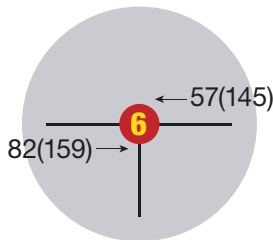
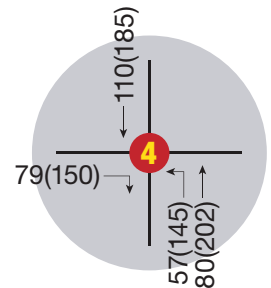
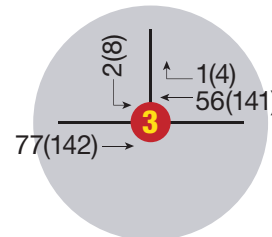
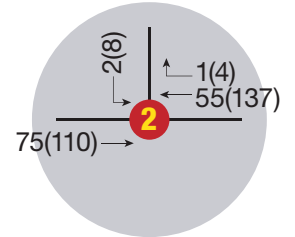
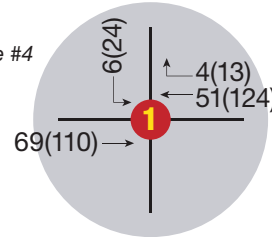
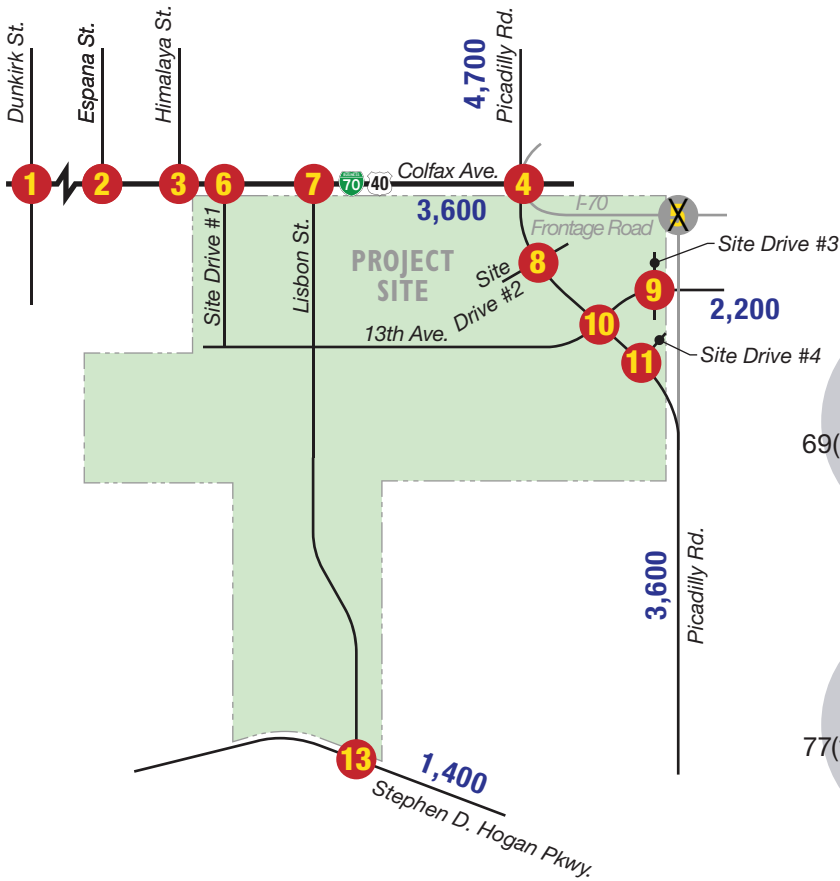
LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

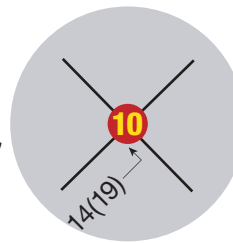
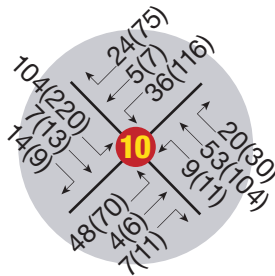
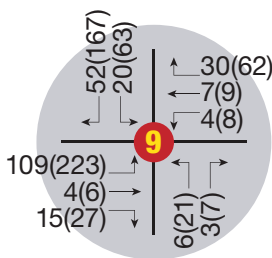
xxxx = Daily Traffic Volumes

NOTE: ADT volumes may double count some trips due to trip routing

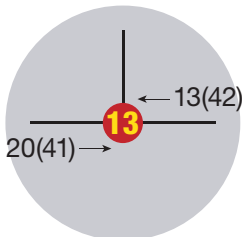
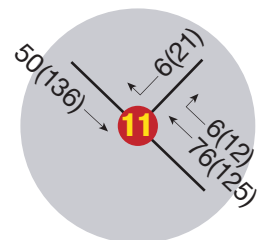
KEY MAP



Pass-By Trips



Pass-By Trips



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

NOTE: ADT volumes may double count some trips due to trip routing

IV. FUTURE CONDITIONS

IV.A. Short-Term Future Background without Picadilly Interchange Roadway System

This short-term scenario evaluates the first three buildings of the Stafford Logistics Center prior to the construction of the new Picadilly interchange. Improvements associated with the I-70/Picadilly interchange are not anticipated in this timeline; however, the realignment of Picadilly Road is anticipated by the year 2022. As a result of this realignment, the I-70 Frontage Road will have to be abandoned between Colfax Avenue, and existing Picadilly Road as the new intersection of Picadilly Road/Colfax Avenue does not provide adequate spacing with the existing intersection of Colfax Avenue/I-70 Frontage Road. To maintain access to the frontage road construction of 13th Avenue between realigned Picadilly Road and the existing Picadilly Road, alignment will be necessary, and the old Picadilly alignment north of 13th Avenue to the I-70 Frontage Road will remain operational.

Traffic Volumes

Phase I of the development will consist of the first three buildings of the industrial park portion of the site, the first of which is currently under construction, and the third building is dedicated to the single user fulfillment center. Access will be provided onto Colfax Avenue via one right-in/right-out and one full movement access, and upon completion of the Picadilly Road realignment, one full movement access onto Picadilly Road via 13th Avenue. The right-in/right-out access onto Colfax Avenue will provide shared access with the adjacent property to the west. The key intersections of analysis include Colfax Avenue/Dunkirk Street, Colfax Avenue/Espana Street, Colfax Avenue/Himalaya Street, Picadilly Road/Colfax, and Picadilly Road/13th Avenue. The I-70/Picadilly Road interchange is not assumed to be constructed within the short-term timeframe. The signalization of Colfax Avenue/I-70 Frontage Road will be warranted with background traffic. It is assumed Picadilly Road/Colfax Avenue will be signalized upon realignment of Picadilly Road as that intersection will replace the existing intersection.

Background traffic is the component of roadway volumes that would use the adjacent roadway system regardless of site development. Along Colfax Avenue adjacent to the site, moderate to heavy growth is expected over the next few years based on data from the NEATS model and other developments near the site. For this analysis, a 6 percent annual growth was assumed for the entire study area. **Figure 13** illustrates short-term background traffic volumes without the new Picadilly interchange.

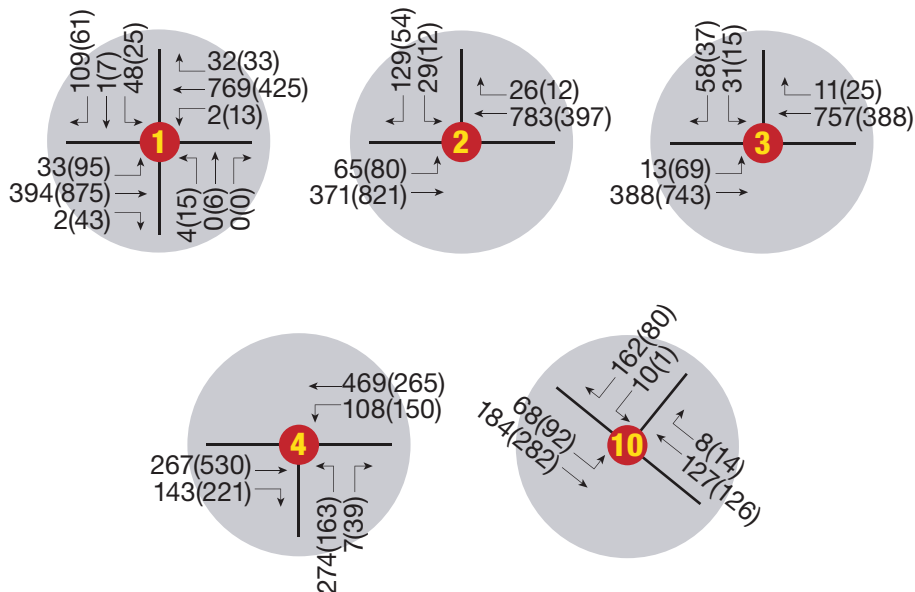
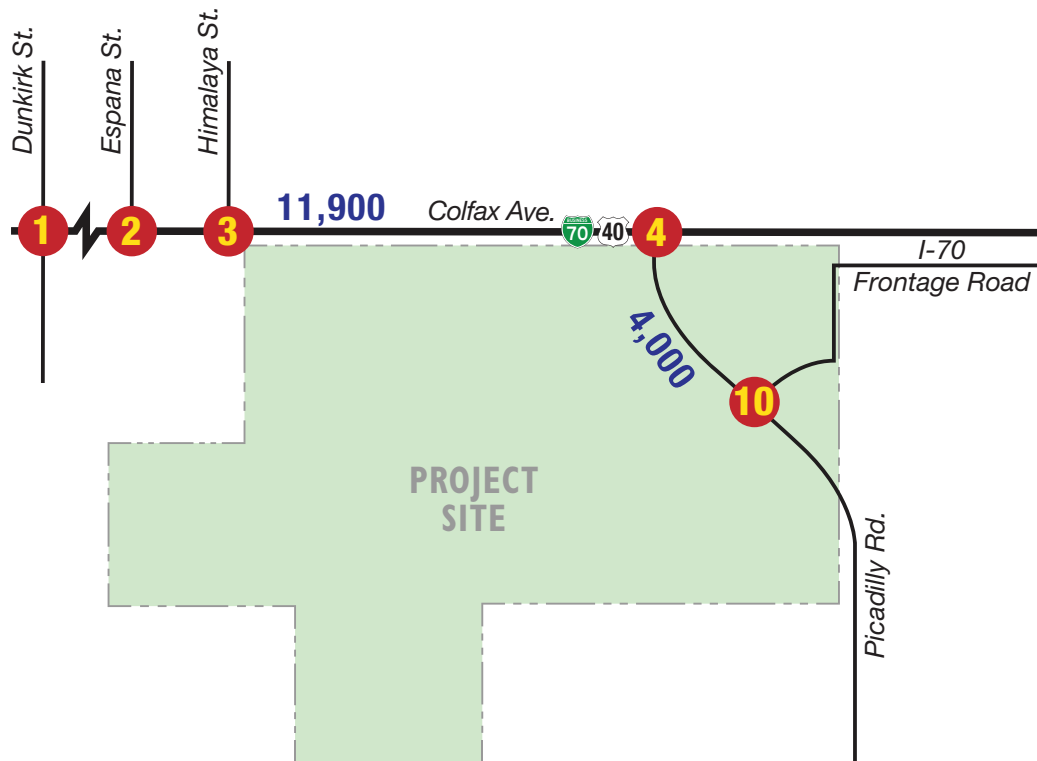
Traffic Control

The short-term background traffic is not anticipated to trigger any additional signalization warrants. All intersections are assumed to be side-street-stop controlled except Colfax Avenue/Dunkirk Street, which is signalized under existing conditions, and Colfax Avenue/Picadilly Road, which meets warrants under existing conditions as the intersection of the Colfax Avenue/I-70 Frontage Road. The signalization of Colfax Avenue/Picadilly Road should be closely coordinated with the I-70/Picadilly Road interchange project to ensure that the initial design considers the subsequent geometric shift when Colfax Avenue (east of the new Picadilly Road alignment) is reduced to a two-lane cross-section for purposes of site access only to the property located in the northeast quadrant of the intersection.

Traffic Operations

The short-term background traffic volume magnitudes are only marginally greater than existing conditions. As such, short-term traffic operations are similar to those of existing conditions. As indicated, all intersections are projected to operate within acceptable parameters, at LOS C or better. Short-term future background traffic volumes without the new Picadilly interchange were used as the basis for intersection capacity analyses, the results of which are shown on **Figure 14**. LOS worksheets can be found in **Appendix G**. No LOS issues will exist in the short-term planning horizon given background traffic, assuming the traffic control and lane geometry described herein.

KEY MAP

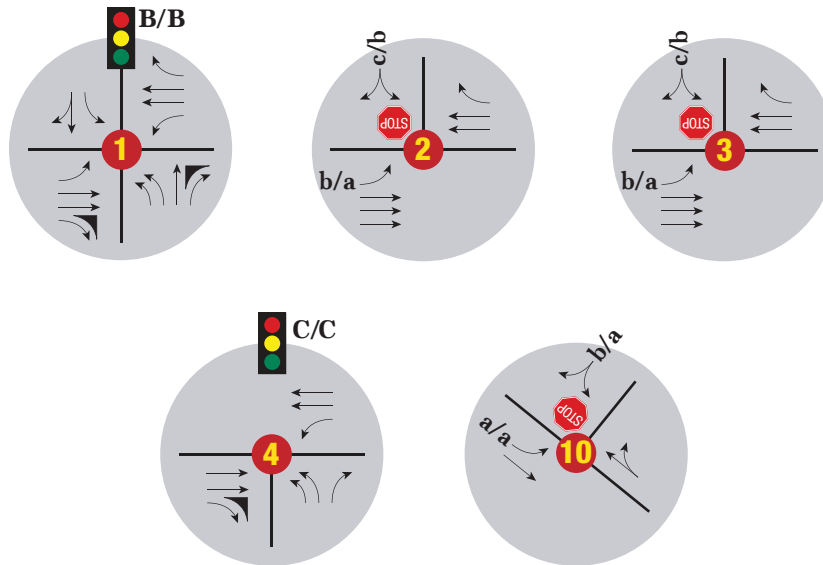


LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

KEY MAP





LEGEND

xxx(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

 = Stop Sign

 = Traffic Signal

IV.B. Short-Term Future Background with Picadilly Interchange

Roadway System

This short-term scenario evaluates the first three buildings of the Stafford Logistics Center as discussed in the previous section of this report. However, at the request of City of Aurora staff this scenario looks at the same scenario except with the new Picadilly interchange in place.

Traffic Volumes

Phase I of the development will consist of the same level of development and access locations as discussed in the previous section. The key intersections of analysis include the same intersections with the addition of the Picadilly Road/I-70 Frontage Road intersection, which will be recreated. Recreation of this intersection would be possible once the existing Colfax Avenue interchange is deconstructed by shifting the east leg of Picadilly Road/Colfax Avenue south to reconnect to the previously vacated section of the I-70 Frontage Road between Colfax Avenue and the existing Picadilly Road alignment.

Background traffic is the component of roadway volumes that would use the adjacent roadway system regardless of site development. Along Colfax Avenue adjacent to the site, moderate to heavy growth is expected over the next few years based on data from the NEATS model and other developments near the site. For this analysis, a 6 percent annual growth was assumed for the entire study area. **Figure 13** illustrates short-term background traffic volumes with the new Picadilly interchange in place.

Traffic Control

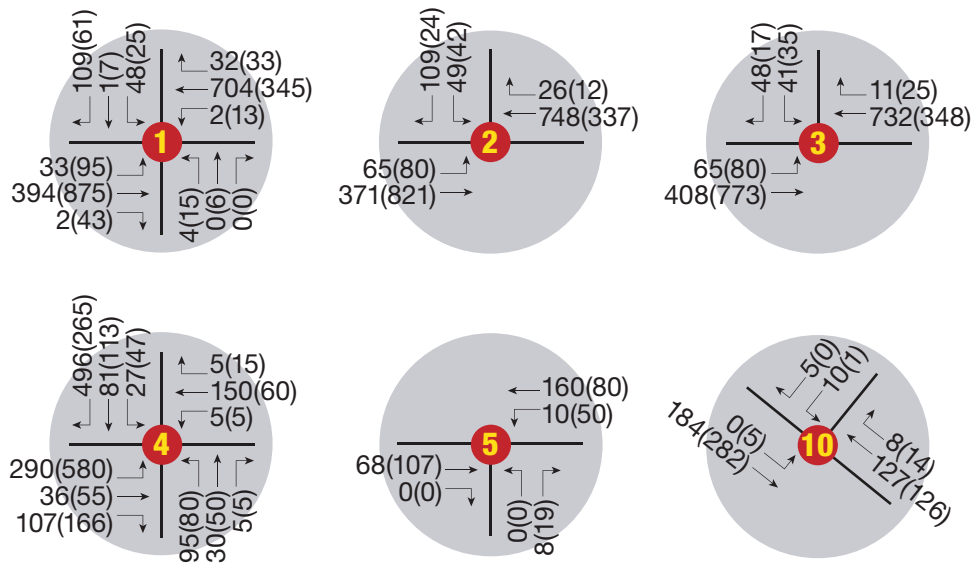
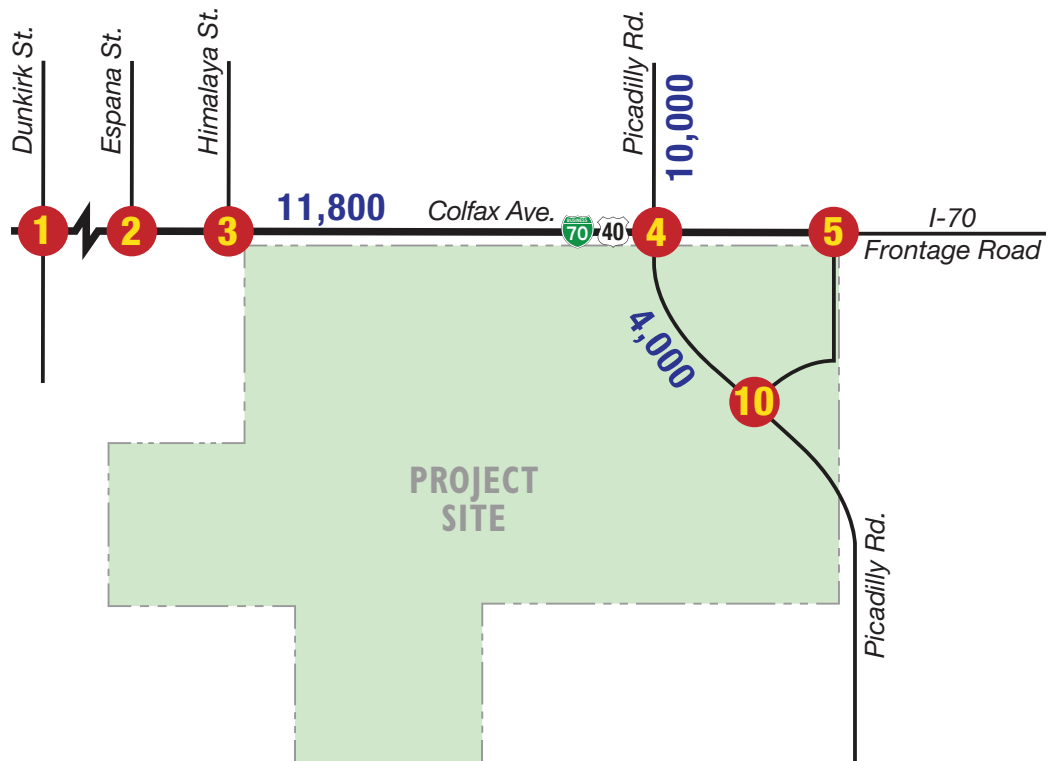
The short-term background traffic is not anticipated to trigger any additional signalization warrants. All intersections are assumed to be side-street-stop controlled, except Colfax Avenue/Dunkirk Street, which is signalized under existing conditions, and Colfax Avenue/Picadilly Road, which meets warrants under existing conditions as the intersection of the Colfax Avenue/I-70 Frontage Road. The signalization of Colfax Avenue/Picadilly Road should be closely coordinated with the I-70/Picadilly Road interchange project to ensure that the initial design considers the subsequent geometric shift when Colfax Avenue (east of the new Picadilly alignment) is reduced to a two-lane cross-section for purposes of site access only to the property located in the northeast quadrant of the intersection.

Traffic Operations

The short-term background traffic volume magnitudes are only marginally greater than existing conditions. As such, short-term traffic operations are similar to those of existing conditions. As indicated, all intersections are projected to operate within acceptable parameters, at LOS C or better.

Short-term future background traffic volumes with the new Picadilly interchange in place were used as the basis for intersection capacity analyses, the results of which are shown on **Figure 14**. LOS worksheets can be found in **Appendix G**. No LOS issues will exist in the short-term planning horizon given background traffic, assuming the traffic control and lane geometry described herein.

KEY MAP

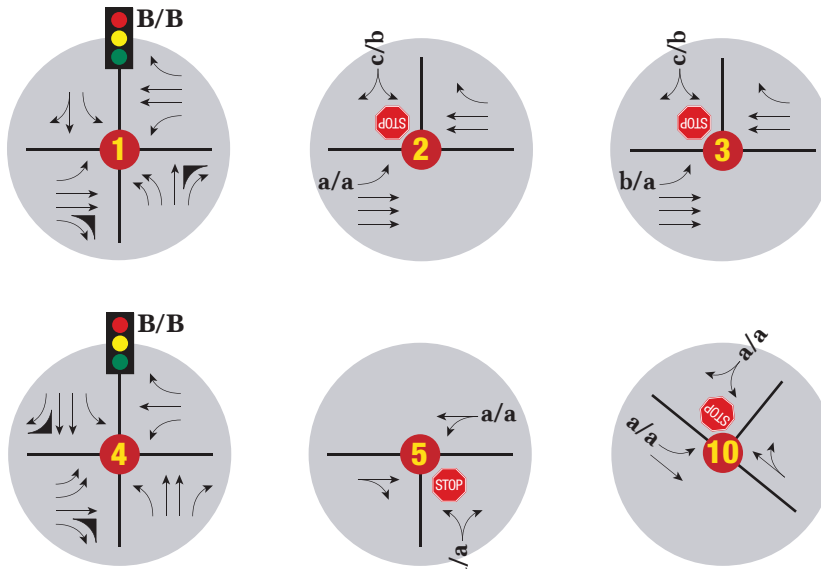
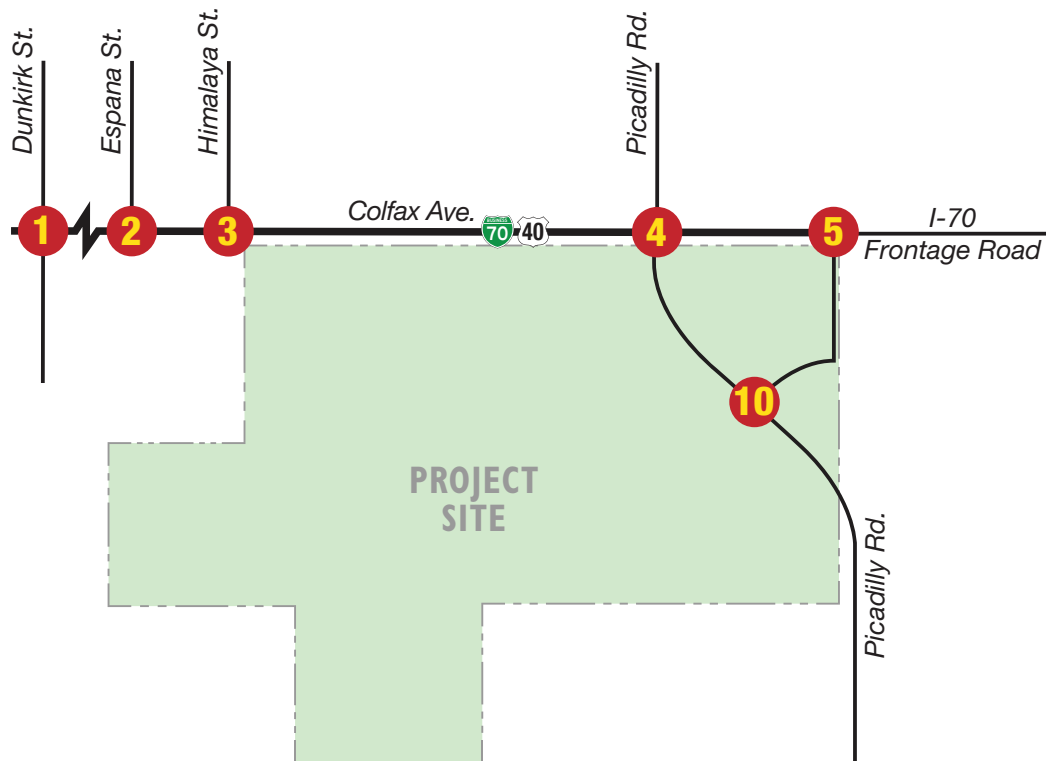


LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

KEY MAP



LEGEND

xxx(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

STOP = Stop Sign

Traffic Signal

IV.C. Long-term Future Background

Roadway System

By Year 2040, Stafford is assumed to be built out. This includes the existing roadways, as well as:

- Realignment of Picadilly Road to the west at Colfax Avenue.
- Extension of Picadilly Road north of Colfax Avenue crossing over I-70 and connecting with Picadilly Road at Smith Road.
- A reconfigured interchange between I-70 and Picadilly Road providing all movements to/from I-70 (not all are provided today), and the narrowing of the east leg of the Colfax Avenue/Picadilly Road intersection to a two-lane cross-section for the purposes of providing access to the property located in the northeast quadrant of the intersection.
- The completion of the Stephen D. Hogan Parkway along the site's south side. This will be completed as a four-lane cross-section in the short-term scenario and a six-lane cross-section in the long-term scenario.

Traffic Volumes

Long-term background traffic has been estimated from traffic projections developed in support of the I-70/Picadilly Road projections prepared by HDR, Inc. for the I-70/Picadilly Road interchange study. These projections were based on the current Denver Regional Council of Governments (DRCOG) travel demand model. In developing background traffic for the Stafford TIS, adjustments were made to the interchange projections to remove trips associated with the 350 acres associated with the Stafford development. Volumes were also added entering and exiting the southbound legs of intersections along Colfax Avenue to account for the undeveloped strip of land between Colfax Avenue and the residential development to the north and the 65-acre parcel between Lisbon Street and Picadilly Road, which are all zoned for commercial use. ITE land use 820 (Shopping Center) with an FAR of 0.2 was assumed for these properties.

Results of the above adjustments provided background traffic forecasts illustrated on **Figure 17**. Picadilly Road is estimated to serve the greatest amount of background traffic reaching up to 41,500 VPD immediately north of the site. Stephen D. Hogan Parkway will also serve a significant amount of traffic reaching as much as 38,400 VPD. Picadilly Road to the south is projected to serve 22,500 VPD, Colfax Avenue to the west is projected to serve 28,000 VPD, and Colfax Avenue to the east is projected to serve 20,400 VPD.

Traffic Control

Signalization of several intersections along Colfax Avenue is assumed in the long-term. Future background traffic levels are projected to warrant signalization at the following intersections within the study area:

- Colfax Avenue/Picadilly Road
- Colfax Avenue/Himalaya Street
- Colfax Avenue/Lisbon Street
- Picadilly Road/13th Avenue

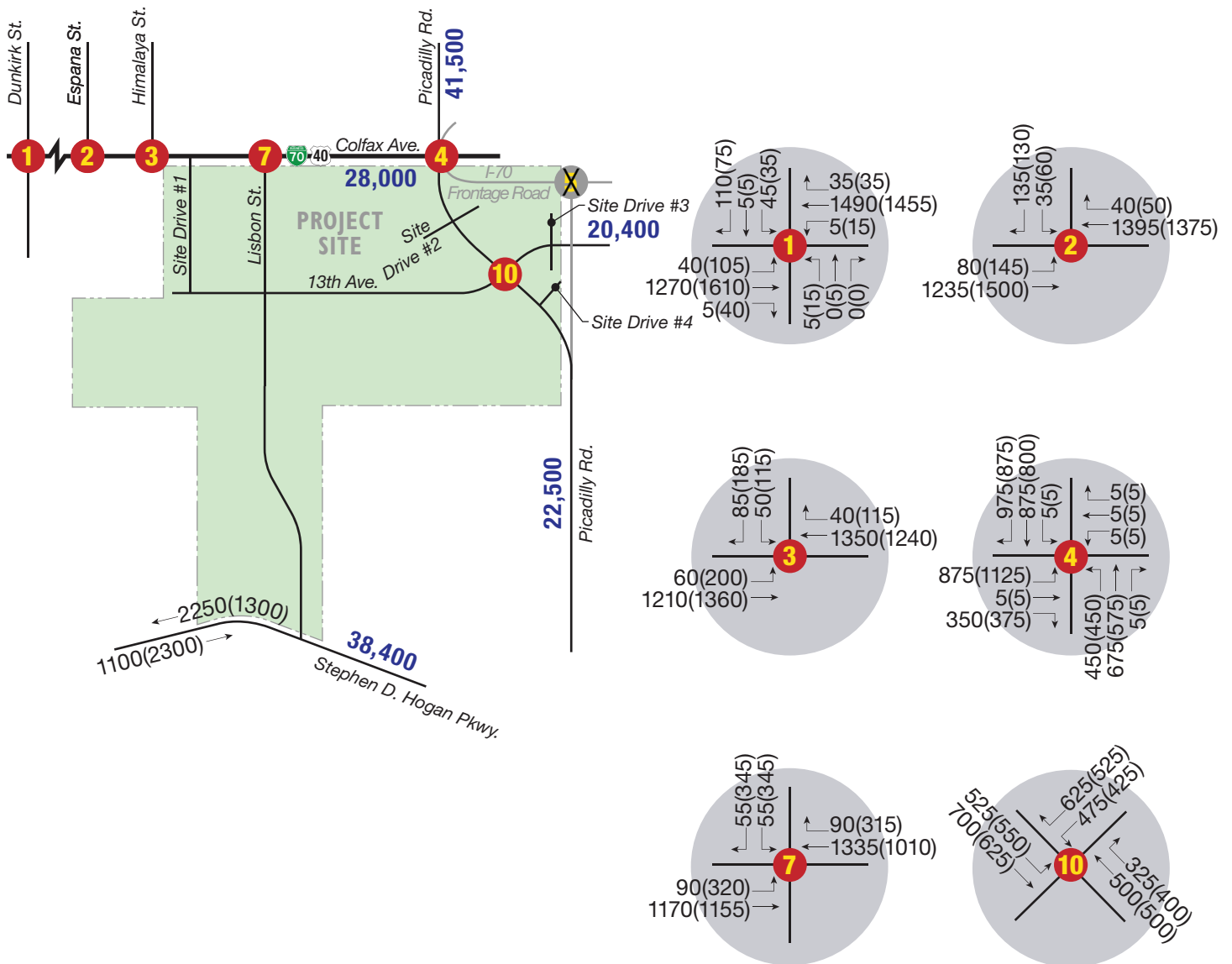
Colfax Avenue/Picadilly Road and Picadilly Road/13th Avenue are assumed to be signalized based on the I-70/Picadilly Road project. Peak hour and four-hour signal warrants are met at Colfax Avenue/Himalaya Street and at Colfax Avenue/Lisbon Street and are provided in **Appendix H**. The Colfax Avenue/Espana Street intersection was not evaluated as CDOT does not support signalization due to the proximity to Colfax Avenue/Dunkirk Street to the west.

Traffic Operations

Long-term future background traffic volumes were used as the basis for intersection capacity analyses, the results of which are shown on **Figure 18 (Appendix G includes LOS worksheets)**.

As indicated, all intersections are projected to operate within acceptable parameters, at LOS D or better, during peak times with the exception of the southbound left-turn movement at Colfax Avenue/Espana Street, which is projected to operate at LOS E during both peak hours. The results reflect significant improvement of the intersections to include numerous auxiliary lanes and signalization. Key laneage needs include four-laning of Picadilly Road and four-laning of 13th Avenue east of Picadilly Road. The major intersections, such as Colfax Avenue/Picadilly Road and Picadilly Road/13th Avenue, will also need dual left-turn lanes and separate right-turn lanes along select approaches due to background traffic demands alone.

KEY MAP

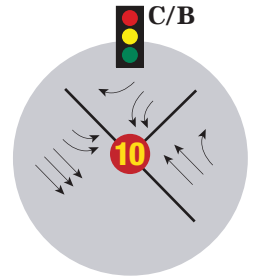
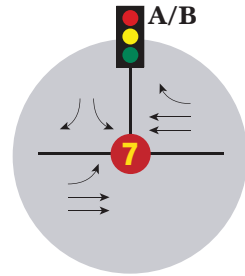
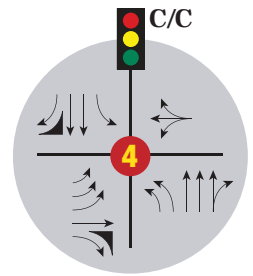
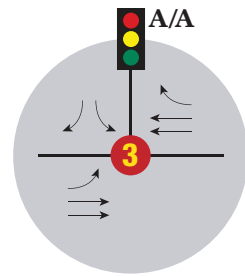
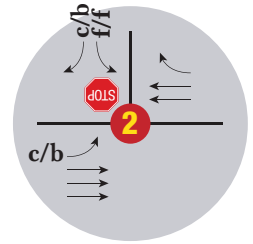
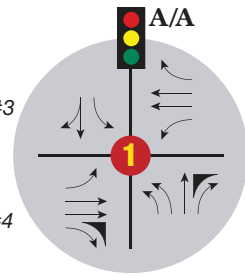


LEGEND



xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

KEY MAP



LEGEND

- X/X** = AM/PM Peak Hour Signalized Intersection Level of Service
- x/x** = AM/PM Peak Hour Unsignalized Intersection Level of Service
-  = Stop Sign
-  = Traffic Signal

IV.D. Total Traffic Conditions

Short-term Future without Picadilly Interchange

The short-term site generated traffic volumes without the Picadilly interchange (**Figure 5**) were added to the corresponding background volumes (**Figure 13**) to produce the short-term future total traffic volumes shown on **Figure 19**. As shown, traffic volumes along Colfax Avenue would reach as much as 14,200 VPD upon completion of the first three buildings, of which the first phase of Stafford would make up 16 percent of the total traffic. Traffic volumes along Picadilly Road would reach as much as 5,000 VPD, of which the first phase of Stafford would make up 20 percent of the total traffic. In the short-term scenario, access to the site will be provided by one right-in/right-out and one full movement access onto Colfax Avenue and one full movement access onto Picadilly Road.

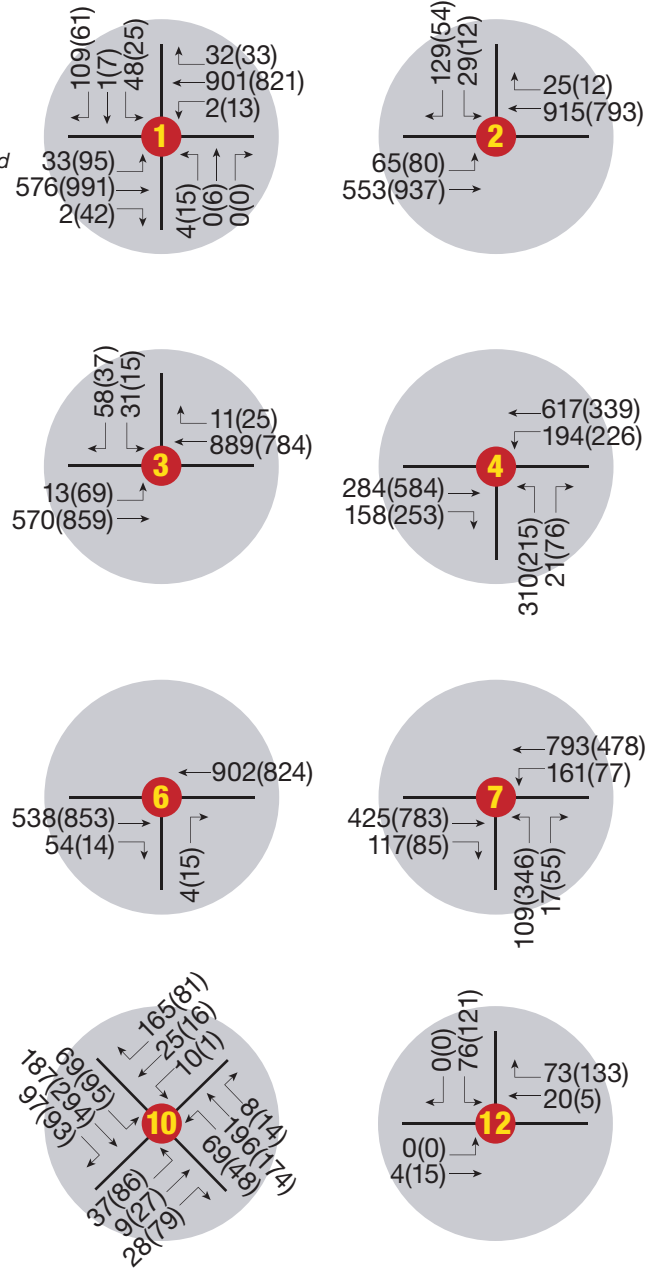
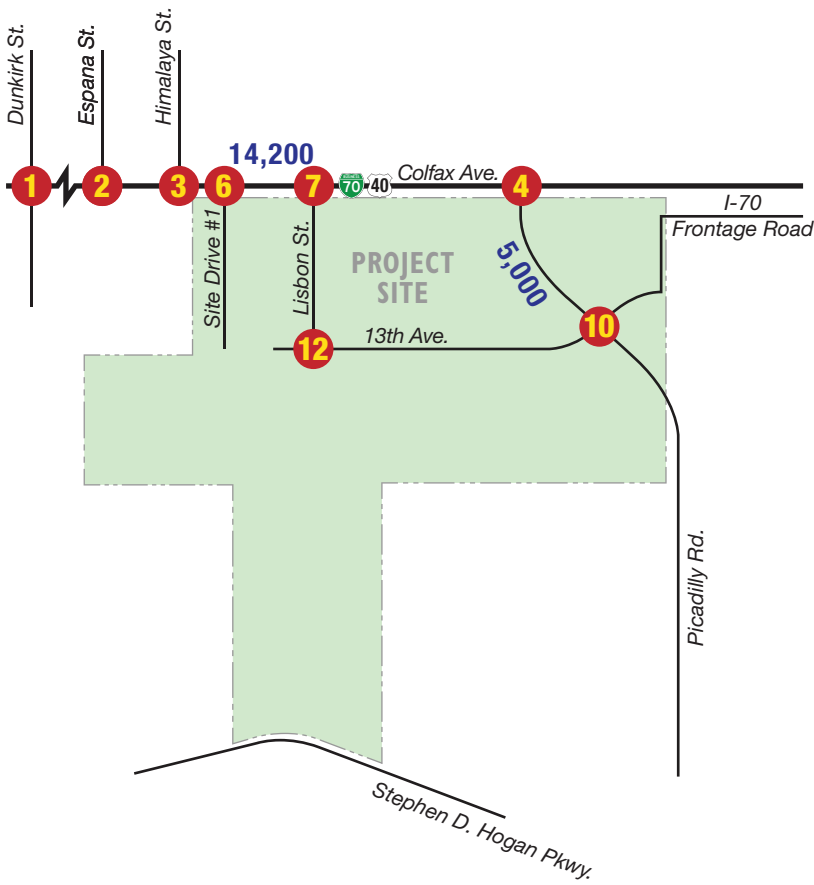
Intersection capacity analyses were conducted using the short-term total peak hour volumes and intersection geometrics as illustrated on **Figure 20**. A 10 percent heavy vehicle was used throughout the study area with an increase to 25 percent for all movements entering and exiting the site.

Appendix F includes analysis worksheets. As indicated, traffic operations would remain acceptable at LOS D or better, with the exception of the stop-controlled northeast bound left at the intersection of Picadilly Road and 13th Avenue during the PM peak hour, which is projected to operate at LOS E. Picadilly Road daily volumes would indicate that the segment south of Colfax Avenue will continue to maintain an LOS of C or better with a two-lane cross-section based on volume thresholds presented in the NEATS study.

Short-term total traffic volumes will warrant signalization at Colfax Avenue/Lisbon Street (Full Access Site Driveway). Exclusive right and left-turn lanes for the northbound approach of the Colfax Avenue/Lisbon Street intersection are recommended for the short-term total conditions, along with an overlap signal phasing for the northbound right turn with acceleration lane. The intersection of Picadilly Road/13th Avenue is not anticipated to meet warrants in the short-term total scenario but should continue to be monitored as Stafford continues to develop as well as Horizon Uptown to the east. The peak hour and four-hour warrants are provided in **Appendix H**, and 70 percent warrants were used as the current posted speed on Colfax Avenue is 55 MPH and 45 MPH on Picadilly Road.

Additional traffic growth is needed on side street approaches before signal warrants are satisfied at the Colfax Avenue/Himalaya Street intersection, and CDOT has stated that they do not support signalization of Colfax Avenue/Espana Street. The ultimate signalization of Colfax Avenue/Picadilly Road will replace the intersection of the Colfax Avenue/I-70 Frontage Road as part of the I-70/Picadilly Road interchange project. However, warrant analysis indicates signalization of the existing intersection is currently warranted under existing conditions. Interim signalization is assumed for the purposes of this study, but coordination with the I-70/Picadilly Road interchange project should be considered as the layout of this intersection could change with completion of that project.

KEY MAP

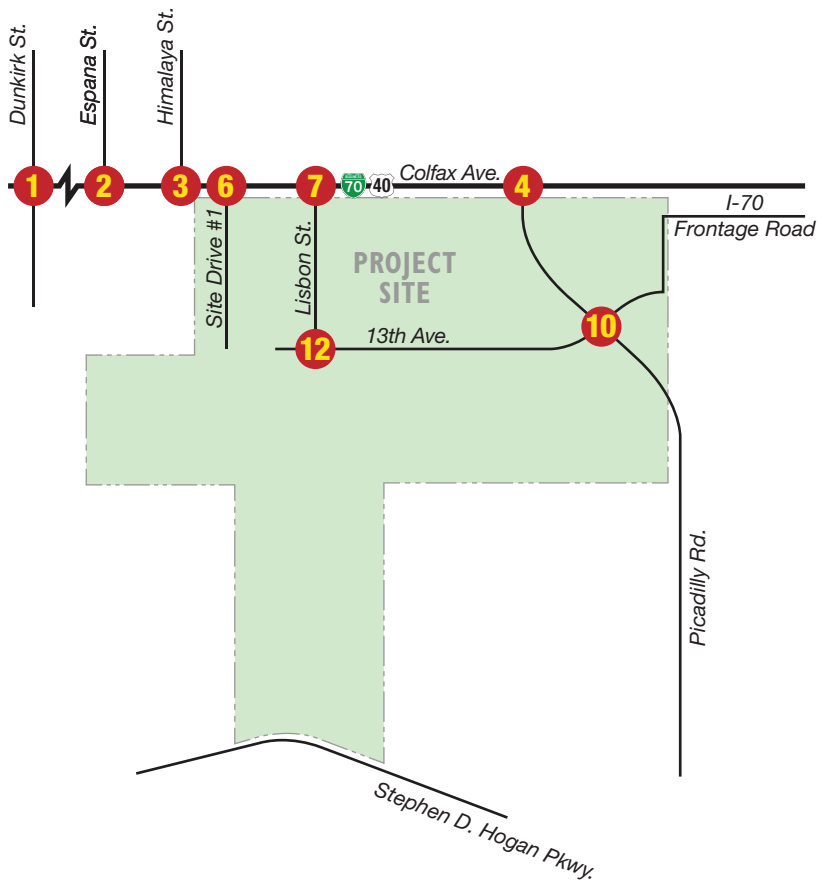


LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes

KEY MAP




LEGEND

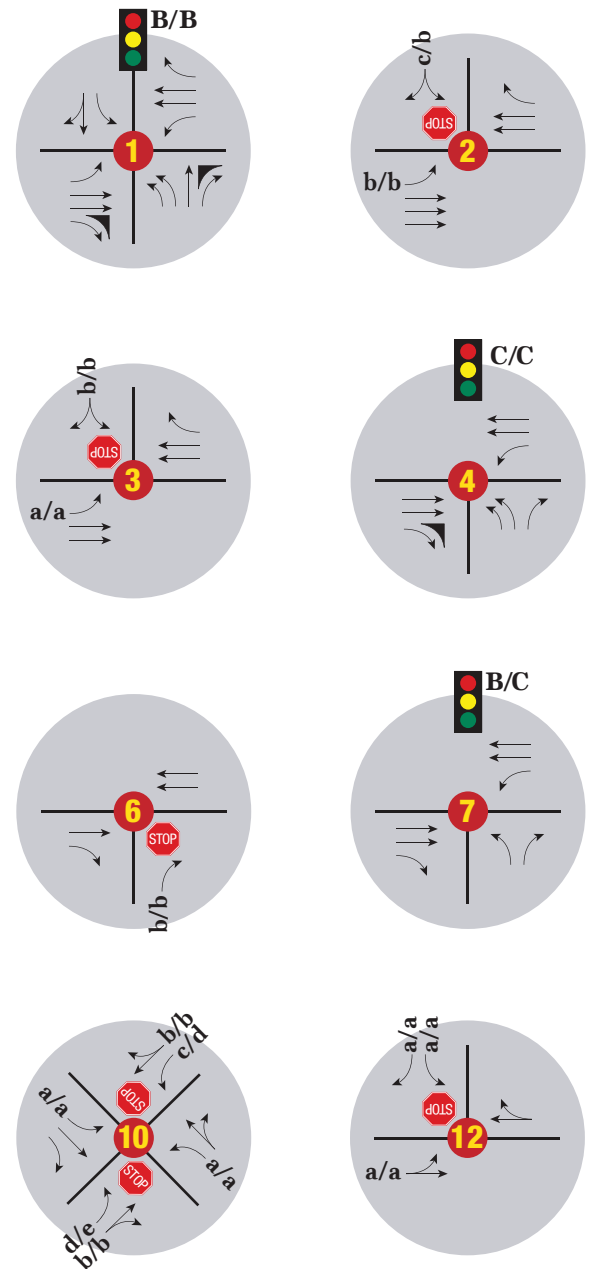
XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

 = Stop Sign

 = Traffic Signal



Intersection movement queuing has also been assessed given the short-term traffic projections for the short-term buildout in Year 2022 without the Picadilly interchange. **Table 2** presents the results.

Table 2. Short-term Future 95th Percentile Queueing without Picadilly Interchange

Intersection	Approach	Movement	2022 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Dunkirk Street (Intersection #1)	Eastbound	Left-Turn	25	25	125	125
		Through	100	200	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Left-Turn	0	25	50	25
		Through	200	175	Continuous	Continuous
		Right-Turn	25	25	Continuous	Continuous
	Northbound	Left-Turn*	25	25	50	25
		Through	0	25	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn	75	50	75	75
		Through / Right-turn ⁺	175	125	Continuous	Continuous
Colfax Avenue/ España Street (Intersection #2)	Eastbound	Left-Turn	25	25	100	100
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn / Right-Turn	50	25	Continuous	Continuous
Colfax Avenue/ Himalaya Street (Intersection #3)	Eastbound	Left-Turn	0	25	100	100
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn / Right-Turn	25	25	Continuous	Continuous
Colfax Avenue/ Picadilly Road (Intersection #4)	Eastbound	Through	175	25	Continuous	Continuous
		Right-Turn	0	0	Continuous	Continuous
	Westbound	Left-Turn	275	325	325	275
		Through	100	50	Continuous	Continuous
	Northbound	Left-Turn*	225	175	Continuous/225	Continuous /175
		Right-Turn	50	125	125	100

Intersection	Approach	Movement	2022 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Stafford Site Driveway #1 (Intersection #6)	Eastbound	Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Through	0	0	Continuous	Continuous
	Northbound	Right-Turn	0	25	Continuous	Continuous
Colfax Avenue/ Lisbon Street (Intersection #7)	Eastbound	Through	100	250	Continuous	Continuous
		Right-Turn	50	50	175	175
	Westbound	Left-Turn	250	150	250	250
		Through	50	100	Continuous	Continuous
	Northbound	Left-Turn	175	475	Continuous	Continuous
		Right-Turn	25	175	175	100
Picadilly Road/ 13 th Avenue (Intersection #10)	North-Eastbound	Left-Turn	25	75	75	125
		Through / Right-Turn ⁺	25	25	Continuous	Continuous
	South-Westbound	Left-Turn	25	0	50	125
		Through / Right-Turn ⁺	50	25	Continuous	Continuous
	North-Westbound	Left-Turn	25	25	50	125
		Through / Right-Turn ⁺	0	0	Continuous	Continuous
	South-Eastbound	Left-Turn	25	25	50	150
		Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
Lisbon Street/ 13 th Avenue (Intersection #12)	Eastbound	Left-turn / Through ⁺	0	25	Continuous	Continuous
	Westbound	Through / Right-turn ⁺	25	25	Continuous	Continuous
	Southbound	Left-Turn	25	25	50	125
		Right-turn	0	0	Continuous	Continuous
Notes: *Dual left-turn queues and storage are per lane. +Shared through and turn lane ¹ Calculations based on HCM methodology using a heavy vehicle percentage of 10 percent network wide with adjustments at driveway locations based on site layout. ² Number shown is based on volume adjustments of 3 PCE per heavy vehicle.						

Short-term Future with Picadilly Interchange

The short-term site generated traffic volumes with the Picadilly interchange (**Figure 5**) were added to the corresponding background volumes (**Figure 13**) to produce the short-term future total traffic volumes shown on **Figure 19**. As shown, traffic volumes along Colfax Avenue would reach as much as 12,700 VPD upon completion of the first three buildings, of which the first phase of Stafford would make up 15 percent of the total traffic. Traffic volumes along Picadilly Road would reach as much as 12,400 VPD north of Colfax Avenue, of which the first phase of Stafford would make up 19 percent of the total traffic. In the short-term scenario, access to the site will be provided by one right-in/right-out and one full movement access onto Colfax Avenue and one full movement access onto Picadilly Road.

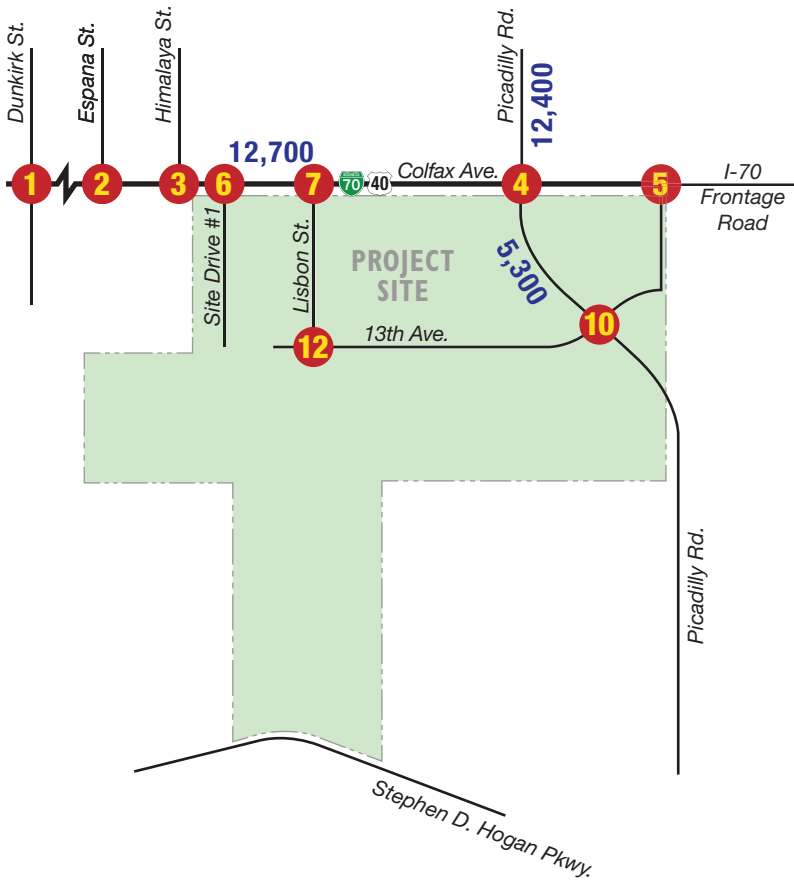
Intersection capacity analyses were conducted using the short-term total peak hour volumes and intersection geometrics as illustrated on **Figure 20**. A 10 percent heavy vehicle was used throughout the study area, with an increase to 25 percent for all movements entering and exiting the site.

Appendix F includes analysis worksheets. As indicated, traffic operations would remain acceptable at LOS C or better. Picadilly Road will be required to be built to a 4-lane cross-section in accordance with previous agreements made between Stafford and the City of Aurora.

There are no changes recommended at any site driveways between this scenario and the previous short-term scenario without the new interchange in place. Geometry of the Colfax Avenue/Picadilly Road is illustrated on **Figure 22** and is projected to operate acceptably at LOS C or better; however, the exact geometry of this intersection should be closely coordinated with the Picadilly/I-70 interchange project team to ensure a solution that meets the needs of both projects.

Intersection movement queuing has also been assessed given the short-term traffic projections for the short-term buildout in year 2022 with the Picadilly interchange. **Table 3** presents the results.

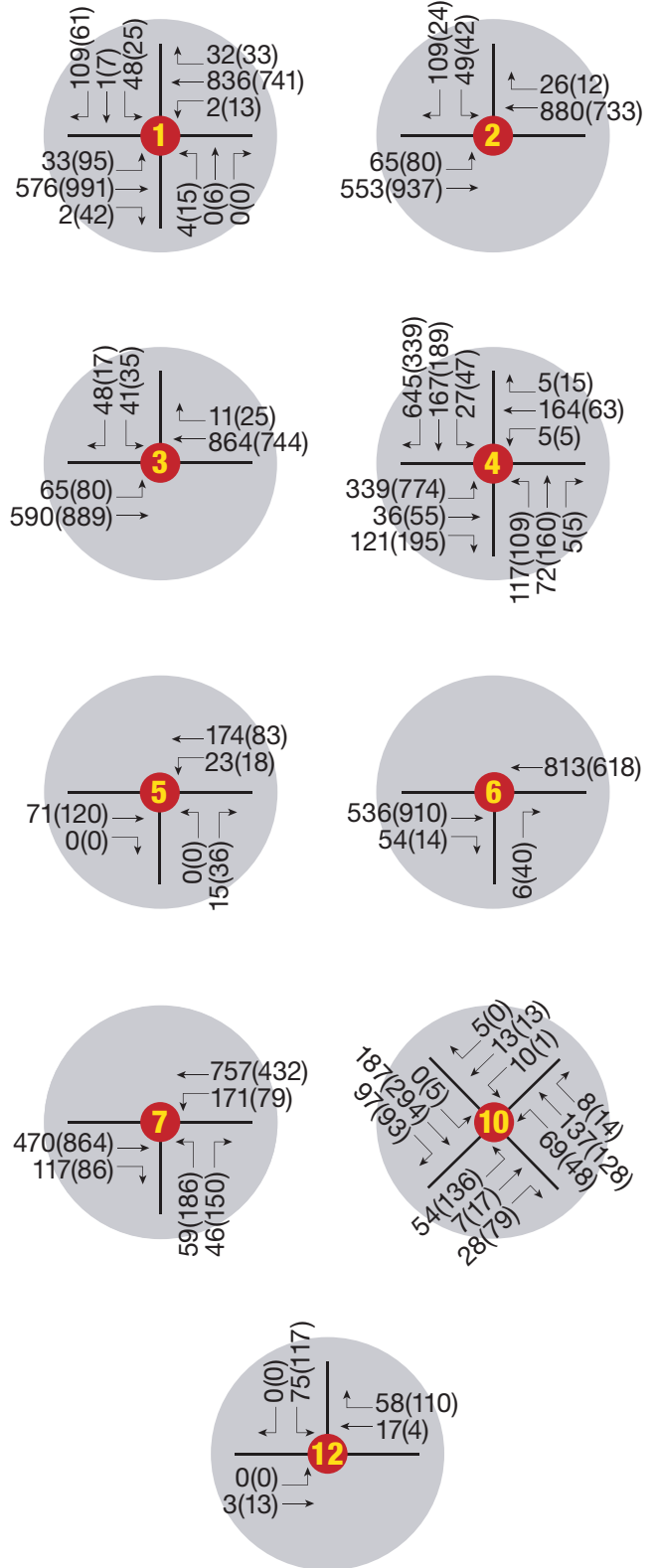
KEY MAP



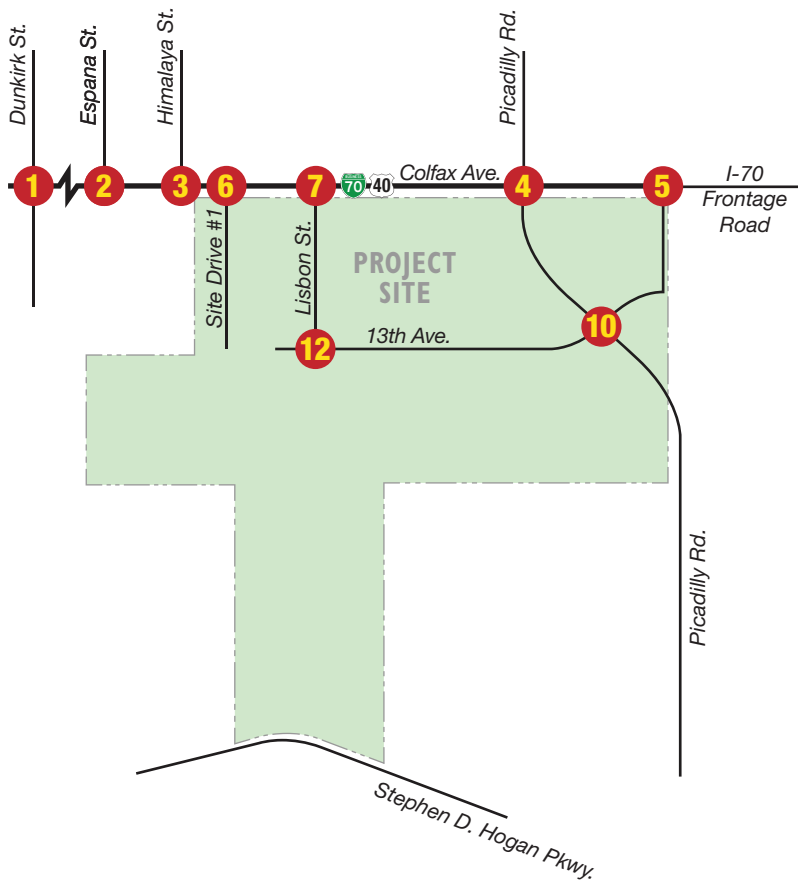
LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

XXXX = Daily Traffic Volumes



KEY MAP




LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized Intersection Level of Service

 = Stop Sign

 = Traffic Signal

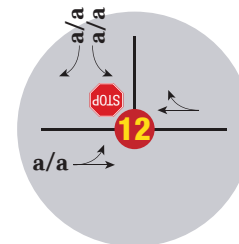
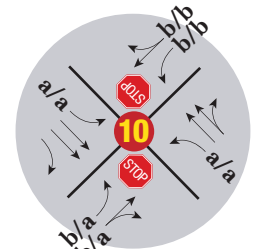
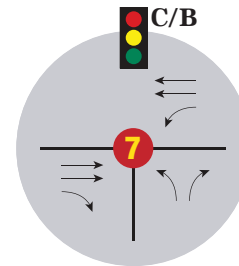
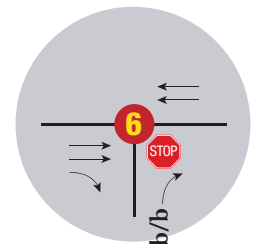
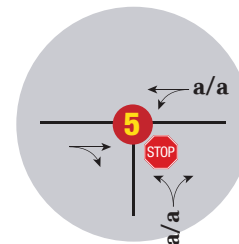
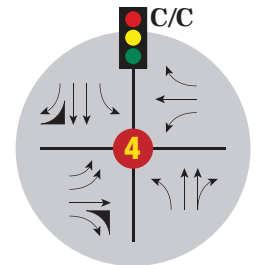
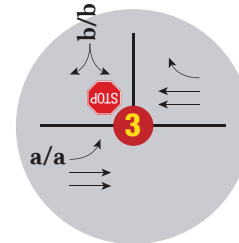
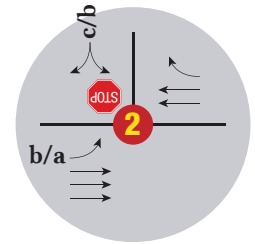
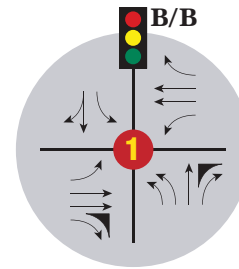


Table 3. Short-term Future 95th Percentile Queueing with Picadilly Interchange

Intersection	Approach	Movement	2022 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Dunkirk Street (Intersection #1)	Eastbound	Left-Turn	25	25	125	125
		Through	100	200	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Left-Turn	0	25	50	25
		Through	175	125	Continuous	Continuous
		Right-Turn	25	25	Continuous	Continuous
	Northbound	Left-Turn*	25	25	50	25
		Through	0	25	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn	75	50	75	75
		Through / Right-turn ⁺	175	125	Continuous	Continuous
Colfax Avenue/ España Street (Intersection #2)	Eastbound	Left-Turn	25	25	100	100
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn / Right-Turn	50	25	Continuous	Continuous
Colfax Avenue/ Himalaya Street (Intersection #3)	Eastbound	Left-Turn	25	25	100	100
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn / Right-Turn	25	25	Continuous	Continuous
Colfax Avenue/ Picadilly Road (Intersection #4)	Eastbound	Left-Turn*	75	150	450	450
		Through	25	0	Continuous	Continuous
		Right-turn	0	0	Continuous	Continuous
	Westbound	Left-Turn	25	25	50	25
		Through	100	50	Continuous	Continuous
		Right-Turn	25	25	Continuous	Continuous
	Northbound	Left-Turn	175	25	175	150
		Through	50	150	Continuous	Continuous
		Through / Right-Turn ⁺	50	125	Continuous	Continuous

Intersection	Approach	Movement	2022 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Picadilly Road (Intersection #4) (Continued)	Southbound	Left-Turn	50	125	75	75
		Through	125	150	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
Picadilly Road/ I- 70 Frontage Road (Intersection #5)	Eastbound	Through / Right-Turn ⁺	0	0	Continuous	Continuous
	Westbound	Left-Turn / Through ⁺	25	0	Continuous	Continuous
	Northbound	Left-Turn / Right-Turn	25	25	Continuous	Continuous
Colfax Avenue/ Stafford Site Driveway #1 (Intersection #6)	Eastbound	Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Through	0	0	Continuous	Continuous
	Northbound	Right-Turn	0	25	Continuous	Continuous
Colfax Avenue/ Lisbon Street (Intersection #7)	Eastbound	Through	75	200	Continuous	Continuous
		Right-Turn	50	50	175	175
	Westbound	Left-Turn	375	125	375	275
		Through	25	25	Continuous	Continuous
	Northbound	Left-Turn	100	275	Continuous	Continuous
		Right-Turn	75	200	225	225
Picadilly Road/ 13 th Avenue (Intersection #10)	North- Eastbound	Left-Turn	25	25	50	225
		Through / Right-Turn ⁺	25	25	Continuous	Continuous
	South- Westbound	Left-Turn	25	0	50	25
		Through / Right-Turn ⁺	25	25	Continuous	Continuous
	North- Westbound	Left-Turn	25	25	50	125
		Through / Right-Turn ⁺	0	0	Continuous	Continuous
	South- Eastbound	Left-Turn	0	0	50	25
		Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only

Intersection	Approach	Movement	2022 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Lisbon Street/ 13 th Avenue (Intersection #12)	Eastbound	Left-turn / Through ⁺	0	25	Continuous	Continuous
	Westbound	Through / Right-turn ⁺	25	25	Continuous	Continuous
	Southbound	Left-Turn	25	25	50	125
		Right-turn	0	0	Continuous	Continuous

Notes:
*Dual left-turn queues and storage are per lane.
+Shared through and turn lane
¹ Calculations based on HCM methodology using a heavy vehicle percentage of 10 percent network wide with adjustments at driveway locations based on site layout.
² Number shown is based on volume adjustments of 3 PCE per heavy vehicle.

Long-Term Future

The 2040 site generated traffic volumes (**Figure 11** and **Figure 12**) were added to the long-term future background traffic volumes (**Figure 17**) to produce the year 2040 total traffic volumes illustrated on **Figure 23**. As shown, traffic volumes along Colfax Avenue will increase up to 33,600 VPD by 2040 once the area is built out. Picadilly Road could serve 26,400 VPD south of Colfax Avenue and 48,900 VPD north of Colfax Avenue.

Intersection capacity analyses were conducted using the long-term total peak hour volumes and intersection geometrics, also shown on **Figure 24**. **Appendix G** includes the analysis worksheets. A 10 percent heavy vehicle was used throughout the study area with an increase to 25 percent for all movements entering and exiting or within the industrial portion of the site.

These improvements have been developed based on the current understanding of the I-70/Picadilly Road interchange project. It is acknowledged that the interchange project may provide additional recommendations at arterial intersections in the study area. Results for each intersection are summarized below:

- **Colfax Avenue/Dunkirk Street (Intersection #1)** – Signal (exists today). Colfax Avenue is a major arterial roadway. The intersection does not need any modification from the existing geometry.
- **Colfax Avenue/Espana Street (Intersection #2)** – Tee intersection. Colfax Avenue is a major arterial roadway. The intersection should be modified to include separate southbound left and right-turn lanes. CDOT has indicated that this intersection is to remain unsignalized.
- **Colfax Avenue/Himalaya Street (Intersection #3)** – Signal tee intersection. Colfax Avenue is a major arterial roadway. The intersection should be modified to include separate southbound left and right-turn lanes.
- **Colfax Avenue/Picadilly Road (Intersection #4)** – Signal. Colfax Avenue is a major arterial, and Picadilly Road is planned to be a major arterial that will have a new interchange with I-70. This intersection will remain a four-leg intersection, with the eastern leg reduced to a two-lane

cross-section for the purpose of providing access to the parcel in the northeast quadrant. The intersection should include two exclusive through-lanes north-south, northbound dual left-turn lanes and a shared through/right-turn lane, triple left-turn lanes along the eastbound approach and a shared through/right-turn lane, a left-turn lane, a separate right-turn lane with overlap signal phasing along the southbound approach, and a channelized eastbound right-turn lane. This geometry is consistent with the recently published Picadilly/I-70 SLS report apart from the channelized eastbound right-turn lane. Despite a heavy eastbound right-turn volume, a separate right-turn lane is not required since the eastbound through traffic (per the SHAC) is not met. However, to do high demand and unknown development in the northeast quadrant of the intersection the City of Aurora has requested this additional lane.

- **Colfax Avenue/Stafford Access Drive #1 (Intersection #6)** – Stop controlled right-in/right-out. Colfax Avenue is a four-lane major arterial. The intersection will need an eastbound right-turn lane.
- **Colfax Avenue/Lisbon Street (Stafford full movement access) (Intersection #7)** – Signal. Colfax Avenue is a four-lane major arterial at the intersection. Lisbon Street will be a two-lane collector providing access to future retail and existing residential properties to the north and to the Stafford Logistics Center to the south. The intersection will need dual left-turn lanes and separate right-turn lanes along all four approaches. The northbound and southbound right turns should have overlap phasing and acceleration lanes onto Colfax Avenue.
- **Picadilly Road/Stafford Access Drive #2 (Intersection #8)** – Stop controlled $\frac{3}{4}$ access. Picadilly Road is a planned six-lane major arterial. The northbound and southbound approaches should have separate left and right-turn lanes.
- **I3th Avenue/Stafford Access Drive #3 (Intersection #9)** – Signal. The I3th Avenue alignment is a planned major arterial extending through the planned Horizon Uptown development and the I-70/E-470 interchange, becoming the I-70 South Frontage Road. Peak hour and 4-hour signal warrants were analyzed for the intersection and are provided in **Appendix H**. The PM peak hour narrowly falls below thresholds and a 4-hour warrant with the 2nd-4th highest hour being 90, 85, and 75 percent of the PM peak hour meets for 3 of 4 hours and narrowly misses meeting thresholds for the final hour. Signalization is recommended as even a slight increase in any of the site uses would likely cause warrants to be met. Without signalization, LOS F conditions are expected for the driveway, and this is the only access for the majority of the retail portion of Stafford Logistics Center allowing movements to the east and south. Additionally, despite not meeting SHAC thresholds a westbound left-turn lane is recommended to access the retail uses south of Colfax Avenue to eliminate queuing within a through travel lane. Queuing between this intersection and Picadilly Road/I3th Avenue Alignment should be considered; the 95th percentile queues between the two intersections require a minimum spacing of 500 feet or 600 feet if left-turn lanes cannot be stacked side by side. City of Aurora standard is 660 feet between signalized intersections, which would indicate that the 95th percentile queuing would be adequately accommodated.
- **Picadilly Road/I3th Avenue Alignment (Intersection #10)** – Signal. Picadilly Road is a planned six-lane major arterial. The west leg of the intersection will serve as a site access roadway. The east leg serves as I3th Avenue through the planned Horizon Uptown development. Separate right-turn lanes should be included at all approaches with signal phasing overlaps included on the northbound approaches, channelization of the westbound approach right turn, and left-turn lanes at all approaches with dual left for the southbound and westbound approaches.
- **Picadilly Road/Stafford Access Drive #4 (Intersection #11)** – Stop controlled right-in/right-out tee intersection. Picadilly Road is a planned six-lane major arterial.

Map of the Project Site showing numbered locations 1 through 13. The site is bounded by Dunkirk St. to the west, Espana St. to the northwest, Himalaya St. to the north, Picadilly Rd. to the east, and Stephen D. Hogan Pkwy. to the south. Key roads include Colfax Ave., Frontage Road, and Lisbon St. The site is divided into Site Drive #1 and Site Drive #2. A large green area is labeled 'PROJECT SITE'. A yellow 'X' marks a location near Frontage Road. Distances are marked: 33,600 between locations 4 and 7, 48,900 between locations 4 and 11, 26,400 between locations 11 and 13, and 40,300 between locations 13 and 1. A scale bar indicates 0 to 1 mile.

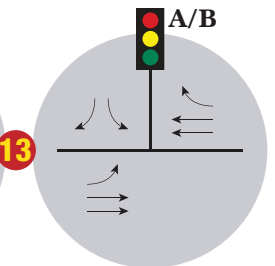
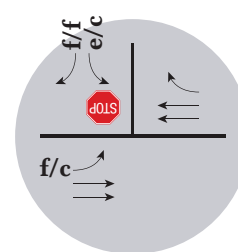
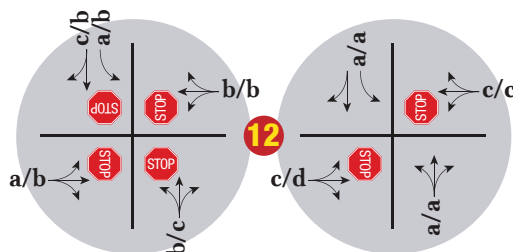
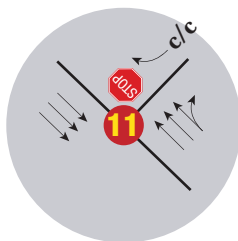
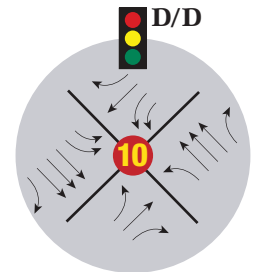
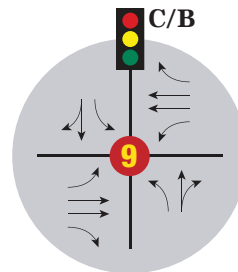
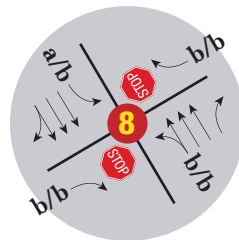
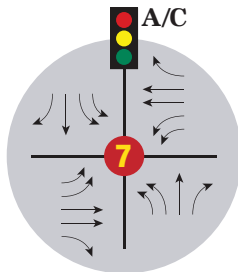
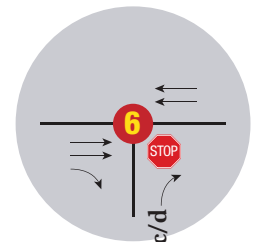
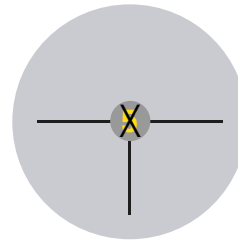
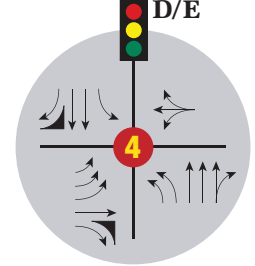
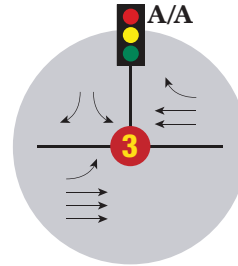
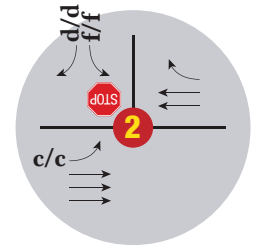
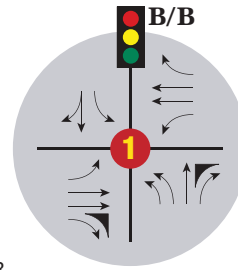
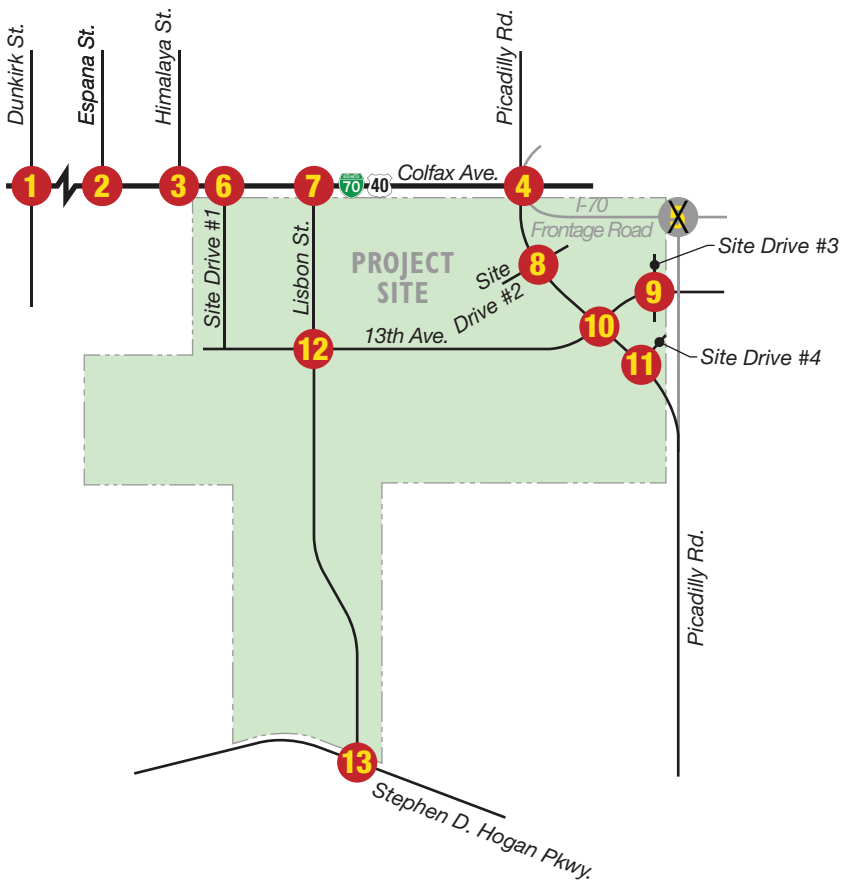


XXXX = Daily Traffic Volumes



Long Term Future (2040) Total Traffic Volumes

KEY MAP



with Two-Way
Stop Controlled

if signalized

LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes

X/X = AM/PM Peak Hour Signalized
Intersection Level of Service

x/x = AM/PM Peak Hour Unsignalized
Intersection Level of Service

STOP = Stop Sign

Traffic Signal

- **Lisbon Street/13th Avenue (Intersection #12)** – Two-way stop controlled (TWSC). This intersection is internal to the site and a southbound left-turn auxiliary lane is recommended. For an all-way stop warrant, the major street volume needs to average at least 300 vehicles per hour and the minor street volume needs to average at least 200 vehicles per hour for any 8 hours of an average day for this warrant to be satisfied. The AM and PM peak hours would experience 550 and 600 vehicles per hour along the major (northbound) street and 200 and 300 vehicles per hour along the minor (east-west) street, respectively. Data provided in the December 2015 *Journal of Transportation of the Institute of Transportation Engineers* indicate that roughly 50 percent industrial uses is expected to have a daily distribution in which 10.5 and 10.8 percent of daily traffic is expected during the AM and PM peak hours, respectively, and have a 6.3 percent daily share for the 11 AM hour, which is expected to be the 8th highest hour. Applying these percentages and interpolating the other hours, the 8th highest hour would have a volume of approximately 340 per hour along the major street and 150 per hour along the minor street. It is anticipated that these volumes would satisfy the all-way stop warrant. The City of Aurora requests all intersections identified for all-way stop or signalization be evaluated as roundabouts. However, *NCHRP 672 Roundabouts: An Informational Guide* indicates alternatives to a roundabout should not be considered when a high percentage of heavy vehicles exists. As such roundabouts are not considered in this study. It should also be noted that while the intersection meets warrants it operates acceptably as a TWSC intersection with lower overall delay and is the recommended intersection control.
- **Stephen D. Hogan Parkway/Jebel Street (Stafford southern access) (Intersection #13)** – Stop controlled tee intersection. Stephen D. Hogan Parkway is a planned six-lane major arterial. The eastbound approach should have a separate left-turn lane, the westbound approach should have a separate right-turn lane, and the southbound approach should have separate left and right-turn lanes. Peak hour and four-hour warrants were analyzed for the intersection and are provided in **Appendix H**. While side street volumes are low and do not approach meeting signal warrants, poor LOS is anticipated. Given the internal roadway network of the site and other signalized driveways, it is anticipated that some drivers will use capacity of other access points to enter and exit the site from Stephen D. Hogan Parkway via Picadilly Road. Due to the need for fire access to the southern portion of the site, it is recommended this be a full access movement despite the higher delay. Additionally median space provided for the eastbound left turn should provide the ability for southbound left turns to make the turn in two stages if necessary. While warrants are not met, the intersection analysis assuming signalization has also been provided at the request of City of Aurora staff.

As indicated, traffic operations would remain acceptable at LOS D or better, with the following exceptions:

- Colfax Avenue/Espana Drive is projected to operate at LOS F for the stop-controlled southbound left-turn in both the AM and PM peak hours. CDOT does not support signalization due to the proximity to Colfax Avenue/Dunkirk Street to the west.
- Stephen D. Hogan Parkway/Lisbon Street is projected to operate at LOS F for the stop controlled southbound right-turn in both the AM and PM peak hours, LOS E for the stop-controlled southbound left-turn in the AM peak hour, and LOS F for eastbound left turns in the AM peak hour. Volumes create a borderline condition for signalization based on the peak hour warrants in the PM peak hour and City of Aurora staff have previously indicated that they would support signalization at this location.

An intersection movement queuing analysis was also completed for the perimeter roadway intersections, and the results are shown in **Table 4**.

Table 4. Long-term Future 95th Percentile Queueing – Stafford

Intersection	Approach	Movement	2040 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Dunkirk Street (Intersection #1)	Eastbound	Left-Turn	25	50	150	150
		Through	525	650	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Left-Turn	25	25	50	25
		Through	50	150	Continuous	Continuous
		Right-Turn	0	0	Continuous	Continuous
	Northbound	Left-Turn	25	25	50	25
		Through	0	25	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn	75	100	100	75
		Through / Right-turn ⁺	200	150	Continuous	Continuous
Colfax Avenue/ España Street (Intersection #2)	Eastbound	Left-Turn	50	50	175	175
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-Turn	150	0	150	50
		Right-Turn	75	75	Continuous	Continuous
Colfax Avenue/ Himalaya Street (Intersection #3)	Eastbound	Left-Turn	25	75	75	
		Through	25	50	Continuous	Continuous
	Westbound	Through	25	75	Continuous	Continuous
		Right-turn	0	25	deceleration only	deceleration only
	Southbound	Left-Turn	100	175	175	150
		Right-Turn	275	525	Continuous	Continuous
Colfax Avenue/ Picadilly Road (Intersection #4)	Eastbound	Left-Turn*	375	475	575	575
		Through	25	25	Continuous	Continuous
		Right-turn	0	0	Continuous	Continuous
	Westbound	Left-Turn / Through / Right-Turn ⁺	25	25	Continuous	Continuous
	Northbound	Left-Turn*	350	350	375	375
		Through	25	25	Continuous	Continuous
		Through / Right-Turn ⁺	25	25	Continuous	Continuous

Intersection	Approach	Movement	2040 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Colfax Avenue/ Picadilly Road (Intersection #4) (Continued)	Southbound	Left-turn	25	25	50	25
		Through	700	625	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
Colfax Avenue/ Stafford Site Driveway #1 (Intersection #6)	Eastbound	Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Westbound	Through	0	0	Continuous	Continuous
	Northbound	Right-Turn	25	50	Continuous	Continuous
Colfax Avenue/ Lisbon Street (Intersection #7)	Eastbound	Left-Turn*	25	100	200	200
		Through	25	225	Continuous	Continuous
		Right-Turn	25	25	400	400
	Westbound	Left-turn*	50	50	250	250
		Through	25	125	Continuous	Continuous
		Right-Turn	0	75	400	400
	Northbound	Left-Turn*	75	200	200	275
		Through	0	0	Continuous	Continuous
		Right-Turn	100	350	350	375
	Southbound	Left-Turn*	50	200	200	225
		Through	0	0	Continuous	Continuous
		Right-Turn	100	475	475	425
Picadilly Road/Site Driveway #2 (Intersection #8)	Eastbound	Right-Turn	25	25	Continuous	Continuous
	Westbound	Right-Turn	25	50	Continuous	Continuous
	Northbound	Left-turn	25	25	50	75
		Through	0	0	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	Southbound	Left-turn	25	25	50	75
		Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
13 th Avenue/Site Driveway #3 (Intersection #9)	Eastbound	Left-Turn	75	100	100	275
		Through	400	25	Continuous	Continuous
		Right-Turn	25	0	50	50
	Westbound	Left-Turn	25	25	50	25
		Through	500	350	Continuous	Continuous
		Right-Turn	25	50	50	75

Intersection	Approach	Movement	2040 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
13 th Avenue/Site Driveway #3 (Intersection #9) (Continued)	Northbound	Left-turn	25	50	50	50
		Through / Right-turn ⁺	25	25	Continuous	Continuous
	Southbound	Left-turn	25	100	100	25
		Through / Right-turn ⁺	75	275	Continuous	Continuous
Picadilly Road/ 13 th Avenue Alignment (Intersection #10)	North- Eastbound	Left-Turn	175	275	275	375
		Through	75	275	Continuous	Continuous
		Right-Turn	125	100	125	100
	South- Westbound	Left-Turn*	350	400	400	400
		Through	250	100	Continuous	Continuous
		Right-Turn	0	0	deceleration only	deceleration only
	North- Westbound	Left-Turn	50	50	50	75
		Through	200	250	Continuous	Continuous
		Right-Turn	300	400	400	525
	South- Eastbound	Left-Turn*	375	425	425	475
		Through	50	275	Continuous	Continuous
		Right-Turn	25	175	175	200
Picadilly Road/Site Driveway #4 (Intersection #11)	Westbound	Right-Turn	25	25	Continuous	Continuous
	Northbound	Through	0	0	Continuous	Continuous
		Through / Right-Turn ⁺	0	0	Continuous	Continuous
	Southbound	Through	0	0	Continuous	Continuous
Lisbon Street/ 13 th Avenue (Intersection #12 AWSC)	Eastbound	Left-turn / Through / Right-turn ⁺	25	75	Continuous	Continuous
	Westbound	Left-turn / Through / Right-turn ⁺	75	75	Continuous	Continuous
	Southbound	Left-Turn	25	25	50	125
		Through / Right-turn ⁺	0	0	Continuous	Continuous
	Northbound	Left-Turn / Through / Right-turn ⁺	25	0	Continuous	Continuous
Lisbon Street/ 13 th Avenue (Intersection #12 TWSC)	Eastbound	Left-turn / Through / Right-turn ⁺	25	75	Continuous	Continuous
	Westbound	Left-turn / Through / Right-turn ⁺	75	75	Continuous	Continuous
	Southbound	Left-Turn	25	25	50	125
		Through / Right-turn ⁺	0	0	Continuous	Continuous
	Northbound	Left-Turn / Through / Right-turn ⁺	25	0	Continuous	Continuous

Intersection	Approach	Movement	2040 95 th Percentile Queue Length (ft) ¹		Recommended Storage Length	2040 SHAC Recommended Storage Length ²
			AM	PM		
Stephen D. Hogan/Lisbon Street (Intersection #13 TWSC)	Eastbound	Left-turn	350	25	350	175
		Through	0	0	Continuous	Continuous
	Westbound	Through	0	0	Continuous	Continuous
		Right-turn	0	0	deceleration only	deceleration only
	Southbound	Left-turn	50	325	325	125
		Right-turn	0	50	50	200
Stephen D. Hogan/Lisbon Street (Intersection #13 Signalized)	Eastbound	Left-turn	150	25	150	175
		Through	50	775	Continuous	Continuous
	Westbound	Through	275	325	Continuous	Continuous
		Right-turn	25	25	50	125
	Southbound	Left-turn	50	125	125	200
		Right-turn	125	350	350	175
*Dual/triple left-turn queues and storage are per lane. +Shared through and turn lane ¹ Calculations based on HCM methodology using a heavy vehicle percentage of 10 percent network wide with adjustments at driveway locations based on site layout. ² Number shown is based on volume adjustments of 3 PCE per heavy vehicle.						

The City of Aurora bases the need for auxiliary turn lanes on the CDOT SHAC. CDOT classifies Colfax Avenue as an access category NR-A facility. Based on a speed limit of 55 MPH and the projected volumes presented on **Figure 18**, right-turn lanes shall be provided at both site entrance locations along Colfax Avenue and a left turn at the Colfax Avenue/Lisbon Street intersection. These auxiliary lanes shall be sized based on deceleration length plus storage for left-turn lanes and deceleration length for right turns. Taper lengths are included in the recommended deceleration length from the SHAC and shall be constructed with a 18.5:1 taper for 55 MPH and are summarized in **Table 5** for site driveways along Colfax Avenue and the eastbound leg of Colfax Avenue/Piccadilly Road in which they would apply. It should be noted that for locations where multiple turn lanes are needed turn bay lengths can provide an average of the per lane storage length as storage by lane will vary as a result of tapering for multiple lanes.

Table 5. Stafford CDOT Recommended Auxiliary Lane Length

Intersection	Direction	SHAC Recommended Auxiliary Lane Length
Colfax Avenue/Stafford Site Drive #1 (Intersection #6)	Eastbound Right	600-foot deceleration (includes 225-foot taper)
Colfax Avenue/Lisbon Street (Site Drive) (Intersection #7)	Eastbound Right	600-foot deceleration (includes 225-foot taper)
	Westbound Left ¹	250-foot storage plus 600-foot deceleration (includes 225-foot taper per lane)
Colfax Avenue/Picadilly Road (Intersection #4)	Eastbound Left ¹	575-foot storage plus 600-foot deceleration (includes 225-foot taper per lane)
¹ Dual/triple turn lane, storage value is per plane		

Picadilly Road, 13th Avenue, and Stephen D. Hogan Parkway are planned arterials that would be classified as access category NR-B with 40 MPH posted speed limits. Left and right-turn auxiliary lanes are required at all site access points based on the projected volumes presented on **Figure 18**. These auxiliary lanes shall be sized based on storage plus taper length using a 12:1 taper according to the SHAC. Storage lengths are recommended at 1 foot per vehicle during the maximum volume in the peak hours rounded up to the nearest 25 feet with a minimum recommended storage of 50 feet. While the 13th Avenue/Stafford Site Drive #3 intersection westbound approach does not meet SHAC criteria for warranting a left-turn lane, one is recommended to keep turning vehicles from queuing into the through lane. A 50-foot storage plus 150-foot taper is recommended for that movement.

Colfax Progression Analysis

CDOT requested a progression analysis of Colfax Avenue to determine if signal progression is satisfactory given the reduction of signal spacing from 1/2 mile spacing to as low as 1/3 mile spacing near the main site entrance on Lisbon Street. Progression was analyzed for the four signals between Dunkirk Street and Picadilly Road. The analysis used a projected cycle length of 120 seconds and the existing 55 MPH speed limit.

Eastbound

The eastbound progression was analyzed from Dunkirk Street through movements to the Picadilly Road eastbound left-turn movement for traffic heading toward the new I-70 interchange. The AM eastbound progression achieves a bandwidth of 39 seconds, representing the entire eastbound green time at the Picadilly Road/Colfax Avenue intersection for an efficiency of 32.5 percent. The PM peak hour progression in the dominant eastbound direction achieves a bandwidth of 37 seconds for an efficiency of 30.8 percent.

Westbound

The westbound progression considered both the northbound lefts from Picadilly Road and through movements beginning at Lisbon Street. This consideration is to account for the fact that the northbound left volumes do not warrant progressing a bandwidth from the tee intersection at Picadilly Road west that would satisfy SHAC recommendations due to heavy north-south volumes that are also of concern given that Picadilly Road is a planned major arterial roadway. Progression percentages presented are from Lisbon Street west.

The AM peak hour progression in the dominant westbound direction finds that the entire 25 seconds of northbound left green time at the Picadilly Road/Colfax Avenue intersection can progress through the remaining three study area signals. Progression from Lisbon Street west indicated that a bandwidth of 36 seconds could be progressed through the remaining two signals, which provides an efficiency of 30 percent.

The PM peak hour progression in the westbound direction finds that the entire 27 seconds of northbound left green time at Picadilly Road/Colfax Avenue intersection can progress through the remaining three study area signals. Progression from Lisbon Street west was determined to be a bandwidth of 32 seconds of green time and could be progressed through the remaining two signals, which provides an efficiency of 26.7 percent.

The average progression for both directions (eastbound for the entire corridor and westbound from Lisbon Street) is 31.8 percent in the AM peak hour and 28.8 percent in the PM peak hour. While these progression efficiencies fall slightly below the 35 percent guideline from the SHAC, it should be considered that this is anticipated to be an urban environment and Picadilly Road will be a six-lane arterial that will require substantial split time to operate efficiently. The entire northbound left from Picadilly Road progresses through the entire corridor in both peak hours and the entire eastbound left progresses through the intersection at Picadilly Road for the AM peak hour. Traffic conditions along Picadilly Road are the limiting factor in not achieving the preferred 35 percent outlined in the SHAC. The proposed 1/3 mile signal spacing allows optimal progression as constrained by the Colfax Avenue/Picadilly Road intersection, and lane geometry can be implemented to accommodate projected queues without hindering traffic flow at adjacent signals. Progression diagrams are presented in **Appendix I**.

V. SUMMARY AND RECOMMENDATIONS

NorthPoint Development is proposing a 350-acre development consisting of approximately 4.2 million square feet of industrial uses, approximately 160,000 square feet of mixed retail including a bank and supermarket, a gas station, and two hotels with a total of 200 rooms. The development will be phased as the market allows, and the initial development phase includes development of three buildings along the northern end of the industrial park portions of the site. These three buildings will provide approximately 2.2 million square feet of space with about half being dedicated to a large single user fulfillment center. Primary access to the site will be via Colfax Avenue, particularly through initial development. As the property develops, an internal road system will evolve providing circulation around the site as well as providing access onto Colfax Avenue, Picadilly Road (which will ultimately interchange with I-70), and Stephen D. Hogan Parkway.

The proposed Stafford development is estimated to generate approximately 19,600 external trips per day when built out, with about 2,100 occurring during the AM peak hour and 2,900 occurring during the PM peak hour. Phase I of the development will generate approximately 5,400 daily trips, with about 2,100 occurring during the AM peak hour and 2,900 occurring during the PM peak hour.

The potential traffic impacts of the development were evaluated under both short-term future (2022) and long-term future (2040) conditions. The 2022 conditions include the development's first phase, of all industrial park buildings, with relatively little other development in the area. The long-term analysis reflects buildout of Stafford and the surrounding area per travel demand modeling represented in the I-70/Picadilly Road interchange study, which accounts for a full interchange at I-70/Picadilly Road and the continuity of Picadilly Road north of Colfax Avenue, across I-70, and connecting with Picadilly Road at Smith Road.

NorthPoint does not intend to develop any of the retail portions of the Stafford Logistics Center prior to the realignment of Picadilly Road. The retail uses will develop once more residential development in the area occurs, which is not expected to mature to the point that Picadilly Road requires widening in short-term scenarios.

Short-term future needs in the area to accommodate Phase I of the Stafford development include the following:

- Providing auxiliary left and right-turn lanes and signalization of the Colfax Avenue/Lisbon Street (Stafford full access drive)
- Providing an auxiliary right-turn lane at the Colfax Avenue/Stafford Access Drive #1
- Realigning both Picadilly Road and Colfax Avenue simultaneously with construction of the large single user fulfillment center and the signalization of the new Colfax Avenue/Picadilly Road at that time
- Providing an auxiliary right-turn lane at the Colfax Avenue/Picadilly Road

Long-term future (2040) traffic reflects buildout of the area, and traffic volumes are anticipated to increase noticeably. The following roadway sections are needed to accommodate future traffic.

- Picadilly Road will be continued to the north providing an interchange with I-70 and is projected to need a six-lane cross section.
- The intersections of Colfax Avenue/Himalaya Street, Colfax Avenue/Lisbon Street, Colfax Avenue/Picadilly Road, Picadilly Road/13th Avenue, and 13th Avenue /Stafford Access Drive #3 are all projected to be signalized. CDOT will not allow the signalization of Colfax Avenue/Espana Street.
- The internal site intersections of Lisbon Street/13th Avenue will be all-way stop controlled.
- The average progression for both directions is 31.8 percent in the AM peak hour and 28.8 percent in the PM peak hour. Traffic conditions along Picadilly Road are the limiting factor in not achieving the desired progression levels outlined in the SHAC, not the placement of signals at intervals below 1/2 mile along Colfax Avenue.

The City of Aurora bases the need for auxiliary turn lanes on the CDOT SHAC (and Colfax Avenue being a state highway already requires the SHAC's application). Ultimate turn lane storage lengths are shown in **Table 4** for auxiliary lanes at study area intersections. Auxiliary lane needs for CDOT facilities as they relate to Stafford Logistics Center site traffic are presented separately in **Table 5**.

These improvements have been developed based on the current I-70/Picadilly Road interchange SLS.

APPENDIX A. TRAFFIC COUNTS

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 6
Station ID: 6
COLFAX AVE W.O. I70 FRONTAGE RD

Start Time	11-Dec-18 Tue	EB	WB							Total
12:00 AM		38	22							60
01:00		19	46							65
02:00		9	18							27
03:00		11	23							34
04:00		59	62							121
05:00		108	180							288
06:00		268	398							666
07:00		357	573							930
08:00		250	391							641
09:00		190	262							452
10:00		187	260							447
11:00		182	267							449
12:00 PM		247	242							489
01:00		191	217							408
02:00		323	269							592
03:00		454	382							836
04:00		536	322							858
05:00		608	343							951
06:00		330	241							571
07:00		176	112							288
08:00		127	91							218
09:00		75	70							145
10:00		58	53							111
11:00		37	43							80
Total		4840	4887							9727
Percent		49.8%	50.2%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	357	573	-	-	-	-	-	-	930
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	608	382	-	-	-	-	-	-	951

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 6
Station ID: 6
COLFAX AVE W.O. I70 FRONTAGE RD

Start Time	12-Dec-18 Wed	EB	WB							Total
12:00 AM		37	40							77
01:00		12	54							66
02:00		12	24							36
03:00		14	30							44
04:00		42	57							99
05:00		114	200							314
06:00		282	443							725
07:00		369	658							1027
08:00		221	415							636
09:00		194	309							503
10:00		180	247							427
11:00		195	228							423
12:00 PM		235	231							466
01:00		240	247							487
02:00		354	279							633
03:00		489	389							878
04:00		581	326							907
05:00		612	376							988
06:00		295	217							512
07:00		174	119							293
08:00		168	92							260
09:00		90	80							170
10:00		55	34							89
11:00		40	34							74
Total		5005	5129							10134
Percent		49.4%	50.6%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	369	658	-	-	-	-	-	-	1027
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	612	389	-	-	-	-	-	-	988

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 6
Station ID: 6
COLFAX AVE W.O. I70 FRONTAGE RD

Start Time	13-Dec-18 Thu	EB	WB							Total
12:00 AM		36	41							77
01:00		15	36							51
02:00		15	28							43
03:00		13	22							35
04:00		55	65							120
05:00		112	186							298
06:00		246	407							653
07:00		397	644							1041
08:00		223	422							645
09:00		147	261							408
10:00		166	217							383
11:00		178	228							406
12:00 PM		212	227							439
01:00		226	230							456
02:00		367	257							624
03:00		504	341							845
04:00		602	383							985
05:00		646	374							1020
06:00		354	243							597
07:00		187	132							319
08:00		134	106							240
09:00		124	70							194
10:00		71	46							117
11:00		47	49							96
Total		5077	5015							10092
Percent		50.3%	49.7%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	397	644	-	-	-	-	-	-	1041
PM Peak	-	17:00	16:00	-	-	-	-	-	-	17:00
Vol.	-	646	383	-	-	-	-	-	-	1020
Grand Total		14922	15031							29953
Percent		49.8%	50.2%							
ADT		ADT 9,984	AADT 9,984							

All Traffic Data Services
Wheat Ridge, CO 80033

Page 1

Site Code: 7
Station ID: 7
PICADILLY RD S.O. I70 FRONTAGE RD

Start Time	11-Dec-18 Tue	NB	SB	Total
12:00 AM		4	14	18
01:00		6	8	14
02:00		10	4	14
03:00		5	7	12
04:00		21	20	41
05:00		50	43	93
06:00		88	149	237
07:00		102	166	268
08:00		94	111	205
09:00		66	78	144
10:00		53	75	128
11:00		69	95	164
12:00 PM		55	88	143
01:00		63	101	164
02:00		84	136	220
03:00		110	207	317
04:00		113	243	356
05:00		115	228	343
06:00		49	155	204
07:00		31	86	117
08:00		22	66	88
09:00		23	37	60
10:00		10	45	55
11:00		10	29	39
Total		1253	2191	3444
Percent		36.4%	63.6%	
AM Peak	-	07:00	07:00	07:00
Vol.	-	102	166	268
PM Peak	-	17:00	16:00	16:00
Vol.	-	115	243	356

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 7
Station ID: 7
PICADILLY RD S.O. I70 FRONTAGE RD

Start Time	12-Dec-18 Wed	NB	SB							Total
12:00 AM		3	14							17
01:00		4	9							13
02:00		8	7							15
03:00		11	5							16
04:00		19	17							36
05:00		61	50							111
06:00		92	145							237
07:00		112	166							278
08:00		75	107							182
09:00		59	78							137
10:00		47	88							135
11:00		52	74							126
12:00 PM		49	90							139
01:00		72	100							172
02:00		86	167							253
03:00		99	194							293
04:00		118	242							360
05:00		100	231							331
06:00		47	133							180
07:00		41	83							124
08:00		30	85							115
09:00		17	45							62
10:00		14	33							47
11:00		12	34							46
Total		1228	2197							3425
Percent		35.9%	64.1%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	112	166	-	-	-	-	-	-	278
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	118	242	-	-	-	-	-	-	360

All Traffic Data Services
Wheat Ridge, CO 80033

Site Code: 7
Station ID: 7
PICADILLY RD S.O. I70 FRONTAGE RD

Start Time	13-Dec-18 Thu	NB	SB							Total
12:00 AM		6	13							19
01:00		4	10							14
02:00		11	4							15
03:00		6	5							11
04:00		18	20							38
05:00		59	51							110
06:00		82	136							218
07:00		109	167							276
08:00		86	114							200
09:00		57	83							140
10:00		56	73							129
11:00		49	76							125
12:00 PM		47	103							150
01:00		57	100							157
02:00		65	120							185
03:00		118	221							339
04:00		114	244							358
05:00		105	242							347
06:00		57	155							212
07:00		31	74							105
08:00		23	65							88
09:00		15	50							65
10:00		8	43							51
11:00		15	28							43
Total		1198	2197							3395
Percent		35.3%	64.7%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	109	167	-	-	-	-	-	-	276
PM Peak	-	15:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	118	244	-	-	-	-	-	-	358

Wheat Ridge, CO 80033

Site Code: 7

Station ID: 7

PICADILLY RD S.O. 170 FRONTAGE RD

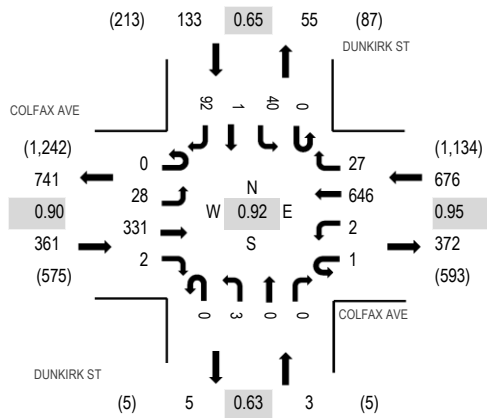
Start Time	14-Dec-18	NB	SB								Total
12:00 AM		4	14								18
01:00		6	8								14
02:00		10	4								14
03:00		5	7								12
04:00		21	20								41
05:00		50	43								93
06:00		88	149								237
07:00		102	166								268
08:00		94	111								205
09:00		66	78								144
10:00		53	75								128
11:00		69	95								164
12:00 PM		*	*								*
01:00		*	*								*
02:00		*	*								*
03:00		*	*								*
04:00		*	*								*
05:00		*	*								*
06:00		*	*								*
07:00		*	*								*
08:00		*	*								*
09:00		*	*								*
10:00		*	*								*
11:00		*	*								*
Total		568	770								1338
Percent		42.5%	57.5%								
AM Peak	-	07:00	07:00	-	-	-	-	-	-	-	07:00
Vol.	-	102	166	-	-	-	-	-	-	-	268
PM Peak	-	-	-	-	-	-	-	-	-	-	-
Vol.	-	-	-	-	-	-	-	-	-	-	-
Grand Total		4247	7355								11602
Percent		36.6%	63.4%								
ADT		ADT 3,429	AADT 3,429								



(303) 216-2439
www.alltrafficdata.net

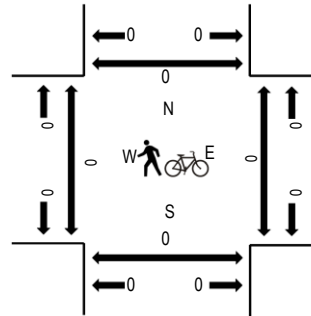
Location: 1 DUNKIRK ST & COLFAX AVE AM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

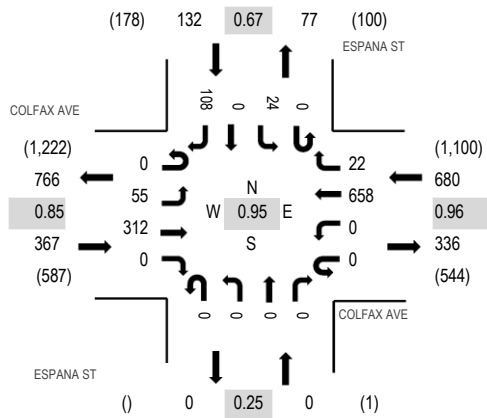
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				DUNKIRK ST Northbound				DUNKIRK ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	8	91	1	0	1	163	5	0	0	0	0	0	21	0	30	320	1,173	0	0	0	0
7:15 AM	0	8	90	0	0	0	167	10	0	1	0	0	0	3	0	23	302	1,086	0	0	0	0
7:30 AM	0	5	74	1	1	1	165	11	0	0	0	0	0	10	0	25	293	989	0	0	0	0
7:45 AM	0	7	76	0	0	0	151	1	0	2	0	0	0	6	1	14	258	872	0	0	0	0
8:00 AM	0	6	53	0	0	0	140	4	0	1	1	0	0	8	0	20	233	754	0	0	1	0
8:15 AM	0	4	56	0	0	0	122	7	0	0	0	0	0	4	0	12	205		0	0	0	0
8:30 AM	0	3	44	0	0	0	107	2	0	0	0	0	0	4	0	16	176		0	0	0	0
8:45 AM	1	1	46	0	0	0	72	4	0	0	0	0	0	6	0	10	140		0	0	0	0
Count Total	1	42	530	2	1	2	1,087	44	0	4	1	0	0	62	1	150	1,927		0	0	1	0
Peak Hour	0	28	331	2	1	2	646	27	0	3	0	0	0	40	1	92	1,173		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

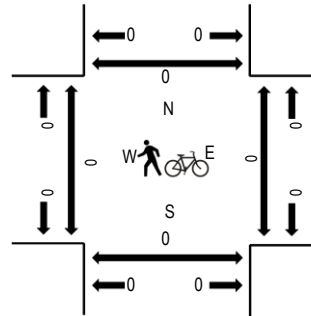
Location: 2 ESPANA ST & COLFAX AVE AM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

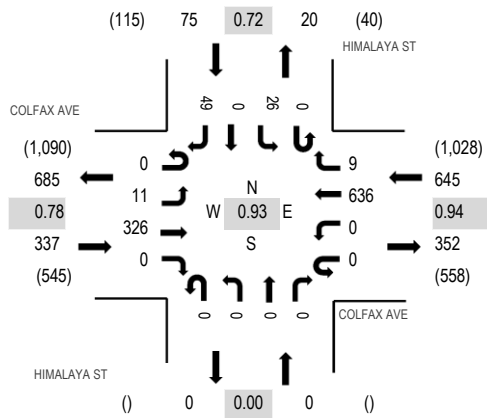
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				ESPANA ST Northbound				ESPANA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	12	96	0	0	0	159	7	0	0	0	0	0	9	0	24	307	1,179	0	0	0	0
7:15 AM	0	19	76	0	0	0	162	9	0	0	0	0	0	6	0	19	291	1,084	0	0	0	0
7:30 AM	0	13	70	0	0	0	171	6	0	0	0	0	0	8	0	41	309	983	0	0	0	0
7:45 AM	0	11	70	0	0	0	166	0	0	0	0	0	0	1	0	24	272	831	0	0	0	0
8:00 AM	1	7	55	0	0	0	128	0	0	0	0	0	0	7	0	14	212	687	0	0	0	0
8:15 AM	0	5	54	0	0	0	121	3	0	0	0	0	0	1	0	6	190		0	0	0	0
8:30 AM	0	4	40	0	0	0	99	1	0	1	0	0	0	0	0	12	157		0	0	0	0
8:45 AM	0	3	51	0	0	0	68	0	0	0	0	0	0	0	0	6	128		0	0	0	1
Count Total	1	74	512	0	0	0	1,074	26	0	1	0	0	0	32	0	146	1,866		0	0	0	1
Peak Hour	0	55	312	0	0	0	658	22	0	0	0	0	0	24	0	108	1,179		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

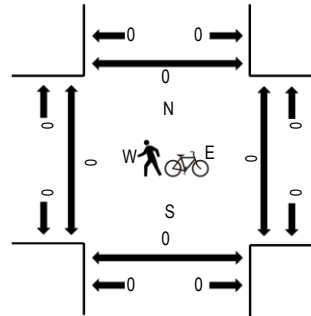
Location: 3 HIMALAYA ST & COLFAX AVE AM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

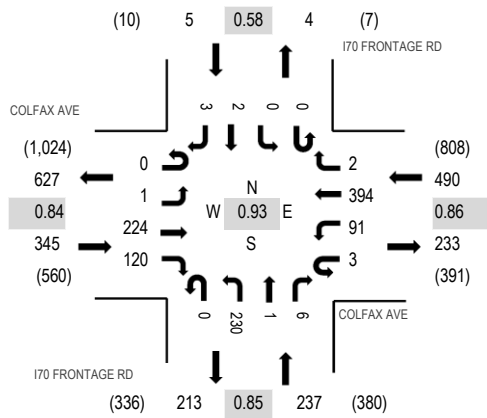
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				HIMALAYA ST Northbound				HIMALAYA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	6	102	0	0	0	0	146	5	0	0	0	0	13	0	13	285	1,057	0	0	0	0
7:15 AM	0	1	79	0	0	0	0	162	0	0	0	0	0	6	0	19	267	965	0	0	0	0
7:30 AM	0	2	79	0	0	0	0	168	3	0	0	0	0	2	0	8	262	878	0	0	0	0
7:45 AM	0	2	66	0	0	0	0	160	1	0	0	0	0	5	0	9	243	752	0	0	0	0
8:00 AM	0	5	58	0	0	0	0	114	3	0	0	0	0	6	0	7	193	631	0	0	0	0
8:15 AM	0	3	47	0	0	0	0	114	3	0	0	0	0	4	0	9	180		0	0	0	0
8:30 AM	0	2	41	0	0	0	0	85	0	0	0	0	0	0	0	8	136		0	0	0	0
8:45 AM	0	3	49	0	0	0	0	63	1	0	0	0	0	1	0	5	122		0	0	0	0
Count Total	0	24	521	0	0	0	0	1,012	16	0	0	0	0	37	0	78	1,688		0	0	0	0
Peak Hour	0	11	326	0	0	0	0	636	9	0	0	0	0	26	0	49	1,057		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

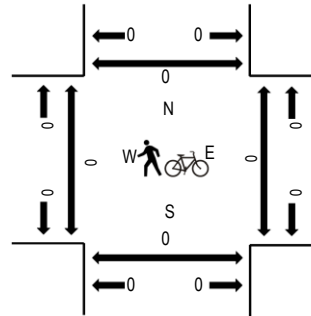
Location: 4 I70 FRONTAGE RD & COLFAX AVE AM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

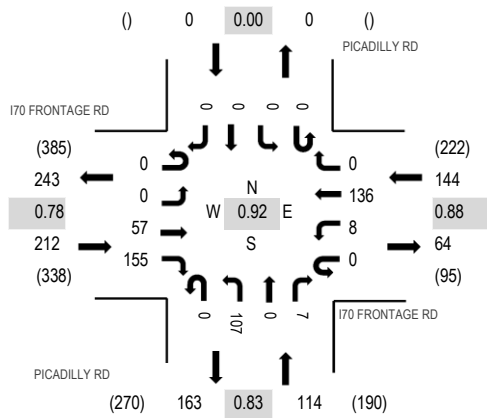
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				I70 FRONTAGE RD Northbound				I70 FRONTAGE RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	1	71	31	1	25	99	0	0	46	0	3	0	0	0	1	278	1,077	0	0	0	0
7:15 AM	0	0	60	32	1	33	107	1	0	53	1	0	0	0	0	1	289	1,017	0	0	0	0
7:30 AM	0	0	47	30	1	17	104	0	0	67	0	3	0	0	2	0	271	914	0	0	0	0
7:45 AM	0	0	46	27	0	16	84	1	0	64	0	0	0	0	0	1	239	790	0	0	0	0
8:00 AM	0	1	47	24	1	12	82	2	0	46	0	2	0	0	0	1	218	681	0	0	0	0
8:15 AM	0	0	32	16	3	15	72	0	0	43	0	2	0	1	0	2	186		0	0	0	0
8:30 AM	0	0	28	16	0	14	58	0	0	30	0	1	0	0	0	0	147		0	0	0	0
8:45 AM	0	0	36	15	5	11	43	0	0	19	0	0	0	0	0	1	130		0	0	0	0
Count Total	0	2	367	191	12	143	649	4	0	368	1	11	0	1	2	7	1,758		0	0	0	0
Peak Hour	0	1	224	120	3	91	394	2	0	230	1	6	0	0	2	3	1,077		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

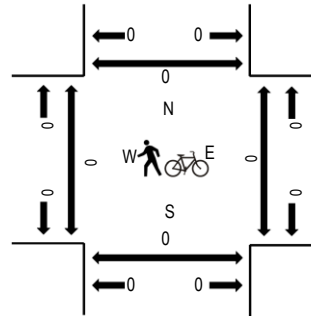
Location: 5 PICADILLY RD & I70 FRONTAGE RD AM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

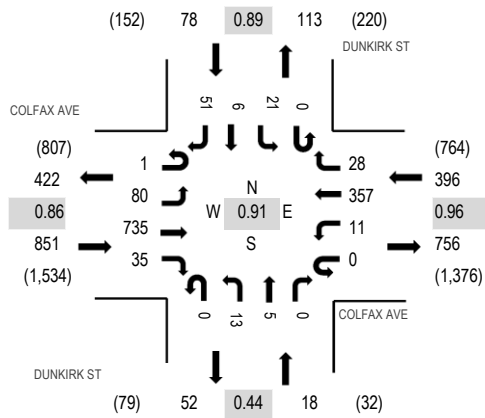
Interval Start Time	I70 FRONTAGE RD Eastbound				I70 FRONTAGE RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	16	38	0	1	31	0	0	22	0	1	0	0	0	0	109	470	0	0	0	0
7:15 AM	0	0	17	51	0	4	35	0	0	19	0	2	0	0	0	0	128	448	0	0	0	0
7:30 AM	0	0	13	35	0	1	40	0	0	30	0	4	0	0	0	0	123	400	0	0	0	0
7:45 AM	0	0	11	31	0	2	30	0	0	36	0	0	0	0	0	0	110	338	0	0	0	0
8:00 AM	0	0	12	26	0	3	22	0	0	23	0	1	0	0	0	0	87	280	0	0	0	0
8:15 AM	0	0	5	26	0	2	21	0	0	25	0	1	0	0	0	0	80		0	0	0	0
8:30 AM	0	0	3	27	0	1	15	0	0	14	0	1	0	0	0	0	61		0	0	0	0
8:45 AM	0	0	7	20	0	2	12	0	0	10	0	1	0	0	0	0	52		0	0	0	0
Count Total	0	0	84	254	0	16	206	0	0	179	0	11	0	0	0	0	750		0	0	0	0
Peak Hour	0	0	57	155	0	8	136	0	0	107	0	7	0	0	0	0	470		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

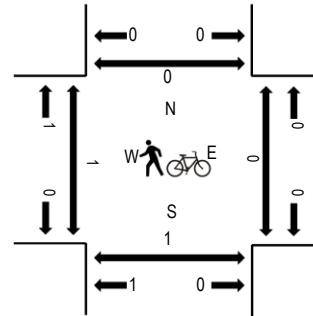
Location: 1 DUNKIRK ST & COLFAX AVE PM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

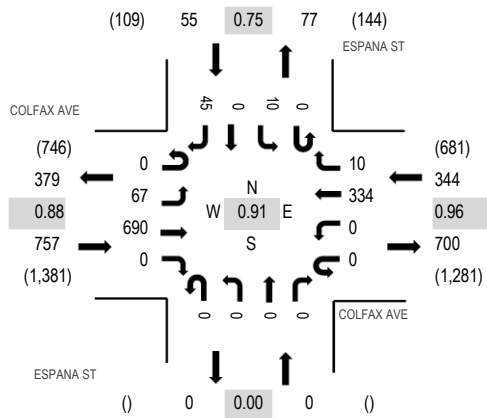
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				DUNKIRK ST Northbound				DUNKIRK ST Southbound				Total	Rolling Hour	Pedestrian Crossings				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North	
4:00 PM	1	16	143	0	0	0	84	13	0	0	0	0	0	6	1	11	275	1,183	0	0	0	0	
4:15 PM	0	16	167	4	0	0	72	9	0	3	2	0	0	9	4	10	296	1,278	0	0	0	0	
4:30 PM	0	17	188	0	0	1	87	6	0	2	1	0	0	5	1	10	318	1,343	0	0	0	0	
4:45 PM	0	24	149	2	0	0	84	9	0	0	3	0	0	5	3	15	294	1,333	0	0	0	0	
5:00 PM	0	22	213	11	0	1	97	7	0	0	0	0	0	4	0	15	370	1,299	0	0	0	0	
5:15 PM	1	17	185	22	0	9	89	6	0	11	1	0	0	7	2	11	361		1	0	1	0	
5:30 PM	1	19	150	9	0	3	89	11	0	5	1	0	0	3	1	16	308		0	0	0	0	
5:45 PM	0	16	136	5	0	0	85	2	0	0	2	1	0	5	0	8	260		0	0	0	0	
Count Total	3	147	1,331	53	0	14	687	63	0	21	10	1	0	44	12	96	2,482		1	0	1	0	
Peak Hour	1	80	735	35	0	11	357	28	0	13	5	0	0	21	6	51	1,343		1	0	1	0	



(303) 216-2439
www.alltrafficdata.net

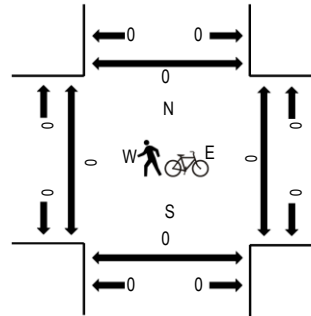
Location: 2 ESPANA ST & COLFAX AVE PM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

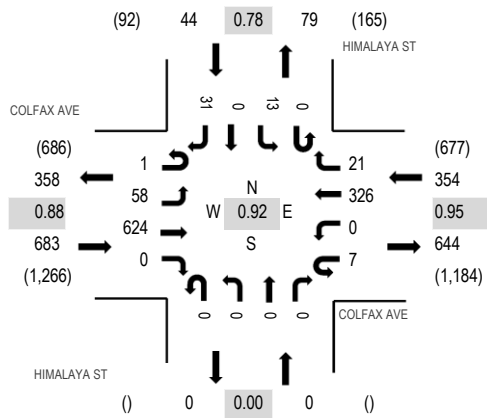
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				ESPANA ST Northbound				ESPANA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	15	133	0	0	0	0	80	6	0	0	0	0	7	0	15	256	1,057	0	0	0	0
4:15 PM	1	15	160	0	0	0	0	70	0	0	0	0	0	3	0	11	260	1,118	0	0	0	0
4:30 PM	0	23	171	0	0	0	0	76	3	0	0	0	0	4	0	15	292	1,156	0	0	0	0
4:45 PM	0	12	141	0	0	0	0	84	1	0	0	0	0	2	0	9	249	1,125	0	0	0	0
5:00 PM	0	15	199	0	0	0	0	88	3	0	0	0	0	1	0	11	317	1,114	0	0	0	0
5:15 PM	0	17	179	0	0	0	0	86	3	0	0	0	0	3	0	10	298		0	0	0	0
5:30 PM	0	11	144	0	0	0	0	92	2	0	0	0	0	1	0	11	261		0	0	0	0
5:45 PM	0	13	132	0	0	0	0	82	5	0	0	0	0	1	0	5	238		0	0	0	0
Count Total	1	121	1,259	0	0	0	0	658	23	0	0	0	0	22	0	87	2,171		0	0	0	0
Peak Hour	0	67	690	0	0	0	0	334	10	0	0	0	0	10	0	45	1,156		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

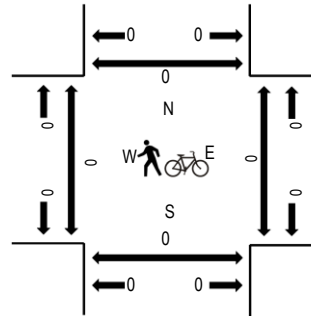
Location: 3 HIMALAYA ST & COLFAX AVE PM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

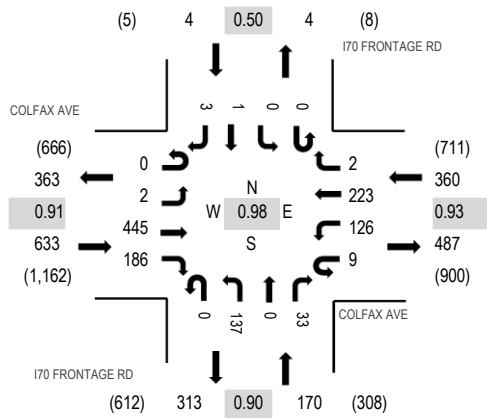
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				HIMALAYA ST Northbound				HIMALAYA ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	2	13	124	0	1	0	72	5	0	0	0	0	0	2	0	12	231	986	0	0	0	0
4:15 PM	0	15	151	0	0	0	61	7	0	0	0	0	0	1	0	7	242	1,050	0	0	0	0
4:30 PM	0	16	154	0	0	0	80	4	0	0	0	0	0	3	0	7	264	1,081	0	0	0	0
4:45 PM	0	10	138	0	1	0	82	5	0	0	0	0	0	4	0	9	249	1,074	0	0	0	0
5:00 PM	1	16	177	0	5	0	82	6	0	0	0	0	0	2	0	6	295	1,049	0	0	0	0
5:15 PM	0	16	155	0	1	0	82	6	0	0	0	0	0	4	0	9	273		0	0	0	0
5:30 PM	0	14	135	0	0	0	88	9	0	0	0	0	0	5	0	6	257		0	0	0	0
5:45 PM	0	17	112	0	2	0	72	6	0	0	0	0	0	7	0	8	224		0	0	0	0
Count Total	3	117	1,146	0	10	0	619	48	0	0	0	0	0	28	0	64	2,035		0	0	0	0
Peak Hour	1	58	624	0	7	0	326	21	0	0	0	0	0	13	0	31	1,081		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

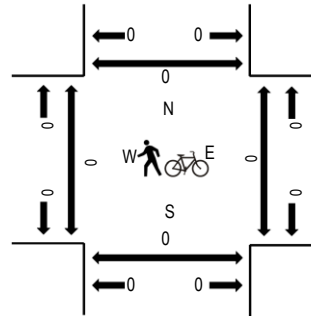
Location: 4 I70 FRONTAGE RD & COLFAX AVE PM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

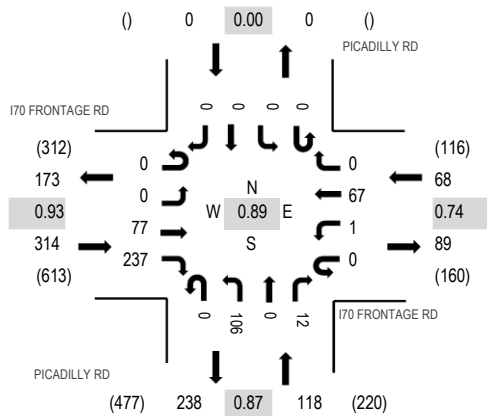
Interval Start Time	COLFAX AVE Eastbound				COLFAX AVE Westbound				I70 FRONTAGE RD Northbound				I70 FRONTAGE RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	93	35	2	36	45	0	0	30	0	6	0	1	0	0	248	1,088	0	0	0	0
4:15 PM	0	1	106	38	1	41	39	1	0	27	0	13	0	0	0	0	267	1,137	0	0	0	0
4:30 PM	0	1	112	43	1	39	55	1	0	31	0	9	0	0	0	1	293	1,167	0	0	0	0
4:45 PM	0	0	100	46	2	32	61	0	0	31	0	8	0	0	0	0	280	1,156	0	0	0	0
5:00 PM	0	1	126	47	2	22	52	1	0	37	0	7	0	0	0	2	297	1,098	0	0	0	0
5:15 PM	0	0	107	50	4	33	55	0	0	38	0	9	0	0	1	0	297		0	0	0	0
5:30 PM	0	0	107	40	1	40	54	2	0	33	0	5	0	0	0	0	282		0	0	0	0
5:45 PM	0	0	71	38	2	31	56	0	0	19	0	5	0	0	0	0	222		0	0	0	0
Count Total	0	3	822	337	15	274	417	5	0	246	0	62	0	1	1	3	2,186		0	0	0	0
Peak Hour	0	2	445	186	9	126	223	2	0	137	0	33	0	0	1	3	1,167		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

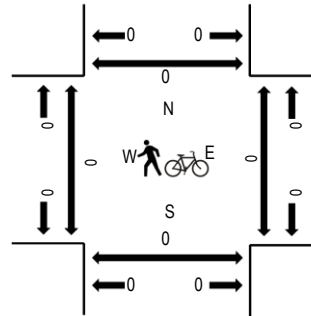
Location: 5 PICADILLY RD & I70 FRONTAGE RD PM
Date and Start Time: Wednesday, December 12, 2018
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



























Traffic Counts

Interval Start Time	I70 FRONTAGE RD Eastbound				I70 FRONTAGE RD Westbound				PICADILLY RD Northbound				PICADILLY RD Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	10	60	0	0	10	0	0	24	0	3	0	0	0	0	107	474	0	0	0	0
4:15 PM	0	0	17	62	0	0	10	0	0	32	0	2	0	0	0	0	123	482	0	0	0	0
4:30 PM	0	0	22	57	0	0	16	0	0	24	0	1	0	0	0	0	120	500	0	0	0	0
4:45 PM	0	0	16	64	0	1	13	0	0	26	0	4	0	0	0	0	124	497	0	0	0	0
5:00 PM	0	0	15	56	0	0	15	0	0	27	0	2	0	0	0	0	115	475	0	0	0	0
5:15 PM	0	0	24	60	0	0	23	0	0	29	0	5	0	0	0	0	141		0	0	0	0
5:30 PM	0	0	20	58	0	2	12	0	0	24	0	1	0	0	0	0	117		0	0	0	0
5:45 PM	0	0	17	55	0	2	12	0	0	15	0	1	0	0	0	0	102		0	0	0	0
Count Total	0	0	141	472	0	5	111	0	0	201	0	19	0	0	0	0	949		0	0	0	0
Peak Hour	0	0	77	237	0	1	67	0	0	106	0	12	0	0	0	0	500		0	0	0	0

APPENDIX B. EXISTING CONDITIONS LOS

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
08/20/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations		 			 		 		 	
Traffic Volume (vph)	28	331	2	2	646	27	3	40	1	
Future Volume (vph)	28	331	2	2	646	27	3	40	1	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	30.0	25.0
Total Split (s)	15.0	55.0	55.0	15.0	55.0	55.0	20.0	15.0	30.0	35.0
Total Split (%)	12.5%	45.8%	45.8%	12.5%	45.8%	45.8%	16.7%	12.5%	25.0%	29%
Yellow Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0
All-Red Time (s)	5.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	8.0	9.0	9.0	5.0	9.0	9.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	96.3	94.1	94.1	94.9	87.9	87.9	5.2	9.9	7.8	
Actuated g/C Ratio	0.80	0.78	0.78	0.79	0.73	0.73	0.04	0.08	0.06	
v/c Ratio	0.05	0.13	0.00	0.00	0.27	0.02	0.02	0.30	0.52	
Control Delay	3.5	4.4	0.0	3.5	7.2	0.0	55.3	54.3	20.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.5	4.4	0.0	3.5	7.2	0.0	55.3	54.3	20.0	
LOS	A	A	A	A	A	A	E	D	C	
Approach Delay		4.3			6.9				30.3	
Approach LOS		A			A				C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 8.9

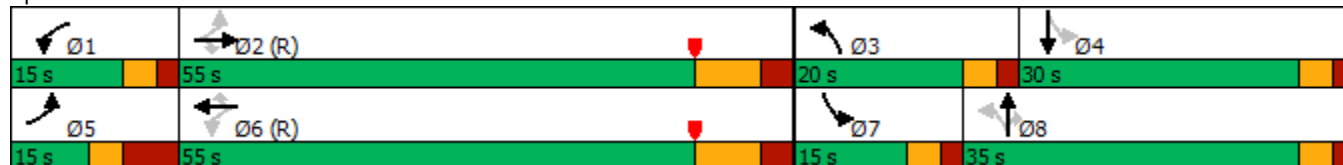
Intersection LOS: A

Intersection Capacity Utilization 43.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Colfax Ave & Dunkirk St



























HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

08/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	331	2	2	646	27	3	0	0	40	1	92
Future Volume (veh/h)	28	331	2	2	646	27	3	0	0	40	1	92
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	360	0	2	702	29	3	0	0	43	1	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	2530		742	2357	1051	182	82		196	1	128
Arrive On Green	0.03	0.71	0.00	0.00	0.66	0.66	0.00	0.00	0.00	0.04	0.08	0.08
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	16	1572
Grp Volume(v), veh/h	30	360	0	2	702	29	3	0	0	43	0	101
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1587
Q Serve(g_s), s	0.6	3.9	0.0	0.0	9.9	0.8	0.1	0.0	0.0	2.7	0.0	7.5
Cycle Q Clear(g_c), s	0.6	3.9	0.0	0.0	9.9	0.8	0.1	0.0	0.0	2.7	0.0	7.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	528	2530		742	2357	1051	182	82		196	0	129
V/C Ratio(X)	0.06	0.14		0.00	0.30	0.03	0.02	0.00		0.22	0.00	0.78
Avail Cap(c_a), veh/h	585	2530		886	2357	1051	600	468		271	0	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	5.5	0.0	6.7	8.5	6.9	54.5	0.0	0.0	50.1	0.0	54.1
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	0.0	7.4
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(95%),veh/ln	0.4	2.1	0.0	0.0	5.9	0.5	0.1	0.0	0.0	2.2	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	5.7	0.0	6.7	8.8	7.0	54.5	0.0	0.0	50.5	0.0	61.5
LnGrp LOS	A	A		A	A	A	D	A		D	A	E
Approach Vol, veh/h	390		A	733			3		A	144		
Approach Delay, s/veh	5.7			8.7			54.5			58.2		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	94.4	5.5	14.8	11.2	88.6	10.0	10.3				
Change Period (Y+Rc), s	5.0	9.0	5.0	5.0	8.0	9.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	46.0	15.0	25.0	7.0	46.0	10.0	30.0				
Max Q Clear Time (g_c+I1), s	2.0	5.9	2.1	9.5	2.6	11.9	4.7	0.0				
Green Ext Time (p_c), s	0.0	4.3	0.0	0.4	0.0	9.4	0.0	0.0				







Intersection Summary







HCM 6th Ctrl Delay 13.5






HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.




Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	55	312	658	22	24	108
Future Vol, veh/h	55	312	658	22	24	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	328	693	23	25	114
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	716	0	-	0	940	347
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	247	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	880	-	-	-	359	649
Stage 1	-	-	-	-	444	-
Stage 2	-	-	-	-	909	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	880	-	-	-	335	649
Mov Cap-2 Maneuver	-	-	-	-	335	-
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	909	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.4	0		13.6		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	880	-	-	-	555	
HCM Lane V/C Ratio	0.066	-	-	-	0.25	
HCM Control Delay (s)	9.4	-	-	-	13.6	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	1	

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	326	636	9	26	49
Future Vol, veh/h	11	326	636	9	26	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	351	684	10	28	53
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	694	0	-	0	884	342
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	897	-	-	-	*359	654
Stage 1	-	-	-	-	*462	-
Stage 2	-	-	-	-	*923	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	897	-	-	-	*355	654
Mov Cap-2 Maneuver	-	-	-	-	*355	-
Stage 1	-	-	-	-	*456	-
Stage 2	-	-	-	-	*923	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		13.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	897	-	-	-	506	
HCM Lane V/C Ratio	0.013	-	-	-	0.159	
HCM Control Delay (s)	9.1	-	-	-	13.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.6	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection												
Int Delay, s/veh	11.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	224	120	91	394	2	230	1	6	0	2	3
Future Vol, veh/h	1	224	120	91	394	2	230	1	6	0	2	3
Conflicting Peds, #/hr	0	0	0	0	0	0	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	-	-	325	-	-	-	-	-	-	-	-	-
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	1	241	129	98	424	2	247	1	6	0	2	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	426	0	0	370	0	0	652	865	121	744	993	213
Stage 1	-	-	-	-	-	-	243	243	-	621	621	-
Stage 2	-	-	-	-	-	-	409	622	-	123	372	-
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	1130	-	-	1185	-	-	353	290	908	303	244	792
Stage 1	-	-	-	-	-	-	739	703	-	442	477	-
Stage 2	-	-	-	-	-	-	590	477	-	868	617	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1130	-	-	1185	-	-	320	258	908	275	217	792
Mov Cap-2 Maneuver	-	-	-	-	-	-	320	258	-	275	217	-
Stage 1	-	-	-	-	-	-	738	702	-	442	425	-
Stage 2	-	-	-	-	-	-	521	425	-	860	616	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.8			46.7			14.5		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	325	1130	-	-	1185	-	-	384				
HCM Lane V/C Ratio	0.784	0.001	-	-	0.083	-	-	0.014				
HCM Control Delay (s)	46.7	8.2	0	-	8.3	0.3	-	14.5				
HCM Lane LOS	E	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	6.3	0	-	-	0.3	-	-	0				

Intersection

Int Delay, s/veh 2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	57	155	8	136	107	7
Future Vol, veh/h	57	155	8	136	107	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	62	168	9	148	116	8





















Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	230
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1338
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1338
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	687	-	-	1338	-
HCM Lane V/C Ratio	0.18	-	-	0.006	-
HCM Control Delay (s)	11.4	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
08/20/2020

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	80	735	35	11	357	28	13	5	21	6
Future Volume (vph)	80	735	35	11	357	28	13	5	21	6
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	25.0	10.0	30.0
Total Split (s)	15.0	55.0	55.0	15.0	55.0	55.0	20.0	35.0	15.0	30.0
Total Split (%)	12.5%	45.8%	45.8%	12.5%	45.8%	45.8%	16.7%	29.2%	12.5%	25.0%
Yellow Time (s)	3.0	6.0	6.0	3.0	6.0	6.0	3.0	3.0	3.0	3.0
All-Red Time (s)	5.0	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	9.0	9.0	5.0	9.0	9.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	96.8	94.6	94.6	91.8	82.6	82.6	6.9	5.7	10.6	6.7
Actuated g/C Ratio	0.81	0.79	0.79	0.76	0.69	0.69	0.06	0.05	0.09	0.06
v/c Ratio	0.12	0.29	0.03	0.02	0.16	0.03	0.07	0.06	0.16	0.44
Control Delay	3.8	6.2	0.1	3.7	8.2	0.0	49.2	55.2	48.4	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	6.2	0.1	3.7	8.2	0.0	49.2	55.2	48.4	26.6
LOS	A	A	A	A	A	A	D	E	D	C
Approach Delay		5.7			7.5			50.7		32.4
Approach LOS		A			A			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 8.4

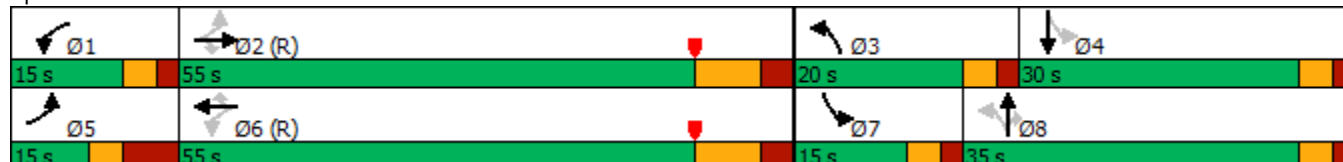
Intersection LOS: A

Intersection Capacity Utilization 48.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Colfax Ave & Dunkirk St



























HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

08/20/2020

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	735	35	11	357	28	13	5	0	21	6	51
Future Volume (veh/h)	80	735	35	11	357	28	13	5	0	21	6	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	808	0	12	392	31	14	5	0	23	7	56
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	722	2513		503	2333	1040	240	73		183	11	91
Arrive On Green	0.04	0.71	0.00	0.01	0.66	0.66	0.02	0.04	0.00	0.04	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	179	1433
Grp Volume(v), veh/h	88	808	0	12	392	31	14	5	0	23	0	63
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1612
Q Serve(g_s), s	1.9	10.3	0.0	0.3	5.1	0.8	0.5	0.3	0.0	1.4	0.0	4.6
Cycle Q Clear(g_c), s	1.9	10.3	0.0	0.3	5.1	0.8	0.5	0.3	0.0	1.4	0.0	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	722	2513		503	2333	1040	240	73		183	0	103
V/C Ratio(X)	0.12	0.32		0.02	0.17	0.03	0.06	0.07		0.13	0.00	0.61
Avail Cap(c_a), veh/h	756	2513		627	2333	1040	618	468		260	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.9	6.7	0.0	6.6	8.0	7.2	53.9	55.6	0.0	51.5	0.0	54.7
Incr Delay (d2), s/veh	0.1	0.3	0.0	0.0	0.2	0.1	0.1	0.3	0.0	0.2	0.0	4.4
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(95%),veh/ln	1.0	5.6	0.0	0.2	3.1	0.5	0.4	0.3	0.0	1.2	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	7.0	0.0	6.7	8.1	7.3	53.9	55.9	0.0	51.8	0.0	59.1
LnGrp LOS	A	A		A	A	A	D	E		D	A	E
Approach Vol, veh/h		896	A		435			19	A		86	
Approach Delay, s/veh		6.9			8.0			54.4			57.2	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.6	93.9	6.9	12.6	12.7	87.8	9.8	9.7				
Change Period (Y+Rc), s	5.0	9.0	5.0	5.0	8.0	9.0	5.0	5.0				
Max Green Setting (Gmax), s	10.0	46.0	15.0	25.0	7.0	46.0	10.0	30.0				
Max Q Clear Time (g_c+I1), s	2.3	12.3	2.5	6.6	3.9	7.1	3.4	2.3				
Green Ext Time (p_c), s	0.0	10.8	0.0	0.2	0.0	5.0	0.0	0.0				







Intersection Summary







HCM 6th Ctrl Delay 10.9

HCM 6th LOS B




Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	67	690	334	10	10	45
Future Vol, veh/h	67	690	334	10	10	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	758	367	11	11	49
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	378	0	-	0	818	184
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	451	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	1177	-	-	-	*741	827
Stage 1	-	-	-	-	*648	-
Stage 2	-	-	-	-	*816	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1177	-	-	-	*695	827
Mov Cap-2 Maneuver	-	-	-	-	*695	-
Stage 1	-	-	-	-	*607	-
Stage 2	-	-	-	-	*816	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		9.9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1177	-	-	-	799	
HCM Lane V/C Ratio	0.063	-	-	-	0.076	
HCM Control Delay (s)	8.3	-	-	-	9.9	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	58	624	326	21	13	31
Future Vol, veh/h	58	624	326	21	13	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	63	678	354	23	14	34
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	377	0	-	0	819	177
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	465	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1178	-	-	-	*583	835
Stage 1	-	-	-	-	*681	-
Stage 2	-	-	-	-	*803	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1178	-	-	-	*552	835
Mov Cap-2 Maneuver	-	-	-	-	*552	-
Stage 1	-	-	-	-	*645	-
Stage 2	-	-	-	-	*803	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		10.3		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1178	-	-	-	725	
HCM Lane V/C Ratio	0.054	-	-	-	0.066	
HCM Control Delay (s)	8.2	-	-	-	10.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection												
Int Delay, s/veh	7.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕			↕	
Traffic Vol, veh/h	2	445	186	126	223	2	137	0	33	0	1	3
Future Vol, veh/h	2	445	186	126	223	2	137	0	33	0	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	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	-	-	325	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	454	190	129	228	2	140	0	34	0	1	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	230	0	0	644	0	0	831	946	227	718	1135	115
Stage 1	-	-	-	-	-	-	458	458	-	487	487	-
Stage 2	-	-	-	-	-	-	373	488	-	231	648	-
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	1335	-	-	937	-	-	262	260	776	316	201	916
Stage 1	-	-	-	-	-	-	552	565	-	531	549	-
Stage 2	-	-	-	-	-	-	620	548	-	751	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1335	-	-	937	-	-	228	218	776	265	169	916
Mov Cap-2 Maneuver	-	-	-	-	-	-	228	218	-	265	169	-
Stage 1	-	-	-	-	-	-	551	564	-	530	462	-
Stage 2	-	-	-	-	-	-	519	461	-	717	463	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			3.6			41.4			13.4		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	264	1335	-	-	937	-	-	435				
HCM Lane V/C Ratio	0.657	0.002	-	-	0.137	-	-	0.009				
HCM Control Delay (s)	41.4	7.7	0	-	9.5	0.4	-	13.4				
HCM Lane LOS	E	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	4.2	0	-	-	0.5	-	-	0				

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	77	237	1	67	106	12
Future Vol, veh/h	77	237	1	67	106	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	87	266	1	75	119	13
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	353	0	297	220
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1206	-	694	820
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	946	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1206	-	693	820
Mov Cap-2 Maneuver	-	-	-	-	693	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	945	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.1		11.3	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	704	-	-	1206	-	
HCM Lane V/C Ratio	0.188	-	-	0.001	-	
HCM Control Delay (s)	11.3	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile Q(veh)	0.7	-	-	0	-	

APPENDIX C. NCHRP 684 (INTERNAL CAPTURE) WORKSHEETS

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Stafford Buisness Park			Organization:	Felsburg, Holt & Ullevig
Project Location:	Aurora, CO			Performed By:	Philip Dunham
Scenario Description:	AM Street Peak Hour			Date:	12/4/2018
Analysis Year:	Long Term			Checked By:	
Analysis Period:	AM Street Peak Hour			Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	-	-	-	0	0	0
Retail	820, 850	110	KSF	320	196	124
Restaurant	-	-	-	0	0	0
Cinema/Entertainment	-	-	-	0	0	0
Residential	-	-	-	0	0	0
Hotel	310	200	Rooms	95	56	39
All Other Land Uses ²	130, 945, 912			1,992	1,549	443
				2,407	1,801	606

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	0.00	0%	0%	0.00	0%	0%
Retail	0.00	0%	0%	0.00	0%	0%
Restaurant	0.00	0%	0%	0.00	0%	0%
Cinema/Entertainment	0.00	0%	0%	0.00	0%	0%
Residential	0.00	0%	0%	0.00	0%	0%
Hotel	0.00	0%	0%	0.00	0%	0%
All Other Land Uses ²	0.00	0%	0%	0.00	0%	0%

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	5	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	2,407	1,801	606
Internal Capture Percentage	0%	0%	1%
External Vehicle-Trips ⁵	2,397	1,796	601
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	3%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	0%	13%

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool					
Project Name:	Stafford Buisness Park			Organization:	Felsburg, Holt & Ullevig
Project Location:	Aurora, CO			Performed By:	Philip Dunham
Scenario Description:	PM Street Peak Hour			Date:	12/4/2018
Analysis Year:	Long Term			Checked By:	
Analysis Period:	PM Street Peak Hour			Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips ³		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	-	-	-	0	0	0
Retail	820, 850	125	KSF	791	390	401
Restaurant	-	-	-	0	0	0
Cinema/Entertainment	-	-	-	0	0	0
Residential	-	-	-	0	0	0
Hotel	310	200	Rooms	124	63	61
All Other Land Uses ²	130, 944, 912			2,118	545	1,573
				3,033	998	2,035

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ. ⁴	% Transit	% Non-Motorized	Veh. Occ. ⁴	% Transit	% Non-Motorized
Office	0.00	0%	0%	0.00	0%	0%
Retail	0.00	0%	0%	0.00	0%	0%
Restaurant	0.00	0%	0%	0.00	0%	0%
Cinema/Entertainment	0.00	0%	0%	0.00	0%	0%
Residential	0.00	0%	0%	0.00	0%	0%
Hotel	0.00	0%	0%	0.00	0%	0%
All Other Land Uses ²	0.00	0%	0%	0.00	0%	0%

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1250	1000		-	
Retail					-	
Restaurant					-	
Cinema/Entertainment					-	
Residential		-	-			
Hotel					-	

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	11
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	8	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	3,033	998	2,035
Internal Capture Percentage	1%	2%	1%
External Vehicle-Trips ⁵	2,995	979	2,016
External Transit-Trips ⁶	0	0	0
External Non-Motorized Trips ⁶	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	2%	3%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	17%	13%

¹ Land Use Codes (LUCs) from <i>Trip Generation Manual</i> , published by the Institute of Transportation Engineers.
² Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.
³ Enter trips assuming no transit or non-motorized trips (as assumed in ITE <i>Trip Generation Manual</i>).
⁴ Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.
⁵ Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.
⁶ Person-Trips
*Indicates computation that has been rounded to the nearest whole number.
Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1





















APPENDIX D. SHORT-TERM BACKGROUND LOS

Timings

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

AM Short Term Background without Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations										
Traffic Volume (vph)	33	394	2	2	769	32	4	48	1	
Future Volume (vph)	33	394	2	2	769	32	4	48	1	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	12.0	31.0	31.0
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	10.0%	25.8%	26%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	98.5	96.2	96.2	95.8	91.7	91.7	5.4	10.8	7.7	
Actuated g/C Ratio	0.82	0.80	0.80	0.80	0.76	0.76	0.04	0.09	0.06	
v/c Ratio	0.07	0.15	0.00	0.00	0.31	0.03	0.03	0.33	0.56	
Control Delay	3.1	3.9	0.0	7.0	10.9	1.4	55.2	54.2	20.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.1	3.9	0.0	7.0	10.9	1.4	55.2	54.2	20.2	
LOS	A	A	A	A	B	A	E	D	C	
Approach Delay		3.9			10.5				30.6	
Approach LOS		A			B				C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 10.8

Intersection LOS: B

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Colfax Ave & Dunkirk St



























HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

AM Short Term Background without Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	394	2	2	769	32	4	0	0	48	1	109
Future Volume (veh/h)	33	394	2	2	769	32	4	0	0	48	1	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	428	0	2	836	35	4	0	0	52	1	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	489	2542		714	2448	1092	187	104		216	1	147
Arrive On Green	0.03	0.72	0.00	0.00	0.69	0.69	0.01	0.00	0.00	0.04	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	13	1574
Grp Volume(v), veh/h	36	428	0	2	836	35	4	0	0	52	0	119
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1587
Q Serve(g_s), s	0.7	4.7	0.0	0.0	11.5	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Cycle Q Clear(g_c), s	0.7	4.7	0.0	0.0	11.5	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	489	2542		714	2448	1092	187	104		216	0	148
V/C Ratio(X)	0.07	0.17		0.00	0.34	0.03	0.02	0.00		0.24	0.00	0.80
Avail Cap(c_a), veh/h	556	2542		828	2448	1092	371	390		242	0	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	5.5	0.0	5.7	7.6	5.9	53.1	0.0	0.0	48.8	0.0	53.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.4	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	2.5	0.0	0.0	6.5	0.5	0.1	0.0	0.0	2.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	5.7	0.0	5.7	8.0	6.0	53.1	0.0	0.0	49.2	0.0	60.6
LnGrp LOS	A	A		A	A	A	D	A		D	A	E
Approach Vol, veh/h	464		A	873				4	A	171		
Approach Delay, s/veh	5.7			7.9				53.1		57.1		
Approach LOS	A			A				D		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	91.8	5.6	17.2	8.5	88.7	10.2	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.0	6.7	2.1	10.8	2.7	13.5	5.2	0.0				
Green Ext Time (p_c), s	0.0	5.4	0.0	0.4	0.0	12.7	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 12.9







HCM 6th LOS B







Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Colfax Ave & Espana St

Stafford Logistics Center
AM Short Term Background without Interchange

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	371	783	26	29	129
Future Vol, veh/h	65	371	783	26	29	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	391	824	27	31	136
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	851	0	-	0	1116	412
Stage 1	-	-	-	-	824	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	783	-	-	-	*309	589
Stage 1	-	-	-	-	*381	-
Stage 2	-	-	-	-	*908	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	783	-	-	-	*282	589
Mov Cap-2 Maneuver	-	-	-	-	*282	-
Stage 1	-	-	-	-	*348	-
Stage 2	-	-	-	-	*908	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.5	0		16		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	783	-	-	-	-	491
HCM Lane V/C Ratio	0.087	-	-	-	-	0.339
HCM Control Delay (s)	10	-	-	-	-	16
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	-	1.5
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	388	757	11	31	58
Future Vol, veh/h	13	388	757	11	31	58
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	417	814	12	33	62
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	891	0	-	0	1116	472
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	237	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	757	-	-	-	*260	538
Stage 1	-	-	-	-	*366	-
Stage 2	-	-	-	-	*899	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	710	-	-	-	*224	505
Mov Cap-2 Maneuver	-	-	-	-	*224	-
Stage 1	-	-	-	-	*336	-
Stage 2	-	-	-	-	*843	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.3	0		19.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	710	-	-	-	351	
HCM Lane V/C Ratio	0.02	-	-	-	0.273	
HCM Control Delay (s)	10.2	-	-	-	19.1	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	1.1	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Background without Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘↘	↘
Traffic Volume (vph)	267	143	108	469	274	7
Future Volume (vph)	267	143	108	469	274	7
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2		6		8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	10.0	24.0	10.0	10.0
Total Split (s)	40.0	40.0	45.0	85.0	35.0	35.0
Total Split (%)	33.3%	33.3%	37.5%	70.8%	29.2%	29.2%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effect Green (s)	75.1	75.1	13.3	93.4	15.6	15.6
Actuated g/C Ratio	0.63	0.63	0.11	0.78	0.13	0.13
v/c Ratio	0.13	0.15	0.59	0.18	0.66	0.04
Control Delay	13.1	5.5	62.5	3.8	56.8	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	5.5	62.5	3.8	56.8	23.4
LOS	B	A	E	A	E	C
Approach Delay	10.4			14.8	55.9	
Approach LOS	B			B	E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow

Natural Cycle: 45

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 22.5

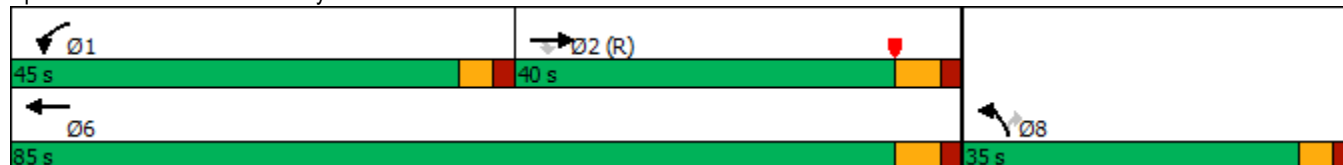
Intersection LOS: C

Intersection Capacity Utilization 34.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Background without Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘↗	↗
Traffic Volume (veh/h)	267	143	108	469	274	7
Future Volume (veh/h)	267	143	108	469	274	7
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	287	0	116	504	295	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2408		145	2846	372	171
Arrive On Green	0.68	0.00	0.08	0.80	0.11	0.11
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	287	0	116	504	295	8
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	3.4	0.0	7.7	4.0	10.0	0.5
Cycle Q Clear(g_c), s	3.4	0.0	7.7	4.0	10.0	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2408		145	2846	372	171
V/C Ratio(X)	0.12		0.80	0.18	0.79	0.05
Avail Cap(c_a), veh/h	2408		594	2846	864	396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.8	0.0	54.1	2.8	52.2	48.0
Incr Delay (d2), s/veh	0.1	0.0	9.7	0.0	3.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.9	0.0	6.9	2.0	7.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.9	0.0	63.8	2.8	56.1	48.1
LnGrp LOS	A		E	A	E	D
Approach Vol, veh/h	287	A		620	303	
Approach Delay, s/veh	6.9			14.2	55.9	
Approach LOS	A			B	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.8	87.3			102.1	17.9
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	40.0	34.0			79.0	30.0
Max Q Clear Time (g_c+I1), s	9.7	5.4			6.0	12.0
Green Ext Time (p_c), s	0.3	1.6			3.9	0.9
Intersection Summary						
HCM 6th Ctrl Delay			22.9			
HCM 6th LOS			C			

Notes





Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
10: Picadilly Rd & Realigned Colfax Ave

Stafford Logistics Center
AM Short Term Background without Interchange

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	162	127	8	68	184
Future Vol, veh/h	10	162	127	8	68	184
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	176	138	9	74	200

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	491	143	0
Stage 1	143	-	-
Stage 2	348	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	537	905	-
Stage 1	884	-	-
Stage 2	715	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	509	905	-
Mov Cap-2 Maneuver	509	-	-
Stage 1	884	-	-
Stage 2	678	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	2.1
HCM LOS	B		





















Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	866	1435
HCM Lane V/C Ratio	-	-	0.216	0.052
HCM Control Delay (s)	-	-	10.3	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0.2

Timings

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

PM Short Term Background without Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	95	875	42	13	425	33	15	6	25	7
Future Volume (vph)	95	875	42	13	425	33	15	6	25	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	15.0	64.0	64.0	13.0	62.0	62.0	12.0	31.0	12.0	31.0
Total Split (%)	12.5%	53.3%	53.3%	10.8%	51.7%	51.7%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	99.1	96.1	96.1	93.9	87.6	87.6	7.4	5.8	11.4	6.7
Actuated g/C Ratio	0.83	0.80	0.80	0.78	0.73	0.73	0.06	0.05	0.10	0.06
v/c Ratio	0.14	0.34	0.04	0.03	0.18	0.03	0.07	0.08	0.18	0.49
Control Delay	3.4	6.1	0.0	4.7	9.5	0.5	48.6	55.7	47.8	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	6.1	0.0	4.7	9.5	0.5	48.6	55.7	47.8	26.5
LOS	A	A	A	A	A	A	D	E	D	C
Approach Delay		5.6			8.7			50.8		32.2
Approach LOS		A			A			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 8.6

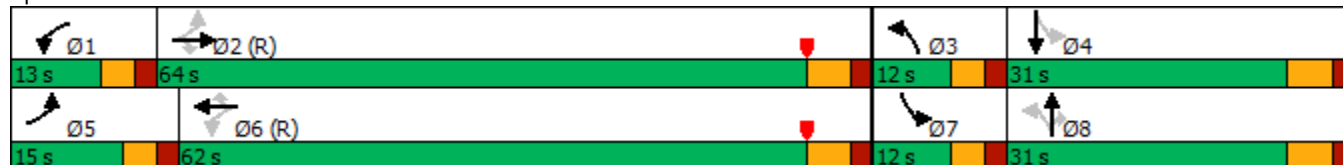
Intersection LOS: A

Intersection Capacity Utilization 50.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Colfax Ave & Dunkirk St



























HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

PM Short Term Background without Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	875	42	13	425	33	15	6	0	25	7	61
Future Volume (veh/h)	95	875	42	13	425	33	15	6	0	25	7	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	951	0	14	462	36	16	7	0	27	8	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	717	2560		452	2472	1102	227	75		184	11	91
Arrive On Green	0.04	0.72	0.00	0.02	0.70	0.70	0.02	0.04	0.00	0.04	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	174	1437
Grp Volume(v), veh/h	103	951	0	14	462	36	16	7	0	27	0	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1612
Q Serve(g_s), s	1.9	12.3	0.0	0.3	5.5	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Cycle Q Clear(g_c), s	1.9	12.3	0.0	0.3	5.5	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	717	2560		452	2472	1102	227	75		184	0	103
V/C Ratio(X)	0.14	0.37		0.03	0.19	0.03	0.07	0.09		0.15	0.00	0.72
Avail Cap(c_a), veh/h	793	2560		543	2472	1102	369	390		215	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.6	6.4	0.0	5.4	6.4	5.7	53.6	55.5	0.0	51.5	0.0	55.1
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.0	0.2	0.1	0.1	0.4	0.0	0.3	0.0	6.9
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(95%),veh/ln	1.0	6.5	0.0	0.1	3.0	0.5	0.4	0.4	0.0	1.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	6.8	0.0	5.4	6.6	5.7	53.7	55.9	0.0	51.7	0.0	62.1
LnGrp LOS	A	A		A	A	A	D	E		D	A	E
Approach Vol, veh/h	1054		A	512			23		A	101		
Approach Delay, s/veh	6.6			6.5			54.4			59.3		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	92.4	7.1	13.6	9.8	89.5	9.9	10.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	10.0	56.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	14.3	2.5	7.4	3.9	7.5	3.7	2.4				
Green Ext Time (p_c), s	0.0	14.6	0.0	0.3	0.1	6.2	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 10.4

HCM 6th LOS B







Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	821	397	12	12	54
Future Vol, veh/h	80	821	397	12	12	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	864	418	13	13	57
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	431	0	-	0	932	209
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	1125	-	-	-	*708	797
Stage 1	-	-	-	-	*612	-
Stage 2	-	-	-	-	*793	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1125	-	-	-	*655	797
Mov Cap-2 Maneuver	-	-	-	-	*655	-
Stage 1	-	-	-	-	*566	-
Stage 2	-	-	-	-	*793	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		10.2		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1125	-	-	-	767	
HCM Lane V/C Ratio	0.075	-	-	-	0.091	
HCM Control Delay (s)	8.5	-	-	-	10.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Short Term Background without Interchange

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	743	388	25	15	37
Future Vol, veh/h	69	743	388	25	15	37
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	799	417	27	16	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	509	0	-	0	1030	274
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	548	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1052	-	-	-	*469	724
Stage 1	-	-	-	-	*587	-
Stage 2	-	-	-	-	*756	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	987	-	-	-	*382	679
Mov Cap-2 Maneuver	-	-	-	-	*382	-
Stage 1	-	-	-	-	*510	-
Stage 2	-	-	-	-	*709	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		12.2		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	987	-	-	-	555	
HCM Lane V/C Ratio	0.075	-	-	-	0.101	
HCM Control Delay (s)	8.9	-	-	-	12.2	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Background without Interchange

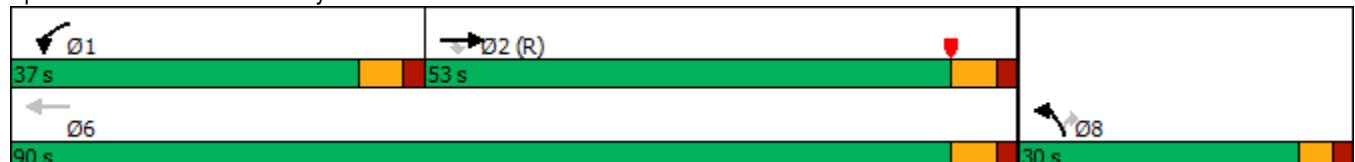
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↘
Traffic Volume (vph)	530	221	150	265	163	39
Future Volume (vph)	530	221	150	265	163	39
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1		8	
Permitted Phases		2		6		8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	10.0	10.0
Total Split (s)	53.0	53.0	37.0	90.0	30.0	30.0
Total Split (%)	44.2%	44.2%	30.8%	75.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Min	C-Min	Min	Min	None	None
Act Effect Green (s)	75.3	75.3	16.2	97.5	11.5	11.5
Actuated g/C Ratio	0.63	0.63	0.14	0.81	0.10	0.10
v/c Ratio	0.26	0.22	0.67	0.10	0.53	0.22
Control Delay	18.2	9.3	62.8	2.5	57.4	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	9.3	62.8	2.5	57.4	17.3
LOS	B	A	E	A	E	B
Approach Delay	15.6			24.3	49.6	
Approach LOS	B			C	D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 23.2
 Intersection Capacity Utilization 41.8%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Background without Interchange





	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	530	221	150	265	163	39
Future Volume (veh/h)	530	221	150	265	163	39
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	570	0	161	285	175	42
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2412		193	2975	246	113
Arrive On Green	0.68	0.00	0.11	0.84	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	570	0	161	285	175	42
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	7.4	0.0	10.6	1.7	5.9	3.0
Cycle Q Clear(g_c), s	7.4	0.0	10.6	1.7	5.9	3.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2412		193	2975	246	113
V/C Ratio(X)	0.24		0.83	0.10	0.71	0.37
Avail Cap(c_a), veh/h	2412		460	2975	720	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.4	0.0	52.4	1.7	54.5	53.2
Incr Delay (d2), s/veh	0.2	0.0	9.0	0.0	3.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	0.0	9.0	0.7	4.8	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.6	0.0	61.4	1.7	58.3	55.2
LnGrp LOS	A		E	A	E	E
Approach Vol, veh/h	570	A		446	217	
Approach Delay, s/veh	7.6			23.3	57.7	
Approach LOS	A			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	19.0	87.4			106.5	13.5
Change Period (Y+Rc), s	6.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	31.0	47.0			84.0	25.0
Max Q Clear Time (g_c+I1), s	12.6	9.4			3.7	7.9
Green Ext Time (p_c), s	0.4	3.5			2.1	0.6

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes





















Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	80	126	14	92	282
Future Vol, veh/h	1	80	126	14	92	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	87	137	15	100	307
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	652	145	0	0	152	0
Stage 1	145	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	433	902	-	-	1429	-
Stage 1	882	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	403	902	-	-	1429	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.5	0		1.9		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	888		1429	-	
HCM Lane V/C Ratio	-	0.099		0.07	-	
HCM Control Delay (s)	-	9.5		7.7	-	
HCM Lane LOS	-	A		A	-	
HCM 95th %tile Q(veh)	-	0.3		0.2	-	

Timings

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Background with Interchange






										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations										
Traffic Volume (vph)	33	394	2	2	704	32	4	48	1	
Future Volume (vph)	33	394	2	2	704	32	4	48	1	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	12.0	31.0	31.0
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	10.0%	25.8%	26%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	98.5	96.2	96.2	95.8	91.7	91.7	5.4	10.8	7.7	
Actuated g/C Ratio	0.82	0.80	0.80	0.80	0.76	0.76	0.04	0.09	0.06	
v/c Ratio	0.06	0.15	0.00	0.00	0.28	0.03	0.03	0.33	0.56	
Control Delay	3.1	3.9	0.0	4.0	7.0	0.1	55.2	54.2	20.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.1	3.9	0.0	4.0	7.0	0.1	55.2	54.2	20.2	
LOS	A	A	A	A	A	A	E	D	C	
Approach Delay		3.9			6.7				30.6	
Approach LOS		A			A				C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 8.8
 Intersection Capacity Utilization 46.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

























Splits and Phases: 1: Colfax Ave & Dunkirk St

										
Ø1	Ø2 (R)		Ø3	Ø4		Ø5	Ø6 (R)	Ø7	Ø8	
13 s	64 s		12 s	31 s		13 s	64 s	12 s	31 s	

HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Background with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	394	2	2	704	32	4	0	0	48	1	109
Future Volume (veh/h)	33	394	2	2	704	32	4	0	0	48	1	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	428	0	2	765	35	4	0	0	52	1	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	522	2542		714	2448	1092	187	104		216	1	147
Arrive On Green	0.03	0.72	0.00	0.00	0.69	0.69	0.01	0.00	0.00	0.04	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	13	1574
Grp Volume(v), veh/h	36	428	0	2	765	35	4	0	0	52	0	119
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1587
Q Serve(g_s), s	0.7	4.7	0.0	0.0	10.2	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Cycle Q Clear(g_c), s	0.7	4.7	0.0	0.0	10.2	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	522	2542		714	2448	1092	187	104		216	0	148
V/C Ratio(X)	0.07	0.17		0.00	0.31	0.03	0.02	0.00		0.24	0.00	0.80
Avail Cap(c_a), veh/h	589	2542		828	2448	1092	371	390		242	0	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.3	5.5	0.0	5.7	7.4	5.9	53.1	0.0	0.0	48.8	0.0	53.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.4	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	2.5	0.0	0.0	5.8	0.5	0.1	0.0	0.0	2.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.3	5.7	0.0	5.7	7.7	6.0	53.1	0.0	0.0	49.2	0.0	60.6
LnGrp LOS	A	A		A	A	A	D	A		D	A	E
Approach Vol, veh/h		464	A		802			4	A		171	
Approach Delay, s/veh		5.6			7.7			53.1			57.1	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	91.8	5.6	17.2	8.5	88.7	10.2	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.0	6.7	2.1	10.8	2.7	12.2	5.2	0.0				
Green Ext Time (p_c), s	0.0	5.4	0.0	0.4	0.0	11.4	0.0	0.0				

Intersection Summary







HCM 6th Ctrl Delay 13.0
HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.







HCM 6th TWSC
2: Colfax Ave & Espana St

Stafford Logistics Center
AM Short Term Background with Interchange

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	371	748	26	46	109
Future Vol, veh/h	65	371	748	26	46	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	391	787	27	48	115
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	814	0	-	0	1079	394
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	292	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	809	-	-	-	*326	605
Stage 1	-	-	-	-	*398	-
Stage 2	-	-	-	-	*908	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	809	-	-	-	*299	605
Mov Cap-2 Maneuver	-	-	-	-	*299	-
Stage 1	-	-	-	-	*365	-
Stage 2	-	-	-	-	*908	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.5	0		16.9		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	809	-	-	-	464	
HCM Lane V/C Ratio	0.085	-	-	-	0.352	
HCM Control Delay (s)	9.9	-	-	-	16.9	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.6	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						


























HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
AM Short Term Background with Interchange

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	480	732	11	41	48
Future Vol, veh/h	65	480	732	11	41	48
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	516	787	12	44	52
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	864	0	-	0	1250	459
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	774	-	-	-	*232	549
Stage 1	-	-	-	-	*378	-
Stage 2	-	-	-	-	*851	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	726	-	-	-	*185	515
Mov Cap-2 Maneuver	-	-	-	-	*185	-
Stage 1	-	-	-	-	*321	-
Stage 2	-	-	-	-	*798	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.3	0		24.1		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	726	-	-	-	283	
HCM Lane V/C Ratio	0.096	-	-	-	0.338	
HCM Control Delay (s)	10.5	-	-	-	24.1	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.4	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Timings
4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Background with Interchange

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 							 		 	
Traffic Volume (vph)	290	36	107	5	150	5	95	30	27	81	496
Future Volume (vph)	290	36	107	5	150	5	95	30	27	81	496
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6	6	6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	24.0	10.0	10.0	9.5	22.5	22.5
Total Split (s)	39.0	59.0	59.0	10.0	30.0	30.0	21.0	36.0	15.0	30.0	30.0
Total Split (%)	32.5%	49.2%	49.2%	8.3%	25.0%	25.0%	17.5%	30.0%	12.5%	25.0%	25.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	3.0	3.0	3.5	3.5	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	5.0	5.0	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	82.1	78.4	78.4	73.6	66.5	66.5	23.6	15.1	20.0	13.0	13.0
Actuated g/C Ratio	0.68	0.65	0.65	0.61	0.55	0.55	0.20	0.13	0.17	0.11	0.11
v/c Ratio	0.20	0.03	0.11	0.01	0.16	0.01	0.39	0.09	0.12	0.23	0.83
Control Delay	7.7	10.9	1.2	10.0	16.4	0.0	41.2	36.9	32.1	47.7	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	10.9	1.2	10.0	16.4	0.0	41.2	36.9	32.1	47.7	15.4
LOS	A	B	A	A	B	A	D	D	C	D	B
Approach Delay		6.3			15.7			40.1		20.5	
Approach LOS		A			B			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 17.2

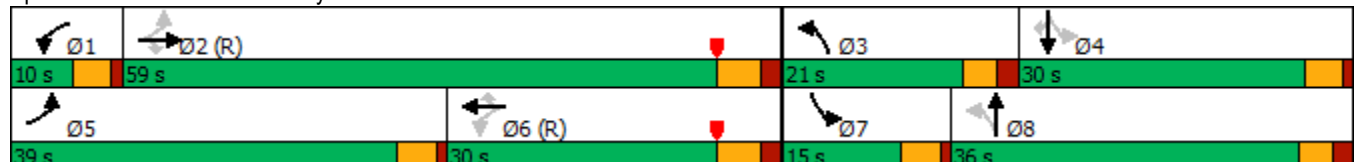
Intersection LOS: B

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

























Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Background with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	290	36	107	5	150	5	95	30	5	27	81	496
Future Volume (veh/h)	290	36	107	5	150	5	95	30	5	27	81	496
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	315	39	115	5	161	5	102	33	5	29	88	0
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1798	1329	1126	891	1244	1054	207	281	42	166	157	
Arrive On Green	0.05	0.71	0.71	0.01	0.66	0.66	0.07	0.09	0.09	0.03	0.04	0.00
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3105	459	1781	3554	1585
Grp Volume(v), veh/h	315	39	115	5	161	5	102	19	19	29	88	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1788	1781	1777	1585
Q Serve(g_s), s	3.2	0.7	2.7	0.1	3.8	0.1	6.3	1.2	1.2	1.8	2.9	0.0
Cycle Q Clear(g_c), s	3.2	0.7	2.7	0.1	3.8	0.1	6.3	1.2	1.2	1.8	2.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.26	1.00		1.00
Lane Grp Cap(c), veh/h	1798	1329	1126	891	1244	1054	207	161	162	166	157	
V/C Ratio(X)	0.18	0.03	0.10	0.01	0.13	0.00	0.49	0.12	0.12	0.17	0.56	
Avail Cap(c_a), veh/h	2612	1329	1126	961	1244	1054	323	459	462	276	755	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.8	5.1	5.4	6.5	7.4	6.8	48.4	50.1	50.2	52.8	56.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.0	0.2	0.0	1.8	0.3	0.3	0.5	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	0.4	1.5	0.1	2.8	0.1	5.1	0.9	1.0	1.5	2.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	5.2	5.6	6.5	7.6	6.8	50.2	50.5	50.5	53.3	59.3	0.0
LnGrp LOS	A	A	A	A	A	A	D	D	D	D	E	
Approach Vol, veh/h		469			171			140			117	A
Approach Delay, s/veh		5.1			7.5			50.3			57.8	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	91.3	13.2	10.3	10.7	85.8	7.6	15.9				
Change Period (Y+Rc), s	4.5	6.0	5.0	* 5	4.5	6.0	4.5	5.0				
Max Green Setting (Gmax), s	5.5	53.0	16.0	* 26	34.5	24.0	10.5	31.0				
Max Q Clear Time (g_c+I1), s	2.1	4.7	8.3	4.9	5.2	5.8	3.8	3.2				
Green Ext Time (p_c), s	0.0	0.5	0.1	0.4	1.0	0.8	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B




Notes





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

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
5: Picadilly Road & I-70 Frontage Road





















Stafford Logistics Center
AM Short Term Background with Interchange

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	68	0	10	160	0	8
Future Vol, veh/h	68	0	10	160	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	0	11	174	0	9
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	74	0	270	74
Stage 1	-	-	-	-	74	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1526	-	719	988
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	837	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1526	-	713	988
Mov Cap-2 Maneuver	-	-	-	-	713	-
Stage 1	-	-	-	-	949	-
Stage 2	-	-	-	-	830	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.4		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	988	-	-	1526	-	
HCM Lane V/C Ratio	0.009	-	-	0.007	-	
HCM Control Delay (s)	8.7	-	-	7.4	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0	-	-	0	-	

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	10	5	127	8	0	184
Future Vol, veh/h	10	5	127	8	0	184
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	5	138	9	0	200
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	243	74	0	0	147	0
Stage 1	143	-	-	-	-	-
Stage 2	100	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*851	973	-	-	1432	-
Stage 1	*869	-	-	-	-	-
Stage 2	*969	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	*851	973	-	-	1432	-
Mov Cap-2 Maneuver	*851	-	-	-	-	-
Stage 1	*869	-	-	-	-	-
Stage 2	*969	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	888	1432	-	
HCM Lane V/C Ratio	-	-	0.018	-	-	
HCM Control Delay (s)	-	-	9.1	0	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.1	0	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Background with Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	95	875	42	13	345	12	15	6	25	7
Future Volume (vph)	95	875	42	13	345	12	15	6	25	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	31.0	12.0	31.0
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	99.1	96.1	96.1	93.9	87.6	87.6	7.4	5.8	11.4	6.7
Actuated g/C Ratio	0.83	0.80	0.80	0.78	0.73	0.73	0.06	0.05	0.10	0.06
v/c Ratio	0.13	0.34	0.04	0.03	0.15	0.01	0.07	0.08	0.18	0.49
Control Delay	3.4	6.1	0.0	5.5	8.7	0.0	48.6	55.7	47.8	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.4	6.1	0.0	5.5	8.7	0.0	48.6	55.7	47.8	26.5
LOS	A	A	A	A	A	A	D	E	D	C
Approach Delay		5.6			8.3			50.8		32.2
Approach LOS		A			A			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 8.5

Intersection LOS: A

Intersection Capacity Utilization 50.6%

ICU Level of Service A

Analysis Period (min) 15





























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Background with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 		 				 	
Traffic Volume (veh/h)	95	875	42	13	345	12	15	6	0	25	7	61
Future Volume (veh/h)	95	875	42	13	345	12	15	6	0	25	7	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	951	0	14	375	13	16	7	0	27	8	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	789	2560		452	2472	1102	227	75		184	11	91
Arrive On Green	0.04	0.72	0.00	0.02	0.70	0.70	0.02	0.04	0.00	0.04	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	174	1437
Grp Volume(v), veh/h	103	951	0	14	375	13	16	7	0	27	0	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1612
Q Serve(g_s), s	1.9	12.3	0.0	0.3	4.3	0.3	0.5	0.4	0.0	1.7	0.0	5.4
Cycle Q Clear(g_c), s	1.9	12.3	0.0	0.3	4.3	0.3	0.5	0.4	0.0	1.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	789	2560		452	2472	1102	227	75		184	0	103
V/C Ratio(X)	0.13	0.37		0.03	0.15	0.01	0.07	0.09		0.15	0.00	0.72
Avail Cap(c_a), veh/h	835	2560		543	2472	1102	369	390		215	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.5	6.4	0.0	5.4	6.2	5.6	53.6	55.5	0.0	51.5	0.0	55.1
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.3	0.0	6.9
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(95%),veh/ln	1.0	6.5	0.0	0.1	2.4	0.2	0.4	0.4	0.0	1.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	6.8	0.0	5.4	6.3	5.6	53.7	55.9	0.0	51.7	0.0	62.1
LnGrp LOS	A	A		A	A	A	D	E		D	A	E
Approach Vol, veh/h		1054	A		402			23	A		101	
Approach Delay, s/veh		6.6			6.3			54.4			59.3	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	92.4	7.1	13.6	9.8	89.5	9.9	10.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	14.3	2.5	7.4	3.9	6.3	3.7	2.4				
Green Ext Time (p_c), s	0.0	14.6	0.0	0.3	0.1	4.8	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 10.6

HCM 6th LOS B







Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	821	337	12	42	24
Future Vol, veh/h	80	821	337	12	42	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	864	355	13	44	25
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	368	0	-	0	869	178
Stage 1	-	-	-	-	355	-
Stage 2	-	-	-	-	514	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	1187	-	-	-	*780	834
Stage 1	-	-	-	-	*657	-
Stage 2	-	-	-	-	*793	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1187	-	-	-	*725	834
Mov Cap-2 Maneuver	-	-	-	-	*725	-
Stage 1	-	-	-	-	*610	-
Stage 2	-	-	-	-	*793	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		10.2		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1187	-	-	-	-	761
HCM Lane V/C Ratio	0.071	-	-	-	-	0.091
HCM Control Delay (s)	8.3	-	-	-	-	10.2
HCM Lane LOS	A	-	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	-	0.3
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						























HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Short Term Background with Interchange

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	773	348	25	35	17
Future Vol, veh/h	80	773	348	25	35	17
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	831	374	27	38	18
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	466	0	-	0	1027	252
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	588	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1092	-	-	-	*517	748
Stage 1	-	-	-	-	*617	-
Stage 2	-	-	-	-	*732	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	1024	-	-	-	*417	702
Mov Cap-2 Maneuver	-	-	-	-	*417	-
Stage 1	-	-	-	-	*530	-
Stage 2	-	-	-	-	*686	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		13.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1024	-	-	-	481	
HCM Lane V/C Ratio	0.084	-	-	-	0.116	
HCM Control Delay (s)	8.8	-	-	-	13.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4	
Notes						
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon						

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Background with Interchange

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	580	55	166	5	60	15	80	50	47	113	265
Future Volume (vph)	580	55	166	5	60	15	80	50	47	113	265
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6	6	6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	10.0	24.0	24.0	9.5	10.0	9.5	22.5	22.5
Total Split (s)	42.0	60.0	60.0	12.0	30.0	30.0	18.0	33.0	15.0	30.0	30.0
Total Split (%)	35.0%	50.0%	50.0%	10.0%	25.0%	25.0%	15.0%	27.5%	12.5%	25.0%	25.0%
Yellow Time (s)	3.5	4.0	4.0	3.0	4.0	4.0	3.5	3.0	3.5	3.5	3.5
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	5.0	6.0	6.0	4.5	5.0	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	87.8	84.1	84.1	75.0	68.3	68.3	21.4	11.9	17.8	10.7	10.7
Actuated g/C Ratio	0.73	0.70	0.70	0.62	0.57	0.57	0.18	0.10	0.15	0.09	0.09
v/c Ratio	0.33	0.05	0.15	0.01	0.06	0.02	0.34	0.17	0.22	0.39	0.71
Control Delay	10.9	15.4	7.5	8.2	16.0	0.0	41.5	44.1	38.3	54.1	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	15.4	7.5	8.2	16.0	0.0	41.5	44.1	38.3	54.1	16.0
LOS	B	B	A	A	B	A	D	D	D	D	B
Approach Delay		10.5			12.6			42.6		28.6	
Approach LOS		B			B			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 19.0

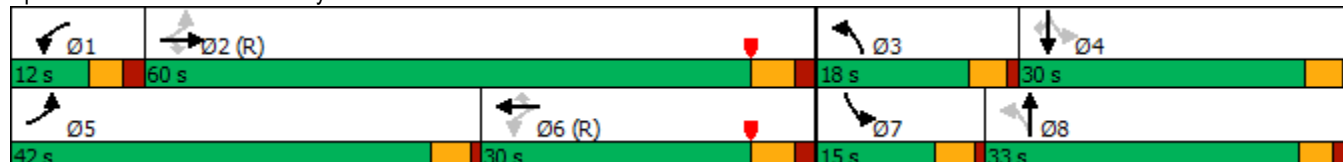
Intersection LOS: B

Intersection Capacity Utilization 43.5%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Background with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	580	55	166	5	60	15	80	50	5	47	113	265
Future Volume (veh/h)	580	55	166	5	60	15	80	50	5	47	113	265
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	630	59	0	5	65	16	86	54	5	51	123	0
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	2008	1325		911	1169	991	192	258	24	198	198	
Arrive On Green	0.09	0.71	0.00	0.01	0.63	0.63	0.06	0.08	0.08	0.04	0.06	0.00
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3292	301	1781	3554	1585
Grp Volume(v), veh/h	630	59	0	5	65	16	86	29	30	51	123	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1816	1781	1777	1585
Q Serve(g_s), s	7.1	1.1	0.0	0.1	1.6	0.5	5.4	1.8	1.9	3.2	4.1	0.0
Cycle Q Clear(g_c), s	7.1	1.1	0.0	0.1	1.6	0.5	5.4	1.8	1.9	3.2	4.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	2008	1325		911	1169	991	192	139	143	198	198	
V/C Ratio(X)	0.31	0.04		0.01	0.06	0.02	0.45	0.21	0.21	0.26	0.62	
Avail Cap(c_a), veh/h	2763	1325		1004	1169	991	288	415	424	291	755	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.2	5.3	0.0	8.2	8.7	8.5	49.3	51.8	51.8	51.0	55.4	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.1	0.0	1.6	0.7	0.7	0.7	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.7	0.0	0.1	1.2	0.3	4.4	1.5	1.6	2.7	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.3	5.3	0.0	8.2	8.8	8.6	51.0	52.5	52.5	51.7	58.6	0.0
LnGrp LOS	A	A		A	A	A	D	D	D	D	E	
Approach Vol, veh/h		689	A		86			145			174	A
Approach Delay, s/veh		5.3			8.7			51.6			56.6	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	91.0	11.5	11.7	15.8	81.0	8.8	14.4				
Change Period (Y+Rc), s	5.0	6.0	4.5	* 5	4.5	6.0	4.5	5.0				
Max Green Setting (Gmax), s	7.0	54.0	13.5	* 26	37.5	24.0	10.5	28.0				
Max Q Clear Time (g_c+I1), s	2.1	3.1	7.4	6.1	9.1	3.6	5.2	3.9				
Green Ext Time (p_c), s	0.0	0.3	0.1	0.6	2.2	0.3	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.9
HCM 6th LOS	B

Notes

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




Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
5: Picadilly Road & I-70 Frontage Road

Stafford Logistics Center
PM Short Term Background with Interchange

Intersection





Int Delay, s/veh 1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	107	0	5	80	0	19
Future Vol, veh/h	107	0	5	80	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	0	5	87	0	21

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	116
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1473
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1473
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	8.9
HCM LOS			A





















Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	936	-	-	1473	-
HCM Lane V/C Ratio	0.022	-	-	0.004	-
HCM Control Delay (s)	8.9	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	126	14	5	282
Future Vol, veh/h	1	0	126	14	5	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	137	15	5	307
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	309	76	0	0	152	0
Stage 1	145	-	-	-	-	-
Stage 2	164	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	*904	970	-	-	1426	-
Stage 1	*867	-	-	-	-	-
Stage 2	*921	-	-	-	-	-
Platoon blocked, %	1	-	-	-	-	-
Mov Cap-1 Maneuver	*900	970	-	-	1426	-
Mov Cap-2 Maneuver	*900	-	-	-	-	-
Stage 1	*867	-	-	-	-	-
Stage 2	*917	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		0.1		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	900	1426	-	
HCM Lane V/C Ratio	-	-	0.001	0.004	-	
HCM Control Delay (s)	-	-	9	7.5	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0	0	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

APPENDIX E. LONG-TERM BACKGROUND LOS

Timings 1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Long Term Background

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations										
Traffic Volume (vph)	40	1270	5	5	1490	35	5	45	5	
Future Volume (vph)	40	1270	5	5	1490	35	5	45	5	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0
Total Split (s)	12.0	65.0	65.0	12.0	65.0	65.0	12.0	12.0	31.0	31.0
Total Split (%)	10.0%	54.2%	54.2%	10.0%	54.2%	54.2%	10.0%	10.0%	25.8%	26%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	98.7	96.3	96.3	94.8	89.7	89.7	5.4	10.6	7.5	
Actuated g/C Ratio	0.82	0.80	0.80	0.79	0.75	0.75	0.04	0.09	0.06	
v/c Ratio	0.21	0.53	0.00	0.02	0.67	0.03	0.03	0.34	0.61	
Control Delay	5.3	6.7	0.0	2.8	5.4	0.1	55.2	55.0	23.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.3	6.7	0.0	2.8	5.4	0.1	55.2	55.0	23.4	
LOS	A	A	A	A	A	A	E	E	C	
Approach Delay		6.7			5.3				32.3	
Approach LOS		A			A				C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 7.4

Intersection LOS: A

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15
























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Long Term Background







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1270	5	5	1490	35	5	0	0	45	5	110
Future Volume (veh/h)	40	1270	5	5	1490	35	5	0	0	45	5	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	44	1396	0	5	1637	38	5	0	0	49	5	121
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	300	2333		246	2248	1003	187	116		220	6	147
Arrive On Green	0.03	0.70	0.00	0.01	1.00	1.00	0.01	0.00	0.00	0.04	0.10	0.10
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	3237	1752	1485	1668	59	1434
Grp Volume(v), veh/h	44	1396	0	5	1637	38	5	0	0	49	0	126
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1618	1752	1485	1668	0	1494
Q Serve(g_s), s	0.9	25.9	0.0	0.1	0.0	0.0	0.2	0.0	0.0	3.2	0.0	9.9
Cycle Q Clear(g_c), s	0.9	25.9	0.0	0.1	0.0	0.0	0.2	0.0	0.0	3.2	0.0	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.96
Lane Grp Cap(c), veh/h	300	2333		246	2248	1003	187	116		220	0	154
V/C Ratio(X)	0.15	0.60		0.02	0.73	0.04	0.03	0.00		0.22	0.00	0.82
Avail Cap(c_a), veh/h	344	2333		333	2248	1003	355	365		245	0	311
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	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.2	9.2	0.0	8.2	0.0	0.0	51.8	0.0	0.0	47.8	0.0	52.7
Incr Delay (d2), s/veh	0.2	1.1	0.0	0.0	2.1	0.1	0.0	0.0	0.0	0.4	0.0	7.8
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(95%),veh/ln	0.5	12.7	0.0	0.1	1.2	0.0	0.1	0.0	0.0	2.5	0.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	10.4	0.0	8.3	2.1	0.1	51.9	0.0	0.0	48.1	0.0	60.6
LnGrp LOS	A	B		A	A	A	D	A		D	A	E
Approach Vol, veh/h	1440		A	1680			5		A	175		
Approach Delay, s/veh	10.2			2.1			51.9			57.1		
Approach LOS	B			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	90.1	5.8	18.3	8.8	87.1	10.2	13.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	7.0	59.0	7.0	25.0	7.0	59.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.1	27.9	2.2	11.9	2.9	2.0	5.2	0.0				
Green Ext Time (p_c), s	0.0	20.7	0.0	0.5	0.0	38.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	6.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	1235	1395	40	35	135
Future Vol, veh/h	80	1235	1395	40	35	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	88	1357	1533	44	38	148
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1577	0	-	0	2252	767
Stage 1	-	-	-	-	1533	-
Stage 2	-	-	-	-	719	-
Critical Hdwy	4.3	-	-	-	6.45	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	2.3	-	-	-	3.75	3.4
Pot Cap-1 Maneuver	378	-	-	-	44	328
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	395	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	378	-	-	-	~ 34	328
Mov Cap-2 Maneuver	-	-	-	-	~ 34	-
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	395	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		96.7		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	378	-	-	-	34	328
HCM Lane V/C Ratio	0.233	-	-	-	1.131	0.452
HCM Control Delay (s)	17.4	-	-	-	\$ 374.4	24.7
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	0.9	-	-	-	4.1	2.3
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 3: Colfax Ave & Himalaya St

Stafford Logistics Center
AM Long Term Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	1210	1350	40	50	85
Future Volume (vph)	60	1210	1350	40	50	85
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	100.7	99.7	90.6	90.6	9.3	9.3
Actuated g/C Ratio	0.84	0.83	0.76	0.76	0.08	0.08
v/c Ratio	0.24	0.48	0.59	0.04	0.43	0.46
Control Delay	4.8	7.2	5.1	0.9	62.1	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	7.2	5.1	0.9	62.1	18.0
LOS	A	A	A	A	E	B
Approach Delay		7.1	5.0		34.3	
Approach LOS		A	A		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 7.4

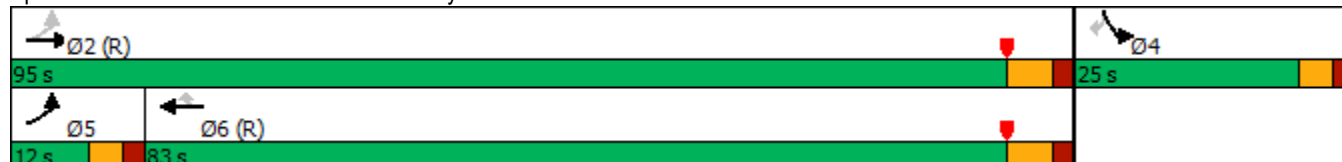
Intersection LOS: A

Intersection Capacity Utilization 59.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Colfax Ave & Himalaya St



HCM 6th Signalized Intersection Summary

3: Colfax Ave & Himalaya St




















Stafford Logistics Center
AM Long Term Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	1210	1350	40	50	85
Future Volume (veh/h)	60	1210	1350	40	50	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	65	1315	1467	43	54	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	365	2759	2498	1114	132	118
Arrive On Green	0.05	1.00	1.00	1.00	0.08	0.08
Sat Flow, veh/h	1668	3416	3416	1485	1668	1485
Grp Volume(v), veh/h	65	1315	1467	43	54	92
Grp Sat Flow(s),veh/h/ln	1668	1664	1664	1485	1668	1485
Q Serve(g_s), s	1.0	0.0	0.0	0.0	3.7	7.3
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.0	3.7	7.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	365	2759	2498	1114	132	118
V/C Ratio(X)	0.18	0.48	0.59	0.04	0.41	0.78
Avail Cap(c_a), veh/h	401	2759	2498	1114	278	247
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.82	1.00	1.00
Uniform Delay (d), s/veh	2.4	0.0	0.0	0.0	52.6	54.2
Incr Delay (d2), s/veh	0.2	0.6	0.8	0.1	2.0	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.4	0.5	0.0	2.9	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.6	0.6	0.8	0.1	54.6	64.9
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1380	1510		146	
Approach Delay, s/veh		0.7	0.8		61.1	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		105.5		14.5	9.4	96.1
Change Period (Y+Rc), s		6.0		5.0	5.0	6.0
Max Green Setting (Gmax), s		89.0		20.0	7.0	77.0
Max Q Clear Time (g_c+I1), s		2.0		9.3	3.0	2.0
Green Ext Time (p_c), s		13.1		0.3	0.0	16.4
Intersection Summary						
HCM 6th Ctrl Delay			3.7			
HCM 6th LOS			A			

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Long Term Background

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	875	5	350	5	5	450	675	5	875	975
Future Volume (vph)	875	5	350	5	5	450	675	5	875	975
Turn Type	Prot	NA	Perm	Perm	NA	Prot	NA	Perm	NA	pm+ov
Protected Phases	7	4			8	5	2		6	7
Permitted Phases			4	8				6		6
Detector Phase	7	4	4	8	8	5	2	6	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	22.5	22.5	10.0	24.0	24.0	24.0	24.0
Total Split (s)	37.0	49.0	49.0	12.0	12.0	25.0	71.0	46.0	46.0	37.0
Total Split (%)	30.8%	40.8%	40.8%	10.0%	10.0%	20.8%	59.2%	38.3%	38.3%	30.8%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	31.0	35.8	35.8		6.4	19.5	72.2	47.7	47.7	84.7
Actuated g/C Ratio	0.26	0.30	0.30		0.05	0.16	0.60	0.40	0.40	0.71
v/c Ratio	0.75	0.01	0.52		0.21	0.89	0.24	0.02	0.68	0.90
Control Delay	41.3	19.4	6.8		48.5	64.0	7.3	26.6	34.5	24.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	19.4	6.8		48.5	64.0	7.3	26.6	34.5	24.4
LOS	D	B	A		D	E	A	C	C	C
Approach Delay		31.4			48.5		29.8		29.2	
Approach LOS		C			D		C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 30.1

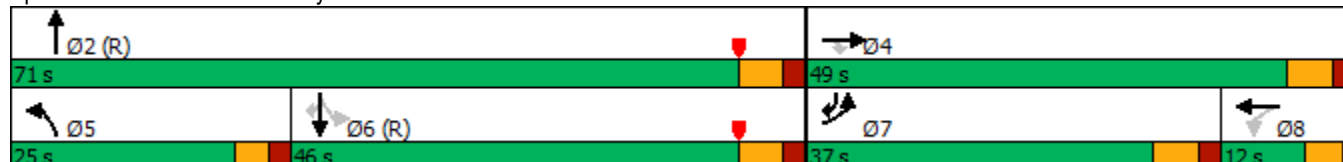
Intersection LOS: C

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15




















Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Long Term Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	875	5	350	5	5	5	450	675	5	5	875	975
Future Volume (veh/h)	875	5	350	5	5	5	450	675	5	5	875	975
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1530	1752	1530	1530	1530	1752	1752	1530	1530	1752	1752
Adj Flow Rate, veh/h	893	5	0	5	5	5	459	689	5	5	893	0
Peak Hour Factor	0.98	0.91	0.98	0.91	0.91	0.91	0.98	0.98	0.91	0.91	0.98	0.98
Percent Heavy Veh, %	10	25	10	25	25	25	10	10	25	25	10	10
Cap, veh/h	1025	441		49	9	9	504	2997	22	314	1380	
Arrive On Green	0.22	0.29	0.00	0.02	0.02	0.02	0.31	1.00	1.00	0.41	0.41	0.00
Sat Flow, veh/h	4705	1530	1485	436	436	436	3237	4898	36	614	3328	1485
Grp Volume(v), veh/h	893	5	0	15	0	0	459	448	246	5	893	0
Grp Sat Flow(s),veh/h/ln	1568	1530	1485	1309	0	0	1618	1594	1745	614	1664	1485
Q Serve(g_s), s	22.0	0.3	0.0	1.4	0.0	0.0	16.4	0.0	0.0	0.6	25.8	0.0
Cycle Q Clear(g_c), s	22.0	0.3	0.0	1.4	0.0	0.0	16.4	0.0	0.0	0.6	25.8	0.0
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	1025	441		67	0	0	504	1950	1068	314	1380	
V/C Ratio(X)	0.87	0.01		0.23	0.00	0.00	0.91	0.23	0.23	0.02	0.65	
Avail Cap(c_a), veh/h	1215	548		122	0	0	539	1950	1068	314	1380	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	1.00	0.00	0.00	0.78	0.78	0.78	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.3	30.5	0.0	58.3	0.0	0.0	40.5	0.0	0.0	20.7	28.1	0.0
Incr Delay (d2), s/veh	5.7	0.0	0.0	1.7	0.0	0.0	15.7	0.2	0.4	0.1	2.4	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(95%),veh/ln	13.4	0.2	0.0	0.9	0.0	0.0	9.9	0.1	0.2	0.2	15.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.0	30.5	0.0	60.0	0.0	0.0	56.2	0.2	0.4	20.8	30.5	0.0
LnGrp LOS	D	C		E	A	A	E	A	A	C	C	
Approach Vol, veh/h	898			A			1153			898		
Approach Delay, s/veh	50.8			60.0			22.6			30.4		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	79.4			40.6			23.7			55.7		
Change Period (Y+Rc), s	6.0			6.0			5.0			6.0		
Max Green Setting (Gmax), s	65.0			43.0			20.0			40.0		
Max Q Clear Time (g_c+I1), s	2.0			2.3			18.4			27.8		
Green Ext Time (p_c), s	4.6			0.0			0.3			5.0		
Intersection Summary												
HCM 6th Ctrl Delay	33.7											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
7: Colfax Ave & Libson St

Stafford Logistics Center
AM Long Term Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations	↔↔	↔↔	↔↔	↔	↔↔	↔	
Traffic Volume (vph)	90	1170	1335	90	55	55	
Future Volume (vph)	90	1170	1335	90	55	55	
Turn Type	pm+pt	NA	NA	Perm	pm+pt	pm+ov	
Protected Phases	5	2	6		7	5	4
Permitted Phases	2			6	4	4	
Detector Phase	5	2	6	6	7	5	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	23.0	23.0	9.5	23.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	12.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	10.0%	21%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	5.0	5.0	4.0	
Lead/Lag	Lead		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)	105.4	105.4	94.4	94.4	7.7	16.6	
Actuated g/C Ratio	0.88	0.88	0.79	0.79	0.06	0.14	
v/c Ratio	0.17	0.44	0.56	0.08	0.29	0.24	
Control Delay	1.0	1.0	4.6	0.8	56.7	15.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	1.0	1.0	4.6	0.8	56.7	15.2	
LOS	A	A	A	A	E	B	
Approach Delay		1.0	4.4		36.0		
Approach LOS		A	A		D		

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 110 (92%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 4.1
Intersection Capacity Utilization 51.0%
Analysis Period (min) 15
Intersection LOS: A
ICU Level of Service A

Splits and Phases: 7: Colfax Ave & Libson St



HCM 6th Signalized Intersection Summary 7: Colfax Ave & Libson St

Stafford Logistics Center
AM Long Term Background





















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑	↖↗	↖	↖↗	↖
Traffic Volume (veh/h)	90	1170	1335	90	55	55
Future Volume (veh/h)	90	1170	1335	90	55	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	98	1272	1451	98	60	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	727	2865	2621	1169	181	142
Arrive On Green	0.08	1.00	1.00	1.00	0.06	0.06
Sat Flow, veh/h	3237	3416	3416	1485	3237	1485
Grp Volume(v), veh/h	98	1272	1451	98	60	60
Grp Sat Flow(s),veh/h/ln	1618	1664	1664	1485	1618	1485
Q Serve(g_s), s	0.6	0.0	0.0	0.0	2.1	4.6
Cycle Q Clear(g_c), s	0.6	0.0	0.0	0.0	2.1	4.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	727	2865	2621	1169	181	142
V/C Ratio(X)	0.13	0.44	0.55	0.08	0.33	0.42
Avail Cap(c_a), veh/h	813	2865	2621	1169	539	307
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.34	0.34	1.00	1.00
Uniform Delay (d), s/veh	1.5	0.0	0.0	0.0	54.5	51.1
Incr Delay (d2), s/veh	0.1	0.4	0.3	0.0	1.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.3	0.2	5.0	1.6	7.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	1.5	0.4	0.3	0.0	55.6	53.1
LnGrp LOS	A	A	A	A	E	D
Approach Vol, veh/h		1370	1549		120	
Approach Delay, s/veh		0.5	0.3		54.3	
Approach LOS		A	A		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		108.3		11.7	8.8	99.5
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	8.0	78.0
Max Q Clear Time (g_c+I1), s		2.0		6.6	2.6	2.0
Green Ext Time (p_c), s		12.4		0.3	0.1	16.5
Intersection Summary						
HCM 6th Ctrl Delay			2.5			
HCM 6th LOS			A			

Notes

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

Timings
10: Picadilly Rd & Realigned Colfax Ave

Stafford Logistics Center
AM Long Term Background

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	 		  		 	  
Traffic Volume (vph)	475	625	500	325	525	700
Future Volume (vph)	475	625	500	325	525	700
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	3		2	3	1	6
Permitted Phases		8		2		
Detector Phase	3	8	2	3	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	55.0	55.0	30.0	55.0	35.0	65.0
Total Split (%)	45.8%	45.8%	25.0%	45.8%	29.2%	54.2%
Yellow Time (s)	3.0	3.0	4.0	3.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	6.0	5.0	5.0	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Min	None	None	C-Min
Act Effect Green (s)	27.9	27.9	50.0	83.9	26.1	81.1
Actuated g/C Ratio	0.23	0.23	0.42	0.70	0.22	0.68
v/c Ratio	0.70	0.83	0.28	0.34	0.83	0.24
Control Delay	46.6	14.7	25.8	7.4	39.1	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.6	14.7	25.8	7.4	39.1	13.1
LOS	D	B	C	A	D	B
Approach Delay	28.4		18.5			24.2
Approach LOS	C		B			C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 24.2

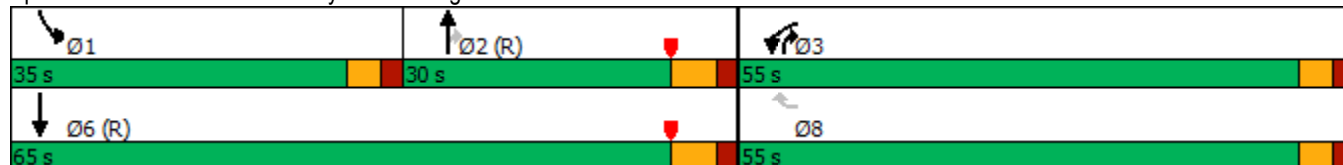
Intersection LOS: C

Intersection Capacity Utilization 57.5%

ICU Level of Service B

Analysis Period (min) 15


















Splits and Phases: 10: Picadilly Rd & Realigned Colfax Ave



HCM 6th Signalized Intersection Summary

10: Picadilly Rd & Realigned Colfax Ave

Stafford Logistics Center
AM Long Term Background

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  		 	  
Traffic Volume (veh/h)	475	625	500	325	525	700
Future Volume (veh/h)	475	625	500	325	525	700
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	516	0	543	353	571	761
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	606		2318	998	630	3448
Arrive On Green	0.19	0.00	0.48	0.48	0.39	1.00
Sat Flow, veh/h	3237	1485	4940	1485	3237	4940
Grp Volume(v), veh/h	516	0	543	353	571	761
Grp Sat Flow(s),veh/h/ln	1618	1485	1594	1485	1618	1594
Q Serve(g_s), s	18.5	0.0	7.9	12.3	20.0	0.0
Cycle Q Clear(g_c), s	18.5	0.0	7.9	12.3	20.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	606		2318	998	630	3448
V/C Ratio(X)	0.85		0.23	0.35	0.91	0.22
Avail Cap(c_a), veh/h	1349		2318	998	809	3448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.73	0.73
Uniform Delay (d), s/veh	47.1	0.0	18.0	8.5	35.6	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.2	1.0	8.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	12.3	0.0	5.1	7.2	10.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.6	0.0	18.2	9.5	44.5	0.1
LnGrp LOS	D		B	A	D	A
Approach Vol, veh/h	516	A	896			1332
Approach Delay, s/veh	50.6		14.8			19.2
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	28.4	64.2			92.5	27.5
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	30.0	24.0			59.0	50.0
Max Q Clear Time (g_c+I1), s	22.0	14.3			2.0	20.5
Green Ext Time (p_c), s	1.4	3.3			5.6	2.0

Intersection Summary





















HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Long Term Background

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	105	1610	40	15	1455	35	15	5	35	5
Future Volume (vph)	105	1610	40	15	1455	35	15	5	35	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	12.0	65.0	65.0	12.0	65.0	65.0	12.0	31.0	12.0	31.0
Total Split (%)	10.0%	54.2%	54.2%	10.0%	54.2%	54.2%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	96.2	92.4	92.4	91.2	84.9	84.9	8.2	6.2	11.6	6.9
Actuated g/C Ratio	0.80	0.77	0.77	0.76	0.71	0.71	0.07	0.05	0.10	0.06
v/c Ratio	0.53	0.70	0.04	0.09	0.69	0.04	0.07	0.06	0.27	0.54
Control Delay	15.8	11.9	0.1	6.9	14.3	1.1	48.1	53.8	50.4	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	11.9	0.1	6.9	14.3	1.1	48.1	53.8	50.4	25.1
LOS	B	B	A	A	B	A	D	D	D	C
Approach Delay		11.9			14.0			49.5		32.8
Approach LOS		B			B			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 13.7

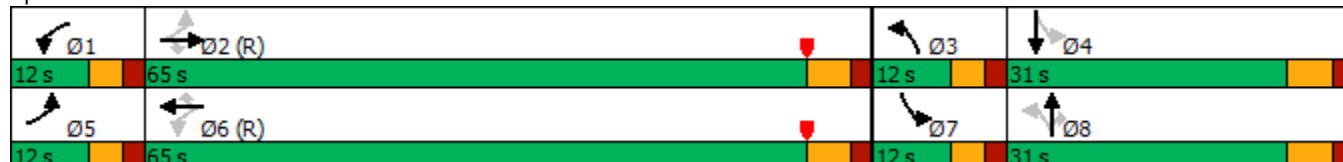
Intersection LOS: B

Intersection Capacity Utilization 71.4%

ICU Level of Service C

Analysis Period (min) 15

























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Long Term Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1610	40	15	1455	35	15	5	0	35	5	75
Future Volume (veh/h)	105	1610	40	15	1455	35	15	5	0	35	5	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	115	1769	0	16	1599	38	16	5	0	38	5	82
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	324	2353		183	2275	1015	219	90		193	6	106
Arrive On Green	0.04	0.71	0.00	0.03	1.00	1.00	0.02	0.05	0.00	0.04	0.08	0.08
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	3237	1752	1485	1668	86	1412
Grp Volume(v), veh/h	115	1769	0	16	1599	38	16	5	0	38	0	87
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1618	1752	1485	1668	0	1498
Q Serve(g_s), s	2.5	39.9	0.0	0.3	0.0	0.0	0.6	0.3	0.0	2.5	0.0	6.8
Cycle Q Clear(g_c), s	2.5	39.9	0.0	0.3	0.0	0.0	0.6	0.3	0.0	2.5	0.0	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	324	2353		183	2275	1015	219	90		193	0	113
V/C Ratio(X)	0.35	0.75		0.09	0.70	0.04	0.07	0.06		0.20	0.00	0.77
Avail Cap(c_a), veh/h	354	2353		252	2275	1015	352	365		221	0	312
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	11.0	0.0	11.3	0.0	0.0	52.4	54.2	0.0	50.6	0.0	54.5
Incr Delay (d2), s/veh	0.5	2.3	0.0	0.2	1.8	0.1	0.1	0.2	0.0	0.4	0.0	8.0
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(95%),veh/ln	1.3	18.3	0.0	0.2	1.1	0.0	0.4	0.3	0.0	2.0	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	13.3	0.0	11.5	1.8	0.1	52.5	54.4	0.0	50.9	0.0	62.5
LnGrp LOS	A	B		B	A	A	D	D		D	A	E
Approach Vol, veh/h	1884		A	1653			21		A	125		
Approach Delay, s/veh	12.8			1.9			52.9			59.0		
Approach LOS	B			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	90.8	7.1	15.0	9.9	88.0	10.0	12.1				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	7.0	59.0	7.0	25.0	7.0	59.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	41.9	2.6	8.8	4.5	2.0	4.5	2.3				
Green Ext Time (p_c), s	0.0	15.1	0.0	0.3	0.0	36.8	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 9.7
HCM 6th LOS A

Notes

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

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	4.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	145	1500	1375	50	60	130
Future Vol, veh/h	145	1500	1375	50	60	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	159	1648	1511	55	66	143
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1566	0	-	0	2488	756
Stage 1	-	-	-	-	1511	-
Stage 2	-	-	-	-	977	-
Critical Hdwy	4.3	-	-	-	6.45	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	2.3	-	-	-	3.75	3.4
Pot Cap-1 Maneuver	*746	-	-	-	*91	*504
Stage 1	-	-	-	-	*457	-
Stage 2	-	-	-	-	*593	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	*746	-	-	-	*72	*504
Mov Cap-2 Maneuver	-	-	-	-	*72	-
Stage 1	-	-	-	-	*360	-
Stage 2	-	-	-	-	*593	-
Approach	EB	WB		SB		
HCM Control Delay, s	1	0		67.3		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 746	-	-	-	72	504
HCM Lane V/C Ratio	0.214	-	-	-	0.916	0.283
HCM Control Delay (s)	11.1	-	-	-	180.8	14.9
HCM Lane LOS	B	-	-	-	F	B
HCM 95th %tile Q(veh)	0.8	-	-	-	4.6	1.2
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Long Term Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	200	1360	1240	115	115	185
Future Volume (vph)	200	1360	1240	115	115	185
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	21.0	95.0	74.0	74.0	25.0	25.0
Total Split (%)	17.5%	79.2%	61.7%	61.7%	20.8%	20.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	95.6	94.6	78.4	78.4	14.4	14.4
Actuated g/C Ratio	0.80	0.79	0.65	0.65	0.12	0.12
v/c Ratio	0.67	0.57	0.63	0.13	0.64	0.57
Control Delay	21.7	8.8	9.5	0.9	64.3	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	8.8	9.5	0.9	64.3	12.9
LOS	C	A	A	A	E	B
Approach Delay		10.5	8.7		32.6	
Approach LOS		B	A		C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 8 (7%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
 Natural Cycle: 75
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 11.8
 Intersection Capacity Utilization 65.1%
 Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

Splits and Phases: 3: Colfax Ave & Himalaya St



HCM 6th Signalized Intersection Summary

3: Colfax Ave & Himalaya St





























Stafford Logistics Center
PM Long Term Background



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	200	1360	1240	115	115	185
Future Volume (veh/h)	200	1360	1240	115	115	185
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	217	1478	1348	125	125	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	385	2519	2168	967	253	225
Arrive On Green	0.13	1.00	1.00	1.00	0.15	0.15
Sat Flow, veh/h	1668	3416	3416	1485	1668	1485
Grp Volume(v), veh/h	217	1478	1348	125	125	201
Grp Sat Flow(s),veh/h/ln	1668	1664	1664	1485	1668	1485
Q Serve(g_s), s	5.3	0.0	0.0	0.0	8.2	15.9
Cycle Q Clear(g_c), s	5.3	0.0	0.0	0.0	8.2	15.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	385	2519	2168	967	253	225
V/C Ratio(X)	0.56	0.59	0.62	0.13	0.49	0.89
Avail Cap(c_a), veh/h	502	2519	2168	967	278	247
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.77	0.77	1.00	1.00
Uniform Delay (d), s/veh	4.7	0.0	0.0	0.0	46.7	50.0
Incr Delay (d2), s/veh	1.3	1.0	1.0	0.2	1.5	29.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.5	0.6	0.6	0.1	6.4	20.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	1.0	1.0	0.2	48.2	79.3
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1695	1473		326	
Approach Delay, s/veh		1.6	1.0		67.4	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.8		23.2	12.6	84.2
Change Period (Y+Rc), s		6.0		5.0	5.0	6.0
Max Green Setting (Gmax), s		89.0		20.0	16.0	68.0
Max Q Clear Time (g_c+l1), s		2.0		17.9	7.3	2.0
Green Ext Time (p_c), s		16.5		0.2	0.4	14.4
Intersection Summary						
HCM 6th Ctrl Delay			7.5			
HCM 6th LOS			A			

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Long Term Background

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	  				 	  	  		  	
Traffic Volume (vph)	1125	5	375	5	5	5	575	5	800	875
Future Volume (vph)	1125	5	375	5	5	5	575	5	800	875
Turn Type	Prot	NA	Perm	Perm	NA	Prot	NA	Perm	NA	pm+ov
Protected Phases	7	4			8	5	2		6	7
Permitted Phases			4	8				6		6
Detector Phase	7	4	4	8	8	5	2	6	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	22.5	22.5	10.0	24.0	24.0	24.0	24.0
Total Split (s)	46.0	58.0	58.0	12.0	12.0	30.0	62.0	32.0	32.0	46.0
Total Split (%)	38.3%	48.3%	48.3%	10.0%	10.0%	25.0%	51.7%	26.7%	26.7%	38.3%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	38.1	42.9	42.9		6.4	5.7	65.1	62.9	62.9	110.6
Actuated g/C Ratio	0.32	0.36	0.36		0.05	0.05	0.54	0.52	0.52	0.92
v/c Ratio	0.78	0.01	0.50		0.21	0.03	0.23	0.01	0.47	0.63
Control Delay	41.1	22.6	7.7		48.5	54.4	15.2	20.6	21.5	2.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	22.6	7.7		48.5	54.4	15.2	20.6	21.5	2.4
LOS	D	C	A		D	D	B	C	C	A
Approach Delay		32.7			48.5		15.6		11.6	
Approach LOS		C			D		B		B	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 20.7

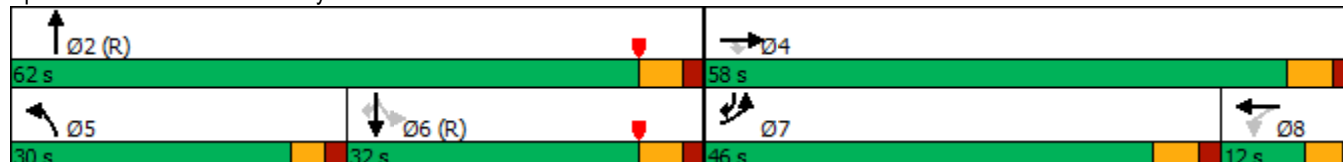
Intersection LOS: C

Intersection Capacity Utilization 75.4%

ICU Level of Service D

Analysis Period (min) 15






















Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Long Term Background

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1125	5	375	5	5	5	5	575	0	5	800	875
Future Volume (veh/h)	1125	5	375	5	5	5	5	575	0	5	800	875
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1530	1752	1530	1530	1530	1752	1752	1530	1530	1752	1752
Adj Flow Rate, veh/h	1148	5	0	5	5	5	5	587	0	5	816	0
Peak Hour Factor	0.98	0.91	0.98	0.91	0.91	0.91	0.98	0.98	0.91	0.91	0.98	0.98
Percent Heavy Veh, %	10	25	10	25	25	25	10	10	25	25	10	10
Cap, veh/h	1311	534		49	9	9	21	2636	0	363	1674	
Arrive On Green	0.28	0.35	0.00	0.02	0.02	0.02	0.00	0.18	0.00	0.50	0.50	0.00
Sat Flow, veh/h	4705	1530	1485	436	436	436	3237	4940	0	678	3328	1485
Grp Volume(v), veh/h	1148	5	0	15	0	0	5	587	0	5	816	0
Grp Sat Flow(s),veh/h/ln	1568	1530	1485	1309	0	0	1618	1594	0	678	1664	1485
Q Serve(g_s), s	27.9	0.3	0.0	1.4	0.0	0.0	0.2	12.6	0.0	0.5	19.4	0.0
Cycle Q Clear(g_c), s	27.9	0.3	0.0	1.4	0.0	0.0	0.2	12.6	0.0	7.3	19.4	0.0
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	1311	534		67	0	0	21	2636	0	363	1674	
V/C Ratio(X)	0.88	0.01		0.23	0.00	0.00	0.24	0.22	0.00	0.01	0.49	
Avail Cap(c_a), veh/h	1568	663		122	0	0	674	2636	0	363	1674	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.00	1.00	0.00	0.00	0.83	0.83	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	41.3	25.5	0.0	58.3	0.0	0.0	59.6	27.2	0.0	18.5	19.6	0.0
Incr Delay (d2), s/veh	4.2	0.0	0.0	1.7	0.0	0.0	4.9	0.2	0.0	0.1	1.0	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(95%),veh/ln	15.7	0.2	0.0	0.9	0.0	0.0	0.2	8.7	0.0	0.2	12.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.5	25.5	0.0	60.0	0.0	0.0	64.5	27.3	0.0	18.6	20.6	0.0
LnGrp LOS	D	C		E	A	A	E	C	A	B	C	
Approach Vol, veh/h	1153		A	15			592			821		A
Approach Delay, s/veh	45.4			60.0			27.6			20.6		
Approach LOS	D			E			C			C		
Timer - Assigned Phs	2			4	5	6	7	8				
Phs Duration (G+Y+Rc), s	72.1			47.9	5.8	66.4	39.4	8.4				
Change Period (Y+Rc), s	6.0			6.0	5.0	6.0	6.0	* 6				
Max Green Setting (Gmax), s	56.0			52.0	25.0	26.0	40.0	* 7.5				
Max Q Clear Time (g_c+I1), s	14.6			2.3	2.2	21.4	29.9	3.4				
Green Ext Time (p_c), s	4.1			0.0	0.0	2.3	3.5	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	33.5											
HCM 6th LOS	C											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Timings
7: Colfax Ave & Libson St

Stafford Logistics Center
PM Long Term Background



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø4
Lane Configurations	↰↰	↰↰	↰↰	↰	↰↰	↰	
Traffic Volume (vph)	320	1155	1010	315	345	345	
Future Volume (vph)	320	1155	1010	315	345	345	
Turn Type	pm+pt	NA	NA	Perm	pm+pt	pm+ov	
Protected Phases	5	2	6		7	5	4
Permitted Phases	2			6	4	4	
Detector Phase	5	2	6	6	7	5	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	23.0	23.0	9.5	23.0
Total Split (s)	32.0	95.0	63.0	63.0	25.0	32.0	25.0
Total Split (%)	26.7%	79.2%	52.5%	52.5%	20.8%	26.7%	21%
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	3.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	5.0	5.0	5.0	5.0	4.0	
Lead/Lag	Lead		Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	Yes		Yes	
Recall Mode	None	C-Min	C-Min	C-Min	None	None	None
Act Effect Green (s)	92.7	91.7	74.4	74.4	18.3	36.6	
Actuated g/C Ratio	0.77	0.76	0.62	0.62	0.15	0.30	
v/c Ratio	0.45	0.50	0.54	0.33	0.77	0.77	
Control Delay	5.6	4.8	15.5	2.2	60.2	42.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.6	4.8	15.5	2.2	60.2	42.8	
LOS	A	A	B	A	E	D	
Approach Delay		5.0	12.3		51.5		
Approach LOS		A	B		D		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.0

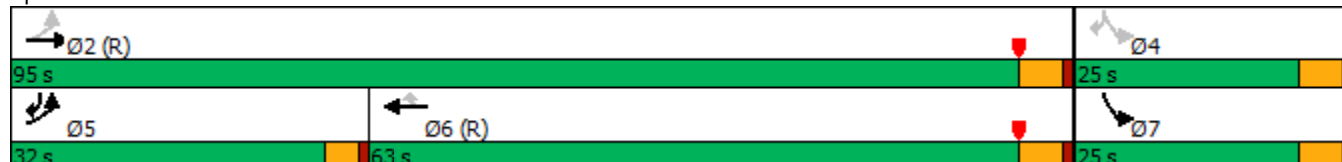
Intersection LOS: B

Intersection Capacity Utilization 58.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Colfax Ave & Libson St



HCM 6th Signalized Intersection Summary 7: Colfax Ave & Libson St

Stafford Logistics Center
PM Long Term Background















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰↱	↰↱	↰↱	↰	↰↱	↰
Traffic Volume (veh/h)	320	1155	1010	315	345	345
Future Volume (veh/h)	320	1155	1010	315	345	345
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	348	1255	1098	342	375	375
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	758	2496	2184	974	539	337
Arrive On Green	0.12	1.00	1.00	1.00	0.17	0.17
Sat Flow, veh/h	3237	3416	3416	1485	3237	1485
Grp Volume(v), veh/h	348	1255	1098	342	375	375
Grp Sat Flow(s),veh/h/ln	1618	1664	1664	1485	1618	1485
Q Serve(g_s), s	4.1	0.0	0.0	0.0	13.1	20.0
Cycle Q Clear(g_c), s	4.1	0.0	0.0	0.0	13.1	20.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	758	2496	2184	974	539	337
V/C Ratio(X)	0.46	0.50	0.50	0.35	0.70	1.11
Avail Cap(c_a), veh/h	1317	2496	2184	974	539	337
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.75	0.75	1.00	1.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	0.0	47.1	46.4
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.7	3.9	82.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.8	0.4	0.3	16.4	9.4	38.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.9	0.6	0.6	0.7	51.0	129.2
LnGrp LOS	A	A	A	A	D	F
Approach Vol, veh/h		1603	1440		750	
Approach Delay, s/veh		1.5	0.7		90.1	
Approach LOS		A	A		F	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		95.0		25.0	11.2	83.8
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0
Max Green Setting (Gmax), s		90.0		20.0	28.0	58.0
Max Q Clear Time (g_c+I1), s		2.0		22.0	6.1	2.0
Green Ext Time (p_c), s		12.1		0.0	1.1	11.6
Intersection Summary						
HCM 6th Ctrl Delay			18.7			
HCM 6th LOS			B			

Notes

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

Timings
10: Picadilly Rd & 13th Ave

Stafford Logistics Center
PM Long Term Background

							
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø8
Lane Configurations							
Traffic Volume (vph)	425	525	500	400	550	625	
Future Volume (vph)	425	525	500	400	550	625	
Turn Type	Prot	pm+ov	NA	pm+ov	pm+pt	NA	
Protected Phases	3	1	2	3	1	6	8
Permitted Phases		8		2	6		
Detector Phase	3	1	2	3	1	6	
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	23.0	24.0	24.0	23.0	24.0	24.0
Total Split (s)	38.0	50.0	32.0	38.0	50.0	82.0	38.0
Total Split (%)	31.7%	41.7%	26.7%	31.7%	41.7%	68.3%	32%
Yellow Time (s)	3.0	3.0	4.0	3.0	3.0	4.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	6.0	5.0	5.0	6.0	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Min	None	None	C-Min	None
Act Effect Green (s)	23.7	58.8	50.2	79.8	86.3	85.3	
Actuated g/C Ratio	0.20	0.49	0.42	0.66	0.72	0.71	
v/c Ratio	0.74	0.77	0.28	0.42	0.43	0.20	
Control Delay	52.2	29.6	26.5	6.9	10.0	8.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	52.2	29.6	26.5	6.9	10.0	8.3	
LOS	D	C	C	A	B	A	
Approach Delay	39.7		17.8			9.1	
Approach LOS	D		B			A	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 1 (1%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 21.3






Intersection LOS: C

Intersection Capacity Utilization 51.3%

ICU Level of Service A

Analysis Period (min) 15


















Splits and Phases: 10: Picadilly Rd & 13th Ave

 Ø1	 Ø2 (R)	 Ø3
50 s	32 s	38 s
 Ø6 (R)		 Ø8
82 s		38 s

HCM 6th Signalized Intersection Summary

10: Picadilly Rd & 13th Ave

Stafford Logistics Center
PM Long Term Background

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			  		 	  
Traffic Volume (veh/h)	425	525	500	400	550	625
Future Volume (veh/h)	425	525	500	400	550	625
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	462	0	543	435	598	679
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	543		2824	1126	1033	3542
Arrive On Green	0.17	0.00	0.59	0.59	0.22	1.00
Sat Flow, veh/h	3237	1485	4940	1485	3237	4940
Grp Volume(v), veh/h	462	0	543	435	598	679
Grp Sat Flow(s),veh/h/ln	1618	1485	1594	1485	1618	1594
Q Serve(g_s), s	16.6	0.0	6.3	12.0	8.8	0.0
Cycle Q Clear(g_c), s	16.6	0.0	6.3	12.0	8.8	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	543		2824	1126	1033	3542
V/C Ratio(X)	0.85		0.19	0.39	0.58	0.19
Avail Cap(c_a), veh/h	890		2824	1126	1896	3542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.87	0.87
Uniform Delay (d), s/veh	48.5	0.0	11.3	5.0	5.9	0.0
Incr Delay (d2), s/veh	4.4	0.0	0.2	1.0	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.4	0.0	3.8	6.3	3.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.9	0.0	11.5	6.0	6.3	0.1
LnGrp LOS	D		B	A	A	A
Approach Vol, veh/h	462	A	978			1277
Approach Delay, s/veh	52.9		9.0			3.0
Approach LOS	D		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.0	76.9			94.9	25.1
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	45.0	26.0			76.0	33.0
Max Q Clear Time (g_c+I1), s	10.8	14.0			2.0	18.6
Green Ext Time (p_c), s	2.2	4.0			4.9	1.5

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B





















Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

APPENDIX F. SHORT-TERM TOTAL TRAFFIC LOS

Timings 1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Total without Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations										
Traffic Volume (vph)	33	576	2	2	901	32	4	48	1	
Future Volume (vph)	33	576	2	2	901	32	4	48	1	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	12.0	31.0	31.0
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	10.0%	25.8%	26%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	98.5	96.2	96.2	95.8	91.7	91.7	5.4	10.8	7.7	
Actuated g/C Ratio	0.82	0.80	0.80	0.80	0.76	0.76	0.04	0.09	0.06	
v/c Ratio	0.08	0.22	0.00	0.00	0.36	0.03	0.03	0.33	0.56	
Control Delay	3.2	4.2	0.0	5.0	8.8	0.3	55.2	54.2	20.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	3.2	4.2	0.0	5.0	8.8	0.3	55.2	54.2	20.2	
LOS	A	A	A	A	A	A	E	D	C	
Approach Delay		4.1			8.5				30.6	
Approach LOS		A			A				C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 9.1

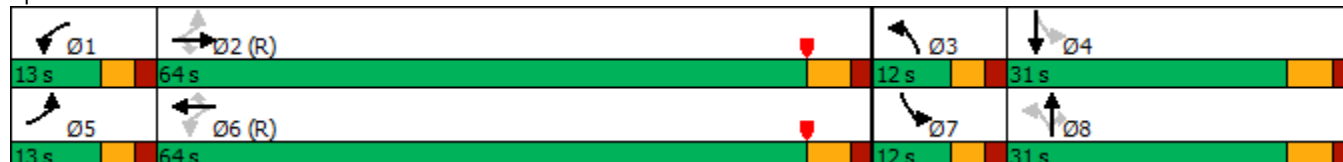
Intersection LOS: A

Intersection Capacity Utilization 46.7%

ICU Level of Service A

Analysis Period (min) 15
























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Total without Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	576	2	2	901	32	4	0	0	48	1	109
Future Volume (veh/h)	33	576	2	2	901	32	4	0	0	48	1	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	626	0	2	979	35	4	0	0	52	1	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	429	2542		588	2448	1092	187	104		216	1	147
Arrive On Green	0.03	0.72	0.00	0.00	0.69	0.69	0.01	0.00	0.00	0.04	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	13	1574
Grp Volume(v), veh/h	36	626	0	2	979	35	4	0	0	52	0	119
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1587
Q Serve(g_s), s	0.7	7.3	0.0	0.0	14.2	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Cycle Q Clear(g_c), s	0.7	7.3	0.0	0.0	14.2	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	429	2542		588	2448	1092	187	104		216	0	148
V/C Ratio(X)	0.08	0.25		0.00	0.40	0.03	0.02	0.00		0.24	0.00	0.80
Avail Cap(c_a), veh/h	496	2542		702	2448	1092	371	390		242	0	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.7	5.9	0.0	5.8	8.0	5.9	53.1	0.0	0.0	48.8	0.0	53.3
Incr Delay (d2), s/veh	0.1	0.2	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.4	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	3.9	0.0	0.0	7.9	0.5	0.1	0.0	0.0	2.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.8	6.1	0.0	5.8	8.5	6.0	53.1	0.0	0.0	49.2	0.0	60.6
LnGrp LOS	A	A		A	A	A	D	A		D	A	E
Approach Vol, veh/h	662		A	1016			4		A	171		
Approach Delay, s/veh	6.1			8.4			53.1			57.1		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	91.8	5.6	17.2	8.5	88.7	10.2	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.0	9.3	2.1	10.8	2.7	16.2	5.2	0.0				
Green Ext Time (p_c), s	0.0	8.6	0.0	0.4	0.0	15.4	0.0	0.0				

Intersection Summary







HCM 6th Ctrl Delay 12.2
HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.







HCM 6th TWSC
2: Colfax Ave & Espana St

Stafford Logistics Center
AM Short Term Total without Interchange

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	553	915	26	29	129
Future Vol, veh/h	65	553	915	26	29	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	582	963	27	31	136
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	990	0	-	0	1332	482
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	694	-	-	-	*274	530
Stage 1	-	-	-	-	*323	-
Stage 2	-	-	-	-	*862	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	694	-	-	-	*248	530
Mov Cap-2 Maneuver	-	-	-	-	*248	-
Stage 1	-	-	-	-	*291	-
Stage 2	-	-	-	-	*862	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		18.2		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	694	-	-	-	438	
HCM Lane V/C Ratio	0.099	-	-	-	0.38	
HCM Control Delay (s)	10.8	-	-	-	18.2	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.7	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
AM Short Term Total without Interchange

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	570	889	11	31	58
Future Vol, veh/h	13	570	889	11	31	58
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	613	956	12	33	62
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1033	0	-	0	1356	543
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1031	-	-	-	*465	*725
Stage 1	-	-	-	-	*651	-
Stage 2	-	-	-	-	*803	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	967	-	-	-	*404	*680
Mov Cap-2 Maneuver	-	-	-	-	*404	-
Stage 1	-	-	-	-	*602	-
Stage 2	-	-	-	-	*754	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		12.9		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	967	-	-	-	549	
HCM Lane V/C Ratio	0.014	-	-	-	0.174	
HCM Control Delay (s)	8.8	-	-	-	12.9	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.6	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘↘	↘
Traffic Volume (vph)	284	158	194	617	310	21
Future Volume (vph)	284	158	194	617	310	21
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1	6	8	
Permitted Phases		2		6		8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	10.0	24.0	10.0	10.0
Total Split (s)	40.0	40.0	45.0	85.0	35.0	35.0
Total Split (%)	33.3%	33.3%	37.5%	70.8%	29.2%	29.2%
Yellow Time (s)	4.0	4.0	3.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	5.0	6.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Min	C-Min	None	Min	None	None
Act Effect Green (s)	67.4	67.4	19.6	92.0	17.0	17.0
Actuated g/C Ratio	0.56	0.56	0.16	0.77	0.14	0.14
v/c Ratio	0.15	0.18	0.72	0.24	0.69	0.09
Control Delay	7.1	1.8	61.3	4.5	56.3	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	1.8	61.3	4.5	56.3	16.7
LOS	A	A	E	A	E	B
Approach Delay	5.2			18.1	53.7	
Approach LOS	A			B	D	

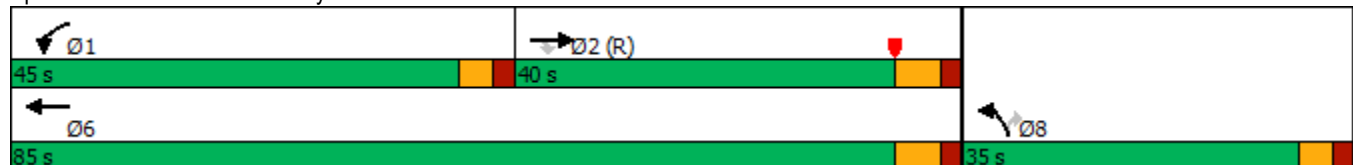
Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 22.0
 Intersection Capacity Utilization 40.8%
 Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service A

Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (veh/h)	284	158	194	617	310	21
Future Volume (veh/h)	284	158	194	617	310	21
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	305	0	209	663	333	23
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2171		243	2803	413	189
Arrive On Green	0.20	0.00	0.14	0.79	0.12	0.12
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	305	0	209	663	333	23
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	8.5	0.0	13.8	5.8	11.3	1.6
Cycle Q Clear(g_c), s	8.5	0.0	13.8	5.8	11.3	1.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2171		243	2803	413	189
V/C Ratio(X)	0.14		0.86	0.24	0.81	0.12
Avail Cap(c_a), veh/h	2171		594	2803	864	396
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	0.0	50.7	3.3	51.5	47.2
Incr Delay (d2), s/veh	0.1	0.0	8.7	0.0	3.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.2	0.0	11.0	3.1	8.6	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	0.0	59.5	3.3	55.2	47.5
LnGrp LOS	C		E	A	E	D
Approach Vol, veh/h	305	A		872	356	
Approach Delay, s/veh	22.1			16.8	54.7	
Approach LOS	C			B	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.3	79.3			100.7	19.3
Change Period (Y+Rc), s	5.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	40.0	34.0			79.0	30.0
Max Q Clear Time (g_c+I1), s	15.8	10.5			7.8	13.3
Green Ext Time (p_c), s	0.6	1.6			5.4	1.1
Intersection Summary						
HCM 6th Ctrl Delay			26.7			
HCM 6th LOS			C			

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
6: Site Driveway #1 & Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑		↗
Traffic Vol, veh/h	538	54	0	902	0	4
Future Vol, veh/h	538	54	0	902	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	585	59	0	980	0	4
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	293
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	703
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	703
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	703	-	-	-		
HCM Lane V/C Ratio	0.006	-	-	-		
HCM Control Delay (s)	10.2	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Timings
7: Lisbon St & Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Traffic Volume (vph)	425	117	161	793	109	17
Future Volume (vph)	425	117	161	793	109	17
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	24.0	23.0	9.5
Total Split (s)	55.0	55.0	35.0	90.0	30.0	35.0
Total Split (%)	45.8%	45.8%	29.2%	75.0%	25.0%	29.2%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.0	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.0	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None
Act Effect Green (s)	74.0	74.0	17.2	95.7	13.3	35.5
Actuated g/C Ratio	0.62	0.62	0.14	0.80	0.11	0.30
v/c Ratio	0.21	0.12	0.69	0.31	0.60	0.04
Control Delay	12.9	4.4	70.1	2.4	63.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	4.4	70.1	2.4	63.1	10.0
LOS	B	A	E	A	E	A
Approach Delay	11.1			13.8	56.0	
Approach LOS	B			B	E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 16.2

Intersection LOS: B

Intersection Capacity Utilization 39.6%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Lisbon St & Colfax Ave



HCM 6th Signalized Intersection Summary










7: Lisbon St & Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	425	117	161	793	109	17
Future Volume (veh/h)	425	117	161	793	109	17
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	462	127	175	862	118	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2387	1065	206	2932	148	315
Arrive On Green	0.67	0.67	0.12	0.83	0.08	0.08
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	462	127	175	862	118	18
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	5.9	3.4	11.6	6.7	7.8	1.1
Cycle Q Clear(g_c), s	5.9	3.4	11.6	6.7	7.8	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2387	1065	206	2932	148	315
V/C Ratio(X)	0.19	0.12	0.85	0.29	0.80	0.06
Avail Cap(c_a), veh/h	2387	1065	453	2932	371	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	7.4	7.0	52.0	2.4	54.0	38.9
Incr Delay (d2), s/veh	0.2	0.2	8.7	0.2	9.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	1.8	9.1	2.0	7.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.6	7.3	60.7	2.7	63.3	39.0
LnGrp LOS	A	A	E	A	E	D
Approach Vol, veh/h	589			1037	136	
Approach Delay, s/veh	7.5			12.5	60.1	
Approach LOS	A			B	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	18.4	86.6			105.0	15.0
Change Period (Y+Rc), s	4.5	6.0			6.0	5.0
Max Green Setting (Gmax), s	30.5	49.0			84.0	25.0
Max Q Clear Time (g_c+I1), s	13.6	7.9			8.7	9.8
Green Ext Time (p_c), s	0.4	3.2			6.1	0.3
Intersection Summary						
HCM 6th Ctrl Delay			14.5			
HCM 6th LOS			B			





HCM 6th TWSC
10: Picadilly Rd & Realigned Colfax Ave

Stafford Logistics Center
AM Short Term Total without Interchange

Intersection												
Int Delay, s/veh	5.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	9	28	10	25	165	69	196	8	69	192	98
Future Vol, veh/h	37	9	28	10	25	165	69	196	8	69	192	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	10	30	11	27	179	75	213	9	75	209	107
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	830	731	209	801	834	218	316	0	0	222	0	0
Stage 1	359	359	-	368	368	-	-	-	-	-	-	-
Stage 2	471	372	-	433	466	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	289	349	831	303	304	822	1244	-	-	1347	-	-
Stage 1	659	627	-	652	621	-	-	-	-	-	-	-
Stage 2	573	619	-	601	562	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	191	310	831	260	270	822	1244	-	-	1347	-	-
Mov Cap-2 Maneuver	191	310	-	260	270	-	-	-	-	-	-	-
Stage 1	619	592	-	613	584	-	-	-	-	-	-	-
Stage 2	401	582	-	538	531	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	20.2		13.4		2		1.5					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1244	-	-	191	590	260	648	1347	-	-		
HCM Lane V/C Ratio	0.06	-	-	0.211	0.068	0.042	0.319	0.056	-	-		
HCM Control Delay (s)	8.1	-	-	28.8	11.5	19.4	13.1	7.8	-	-		
HCM Lane LOS	A	-	-	D	B	C	B	A	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	0.8	0.2	0.1	1.4	0.2	-	-		

Intersection

Intersection Delay, s/veh	8.3
Intersection LOS	A





















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	20	73	76	0
Future Vol, veh/h	0	4	20	73	76	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	25	25	25	25	25	25
Mvmt Flow	0	4	22	79	83	0
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	7.7	7.6	9.2
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	22%	0%	100%
Vol Right, %	0%	78%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	4	93	76	0
LT Vol	0	0	76	0
Through Vol	4	20	0	0
RT Vol	0	73	0	0
Lane Flow Rate	4	101	83	0
Geometry Grp	2	2	7	7
Degree of Util (X)	0.006	0.115	0.129	0
Departure Headway (Hd)	4.68	4.113	5.611	5.11
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	769	876	637	0
Service Time	2.683	2.114	3.364	2.863
HCM Lane V/C Ratio	0.005	0.115	0.13	0
HCM Control Delay	7.7	7.6	9.2	7.9
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.4	0.4	0

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Total without Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	95	991	42	13	821	33	15	6	25	7
Future Volume (vph)	95	991	42	13	821	33	15	6	25	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	15.0	64.0	64.0	13.0	62.0	62.0	12.0	31.0	12.0	31.0
Total Split (%)	12.5%	53.3%	53.3%	10.8%	51.7%	51.7%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	99.1	96.1	96.1	93.9	87.6	87.6	7.4	5.8	11.4	6.7
Actuated g/C Ratio	0.83	0.80	0.80	0.78	0.73	0.73	0.06	0.05	0.10	0.06
v/c Ratio	0.21	0.38	0.04	0.03	0.35	0.03	0.07	0.08	0.18	0.49
Control Delay	4.0	6.4	0.0	7.5	12.1	1.5	48.6	55.7	47.8	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	6.4	0.0	7.5	12.1	1.5	48.6	55.7	47.8	26.5
LOS	A	A	A	A	B	A	D	E	D	C
Approach Delay		6.0			11.7			50.8		32.2
Approach LOS		A			B			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 9.9

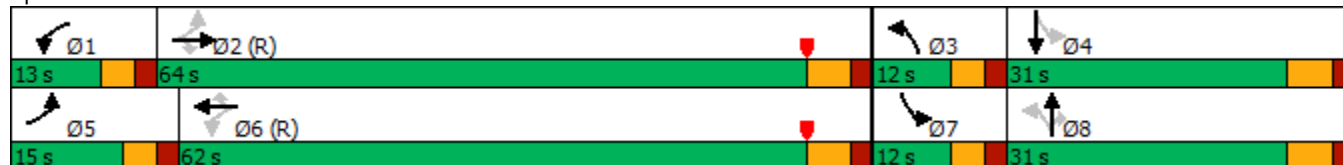
Intersection LOS: A

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15
























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Total without Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	991	42	13	821	33	15	6	0	25	7	61
Future Volume (veh/h)	95	991	42	13	821	33	15	6	0	25	7	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	1077	0	14	892	36	16	7	0	27	8	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	490	2560		401	2472	1102	227	75		184	11	91
Arrive On Green	0.04	0.72	0.00	0.02	0.70	0.70	0.02	0.04	0.00	0.04	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	174	1437
Grp Volume(v), veh/h	103	1077	0	14	892	36	16	7	0	27	0	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1612
Q Serve(g_s), s	1.9	14.6	0.0	0.3	12.2	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Cycle Q Clear(g_c), s	1.9	14.6	0.0	0.3	12.2	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	490	2560		401	2472	1102	227	75		184	0	103
V/C Ratio(X)	0.21	0.42		0.03	0.36	0.03	0.07	0.09		0.15	0.00	0.72
Avail Cap(c_a), veh/h	566	2560		492	2472	1102	369	390		215	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.2	6.7	0.0	5.6	7.4	5.7	53.6	55.5	0.0	51.5	0.0	55.1
Incr Delay (d2), s/veh	0.2	0.5	0.0	0.0	0.4	0.1	0.1	0.4	0.0	0.3	0.0	6.9
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(95%),veh/ln	1.0	7.7	0.0	0.1	6.9	0.5	0.4	0.4	0.0	1.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.4	7.2	0.0	5.7	7.8	5.7	53.7	55.9	0.0	51.7	0.0	62.1
LnGrp LOS	A	A		A	A	A	D	E		D	A	E
Approach Vol, veh/h	1180		A	942			23		A	101		
Approach Delay, s/veh	7.1			7.7			54.4			59.3		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	92.4	7.1	13.6	9.8	89.5	9.9	10.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	10.0	56.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	16.6	2.5	7.4	3.9	14.2	3.7	2.4				
Green Ext Time (p_c), s	0.0	17.0	0.0	0.3	0.1	13.6	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 10.2

HCM 6th LOS B







Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	937	793	12	12	54
Future Vol, veh/h	80	937	793	12	12	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	986	835	13	13	57
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	848	0	-	0	1397	418
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	785	-	-	-	*384	584
Stage 1	-	-	-	-	*376	-
Stage 2	-	-	-	-	*770	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	785	-	-	-	*343	584
Mov Cap-2 Maneuver	-	-	-	-	*343	-
Stage 1	-	-	-	-	*336	-
Stage 2	-	-	-	-	*770	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.8	0		13		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	785	-	-	-	518	
HCM Lane V/C Ratio	0.107	-	-	-	0.134	
HCM Control Delay (s)	10.1	-	-	-	13	
HCM Lane LOS	B	-	-	-	B	
HCM 95th %tile Q(veh)	0.4	-	-	-	0.5	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Short Term Total without Interchange

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	69	859	784	25	15	37
Future Vol, veh/h	69	859	784	25	15	37
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	924	843	27	16	40
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	935	0	-	0	1518	487
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	610	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1053	-	-	-	*417	*776
Stage 1	-	-	-	-	*670	-
Stage 2	-	-	-	-	*708	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	987	-	-	-	*340	*728
Mov Cap-2 Maneuver	-	-	-	-	*340	-
Stage 1	-	-	-	-	*581	-
Stage 2	-	-	-	-	*664	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		12.3		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	987	-	-	-	548	
HCM Lane V/C Ratio	0.075	-	-	-	0.102	
HCM Control Delay (s)	8.9	-	-	-	12.3	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Total without Interchange

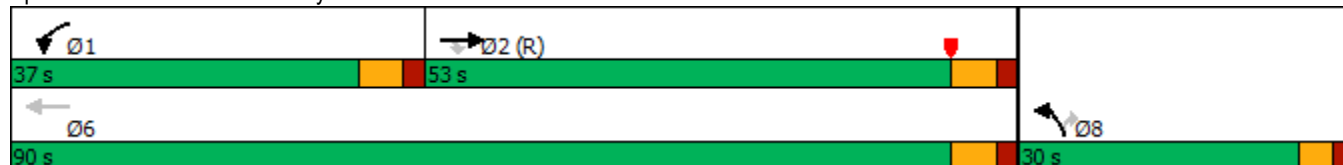
	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘↘	↘
Traffic Volume (vph)	684	253	226	339	215	76
Future Volume (vph)	684	253	226	339	215	76
Turn Type	NA	Perm	Prot	NA	Prot	Perm
Protected Phases	2		1		8	
Permitted Phases		2		6		8
Detector Phase	2	2	1	6	8	8
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	24.0	10.0	10.0
Total Split (s)	53.0	53.0	37.0	90.0	30.0	30.0
Total Split (%)	44.2%	44.2%	30.8%	75.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Recall Mode	C-Min	C-Min	Min	Min	None	None
Act Effect Green (s)	67.9	67.9	21.7	95.6	13.4	13.4
Actuated g/C Ratio	0.57	0.57	0.18	0.80	0.11	0.11
v/c Ratio	0.37	0.27	0.76	0.13	0.60	0.33
Control Delay	10.8	2.6	61.5	3.1	57.2	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	2.6	61.5	3.1	57.2	13.7
LOS	B	A	E	A	E	B
Approach Delay	8.6			26.4	45.8	
Approach LOS	A			C	D	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 20.2
 Intersection Capacity Utilization 51.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service A

Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘↗	↗
Traffic Volume (veh/h)	684	253	226	339	215	76
Future Volume (veh/h)	684	253	226	339	215	76
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	735	0	243	365	231	82
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2183		276	2911	308	141
Arrive On Green	1.00	0.00	0.15	0.82	0.09	0.09
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	735	0	243	365	231	82
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	0.0	0.0	16.0	2.5	7.8	6.0
Cycle Q Clear(g_c), s	0.0	0.0	16.0	2.5	7.8	6.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2183		276	2911	308	141
V/C Ratio(X)	0.34		0.88	0.13	0.75	0.58
Avail Cap(c_a), veh/h	2183		460	2911	720	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	49.6	2.2	53.3	52.5
Incr Delay (d2), s/veh	0.4	0.0	10.5	0.0	3.7	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	12.5	1.2	6.3	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.0	60.1	2.2	57.0	56.2
LnGrp LOS	A		E	A	E	E
Approach Vol, veh/h	735	A		608	313	
Approach Delay, s/veh	0.4			25.4	56.8	
Approach LOS	A			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.6	79.7			104.3	15.7
Change Period (Y+Rc), s	6.0	6.0			6.0	5.0
Max Green Setting (Gmax), s	31.0	47.0			84.0	25.0
Max Q Clear Time (g_c+l1), s	18.0	2.0			4.5	9.8
Green Ext Time (p_c), s	0.6	4.9			2.7	0.9
Intersection Summary						
HCM 6th Ctrl Delay			20.2			
HCM 6th LOS			C			

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
6: Site Driveway #1 & Colfax Ave

Stafford Logistics Center
PM Short Term Total without Interchange

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑		↗
Traffic Vol, veh/h	853	14	0	824	0	15
Future Vol, veh/h	853	14	0	824	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	927	15	0	896	0	16
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	464
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	545
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	545
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.8	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	545	-	-	-		
HCM Lane V/C Ratio	0.03	-	-	-		
HCM Control Delay (s)	11.8	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		

Timings
7: Lisbon St & Colfax Ave

Stafford Logistics Center
PM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Traffic Volume (vph)	783	85	77	478	346	55
Future Volume (vph)	783	85	77	478	346	55
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	4	1
Permitted Phases		2				4
Detector Phase	2	2	1	6	4	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	24.0	23.0	9.5
Total Split (s)	65.0	65.0	15.0	80.0	40.0	15.0
Total Split (%)	54.2%	54.2%	12.5%	66.7%	33.3%	12.5%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.0	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.0	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None
Act Effect Green (s)	65.3	65.3	9.5	79.3	29.7	44.2
Actuated g/C Ratio	0.54	0.54	0.08	0.66	0.25	0.37
v/c Ratio	0.44	0.10	0.60	0.22	0.86	0.10
Control Delay	22.8	9.0	65.4	7.6	62.1	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	9.0	65.4	7.6	62.1	5.6
LOS	C	A	E	A	E	A
Approach Delay	21.5			15.6	54.3	
Approach LOS	C			B	D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 58.0%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Lisbon St & Colfax Ave












HCM 6th Signalized Intersection Summary

7: Lisbon St & Colfax Ave





Stafford Logistics Center
PM Short Term Total without Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	783	85	77	478	346	55
Future Volume (veh/h)	783	85	77	478	346	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	851	92	84	520	376	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2064	921	106	2409	410	460
Arrive On Green	0.58	0.58	0.06	0.68	0.23	0.23
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	851	92	84	520	376	60
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	15.8	3.1	5.6	6.6	24.7	3.4
Cycle Q Clear(g_c), s	15.8	3.1	5.6	6.6	24.7	3.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2064	921	106	2409	410	460
V/C Ratio(X)	0.41	0.10	0.79	0.22	0.92	0.13
Avail Cap(c_a), veh/h	2064	921	156	2409	520	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	13.9	11.2	55.7	7.3	45.0	31.4
Incr Delay (d2), s/veh	0.6	0.2	14.7	0.2	18.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.7	1.9	5.1	3.8	18.8	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.5	11.4	70.4	7.5	63.3	31.6
LnGrp LOS	B	B	E	A	E	C
Approach Vol, veh/h	943			604	436	
Approach Delay, s/veh	14.2			16.2	58.9	
Approach LOS	B			B	E	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	11.7	75.7		32.7		87.3
Change Period (Y+Rc), s	4.5	6.0		5.0		6.0
Max Green Setting (Gmax), s	10.5	59.0		35.0		74.0
Max Q Clear Time (g_c+I1), s	7.6	17.8		26.7		8.6
Green Ext Time (p_c), s	0.0	6.2		0.9		3.2
Intersection Summary						
HCM 6th Ctrl Delay			24.6			
HCM 6th LOS			C			

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	86	27	79	1	16	81	48	174	14	95	294	93
Future Vol, veh/h	86	27	79	1	16	81	48	174	14	95	294	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	93	29	86	1	17	88	52	189	15	103	320	101
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	879	834	320	935	928	197	421	0	0	204	0	0
Stage 1	526	526	-	301	301	-	-	-	-	-	-	-
Stage 2	353	308	-	634	627	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	268	304	721	246	268	844	1138	-	-	1368	-	-
Stage 1	535	529	-	708	665	-	-	-	-	-	-	-
Stage 2	664	660	-	467	476	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	206	268	721	181	236	844	1138	-	-	1368	-	-
Mov Cap-2 Maneuver	206	268	-	181	236	-	-	-	-	-	-	-
Stage 1	510	489	-	675	634	-	-	-	-	-	-	-
Stage 2	552	630	-	358	440	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	24.1		12.5		1.7		1.5					
HCM LOS	C		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1138	-	-	206	504	181	592	1368	-	-		
HCM Lane V/C Ratio	0.046	-	-	0.454	0.229	0.006	0.178	0.075	-	-		
HCM Control Delay (s)	8.3	-	-	36.2	14.2	25	12.4	7.8	-	-		
HCM Lane LOS	A	-	-	E	B	D	B	A	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	2.2	0.9	0	0.6	0.2	-	-		

Intersection

Intersection Delay, s/veh	8.9
Intersection LOS	A






















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	15	5	133	121	0
Future Vol, veh/h	0	15	5	133	121	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	25	25	25	25	25	25
Mvmt Flow	0	16	5	145	132	0
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	8	8.1	10
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	4%	0%	100%
Vol Right, %	0%	96%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	15	138	121	0
LT Vol	0	0	121	0
Through Vol	15	5	0	0
RT Vol	0	133	0	0
Lane Flow Rate	16	150	132	0
Geometry Grp	2	2	7	7
Degree of Util (X)	0.022	0.174	0.209	0
Departure Headway (Hd)	4.893	4.178	5.714	5.213
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	735	864	622	0
Service Time	2.9	2.179	3.51	3.008
HCM Lane V/C Ratio	0.022	0.174	0.212	0
HCM Control Delay	8	8.1	10	8
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.6	0.8	0

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Total with Interchange




											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8	
Lane Configurations											
Traffic Volume (vph)	33	576	2	2	776	32	4	48	1		
Future Volume (vph)	33	576	2	2	776	32	4	48	1		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA		
Protected Phases	5	2		1	6		3	7	4	8	
Permitted Phases	2		2	6		6	8	4			
Detector Phase	5	2	2	1	6	6	3	7	4		
Switch Phase											
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0	
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	12.0	31.0	31.0	
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	10.0%	25.8%	26%	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	
Act Effct Green (s)	98.5	96.2	96.2	95.8	91.7	91.7	5.4	10.8	7.7		
Actuated g/C Ratio	0.82	0.80	0.80	0.80	0.76	0.76	0.04	0.09	0.06		
v/c Ratio	0.07	0.22	0.00	0.00	0.31	0.03	0.03	0.33	0.56		
Control Delay	3.1	4.2	0.0	3.0	5.4	0.0	55.2	54.2	20.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	3.1	4.2	0.0	3.0	5.4	0.0	55.2	54.2	20.2		
LOS	A	A	A	A	A	A	E	D	C		
Approach Delay		4.1			5.2				30.6		
Approach LOS		A			A				C		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 85
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 7.4
 Intersection Capacity Utilization 46.7%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A
























Splits and Phases: 1: Colfax Ave & Dunkirk St

			
Ø1	Ø2 (R)	Ø3	Ø4
13 s	64 s	12 s	31 s
			
Ø5	Ø6 (R)	Ø7	Ø8
13 s	64 s	12 s	31 s

HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Short Term Total with Interchange







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	576	2	2	776	32	4	0	0	48	1	109
Future Volume (veh/h)	33	576	2	2	776	32	4	0	0	48	1	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	626	0	2	843	35	4	0	0	52	1	118
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	486	2542		588	2448	1092	187	104		216	1	147
Arrive On Green	0.03	0.72	0.00	0.00	0.69	0.69	0.01	0.00	0.00	0.04	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	13	1574
Grp Volume(v), veh/h	36	626	0	2	843	35	4	0	0	52	0	119
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1587
Q Serve(g_s), s	0.7	7.3	0.0	0.0	11.6	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Cycle Q Clear(g_c), s	0.7	7.3	0.0	0.0	11.6	0.8	0.1	0.0	0.0	3.2	0.0	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Lane Grp Cap(c), veh/h	486	2542		588	2448	1092	187	104		216	0	148
V/C Ratio(X)	0.07	0.25		0.00	0.34	0.03	0.02	0.00		0.24	0.00	0.80
Avail Cap(c_a), veh/h	553	2542		702	2448	1092	371	390		242	0	331
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.4	5.9	0.0	5.8	7.6	5.9	53.1	0.0	0.0	48.8	0.0	53.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.4	0.0	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	3.9	0.0	0.0	6.6	0.5	0.1	0.0	0.0	2.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	6.1	0.0	5.8	8.0	6.0	53.1	0.0	0.0	49.2	0.0	60.6
LnGrp LOS	A	A		A	A	A	D	A		D	A	E
Approach Vol, veh/h	662		A	880				4	A	171		
Approach Delay, s/veh	6.1			7.9				53.1		57.1		
Approach LOS	A			A				D		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	91.8	5.6	17.2	8.5	88.7	10.2	12.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.0	9.3	2.1	10.8	2.7	13.6	5.2	0.0				
Green Ext Time (p_c), s	0.0	8.6	0.0	0.4	0.0	12.8	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 12.2
HCM 6th LOS B

Notes


























Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	553	820	26	46	109
Future Vol, veh/h	65	553	820	26	46	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	582	863	27	48	115
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	890	0	-	0	1232	432
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	369	-
Critical Hdwy	4.14	-	-	-	6.29	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	6.04	-
Follow-up Hdwy	2.22	-	-	-	3.67	3.32
Pot Cap-1 Maneuver	757	-	-	-	*318	572
Stage 1	-	-	-	-	*364	-
Stage 2	-	-	-	-	*862	-
Platoon blocked, %		-	-	-	1	
Mov Cap-1 Maneuver	757	-	-	-	*290	572
Mov Cap-2 Maneuver	-	-	-	-	*290	-
Stage 1	-	-	-	-	*331	-
Stage 2	-	-	-	-	*862	-
Approach	EB	WB		SB		
HCM Control Delay, s	1.1	0		17.7		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	757	-	-	-	444	
HCM Lane V/C Ratio	0.09	-	-	-	0.367	
HCM Control Delay (s)	10.2	-	-	-	17.7	
HCM Lane LOS	B	-	-	-	C	
HCM 95th %tile Q(veh)	0.3	-	-	-	1.7	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	65	590	804	11	41	48
Future Vol, veh/h	65	590	804	11	41	48
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	70	634	865	12	44	52
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	942	0	-	0	1387	498
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	457	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1044	-	-	-	*513	*776
Stage 1	-	-	-	-	*647	-
Stage 2	-	-	-	-	*803	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	979	-	-	-	*418	*728
Mov Cap-2 Maneuver	-	-	-	-	*418	-
Stage 1	-	-	-	-	*563	-
Stage 2	-	-	-	-	*754	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		13		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	979	-	-	-	543	
HCM Lane V/C Ratio	0.071	-	-	-	0.176	
HCM Control Delay (s)	9	-	-	-	13	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Total with Interchange

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 							 		 	
Traffic Volume (vph)	339	36	121	5	164	5	117	72	27	167	645
Future Volume (vph)	339	36	121	5	164	5	117	72	27	167	645
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6	6	6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	9.5	24.0	24.0	10.0	10.0	9.5	22.5	22.5
Total Split (s)	39.0	59.0	59.0	10.0	30.0	30.0	21.0	36.0	15.0	30.0	30.0
Total Split (%)	32.5%	49.2%	49.2%	8.3%	25.0%	25.0%	17.5%	30.0%	12.5%	25.0%	25.0%
Yellow Time (s)	3.5	4.0	4.0	3.5	4.0	4.0	3.0	3.0	3.5	3.5	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	5.0	5.0	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	76.6	73.1	73.1	66.7	59.6	59.6	31.1	23.4	24.4	17.6	17.6
Actuated g/C Ratio	0.64	0.61	0.61	0.56	0.50	0.50	0.26	0.20	0.20	0.15	0.15
v/c Ratio	0.25	0.03	0.13	0.01	0.19	0.01	0.41	0.12	0.10	0.35	0.84
Control Delay	17.7	22.7	13.5	13.2	21.1	0.0	35.7	34.3	27.7	46.0	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	22.7	13.5	13.2	21.1	0.0	35.7	34.3	27.7	46.0	13.5
LOS	B	C	B	B	C	A	D	C	C	D	B
Approach Delay		17.0			20.3			35.1		20.4	
Approach LOS		B			C			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.1

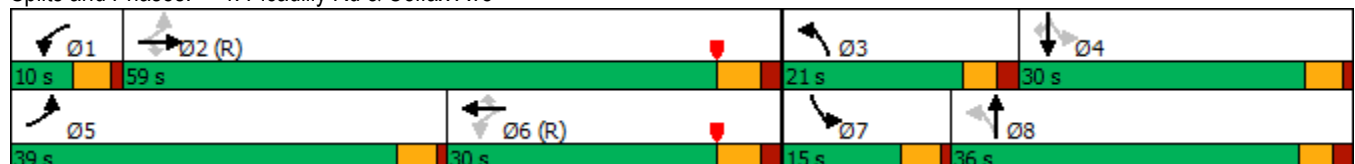
Intersection LOS: C

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15





























Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Short Term Total with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 			 		 			 	
Traffic Volume (veh/h)	339	36	121	5	164	5	117	72	5	27	167	645
Future Volume (veh/h)	339	36	121	5	164	5	117	72	5	27	167	645
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	368	39	0	5	176	5	126	78	5	29	182	0
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1672	1250		908	1144	969	232	450	29	204	265	
Arrive On Green	0.06	0.67	0.00	0.01	0.61	0.61	0.08	0.13	0.13	0.03	0.07	0.00
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3393	216	1781	3554	1585
Grp Volume(v), veh/h	368	39	0	5	176	5	126	41	42	29	182	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1832	1781	1777	1585
Q Serve(g_s), s	4.4	0.8	0.0	0.1	4.8	0.1	7.6	2.4	2.5	1.8	6.0	0.0
Cycle Q Clear(g_c), s	4.4	0.8	0.0	0.1	4.8	0.1	7.6	2.4	2.5	1.8	6.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	1672	1250		908	1144	969	232	236	243	204	265	
V/C Ratio(X)	0.22	0.03		0.01	0.15	0.01	0.54	0.17	0.17	0.14	0.69	
Avail Cap(c_a), veh/h	2446	1250		978	1144	969	327	459	473	314	755	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.6	6.7	0.0	8.8	10.0	9.1	44.7	46.2	46.2	49.4	54.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.3	0.0	2.0	0.3	0.3	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	0.5	0.0	0.1	3.7	0.1	6.1	1.9	2.0	1.5	5.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.7	6.8	0.0	8.8	10.3	9.1	46.7	46.5	46.6	49.7	57.3	0.0
LnGrp LOS	A	A		A	B	A	D	D	D	D	E	
Approach Vol, veh/h		407	A		186			209			211	A
Approach Delay, s/veh		6.7			10.2			46.6			56.3	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.3	86.2	14.6	13.9	12.1	79.4	7.6	20.9				
Change Period (Y+Rc), s	4.5	6.0	5.0	* 5	4.5	6.0	4.5	5.0				
Max Green Setting (Gmax), s	5.5	53.0	16.0	* 26	34.5	24.0	10.5	31.0				
Max Q Clear Time (g_c+I1), s	2.1	2.8	9.6	8.0	6.4	6.8	3.8	4.5				
Green Ext Time (p_c), s	0.0	0.2	0.1	1.0	1.2	0.8	0.0	0.3				

Intersection Summary

HCM 6th Ctrl Delay	25.9
HCM 6th LOS	C

Notes

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




Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
5: Picadilly Road & I-70 Frontage Road

Stafford Logistics Center
AM Short Term Total with Interchange

Intersection

Int Delay, s/veh 1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	0	23	174	0	15
Future Vol, veh/h	71	0	23	174	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	0	25	189	0	16

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	77
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1522
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1522
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	984	-	-	1522	-
HCM Lane V/C Ratio	0.017	-	-	0.016	-
HCM Control Delay (s)	8.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

HCM 6th TWSC
6: Site Driveway #1 & Colfax Ave

Stafford Logistics Center
AM Short Term Total with Interchange

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑		↗
Traffic Vol, veh/h	536	54	0	813	0	6
Future Vol, veh/h	536	54	0	813	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	583	59	0	884	0	7
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	292
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	704
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	704
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		10.2	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	704	-	-	-		
HCM Lane V/C Ratio	0.009	-	-	-		
HCM Control Delay (s)	10.2	-	-	-		
HCM Lane LOS	B	-	-	-		
HCM 95th %tile Q(veh)	0	-	-	-		

Timings
7: Lisbon St & Colfax Ave

Stafford Logistics Center
AM Short Term Total with Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Traffic Volume (vph)	470	117	171	757	59	46
Future Volume (vph)	470	117	171	757	59	46
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	24.0	23.0	9.5
Total Split (s)	75.0	75.0	15.0	90.0	30.0	15.0
Total Split (%)	62.5%	62.5%	12.5%	75.0%	25.0%	12.5%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.0	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.0	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None
Act Effect Green (s)	86.5	86.5	10.5	102.7	9.7	23.0
Actuated g/C Ratio	0.72	0.72	0.09	0.86	0.08	0.19
v/c Ratio	0.20	0.11	1.21	0.27	0.45	0.15
Control Delay	7.8	3.2	177.6	2.5	61.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	3.2	177.6	2.5	61.6	11.0
LOS	A	A	F	A	E	B
Approach Delay	6.9			34.8	39.4	
Approach LOS	A			C	D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 25.0

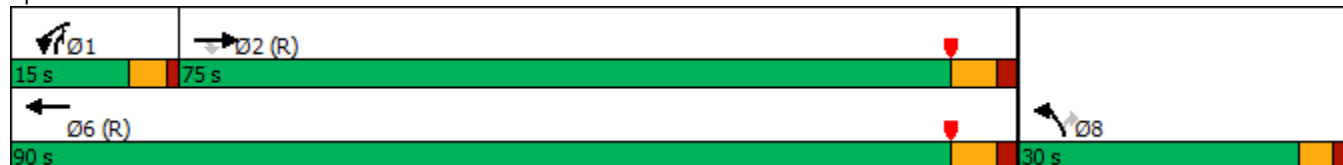
Intersection LOS: C

Intersection Capacity Utilization 39.5%

ICU Level of Service A

Analysis Period (min) 15










Splits and Phases: 7: Lisbon St & Colfax Ave



HCM 6th Signalized Intersection Summary 7: Lisbon St & Colfax Ave





Stafford Logistics Center
AM Short Term Total with Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	470	117	171	757	59	46
Future Volume (veh/h)	470	117	171	757	59	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	511	127	186	823	64	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2596	1158	156	3040	94	223
Arrive On Green	0.73	0.73	0.17	1.00	0.05	0.05
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	511	127	186	823	64	50
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	5.4	2.8	10.5	0.0	4.2	3.4
Cycle Q Clear(g_c), s	5.4	2.8	10.5	0.0	4.2	3.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2596	1158	156	3040	94	223
V/C Ratio(X)	0.20	0.11	1.19	0.27	0.68	0.22
Avail Cap(c_a), veh/h	2596	1158	156	3040	371	469
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.68	0.68	1.00	1.00
Uniform Delay (d), s/veh	5.1	4.7	49.5	0.0	55.8	45.8
Incr Delay (d2), s/veh	0.2	0.2	121.7	0.1	8.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	1.3	14.3	0.1	3.8	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.3	4.9	171.2	0.1	64.1	46.3
LnGrp LOS	A	A	F	A	E	D
Approach Vol, veh/h	638			1009	114	
Approach Delay, s/veh	5.2			31.7	56.3	
Approach LOS	A			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.0	93.6			108.6	11.4
Change Period (Y+Rc), s	4.5	6.0			6.0	5.0
Max Green Setting (Gmax), s	10.5	69.0			84.0	25.0
Max Q Clear Time (g_c+I1), s	12.5	7.4			2.0	6.2
Green Ext Time (p_c), s	0.0	3.6			5.7	0.3
Intersection Summary						
HCM 6th Ctrl Delay			23.7			
HCM 6th LOS			C			

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	7	28	10	13	5	69	137	8	0	187	97
Future Vol, veh/h	54	7	28	10	13	5	69	137	8	0	187	97
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	8	30	11	14	5	75	149	9	0	203	105
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	435	511	102	410	612	79	308	0	0	158	0	0
Stage 1	203	203	-	304	304	-	-	-	-	-	-	-
Stage 2	232	308	-	106	308	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	602	526	*1027	*629	458	965	1343	-	-	1419	-	-
Stage 1	907	808	-	*681	662	-	-	-	-	-	-	-
Stage 2	750	659	-	*968	724	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	559	497	*1027	*577	432	965	1343	-	-	1419	-	-
Mov Cap-2 Maneuver	559	497	-	*577	432	-	-	-	-	-	-	-
Stage 1	857	808	-	*643	625	-	-	-	-	-	-	-
Stage 2	688	622	-	*931	724	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	11.1			12			2.5			0		
HCM LOS	B			B								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1343	-	-	559	846	577	510	1419	-	-		
HCM Lane V/C Ratio	0.056	-	-	0.105	0.045	0.019	0.038	-	-	-		
HCM Control Delay (s)	7.8	-	-	12.2	9.5	11.4	12.3	0	-	-		
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-		
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.1	0.1	0.1	0	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s				+: Computation Not Defined				*: All major volume in platoon		

Intersection

Intersection Delay, s/veh	8.3
Intersection LOS	A





















Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	17	58	75	0
Future Vol, veh/h	0	3	17	58	75	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	25	25	25	25	25	25
Mvmt Flow	0	3	18	63	82	0
Number of Lanes	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	7.7	7.5	9.1
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	23%	0%	100%
Vol Right, %	0%	77%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	3	75	75	0
LT Vol	0	0	75	0
Through Vol	3	17	0	0
RT Vol	0	58	0	0
Lane Flow Rate	3	82	82	0
Geometry Grp	2	2	7	7
Degree of Util (X)	0.004	0.093	0.126	0
Departure Headway (Hd)	4.656	4.113	5.573	5.073
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	876	642	0
Service Time	2.657	2.113	3.317	2.816
HCM Lane V/C Ratio	0.004	0.094	0.128	0
HCM Control Delay	7.7	7.5	9.1	7.8
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0	0.3	0.4	0

Timings 1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Total with Interchange

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	95	991	42	13	558	33	15	6	25	7
Future Volume (vph)	95	991	42	13	558	33	15	6	25	7
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	13.0	64.0	64.0	13.0	64.0	64.0	12.0	31.0	12.0	31.0
Total Split (%)	10.8%	53.3%	53.3%	10.8%	53.3%	53.3%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	99.1	96.1	96.1	93.9	87.6	87.6	7.4	5.8	11.4	6.7
Actuated g/C Ratio	0.83	0.80	0.80	0.78	0.73	0.73	0.06	0.05	0.10	0.06
v/c Ratio	0.16	0.38	0.04	0.03	0.23	0.03	0.07	0.08	0.18	0.49
Control Delay	3.6	6.4	0.0	4.2	6.8	0.1	48.6	55.7	47.8	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	6.4	0.0	4.2	6.8	0.1	48.6	55.7	47.8	26.5
LOS	A	A	A	A	A	A	D	E	D	C
Approach Delay		5.9			6.4			50.8		32.2
Approach LOS		A			A			D		C

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 7.9

Intersection LOS: A

Intersection Capacity Utilization 53.8%

ICU Level of Service A

Analysis Period (min) 15

























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Short Term Total with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	991	42	13	558	33	15	6	0	25	7	61
Future Volume (veh/h)	95	991	42	13	558	33	15	6	0	25	7	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	1077	0	14	607	36	16	7	0	27	8	66
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	630	2560		401	2472	1102	227	75		184	11	91
Arrive On Green	0.04	0.72	0.00	0.02	0.70	0.70	0.02	0.04	0.00	0.04	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	3456	1870	1585	1781	174	1437
Grp Volume(v), veh/h	103	1077	0	14	607	36	16	7	0	27	0	74
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1728	1870	1585	1781	0	1612
Q Serve(g_s), s	1.9	14.6	0.0	0.3	7.5	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Cycle Q Clear(g_c), s	1.9	14.6	0.0	0.3	7.5	0.8	0.5	0.4	0.0	1.7	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.89
Lane Grp Cap(c), veh/h	630	2560		401	2472	1102	227	75		184	0	103
V/C Ratio(X)	0.16	0.42		0.03	0.25	0.03	0.07	0.09		0.15	0.00	0.72
Avail Cap(c_a), veh/h	677	2560		492	2472	1102	369	390		215	0	336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.7	6.7	0.0	5.6	6.7	5.7	53.6	55.5	0.0	51.5	0.0	55.1
Incr Delay (d2), s/veh	0.1	0.5	0.0	0.0	0.2	0.1	0.1	0.4	0.0	0.3	0.0	6.9
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(95%),veh/ln	1.0	7.7	0.0	0.1	4.2	0.5	0.4	0.4	0.0	1.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	7.2	0.0	5.7	6.9	5.7	53.7	55.9	0.0	51.7	0.0	62.1
LnGrp LOS	A	A		A	A	A	D	E		D	A	E
Approach Vol, veh/h	1180		A	657			23		A	101		
Approach Delay, s/veh	7.0			6.9			54.4			59.3		
Approach LOS	A			A			D			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.9	92.4	7.1	13.6	9.8	89.5	9.9	10.8				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	8.0	58.0	7.0	25.0	8.0	58.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	16.6	2.5	7.4	3.9	9.5	3.7	2.4				
Green Ext Time (p_c), s	0.0	17.0	0.0	0.3	0.1	8.6	0.0	0.0				







Intersection Summary

HCM 6th Ctrl Delay 10.2

HCM 6th LOS B

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	937	550	12	42	24
Future Vol, veh/h	80	937	550	12	42	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	84	986	579	13	44	25

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	592	0	0 1141 290
Stage 1	-	-	- 579 -
Stage 2	-	-	- 562 -
Critical Hdwy	4.14	-	- 6.29 6.94
Critical Hdwy Stg 1	-	-	- 5.84 -
Critical Hdwy Stg 2	-	-	- 6.04 -
Follow-up Hdwy	2.22	-	- 3.67 3.32
Pot Cap-1 Maneuver	980	-	- *581 707
Stage 1	-	-	- *508 -
Stage 2	-	-	- *770 -
Platoon blocked, %	-	-	- 1
Mov Cap-1 Maneuver	980	-	- *531 707
Mov Cap-2 Maneuver	-	-	- *531 -
Stage 1	-	-	- *464 -
Stage 2	-	-	- *770 -







Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	980	-	-	-	584
HCM Lane V/C Ratio	0.086	-	-	-	0.119
HCM Control Delay (s)	9	-	-	-	12
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4

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























HCM 6th TWSC
3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Short Term Total with Interchange

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	889	561	25	35	17
Future Vol, veh/h	80	889	561	25	35	17
Conflicting Peds, #/hr	65	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	200	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	86	956	603	27	38	18
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	695	0	-	0	1318	367
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	650	-
Critical Hdwy	4.14	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	1154	-	-	-	*489	*877
Stage 1	-	-	-	-	*723	-
Stage 2	-	-	-	-	*684	-
Platoon blocked, %	1	-	-	-	1	1
Mov Cap-1 Maneuver	1083	-	-	-	*396	*822
Mov Cap-2 Maneuver	-	-	-	-	*396	-
Stage 1	-	-	-	-	*625	-
Stage 2	-	-	-	-	*642	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.7	0		13.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1083	-	-	-	477	
HCM Lane V/C Ratio	0.079	-	-	-	0.117	
HCM Control Delay (s)	8.6	-	-	-	13.5	
HCM Lane LOS	A	-	-	-	B	
HCM 95th %tile Q(veh)	0.3	-	-	-	0.4	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Total with Interchange

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	744	55	195	5	63	15	109	160	47	189	339
Future Volume (vph)	744	55	195	5	63	15	109	160	47	189	339
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases	2		2	6	6	6	8		4		4
Detector Phase	5	2	2	1	6	6	3	8	7	4	4
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	24.0	24.0	10.0	24.0	24.0	9.5	10.0	9.5	22.5	22.5
Total Split (s)	42.0	60.0	60.0	12.0	30.0	30.0	18.0	33.0	15.0	30.0	30.0
Total Split (%)	35.0%	50.0%	50.0%	10.0%	25.0%	25.0%	15.0%	27.5%	12.5%	25.0%	25.0%
Yellow Time (s)	3.5	4.0	4.0	3.0	4.0	4.0	3.5	3.0	3.5	3.5	3.5
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	6.0	6.0	5.0	6.0	6.0	4.5	5.0	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None
Act Effect Green (s)	80.6	76.9	76.9	62.5	55.8	55.8	30.0	19.4	22.1	14.1	14.1
Actuated g/C Ratio	0.67	0.64	0.64	0.52	0.46	0.46	0.25	0.16	0.18	0.12	0.12
v/c Ratio	0.46	0.05	0.19	0.01	0.08	0.02	0.41	0.31	0.20	0.49	0.72
Control Delay	4.8	5.7	0.8	11.6	22.9	0.1	38.3	45.0	33.7	52.8	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	5.7	0.8	11.6	22.9	0.1	38.3	45.0	33.7	52.8	13.3
LOS	A	A	A	B	C	A	D	D	C	D	B
Approach Delay		4.0			18.1			42.4		27.9	
Approach LOS		A			B			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 17.2

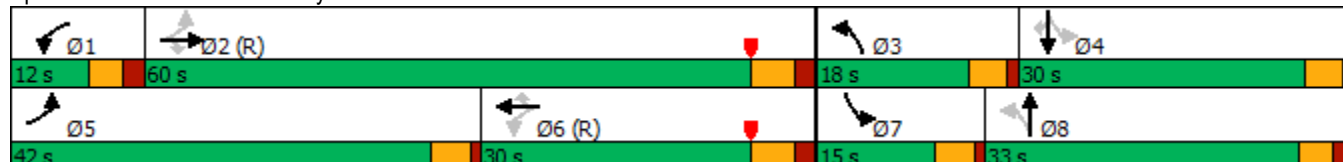
Intersection LOS: B

Intersection Capacity Utilization 51.7%

ICU Level of Service A
























Analysis Period (min) 15

Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Short Term Total with Interchange

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	744	55	195	5	63	15	109	160	5	47	189	339
Future Volume (veh/h)	744	55	195	5	63	15	109	160	5	47	189	339
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	809	59	0	5	68	16	117	174	5	51	205	0
Peak Hour Factor	0.92	0.93	0.93	0.93	0.93	0.92	0.93	0.92	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	1933	1247		787	995	843	222	426	12	213	291	
Arrive On Green	0.24	1.00	0.00	0.01	0.53	0.53	0.07	0.12	0.12	0.04	0.08	0.00
Sat Flow, veh/h	3456	1870	1585	1781	1870	1585	1781	3528	101	1781	3554	1585
Grp Volume(v), veh/h	809	59	0	5	68	16	117	87	92	51	205	0
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1781	1870	1585	1781	1777	1852	1781	1777	1585
Q Serve(g_s), s	12.5	0.0	0.0	0.2	2.1	0.6	7.0	5.5	5.5	3.1	6.7	0.0
Cycle Q Clear(g_c), s	12.5	0.0	0.0	0.2	2.1	0.6	7.0	5.5	5.5	3.1	6.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	1933	1247		787	995	843	222	215	224	213	291	
V/C Ratio(X)	0.42	0.05		0.01	0.07	0.02	0.53	0.41	0.41	0.24	0.70	
Avail Cap(c_a), veh/h	2511	1247		879	995	843	291	415	432	306	755	
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.8	0.0	0.0	12.8	13.6	13.3	44.3	48.8	48.8	48.2	53.7	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.1	0.0	1.9	1.2	1.2	0.6	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	0.0	0.0	0.1	1.7	0.4	5.6	4.4	4.6	2.6	5.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	0.1	0.0	12.8	13.8	13.3	46.2	50.0	50.0	48.7	56.8	0.0
LnGrp LOS	A	A		B	B	B	D	D	D	D	E	
Approach Vol, veh/h		868	A		89			296			256	A
Approach Delay, s/veh		6.4			13.6			48.5			55.2	
Approach LOS		A			B			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.8	86.0	13.4	14.8	21.9	69.9	8.7	19.5				
Change Period (Y+Rc), s	5.0	6.0	4.5	* 5	4.5	6.0	4.5	5.0				
Max Green Setting (Gmax), s	7.0	54.0	13.5	* 26	37.5	24.0	10.5	28.0				
Max Q Clear Time (g_c+I1), s	2.2	2.0	9.0	8.7	14.5	4.1	5.1	7.5				
Green Ext Time (p_c), s	0.0	0.3	0.1	1.1	2.9	0.3	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Notes

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




Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
5: Picadilly Road & I-70 Frontage Road

Stafford Logistics Center
PM Short Term Total with Interchange

Intersection

Int Delay, s/veh 1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	120	0	18	83	0	36
Future Vol, veh/h	120	0	18	83	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	130	0	20	90	0	39

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	130
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1455
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1455
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	920	-	-	1455	-
HCM Lane V/C Ratio	0.043	-	-	0.013	-
HCM Control Delay (s)	9.1	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
6: Site Driveway #1 & Colfax Ave

Stafford Logistics Center
PM Short Term Total with Interchange

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑		↑
Traffic Vol, veh/h	910	14	0	618	0	40
Future Vol, veh/h	910	14	0	618	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	989	15	0	672	0	43

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 495
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 6.94
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3.32
Pot Cap-1 Maneuver	-	-	0 - 0 520
Stage 1	-	-	0 - 0 -
Stage 2	-	-	0 - 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 520
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	520	-	-	-
HCM Lane V/C Ratio	0.084	-	-	-
HCM Control Delay (s)	12.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

Timings 7: Lisbon St & Colfax Ave

Stafford Logistics Center
PM Short Term Total with Interchange

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↗
Traffic Volume (vph)	864	86	79	432	186	150
Future Volume (vph)	864	86	79	432	186	150
Turn Type	NA	Perm	Prot	NA	Prot	pm+ov
Protected Phases	2		1	6	8	1
Permitted Phases		2				8
Detector Phase	2	2	1	6	8	1
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	9.5	24.0	23.0	9.5
Total Split (s)	70.0	70.0	20.0	90.0	30.0	20.0
Total Split (%)	58.3%	58.3%	16.7%	75.0%	25.0%	16.7%
Yellow Time (s)	4.0	4.0	3.5	4.0	3.0	3.5
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	5.0	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Recall Mode	C-Min	C-Min	None	C-Min	None	None
Act Effect Green (s)	74.6	74.6	11.1	90.2	18.8	34.9
Actuated g/C Ratio	0.62	0.62	0.09	0.75	0.16	0.29
v/c Ratio	0.43	0.09	0.52	0.18	0.73	0.30
Control Delay	19.9	8.8	67.4	3.9	63.2	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	8.8	67.4	3.9	63.2	12.5
LOS	B	A	E	A	E	B
Approach Delay	18.9			13.7	40.5	
Approach LOS	B			B	D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 21.4

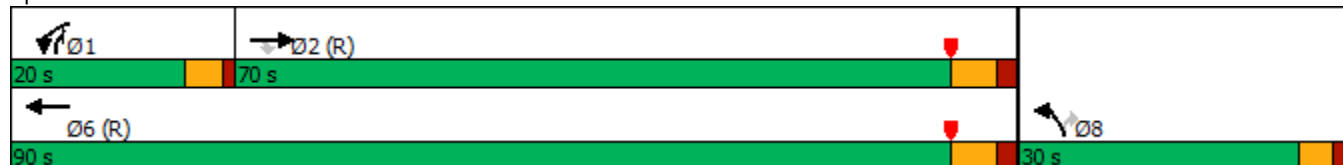
Intersection LOS: C

Intersection Capacity Utilization 51.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Lisbon St & Colfax Ave












HCM 6th Signalized Intersection Summary

7: Lisbon St & Colfax Ave





Stafford Logistics Center
PM Short Term Total with Interchange

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↘	↑↑	↘	↑
Traffic Volume (veh/h)	864	86	79	432	186	150
Future Volume (veh/h)	864	86	79	432	186	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	939	93	86	470	202	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2402	1071	108	2751	239	309
Arrive On Green	0.68	0.68	0.12	1.00	0.13	0.13
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	939	93	86	470	202	163
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	14.0	2.4	5.6	0.0	13.3	11.1
Cycle Q Clear(g_c), s	14.0	2.4	5.6	0.0	13.3	11.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2402	1071	108	2751	239	309
V/C Ratio(X)	0.39	0.09	0.80	0.17	0.84	0.53
Avail Cap(c_a), veh/h	2402	1071	230	2751	371	426
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	1.00	1.00
Uniform Delay (d), s/veh	8.6	6.7	52.0	0.0	50.7	43.3
Incr Delay (d2), s/veh	0.5	0.2	10.0	0.1	10.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.0	1.3	4.7	0.1	10.8	7.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.1	6.9	62.0	0.1	60.9	44.7
LnGrp LOS	A	A	E	A	E	D
Approach Vol, veh/h	1032			556	365	
Approach Delay, s/veh	8.9			9.7	53.7	
Approach LOS	A			A	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.8	87.1			98.9	21.1
Change Period (Y+Rc), s	4.5	6.0			6.0	5.0
Max Green Setting (Gmax), s	15.5	64.0			84.0	25.0
Max Q Clear Time (g_c+I1), s	7.6	16.0			2.0	15.3
Green Ext Time (p_c), s	0.1	7.1			2.9	0.8
Intersection Summary						
HCM 6th Ctrl Delay			17.5			
HCM 6th LOS			B			

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	136	17	79	1	13	0	48	128	14	5	294	93
Future Vol, veh/h	136	17	79	1	13	0	48	128	14	5	294	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	250	-	-	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	148	18	86	1	14	0	52	139	15	5	320	101
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	511	588	160	430	682	77	421	0	0	154	0	0
Stage 1	330	330	-	251	251	-	-	-	-	-	-	-
Stage 2	181	258	-	179	431	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	628	534	*976	*726	467	968	1301	-	-	1424	-	-
Stage 1	878	779	-	*731	698	-	-	-	-	-	-	-
Stage 2	803	693	-	*920	697	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	593	511	*976	*623	446	968	1301	-	-	1424	-	-
Mov Cap-2 Maneuver	593	511	-	*623	446	-	-	-	-	-	-	-
Stage 1	843	775	-	*702	670	-	-	-	-	-	-	-
Stage 2	755	665	-	*816	694	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.8		13.1		2		0.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1301	-	-	593	841	623	446	1424	-	-		
HCM Lane V/C Ratio	0.04	-	-	0.249	0.124	0.002	0.032	0.004	-	-		
HCM Control Delay (s)	7.9	-	-	13.1	9.9	10.8	13.3	7.5	-	-		
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	1	0.4	0	0.1	0	-	-		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Intersection

Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	4	110	117	0
Future Vol, veh/h	0	13	4	110	117	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	25	25	25	25	25	25
Mvmt Flow	0	14	4	120	127	0
Number of Lanes	0	1	1	0	1	1





















Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	1
HCM Control Delay	7.9	7.8	9.9
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%
Vol Thru, %	100%	4%	0%	100%
Vol Right, %	0%	96%	0%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	13	114	117	0
LT Vol	0	0	117	0
Through Vol	13	4	0	0
RT Vol	0	110	0	0
Lane Flow Rate	14	124	127	0
Geometry Grp	2	2	7	7
Degree of Util (X)	0.019	0.143	0.2	0
Departure Headway (Hd)	4.847	4.156	5.667	5.166
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	742	867	628	0
Service Time	2.853	2.157	3.443	2.942
HCM Lane V/C Ratio	0.019	0.143	0.202	0
HCM Control Delay	7.9	7.8	9.9	7.9
HCM Lane LOS	A	A	A	N
HCM 95th-tile Q	0.1	0.5	0.7	0

APPENDIX G. LONG-TERM TOTAL TRAFFIC LOS

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT	Ø8
Lane Configurations										
Traffic Volume (vph)	40	1682	5	5	1649	39	5	51	5	
Future Volume (vph)	40	1682	5	5	1649	39	5	51	5	
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+pt	NA	
Protected Phases	5	2		1	6		3	7	4	8
Permitted Phases	2		2	6		6	8	4		
Detector Phase	5	2	2	1	6	6	3	7	4	
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	10.0	31.0	26.0
Total Split (s)	12.0	65.0	65.0	12.0	65.0	65.0	12.0	12.0	31.0	31.0
Total Split (%)	10.0%	54.2%	54.2%	10.0%	54.2%	54.2%	10.0%	10.0%	25.8%	26%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	98.7	96.3	96.3	94.8	89.7	89.7	5.4	10.6	7.5	
Actuated g/C Ratio	0.82	0.80	0.80	0.79	0.75	0.75	0.04	0.09	0.06	
v/c Ratio	0.26	0.70	0.00	0.03	0.74	0.04	0.03	0.39	0.61	
Control Delay	6.7	9.7	0.0	4.4	8.9	0.1	55.2	56.9	23.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.7	9.7	0.0	4.4	8.9	0.1	55.2	56.9	23.4	
LOS	A	A	A	A	A	A	E	E	C	
Approach Delay		9.7			8.7				33.7	
Approach LOS		A			A				C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 66.0%

ICU Level of Service C

Analysis Period (min) 15





























Splits and Phases: 1: Colfax Ave & Dunkirk St



HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center
AM Long Term Total







														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		 			 		 				 			
Traffic Volume (veh/h)	40	1682	5	5	1649	39	5	0	0	51	5	110		
Future Volume (veh/h)	40	1682	5	5	1649	39	5	0	0	51	5	110		
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No			No			No				
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752		
Adj Flow Rate, veh/h	44	1848	0	5	1812	43	5	0	0	56	5	121		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91		
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10		
Cap, veh/h	270	2333		147	2248	1003	187	109		221	6	148		
Arrive On Green	0.03	0.70	0.00	0.01	1.00	1.00	0.01	0.00	0.00	0.05	0.10	0.10		
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	3237	1752	1485	1668	59	1434		
Grp Volume(v), veh/h	44	1848	0	5	1812	43	5	0	0	56	0	126		
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1618	1752	1485	1668	0	1494		
Q Serve(g_s), s	0.9	44.8	0.0	0.1	0.0	0.0	0.2	0.0	0.0	3.6	0.0	9.9		
Cycle Q Clear(g_c), s	0.9	44.8	0.0	0.1	0.0	0.0	0.2	0.0	0.0	3.6	0.0	9.9		
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.96		
Lane Grp Cap(c), veh/h	270	2333		147	2248	1003	187	109		221	0	154		
V/C Ratio(X)	0.16	0.79		0.03	0.81	0.04	0.03	0.00		0.25	0.00	0.82		
Avail Cap(c_a), veh/h	314	2333		234	2248	1003	355	365		240	0	311		
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	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00		
Uniform Delay (d), s/veh	5.3	12.1	0.0	13.4	0.0	0.0	52.2	0.0	0.0	47.6	0.0	52.7		
Incr Delay (d2), s/veh	0.2	2.9	0.0	0.1	3.2	0.1	0.0	0.0	0.0	0.4	0.0	7.8		
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(95%),veh/ln	0.5	20.4	0.0	0.1	1.8	0.0	0.1	0.0	0.0	2.8	0.0	7.3		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	5.5	14.9	0.0	13.5	3.2	0.1	52.3	0.0	0.0	48.0	0.0	60.6		
LnGrp LOS	A	B		B	A	A	D	A		D	A	E		
Approach Vol, veh/h	1892		A	1860			5		A	182				
Approach Delay, s/veh	14.7			3.2			52.3			56.7				
Approach LOS	B			A			D			E				
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	5.8	90.1	5.8	18.3	8.8	87.0	10.6	13.5						
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0						
Max Green Setting (Gmax), s	7.0	59.0	7.0	25.0	7.0	59.0	7.0	25.0						
Max Q Clear Time (g_c+I1), s	2.1	46.8	2.2	11.9	2.9	2.0	5.6	0.0						
Green Ext Time (p_c), s	0.0	11.2	0.0	0.5	0.0	42.8	0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	11.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	80	1653	1558	41	37	135
Future Vol, veh/h	80	1653	1558	41	37	135
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	88	1816	1712	45	41	148
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	1757	0	-	0	2614	856
Stage 1	-	-	-	-	1712	-
Stage 2	-	-	-	-	902	-
Critical Hdwy	4.3	-	-	-	6.45	7.1
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	2.3	-	-	-	3.75	3.4
Pot Cap-1 Maneuver	319	-	-	-	~ 26	285
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	313	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	319	-	-	-	~ 19	285
Mov Cap-2 Maneuver	-	-	-	-	~ 19	-
Stage 1	-	-	-	-	86	-
Stage 2	-	-	-	-	313	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		228.2		
HCM LOS	F					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	319	-	-	-	19	285
HCM Lane V/C Ratio	0.276	-	-	-	2.14	0.521
HCM Control Delay (s)	20.5	-	-	-	\$ 949.2	30.6
HCM Lane LOS	C	-	-	-	F	D
HCM 95th %tile Q(veh)	1.1	-	-	-	5.5	2.8
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings 3: Colfax Ave & Himalaya St

Stafford Logistics Center
AM Long Term Total



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	60	1630	1514	41	52	85
Future Volume (vph)	60	1630	1514	41	52	85
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	12.0	95.0	83.0	83.0	25.0	25.0
Total Split (%)	10.0%	79.2%	69.2%	69.2%	20.8%	20.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	100.5	99.5	90.3	90.3	9.5	9.5
Actuated g/C Ratio	0.84	0.83	0.75	0.75	0.08	0.08
v/c Ratio	0.28	0.65	0.67	0.04	0.44	0.46
Control Delay	5.1	8.3	7.5	1.6	62.4	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.1	8.3	7.5	1.6	62.4	17.7
LOS	A	A	A	A	E	B
Approach Delay		8.2	7.4		34.8	
Approach LOS		A	A		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.67

Intersection Signal Delay: 8.9

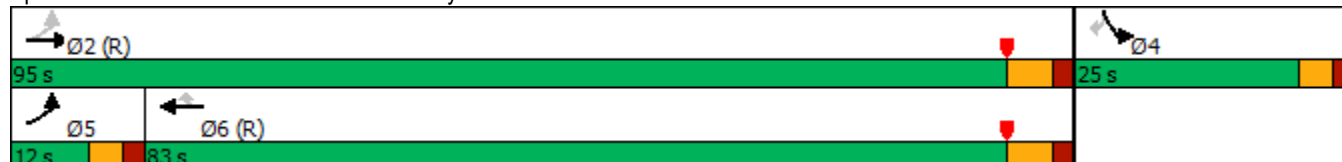
Intersection LOS: A

Intersection Capacity Utilization 63.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3: Colfax Ave & Himalaya St



HCM 6th Signalized Intersection Summary

3: Colfax Ave & Himalaya St





























Stafford Logistics Center
AM Long Term Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	1630	1514	41	52	85
Future Volume (veh/h)	60	1630	1514	41	52	85
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	65	1772	1646	45	57	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	326	2759	2498	1114	132	118
Arrive On Green	0.05	1.00	1.00	1.00	0.08	0.08
Sat Flow, veh/h	1668	3416	3416	1485	1668	1485
Grp Volume(v), veh/h	65	1772	1646	45	57	92
Grp Sat Flow(s),veh/h/ln	1668	1664	1664	1485	1668	1485
Q Serve(g_s), s	1.0	0.0	0.0	0.0	3.9	7.3
Cycle Q Clear(g_c), s	1.0	0.0	0.0	0.0	3.9	7.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	326	2759	2498	1114	132	118
V/C Ratio(X)	0.20	0.64	0.66	0.04	0.43	0.78
Avail Cap(c_a), veh/h	362	2759	2498	1114	278	247
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	2.4	0.0	0.0	0.0	52.7	54.2
Incr Delay (d2), s/veh	0.3	1.2	1.4	0.1	2.2	10.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.8	0.9	0.0	3.1	10.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.7	1.2	1.4	0.1	54.8	64.8
LnGrp LOS	A	A	A	A	D	E
Approach Vol, veh/h		1837	1691		149	
Approach Delay, s/veh		1.2	1.3		61.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		105.5		14.5	9.4	96.0
Change Period (Y+Rc), s		6.0		5.0	5.0	6.0
Max Green Setting (Gmax), s		89.0		20.0	7.0	77.0
Max Q Clear Time (g_c+I1), s		2.0		9.3	3.0	2.0
Green Ext Time (p_c), s		24.5		0.3	0.0	20.7
Intersection Summary						
HCM 6th Ctrl Delay			3.7			
HCM 6th LOS			A			

Timings
4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
AM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	  				 	  	  		  	
Traffic Volume (vph)	953	5	443	5	5	516	800	5	1087	1283
Future Volume (vph)	953	5	443	5	5	516	800	5	1087	1283
Turn Type	Prot	NA	Perm	Perm	NA	Prot	NA	Perm	NA	pm+ov
Protected Phases	7	4			8	5	2		6	7
Permitted Phases			4	8				6		6
Detector Phase	7	4	4	8	8	5	2	6	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	22.5	22.5	10.0	24.0	24.0	24.0	24.0
Total Split (s)	37.0	49.0	49.0	12.0	12.0	25.0	71.0	46.0	46.0	37.0
Total Split (%)	30.8%	40.8%	40.8%	10.0%	10.0%	20.8%	59.2%	38.3%	38.3%	30.8%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	31.0	35.8	35.8		6.4	20.0	72.2	47.2	47.2	84.2
Actuated g/C Ratio	0.26	0.30	0.30		0.05	0.17	0.60	0.39	0.39	0.70
v/c Ratio	0.81	0.01	0.65		0.21	0.99	0.29	0.03	0.86	1.19
Control Delay	39.2	22.0	7.5		48.5	96.0	9.3	26.6	42.2	112.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	22.0	7.5		48.5	96.0	9.3	26.6	42.2	112.2
LOS	D	C	A		D	F	A	C	D	F
Approach Delay		29.1			48.5		43.2		80.0	
Approach LOS		C			D		D		E	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 51 (43%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 56.4

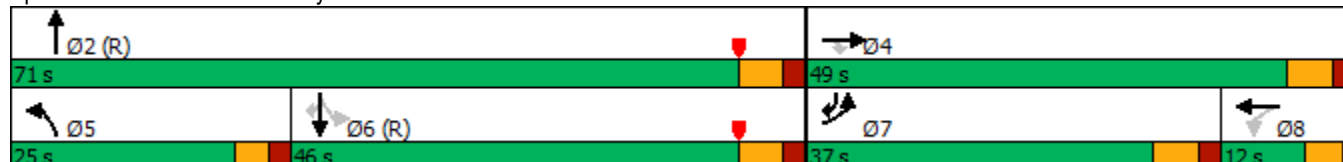
Intersection LOS: E

Intersection Capacity Utilization 111.2%

ICU Level of Service H

Analysis Period (min) 15























Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave























Stafford Logistics Center
AM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	953	5	443	5	5	5	516	800	5	5	1087	1283
Future Volume (veh/h)	953	5	443	5	5	5	516	800	5	5	1087	1283
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1530	1752	1530	1530	1530	1752	1752	1530	1530	1752	1752
Adj Flow Rate, veh/h	972	5	0	5	5	5	527	816	5	5	1109	0
Peak Hour Factor	0.98	0.91	0.98	0.91	0.91	0.91	0.98	0.98	0.91	0.91	0.98	0.98
Percent Heavy Veh, %	10	25	10	25	25	25	10	10	25	25	10	10
Cap, veh/h	1093	463		49	9	9	539	2930	18	272	1295	
Arrive On Green	0.23	0.30	0.00	0.02	0.02	0.02	0.33	1.00	1.00	0.39	0.39	0.00
Sat Flow, veh/h	4705	1530	1485	436	436	436	3237	4905	30	545	3328	1485
Grp Volume(v), veh/h	972	5	0	15	0	0	527	530	291	5	1109	0
Grp Sat Flow(s),veh/h/ln	1568	1530	1485	1309	0	0	1618	1594	1746	545	1664	1485
Q Serve(g_s), s	24.0	0.3	0.0	1.4	0.0	0.0	19.3	0.0	0.0	0.7	36.6	0.0
Cycle Q Clear(g_c), s	24.0	0.3	0.0	1.4	0.0	0.0	19.3	0.0	0.0	0.7	36.6	0.0
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	1093	463		67	0	0	539	1905	1043	272	1295	
V/C Ratio(X)	0.89	0.01		0.23	0.00	0.00	0.98	0.28	0.28	0.02	0.86	
Avail Cap(c_a), veh/h	1215	548		122	0	0	539	1905	1043	272	1295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	0.78	0.78	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.6	29.3	0.0	58.3	0.0	0.0	39.8	0.0	0.0	22.6	33.6	0.0
Incr Delay (d2), s/veh	6.3	0.0	0.0	1.7	0.0	0.0	32.8	0.4	0.7	0.1	7.4	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(95%),veh/ln	14.1	0.2	0.0	0.9	0.0	0.0	13.1	0.2	0.3	0.2	22.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	29.3	0.0	60.0	0.0	0.0	72.5	0.4	0.7	22.7	41.0	0.0
LnGrp LOS	D	C		E	A	A	E	A	A	C	D	
Approach Vol, veh/h	977			A			15			1348		
Approach Delay, s/veh	50.7			60.0			28.6			40.9		
Approach LOS	D			E			C			D		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	77.7			42.3			25.0			52.7		
Change Period (Y+Rc), s	6.0			6.0			5.0			6.0		
Max Green Setting (Gmax), s	65.0			43.0			20.0			40.0		
Max Q Clear Time (g_c+I1), s	2.0			2.3			21.3			38.6		
Green Ext Time (p_c), s	5.6			0.0			0.0			1.0		
Intersection Summary												
HCM 6th Ctrl Delay	39.0											
HCM 6th LOS	D											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑		↗
Traffic Vol, veh/h	1740	85	0	1555	0	15
Future Vol, veh/h	1740	85	0	1555	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	1891	92	0	1690	0	16
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	-	-	-	946
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.4
Pot Cap-1 Maneuver	-	-	0	-	0	*354
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*354
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		15.7		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	354	-	-	-		
HCM Lane V/C Ratio	0.046	-	-	-		
HCM Control Delay (s)	15.7	-	-	-		
HCM Lane LOS	C	-	-	-		
HCM 95th %tile Q(veh)	0.1	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
7: Libson St & Colfax Ave

Stafford Logistics Center
AM Long Term Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	Ø4	Ø8
Lane Configurations												
Traffic Volume (vph)	90	1281	154	308	1401	90	99	63	55	55		
Future Volume (vph)	90	1281	154	308	1401	90	99	63	55	55		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+ov	pm+pt	pm+ov		
Protected Phases	5	2		1	6		3	1	7	5	4	8
Permitted Phases	2		2	6		6	8	8	4	4		
Detector Phase	5	2	2	1	6	6	3	1	7	5		
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	9.5	23.0	23.0	9.5	9.5	23.0	9.5	23.0	22.5
Total Split (s)	12.0	45.0	45.0	30.0	63.0	63.0	15.0	30.0	15.0	12.0	30.0	30.0
Total Split (%)	10.0%	37.5%	37.5%	25.0%	52.5%	52.5%	12.5%	25.0%	12.5%	10.0%	25%	25%
Yellow Time (s)	3.0	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0	3.0	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	5.0	5.0	4.5	5.0	5.0	4.5	4.5	5.0	4.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	89.6	82.6	82.6	101.7	91.4	91.4	9.1	16.5	8.5	6.0		
Actuated g/C Ratio	0.75	0.69	0.69	0.85	0.76	0.76	0.08	0.14	0.07	0.05		
v/c Ratio	0.20	0.62	0.18	0.56	0.61	0.09	0.45	0.25	0.27	0.31		
Control Delay	3.0	12.3	2.5	4.7	6.9	0.6	66.4	5.9	55.1	4.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	3.0	12.3	2.5	4.7	6.9	0.6	66.4	5.9	55.1	4.2		
LOS	A	B	A	A	A	A	E	A	E	A		
Approach Delay		10.8			6.2							
Approach LOS		B			A							

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 10.5

Intersection LOS: B

Intersection Capacity Utilization 65.4%

ICU Level of Service C

Analysis Period (min) 15

























Splits and Phases: 7: Libson St & Colfax Ave



HCM 6th Signalized Intersection Summary

7: Libson St & Colfax Ave

Stafford Logistics Center
AM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1281	154	308	1401	90	99	0	63	55	0	55
Future Volume (veh/h)	90	1281	154	308	1401	90	99	0	63	55	0	55
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1752	1530	1530	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	98	1392	169	338	1523	98	109	0	69	60	0	60
Peak Hour Factor	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91	0.91	0.92	0.91	0.92
Percent Heavy Veh, %	10	10	25	25	10	10	10	10	10	10	10	10
Cap, veh/h	630	2236	871	651	2328	1038	417	106	184	397	103	147
Arrive On Green	0.08	1.00	1.00	0.13	1.00	1.00	0.05	0.00	0.06	0.04	0.00	0.06
Sat Flow, veh/h	3237	3328	1296	2826	3328	1485	3237	1752	1485	3237	1752	1485
Grp Volume(v), veh/h	98	1392	169	338	1523	98	109	0	69	60	0	60
Grp Sat Flow(s),veh/h/ln	1618	1664	1296	1413	1664	1485	1618	1752	1485	1618	1752	1485
Q Serve(g_s), s	1.1	0.0	0.0	4.5	0.0	0.0	3.7	0.0	5.1	2.0	0.0	4.6
Cycle Q Clear(g_c), s	1.1	0.0	0.0	4.5	0.0	0.0	3.7	0.0	5.1	2.0	0.0	4.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	630	2236	871	651	2328	1038	417	106	184	397	103	147
V/C Ratio(X)	0.16	0.62	0.19	0.52	0.65	0.09	0.26	0.00	0.37	0.15	0.00	0.41
Avail Cap(c_a), veh/h	716	2236	871	1072	2328	1038	547	372	410	532	365	369
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	0.0	0.0	4.3	0.0	0.0	49.6	0.0	48.3	49.5	0.0	50.8
Incr Delay (d2), s/veh	0.1	1.3	0.5	0.1	0.1	0.0	0.3	0.0	1.3	0.2	0.0	1.8
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(95%),veh/ln	0.5	0.7	0.2	1.4	0.1	0.0	2.8	0.0	3.5	1.5	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.0	1.3	0.5	4.3	0.1	0.0	49.9	0.0	49.5	49.6	0.0	52.6
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	D
Approach Vol, veh/h	1659			1959			178			120		
Approach Delay, s/veh	1.5			0.8			49.8			51.1		
Approach LOS	A			A			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	85.6	10.2	12.1	8.8	88.9	10.0	12.3				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	5.0	* 5				
Max Green Setting (Gmax), s	25.5	40.0	10.5	25.0	8.0	58.0	10.0	* 26				
Max Q Clear Time (g_c+I1), s	6.5	2.0	5.7	6.6	3.1	2.0	4.0	7.1				
Green Ext Time (p_c), s	1.1	13.9	0.1	0.1	0.1	17.3	0.1	0.1				

Intersection Summary

HCM 6th Ctrl Delay 4.9
HCM 6th LOS A

Notes

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

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





















HCM 6th TWSC
8: Picadilly Rd & Site Driveway #2

Stafford Logistics Center
AM Long Term Total

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↑↑↑	↗	↘	↑↑↑	↗
Traffic Vol, veh/h	0	0	48	0	0	61	33	1255	30	35	1418	77
Future Vol, veh/h	0	0	48	0	0	61	33	1255	30	35	1418	77
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	52	0	0	66	36	1364	33	38	1541	84
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	771	-	-	682	1625	0	0	1397	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.3	-	-	7.3	5.5	-	-	5.5	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	4	-	-	4	3.2	-	-	3.2	-	-
Pot Cap-1 Maneuver	0	0	*577	0	0	*619	707	-	-	*774	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*577	-	-	*619	707	-	-	*774	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	11.9		11.5		0.3		0.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	707	-	-	577	619	*774	-	-				
HCM Lane V/C Ratio	0.051	-	-	0.09	0.107	0.049	-	-				
HCM Control Delay (s)	10.4	-	-	11.9	11.5	9.9	-	-				
HCM Lane LOS	B	-	-	B	B	A	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.3	0.4	0.2	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings 9: Realigned Colfax Ave & Site Driveway #3

Stafford Logistics Center
AM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	109	908	15	4	1283	30	6	0	20	0
Future Volume (vph)	109	908	15	4	1283	30	6	0	20	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	10.0	24.0	24.0	10.0	23.0	10.0	23.0
Total Split (s)	15.0	71.0	71.0	12.0	68.0	68.0	12.0	25.0	12.0	25.0
Total Split (%)	12.5%	59.2%	59.2%	10.0%	56.7%	56.7%	10.0%	20.8%	10.0%	20.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	Max	None	Max
Act Effect Green (s)	82.7	79.7	79.7	75.1	68.5	68.5	23.8	20.0	26.1	24.7
Actuated g/C Ratio	0.69	0.66	0.66	0.63	0.57	0.57	0.20	0.17	0.22	0.21
v/c Ratio	0.56	0.45	0.02	0.01	0.74	0.04	0.03	0.01	0.08	0.12
Control Delay	36.1	4.2	0.0	7.8	23.8	0.1	33.0	0.0	34.4	0.5
Queue Delay	0.0	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	4.6	0.0	7.8	23.9	0.1	33.0	0.0	34.4	0.6
LOS	D	A	A	A	C	A	C	A	C	A
Approach Delay		7.9			23.3			23.1		10.0
Approach LOS		A			C			C		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 16.4

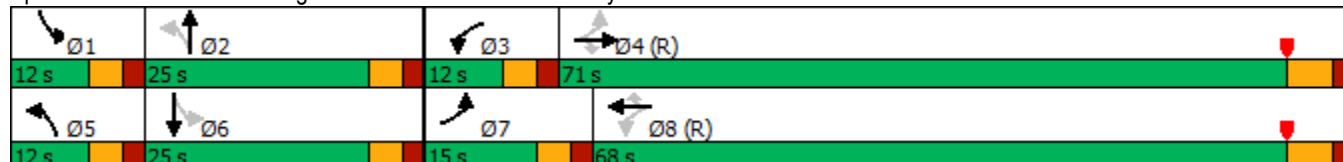
Intersection LOS: B

Intersection Capacity Utilization 62.6%

ICU Level of Service B






Analysis Period (min) 15

Splits and Phases: 9: Realigned Colfax Ave & Site Driveway #3



Intersection

Intersection Delay, s/veh 14.2
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	10	5	30	81	65	24	93	49	61	289	72
Future Vol, veh/h	17	10	5	30	81	65	24	93	49	61	289	72
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	25	25	25	25	25	25	25	25	25	25	25	25
Mvmt Flow	19	11	5	33	89	71	26	102	54	67	318	79
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0























Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	10	11.8	11	16.8
HCM LOS	A	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	14%	53%	17%	100%	0%
Vol Thru, %	56%	31%	46%	0%	80%
Vol Right, %	30%	16%	37%	0%	20%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	166	32	176	61	361
LT Vol	24	17	30	61	0
Through Vol	93	10	81	0	289
RT Vol	49	5	65	0	72
Lane Flow Rate	182	35	193	67	397
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.288	0.064	0.319	0.119	0.633
Departure Headway (Hd)	5.679	6.507	5.941	6.389	5.743
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	633	550	605	562	631
Service Time	3.708	4.552	3.976	4.112	3.466
HCM Lane V/C Ratio	0.288	0.064	0.319	0.119	0.629
HCM Control Delay	11	10	11.8	10	17.9
HCM Lane LOS	B	A	B	A	C
HCM 95th-tile Q	1.2	0.2	1.4	0.4	4.5

HCM 6th Signalized Intersection Summary

9: Realigned Colfax Ave & Site Driveway #3

Stafford Logistics Center
AM Long Term Total







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	109	908	15	4	1283	30	6	0	3	20	0	52
Future Volume (veh/h)	109	908	15	4	1283	30	6	0	3	20	0	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	118	987	16	4	1395	33	7	0	3	22	0	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	237	2102	937	289	1976	881	260	0	247	315	0	267
Arrive On Green	0.03	0.42	0.42	0.01	0.59	0.59	0.01	0.00	0.17	0.02	0.00	0.18
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	1668	0	1485	1668	0	1485
Grp Volume(v), veh/h	118	987	16	4	1395	33	7	0	3	22	0	57
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1668	0	1485	1668	0	1485
Q Serve(g_s), s	3.2	25.6	0.8	0.1	35.2	1.1	0.4	0.0	0.2	1.3	0.0	3.9
Cycle Q Clear(g_c), s	3.2	25.6	0.8	0.1	35.2	1.1	0.4	0.0	0.2	1.3	0.0	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	2102	937	289	1976	881	260	0	247	315	0	267
V/C Ratio(X)	0.50	0.47	0.02	0.01	0.71	0.04	0.03	0.00	0.01	0.07	0.00	0.21
Avail Cap(c_a), veh/h	305	2102	937	377	1976	881	343	0	247	376	0	267
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.7	20.1	13.0	11.5	17.1	10.1	41.0	0.0	41.8	40.1	0.0	42.0
Incr Delay (d2), s/veh	1.0	0.5	0.0	0.0	2.2	0.1	0.0	0.0	0.1	0.1	0.0	1.8
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(95%),veh/ln	2.5	15.2	0.4	0.1	19.4	0.7	0.3	0.0	0.1	1.0	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	20.6	13.0	11.6	19.2	10.2	41.0	0.0	41.8	40.2	0.0	43.8
LnGrp LOS	B	C	B	B	B	B	D	A	D	D	A	D
Approach Vol, veh/h		1121			1432			10			79	
Approach Delay, s/veh		20.2			19.0			41.3			42.8	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.6	25.0	5.6	81.8	6.0	26.6	10.2	77.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	6.0	5.0	5.0	5.0	6.0				
Max Green Setting (Gmax), s	7.0	20.0	7.0	65.0	7.0	20.0	10.0	62.0				
Max Q Clear Time (g_c+I1), s	3.3	2.2	2.1	27.6	2.4	5.9	5.2	37.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.0	0.0	0.2	0.1	12.4				

Intersection Summary

HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

























Notes

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

Intersection						
Int Delay, s/veh	30.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	115	1122	2264	79	19	35
Future Vol, veh/h	115	1122	2264	79	19	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	25	10	10	25	25	25
Mvmt Flow	125	1220	2461	86	21	38
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	2547	0	-	0	3199	1231
Stage 1	-	-	-	-	2461	-
Stage 2	-	-	-	-	738	-
Critical Hdwy	5.8	-	-	-	6.2	7.6
Critical Hdwy Stg 1	-	-	-	-	7.1	-
Critical Hdwy Stg 2	-	-	-	-	6.5	-
Follow-up Hdwy	3.35	-	-	-	4.05	4.15
Pot Cap-1 Maneuver	~ 46	-	-	-	~ 13	121
Stage 1	-	-	-	-	~ 20	-
Stage 2	-	-	-	-	345	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	~ 46	-	-	-	0	121
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	345	-
Approach	EB	WB		SB		
HCM Control Delay, s	89.7	0				
HCM LOS	-					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	~ 46	-	-	-	-	121
HCM Lane V/C Ratio	2.717	-	-	-	-	0.314
HCM Control Delay (s)	\$ 964.7	-	-	-	-	47.8
HCM Lane LOS	F	-	-	-	-	E
HCM 95th %tile Q(veh)	13.4	-	-	-	-	1.2
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
10: Picadilly Rd & 13th Ave/Realigned Colfax Ave

Stafford Logistics Center
AM Long Term Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	49	61	511	181	649	49	553	345	629	707	130
Future Volume (vph)	116	49	61	511	181	649	49	553	345	629	707	130
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+ov	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4			8	2		2			6
Detector Phase	7	4	4	3	8	8	5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	23.0	23.0	24.0	24.0	24.0	10.0	24.0	24.0	24.0	24.0	24.0
Total Split (s)	18.0	25.0	25.0	28.0	35.0	35.0	10.0	32.0	28.0	35.0	57.0	57.0
Total Split (%)	15.0%	20.8%	20.8%	23.3%	29.2%	29.2%	8.3%	26.7%	23.3%	29.2%	47.5%	47.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	C-Min
Act Effect Green (s)	26.6	15.7	15.7	24.1	25.8	25.8	38.6	32.6	62.7	28.7	58.3	58.3
Actuated g/C Ratio	0.22	0.13	0.13	0.20	0.22	0.22	0.32	0.27	0.52	0.24	0.49	0.49
v/c Ratio	0.49	0.27	0.19	0.87	0.61	0.95	0.26	0.47	0.40	0.90	0.34	0.20
Control Delay	32.4	44.9	1.2	48.8	55.9	51.8	21.7	39.8	4.6	49.7	29.1	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.0	0.0	0.8	0.0	0.0
Total Delay	32.4	44.9	1.2	48.8	55.9	71.4	21.7	39.8	4.6	50.5	29.1	13.6
LOS	C	D	A	D	E	E	C	D	A	D	C	B
Approach Delay		26.7			60.7			26.0			36.9	
Approach LOS		C			E			C			D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 16 (13%), Referenced to phase 2:NBTL and 6:SBT, Start of Yellow

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 41.7

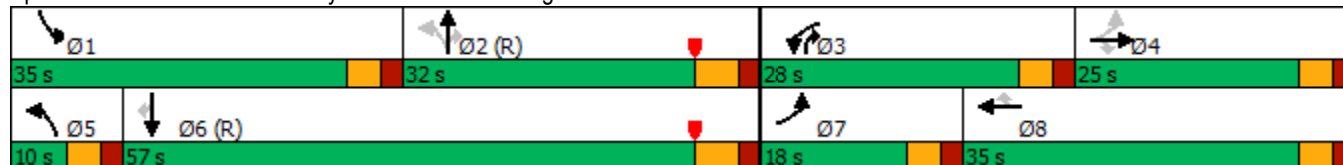
Intersection LOS: D

Intersection Capacity Utilization 70.6%

ICU Level of Service C

Analysis Period (min) 15
































Splits and Phases: 10: Picadilly Rd & 13th Ave/Realigned Colfax Ave



HCM 6th Signalized Intersection Summary

10: Picadilly Rd & 13th Ave/Realigned Colfax Ave

Stafford Logistics Center
AM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				 				  		  	  	
Traffic Volume (veh/h)	116	49	61	511	181	649	49	553	345	629	707	130
Future Volume (veh/h)	116	49	61	511	181	649	49	553	345	629	707	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1530	1752	1530	1752	1752	1752	1752	1530
Adj Flow Rate, veh/h	127	54	67	555	199	0	54	601	375	684	768	143
Peak Hour Factor	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92	0.92	0.91
Percent Heavy Veh, %	25	25	25	10	25	10	25	10	10	10	10	25
Cap, veh/h	232	107	91	610	249		280	1621	783	737	2544	689
Arrive On Green	0.10	0.07	0.07	0.06	0.05	0.00	0.03	0.34	0.34	0.38	0.89	0.89
Sat Flow, veh/h	1457	1530	1296	3237	1530	1485	1457	4782	1485	3237	4782	1296
Grp Volume(v), veh/h	127	54	67	555	199	0	54	601	375	684	768	143
Grp Sat Flow(s),veh/h/ln	1457	1530	1296	1618	1530	1485	1457	1594	1485	1618	1594	1296
Q Serve(g_s), s	9.6	4.1	6.1	20.5	15.4	0.0	2.9	11.4	19.2	24.3	2.9	1.8
Cycle Q Clear(g_c), s	9.6	4.1	6.1	20.5	15.4	0.0	2.9	11.4	19.2	24.3	2.9	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	232	107	91	610	249		280	1621	783	737	2544	689
V/C Ratio(X)	0.55	0.50	0.74	0.91	0.80		0.19	0.37	0.48	0.93	0.30	0.21
Avail Cap(c_a), veh/h	251	255	216	620	382		291	1621	783	809	2544	689
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	1.00	0.59	0.59	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	53.8	54.7	55.3	54.8	0.0	24.4	30.0	17.9	36.3	3.3	3.2
Incr Delay (d2), s/veh	2.1	3.6	11.1	11.5	4.0	0.0	0.3	0.7	2.1	16.0	0.3	0.7
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(95%),veh/ln	6.5	3.0	4.1	13.8	9.9	0.0	1.8	7.7	11.2	14.4	1.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.0	57.4	65.8	66.8	58.8	0.0	24.8	30.6	20.0	52.3	3.6	3.9
LnGrp LOS	D	E	E	E	E		C	C	C	D	A	A
Approach Vol, veh/h	248					754	A		1030		1595	
Approach Delay, s/veh	54.8					64.7			26.5		24.5	
Approach LOS	D					E			C		C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.3	46.7	27.6	13.4	9.2	69.8	16.4	24.6				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	30.0	26.0	23.0	20.0	5.0	51.0	13.0	30.0				
Max Q Clear Time (g_c+I1), s	26.3	21.2	22.5	8.1	4.9	4.9	11.6	17.4				
Green Ext Time (p_c), s	1.0	2.2	0.1	0.3	0.0	6.3	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay 35.5
HCM 6th LOS D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗ ↘ ↘ ↘	↗ ↘ ↘ ↘			↗ ↘ ↘ ↘
Traffic Vol, veh/h	0	6	1241	6	0	1293
Future Vol, veh/h	0	6	1241	6	0	1293
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	7	1349	7	0	1405
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	678	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.3	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4	-	-	-	-
Pot Cap-1 Maneuver	0	324	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	324	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	16.3	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	324		-		
HCM Lane V/C Ratio	-	0.02		-		
HCM Control Delay (s)	-	16.3		-		
HCM Lane LOS	-	C		-		
HCM 95th %tile Q(veh)	-	0.1		-		

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	17	10	5	30	81	65	24	93	49	61	289	72
Future Vol, veh/h	17	10	5	30	81	65	24	93	49	61	289	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	25	25	25	25	25	25	25	25	25	25	25	25
Mvmt Flow	19	11	5	33	89	71	26	102	54	67	318	79

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	753	700	358	681	712	129	397	0	0	156	0	0
Stage 1	492	492	-	181	181	-	-	-	-	-	-	-
Stage 2	261	208	-	500	531	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.35	6.75	6.45	4.35	-	-	4.35	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.35	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.35	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.725	4.225	3.525	2.425	-	-	2.425	-	-
Pot Cap-1 Maneuver	299	336	637	335	331	863	1047	-	-	1295	-	-
Stage 1	518	511	-	770	708	-	-	-	-	-	-	-
Stage 2	696	689	-	512	490	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	200	310	637	304	305	863	1047	-	-	1295	-	-
Mov Cap-2 Maneuver	200	310	-	304	305	-	-	-	-	-	-	-
Stage 1	504	484	-	749	689	-	-	-	-	-	-	-
Stage 2	541	670	-	470	465	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	21.3		22.1		1.2		1.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1047	-	-	256 400	1295	-	-
HCM Lane V/C Ratio	0.025	-	-	0.137 0.484	0.052	-	-
HCM Control Delay (s)	8.5	0	-	21.3 22.1	7.9	-	-
HCM Lane LOS	A	A	-	C C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5 2.6	0.2	-	-

Timings
13: Stephen D Hogan Pkwy & Libson St

Stafford Logistics Center
AM Long Term Total



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	115	1122	2264	79	19	35
Future Volume (vph)	115	1122	2264	79	19	35
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	90.0	75.0	75.0	30.0	30.0
Total Split (%)	12.5%	75.0%	62.5%	62.5%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	105.6	106.5	90.0	90.0	7.4	7.4
Actuated g/C Ratio	0.88	0.89	0.75	0.75	0.06	0.06
v/c Ratio	0.68	0.29	0.70	0.09	0.24	0.33
Control Delay	45.0	1.6	10.6	3.2	63.8	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	1.6	10.6	3.2	63.8	27.9
LOS	D	A	B	A	E	C
Approach Delay		5.6	10.4		40.7	
Approach LOS		A	B		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 9.2

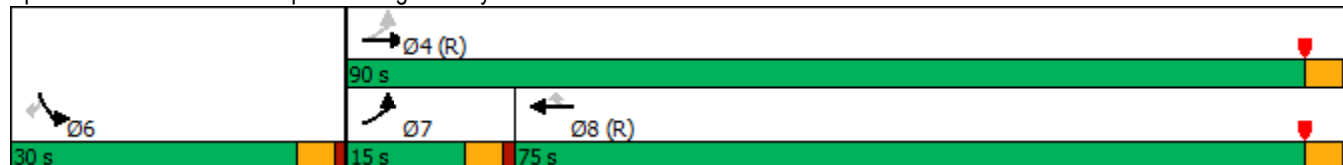
Intersection LOS: A

Intersection Capacity Utilization 65.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 13: Stephen D Hogan Pkwy & Libson St



HCM 6th Signalized Intersection Summary
13: Stephen D Hogan Pkwy & Libson St





















Stafford Logistics Center
AM Long Term Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	1122	2264	79	19	35
Future Volume (veh/h)	115	1122	2264	79	19	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1530	1752	1752	1530	1530	1530
Adj Flow Rate, veh/h	125	1220	2461	86	21	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	25	10	10	25	25	25
Cap, veh/h	181	4232	3856	1045	58	52
Arrive On Green	0.04	0.88	0.81	0.81	0.04	0.04
Sat Flow, veh/h	1457	4940	4940	1296	1457	1296
Grp Volume(v), veh/h	125	1220	2461	86	21	38
Grp Sat Flow(s),veh/h/ln	1457	1594	1594	1296	1457	1296
Q Serve(g_s), s	1.5	4.7	24.6	1.7	1.7	3.5
Cycle Q Clear(g_c), s	1.5	4.7	24.6	1.7	1.7	3.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	181	4232	3856	1045	58	52
V/C Ratio(X)	0.69	0.29	0.64	0.08	0.36	0.73
Avail Cap(c_a), veh/h	249	4232	3856	1045	310	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	1.1	4.6	2.4	56.1	56.9
Incr Delay (d2), s/veh	4.7	0.2	0.8	0.2	3.7	17.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.9	1.1	10.5	0.7	1.2	4.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.8	1.2	5.5	2.6	59.8	74.6
LnGrp LOS	C	A	A	A	E	E
Approach Vol, veh/h		1345	2547		59	
Approach Delay, s/veh		3.8	5.4		69.3	
Approach LOS		A	A		E	
Timer - Assigned Phs			4		6	7 8
Phs Duration (G+Y+Rc), s			110.7		9.3	9.4 101.3
Change Period (Y+Rc), s			4.5		4.5	4.5 4.5
Max Green Setting (Gmax), s			85.5		25.5	10.5 70.5
Max Q Clear Time (g_c+I1), s			6.7		5.5	3.5 26.6
Green Ext Time (p_c), s			12.9		0.1	0.2 33.6
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

Timings
1: Colfax Ave & Dunkirk St

Stafford Logistics Center
PM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	105	1872	40	15	1950	48	15	5	59	5
Future Volume (vph)	105	1872	40	15	1950	48	15	5	59	5
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	5	2		1	6		3	8	7	4
Permitted Phases	2		2	6		6	8		4	
Detector Phase	5	2	2	1	6	6	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	13.0	29.0	29.0	10.0	29.0	29.0	10.0	26.0	10.0	31.0
Total Split (s)	12.0	65.0	65.0	12.0	65.0	65.0	12.0	31.0	12.0	31.0
Total Split (%)	10.0%	54.2%	54.2%	10.0%	54.2%	54.2%	10.0%	25.8%	10.0%	25.8%
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	5.0	6.0	6.0	5.0	6.0	5.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None
Act Effect Green (s)	96.0	92.2	92.2	91.0	84.7	84.7	8.0	6.2	11.7	7.1
Actuated g/C Ratio	0.80	0.77	0.77	0.76	0.71	0.71	0.07	0.05	0.10	0.06
v/c Ratio	0.76	0.82	0.04	0.12	0.92	0.05	0.07	0.06	0.45	0.53
Control Delay	53.1	15.7	0.1	7.8	31.3	1.8	48.2	53.8	57.5	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	15.7	0.1	7.8	31.3	1.8	48.2	53.8	57.5	24.6
LOS	D	B	A	A	C	A	D	D	E	C
Approach Delay		17.3			30.4			49.5		38.7
Approach LOS		B			C			D		D

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 83.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: Colfax Ave & Dunkirk St



























HCM 6th Signalized Intersection Summary

1: Colfax Ave & Dunkirk St

Stafford Logistics Center

PM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	1872	40	15	1950	48	15	5	0	59	5	75
Future Volume (veh/h)	105	1872	40	15	1950	48	15	5	0	59	5	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	115	2057	0	16	2143	53	16	5	0	65	5	82
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	241	2350		133	2272	1013	221	71		198	7	107
Arrive On Green	0.04	0.71	0.00	0.03	1.00	1.00	0.02	0.04	0.00	0.05	0.08	0.08
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	3237	1752	1485	1668	86	1412
Grp Volume(v), veh/h	115	2057	0	16	2143	53	16	5	0	65	0	87
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1618	1752	1485	1668	0	1498
Q Serve(g_s), s	2.5	57.1	0.0	0.3	0.0	0.0	0.6	0.3	0.0	4.4	0.0	6.8
Cycle Q Clear(g_c), s	2.5	57.1	0.0	0.3	0.0	0.0	0.6	0.3	0.0	4.4	0.0	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	241	2350		133	2272	1013	221	71		198	0	114
V/C Ratio(X)	0.48	0.88		0.12	0.94	0.05	0.07	0.07		0.33	0.00	0.76
Avail Cap(c_a), veh/h	271	2350		201	2272	1013	354	365		207	0	312
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	4.9	13.6	0.0	18.5	0.0	0.0	53.6	55.4	0.0	50.1	0.0	54.4
Incr Delay (d2), s/veh	1.1	4.9	0.0	0.3	9.6	0.1	0.1	0.3	0.0	0.7	0.0	7.6
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(95%),veh/ln	1.4	25.5	0.0	0.4	5.4	0.0	0.4	0.3	0.0	3.4	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.0	18.5	0.0	18.8	9.6	0.1	53.7	55.7	0.0	50.8	0.0	62.0
LnGrp LOS	A	B		B	A	A	D	E		D	A	E
Approach Vol, veh/h	2172		A	2212				21	A	152		
Approach Delay, s/veh	17.8			9.4				54.1		57.2		
Approach LOS	B			A				D		E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.1	90.7	7.1	15.1	9.9	87.9	11.3	10.9				
Change Period (Y+Rc), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0				
Max Green Setting (Gmax), s	7.0	59.0	7.0	25.0	7.0	59.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	59.1	2.6	8.8	4.5	2.0	6.4	2.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.0	49.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 15.2

HCM 6th LOS B

Notes

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

Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↱	↱↱↱	↱↱	↱	↱	↱
Traffic Vol, veh/h	145	1762	1883	54	68	130
Future Vol, veh/h	145	1762	1883	54	68	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	350	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	159	1936	2069	59	75	143

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	2128	0	-	0	3161 1035
Stage 1	-	-	-	-	2069 -
Stage 2	-	-	-	-	1092 -
Critical Hdwy	4.3	-	-	-	6.45 7.1
Critical Hdwy Stg 1	-	-	-	-	6 -
Critical Hdwy Stg 2	-	-	-	-	6.2 -
Follow-up Hdwy	2.3	-	-	-	3.75 3.4
Pot Cap-1 Maneuver	*451	-	-	-	- *305
Stage 1	-	-	-	-	*276 -
Stage 2	-	-	-	-	*525 -
Platoon blocked, %	1	-	-	-	2 1
Mov Cap-1 Maneuver	*451	-	-	-	- *305
Mov Cap-2 Maneuver	-	-	-	-	- -
Stage 1	-	-	-	-	*179 -
Stage 2	-	-	-	-	*525 -













Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	
HCM LOS			-

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	* 451	-	-	-	-	305
HCM Lane V/C Ratio	0.353	-	-	-	-	0.468
HCM Control Delay (s)	17.3	-	-	-	-	26.8
HCM Lane LOS	C	-	-	-	-	D
HCM 95th %tile Q(veh)	1.6	-	-	-	-	2.4

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

Timings
3: Colfax Ave & Himalaya St

Stafford Logistics Center
PM Long Term Total

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	200	1654	1752	119	123	185
Future Volume (vph)	200	1654	1752	119	123	185
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	5	2	6		4	
Permitted Phases	2			6		4
Detector Phase	5	2	6	6	4	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.0	24.0	24.0	24.0	23.0	23.0
Total Split (s)	21.0	95.0	74.0	74.0	25.0	25.0
Total Split (%)	17.5%	79.2%	61.7%	61.7%	20.8%	20.8%
Yellow Time (s)	3.0	4.0	4.0	4.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	6.0	6.0	6.0	5.0	5.0
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	95.1	94.1	75.0	75.0	14.9	14.9
Actuated g/C Ratio	0.79	0.78	0.62	0.62	0.12	0.12
v/c Ratio	0.86	0.70	0.93	0.14	0.66	0.56
Control Delay	53.2	9.5	26.9	4.4	65.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	9.5	26.9	4.4	65.2	12.6
LOS	D	A	C	A	E	B
Approach Delay		14.2	25.4		33.6	
Approach LOS		B	C		C	

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 8 (7%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 20.9
 Intersection Capacity Utilization 79.7%
 Analysis Period (min) 15

Intersection LOS: C

ICU Level of Service D

Splits and Phases: 3: Colfax Ave & Himalaya St



HCM 6th Signalized Intersection Summary 3: Colfax Ave & Himalaya St
























Stafford Logistics Center
PM Long Term Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	200	1654	1752	119	123	185
Future Volume (veh/h)	200	1654	1752	119	123	185
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	217	1798	1904	129	134	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10
Cap, veh/h	290	2519	2177	971	253	225
Arrive On Green	0.08	1.00	1.00	1.00	0.15	0.15
Sat Flow, veh/h	1668	3416	3416	1485	1668	1485
Grp Volume(v), veh/h	217	1798	1904	129	134	201
Grp Sat Flow(s),veh/h/ln	1668	1664	1664	1485	1668	1485
Q Serve(g_s), s	5.0	0.0	0.0	0.0	8.9	15.9
Cycle Q Clear(g_c), s	5.0	0.0	0.0	0.0	8.9	15.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	290	2519	2177	971	253	225
V/C Ratio(X)	0.75	0.71	0.87	0.13	0.53	0.89
Avail Cap(c_a), veh/h	410	2519	2177	971	278	247
HCM Platoon Ratio	1.33	1.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	0.0	47.0	49.9
Incr Delay (d2), s/veh	4.7	1.8	5.3	0.3	1.7	29.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.0	1.1	2.9	0.1	6.9	20.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.9	1.8	5.3	0.3	48.7	79.2
LnGrp LOS	B	A	A	A	D	E
Approach Vol, veh/h		2015	2033		335	
Approach Delay, s/veh		3.0	5.0		67.0	
Approach LOS		A	A		E	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.8		23.2	12.3	84.5
Change Period (Y+Rc), s		6.0		5.0	5.0	6.0
Max Green Setting (Gmax), s		89.0		20.0	16.0	68.0
Max Q Clear Time (g_c+I1), s		2.0		17.9	7.0	2.0
Green Ext Time (p_c), s		25.3		0.3	0.4	28.3
Intersection Summary						
HCM 6th Ctrl Delay			8.8			
HCM 6th LOS			A			

Timings 4: Picadilly Rd & Colfax Ave

Stafford Logistics Center
PM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	  				 	  		 		
Traffic Volume (vph)	1432	5	547	5	5	614	905	5	1060	974
Future Volume (vph)	1432	5	547	5	5	614	905	5	1060	974
Turn Type	Prot	NA	Perm	Perm	NA	Prot	NA	Perm	NA	pm+ov
Protected Phases	7	4			8	5	2		6	7
Permitted Phases			4	8				6		6
Detector Phase	7	4	4	8	8	5	2	6	6	7
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	24.0	24.0	24.0	22.5	22.5	10.0	24.0	24.0	24.0	24.0
Total Split (s)	46.0	58.0	58.0	12.0	12.0	30.0	62.0	32.0	32.0	46.0
Total Split (%)	38.3%	48.3%	48.3%	10.0%	10.0%	25.0%	51.7%	26.7%	26.7%	38.3%
Yellow Time (s)	4.0	4.0	4.0	3.5	3.5	3.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	5.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lead		Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	C-Min	C-Min	None
Act Effect Green (s)	40.0	44.8	44.8		6.4	24.9	63.2	33.3	33.3	79.3
Actuated g/C Ratio	0.33	0.37	0.37		0.05	0.21	0.53	0.28	0.28	0.66
v/c Ratio	0.95	0.01	0.63		0.21	0.95	0.37	0.04	1.19	0.96
Control Delay	46.1	21.2	4.5		48.5	63.5	13.3	37.6	134.3	36.1
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	21.2	4.5		48.5	63.5	13.3	37.6	134.3	36.1
LOS	D	C	A		D	E	B	D	F	D
Approach Delay		34.6			48.5		33.5		87.2	
Approach LOS		C			D		C		F	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 44 (37%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 53.6

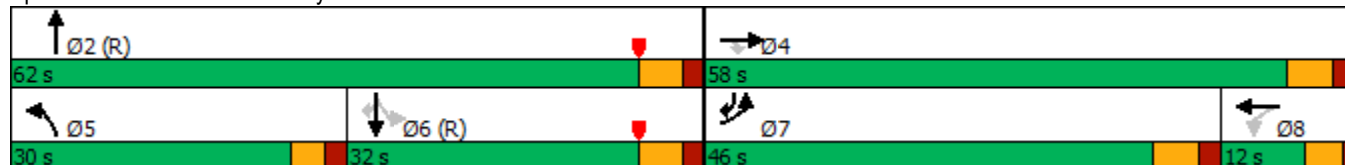
Intersection LOS: D

Intersection Capacity Utilization 94.9%

ICU Level of Service F

Analysis Period (min) 15






















Splits and Phases: 4: Picadilly Rd & Colfax Ave



HCM 6th Signalized Intersection Summary

4: Picadilly Rd & Colfax Ave





















Stafford Logistics Center
PM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1432	5	547	5	5	5	614	905	5	5	1060	974
Future Volume (veh/h)	1432	5	547	5	5	5	614	905	5	5	1060	974
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1530	1752	1530	1530	1530	1752	1752	1530	1530	1752	1752
Adj Flow Rate, veh/h	1461	5	0	5	5	5	627	923	5	5	1082	0
Peak Hour Factor	0.98	0.91	0.98	0.91	0.91	0.91	0.98	0.98	0.91	0.91	0.98	0.98
Percent Heavy Veh, %	10	25	10	25	25	25	10	10	25	25	10	10
Cap, veh/h	1545	610		49	9	9	663	2461	13	186	848	
Arrive On Green	0.33	0.40	0.00	0.02	0.02	0.02	0.41	1.00	1.00	0.25	0.25	0.00
Sat Flow, veh/h	4705	1530	1485	436	436	436	3237	4909	27	493	3328	1485
Grp Volume(v), veh/h	1461	5	0	15	0	0	627	599	329	5	1082	0
Grp Sat Flow(s),veh/h/ln	1568	1530	1485	1309	0	0	1618	1594	1747	493	1664	1485
Q Serve(g_s), s	36.3	0.2	0.0	1.4	0.0	0.0	22.4	0.0	0.0	0.9	30.6	0.0
Cycle Q Clear(g_c), s	36.3	0.2	0.0	1.4	0.0	0.0	22.4	0.0	0.0	0.9	30.6	0.0
Prop In Lane	1.00		1.00	0.33		0.33	1.00		0.02	1.00		1.00
Lane Grp Cap(c), veh/h	1545	610		67	0	0	663	1599	876	186	848	
V/C Ratio(X)	0.95	0.01		0.23	0.00	0.00	0.95	0.37	0.38	0.03	1.28	
Avail Cap(c_a), veh/h	1568	663		122	0	0	674	1599	876	186	848	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(l)	0.45	0.45	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.3	21.8	0.0	58.3	0.0	0.0	34.8	0.0	0.0	33.7	44.7	0.0
Incr Delay (d2), s/veh	6.5	0.0	0.0	1.7	0.0	0.0	22.1	0.7	1.2	0.3	133.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	18.4	0.1	0.0	0.9	0.0	0.0	13.2	0.3	0.5	0.2	42.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	21.8	0.0	60.0	0.0	0.0	56.9	0.7	1.2	33.9	177.8	0.0
LnGrp LOS	D	C		E	A	A	E	A	A	C	F	
Approach Vol, veh/h	1466			A			1555			1087		
Approach Delay, s/veh	45.6			60.0			23.4			177.1		
Approach LOS	D			E			C			F		
Timer - Assigned Phs	2			4			5			6		
Phs Duration (G+Y+Rc), s	66.2			53.8			29.6			36.6		
Change Period (Y+Rc), s	6.0			6.0			5.0			6.0		
Max Green Setting (Gmax), s	56.0			52.0			25.0			26.0		
Max Q Clear Time (g_c+I1), s	2.0			2.2			24.4			32.6		
Green Ext Time (p_c), s	6.6			0.0			0.2			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	72.0											
HCM 6th LOS	E											
Notes												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↑↑		↗
Traffic Vol, veh/h	1963	23	0	1871	0	62
Future Vol, veh/h	1963	23	0	1871	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	150	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	25	10	10	10	25
Mvmt Flow	2134	25	0	2034	0	67
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	1067
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.4
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.55
Pot Cap-1 Maneuver	-	-	0	-	0	*244
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		1
Mov Cap-1 Maneuver	-	-	-	-	-	*244
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		25.3	
HCM LOS	D					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT		
Capacity (veh/h)	244	-	-	-		
HCM Lane V/C Ratio	0.276	-	-	-		
HCM Control Delay (s)	25.3	-	-	-		
HCM Lane LOS	D	-	-	-		
HCM 95th %tile Q(veh)	1.1	-	-	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

Timings
7: Libson St & Colfax Ave

Stafford Logistics Center
PM Long Term Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	Ø4	Ø8
Lane Configurations												
Traffic Volume (vph)	320	1398	107	99	1174	315	352	245	345	345		
Future Volume (vph)	320	1398	107	99	1174	315	352	245	345	345		
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	pm+ov	pm+pt	pm+ov		
Protected Phases	5	2		1	6		3	1	7	5	4	8
Permitted Phases	2		2	6		6	8	8	4	4		
Detector Phase	5	2	2	1	6	6	3	1	7	5		
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	23.0	23.0	9.5	23.0	23.0	9.5	9.5	23.0	9.5	23.0	22.5
Total Split (s)	24.0	58.0	58.0	12.0	46.0	46.0	20.0	12.0	20.0	24.0	30.0	30.0
Total Split (%)	20.0%	48.3%	48.3%	10.0%	38.3%	38.3%	16.7%	10.0%	16.7%	20.0%	25%	25%
Yellow Time (s)	3.0	4.0	4.0	3.5	4.0	4.0	3.5	3.5	4.0	3.0	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	5.0	5.0	4.5	5.0	5.0	4.5	4.5	5.0	4.0		
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Act Effect Green (s)	96.0	83.0	83.0	79.0	71.0	71.0	15.5	7.5	15.0	20.0		
Actuated g/C Ratio	0.80	0.69	0.69	0.66	0.59	0.59	0.13	0.06	0.12	0.17		
v/c Ratio	0.42	0.67	0.13	0.26	0.66	0.35	1.07	1.55	0.94	1.20		
Control Delay	6.9	12.0	2.0	6.5	18.9	4.8	117.4	296.4	85.5	150.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	6.9	12.0	2.0	6.5	18.9	4.8	117.4	296.4	85.5	150.0		
LOS	A	B	A	A	B	A	F	F	F	F		
Approach Delay		10.5			15.3							
Approach LOS		B			B							

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 105 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 51.0

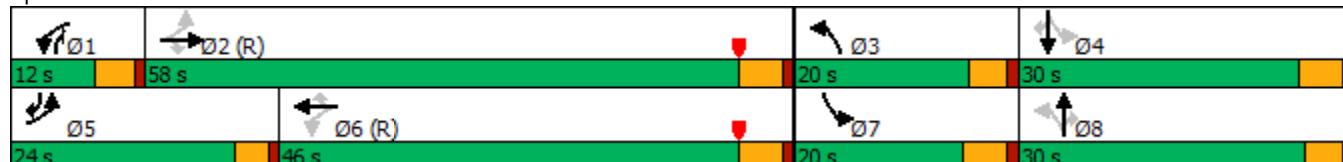
Intersection LOS: D

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

























Splits and Phases: 7: Libson St & Colfax Ave



HCM 6th Signalized Intersection Summary

7: Libson St & Colfax Ave

Stafford Logistics Center
PM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	1398	107	99	1174	315	352	0	245	345	0	345
Future Volume (veh/h)	320	1398	107	99	1174	315	352	0	245	345	0	345
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1752	1752	1530	1530	1752	1752	1530	1530	1530	1752	1530	1752
Adj Flow Rate, veh/h	348	1520	118	109	1276	342	387	0	269	375	0	375
Peak Hour Factor	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91	0.91	0.92	0.91	0.92
Percent Heavy Veh, %	10	10	25	25	10	10	25	25	25	10	25	10
Cap, veh/h	504	1561	608	304	1435	640	803	335	336	893	319	432
Arrive On Green	0.17	0.94	0.94	0.08	0.86	0.86	0.12	0.00	0.22	0.11	0.00	0.21
Sat Flow, veh/h	3237	3328	1296	2826	3328	1485	2826	1530	1296	3237	1530	1485
Grp Volume(v), veh/h	348	1520	118	109	1276	342	387	0	269	375	0	375
Grp Sat Flow(s),veh/h/ln	1618	1664	1296	1413	1664	1485	1413	1530	1296	1618	1530	1485
Q Serve(g_s), s	7.0	39.2	0.8	2.5	27.2	7.1	12.7	0.0	23.3	10.7	0.0	25.0
Cycle Q Clear(g_c), s	7.0	39.2	0.8	2.5	27.2	7.1	12.7	0.0	23.3	10.7	0.0	25.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	504	1561	608	304	1435	640	803	335	336	893	319	432
V/C Ratio(X)	0.69	0.97	0.19	0.36	0.89	0.53	0.48	0.00	0.80	0.42	0.00	0.87
Avail Cap(c_a), veh/h	775	1561	608	366	1435	640	818	335	336	945	319	432
HCM Platoon Ratio	2.00	2.00	2.00	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	0.21	0.21	0.21	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.4	3.2	2.0	22.8	6.6	5.2	31.0	0.0	41.5	31.6	0.0	40.3
Incr Delay (d2), s/veh	1.7	17.3	0.7	0.2	2.0	0.7	0.5	0.0	12.8	0.3	0.0	16.9
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(95%),veh/ln	4.0	8.8	0.6	1.4	4.3	2.5	7.8	0.0	13.4	7.6	0.0	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	20.5	2.7	22.9	8.6	5.9	31.5	0.0	54.3	31.9	0.0	57.2
LnGrp LOS	C	C	A	C	A	A	C	A	D	C	A	E
Approach Vol, veh/h	1986			1727			656			750		
Approach Delay, s/veh	19.7			9.0			40.8			44.6		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	61.3	19.4	30.0	13.9	56.7	18.1	31.3				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.0	5.0	5.0	* 5				
Max Green Setting (Gmax), s	7.5	53.0	15.5	25.0	20.0	41.0	15.0	* 26				
Max Q Clear Time (g_c+I1), s	4.5	41.2	14.7	27.0	9.0	29.2	12.7	25.3				
Green Ext Time (p_c), s	0.1	7.8	0.1	0.0	0.9	7.3	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes





















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

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

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↘	↑↑↑	↗	↘	↑↑↑	↗
Traffic Vol, veh/h	0	0	67	0	0	184	43	1335	62	59	1455	93
Future Vol, veh/h	0	0	67	0	0	184	43	1335	62	59	1455	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	150	-	150	150	-	150
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10	10	10	10	10	10	10
Mvmt Flow	0	0	73	0	0	200	47	1451	67	64	1582	101
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	791	-	-	726	1683	0	0	1518	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.3	-	-	7.3	5.5	-	-	5.5	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	4	-	-	4	3.2	-	-	3.2	-	-
Pot Cap-1 Maneuver	0	0	*577	0	0	*598	640	-	-	734	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*577	-	-	*598	640	-	-	734	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	12.1		14		0.3		0.4					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	640	-	-	577	598	734	-	-				
HCM Lane V/C Ratio	0.073	-	-	0.126	0.334	0.087	-	-				
HCM Control Delay (s)	11.1	-	-	12.1	14	10.4	-	-				
HCM Lane LOS	B	-	-	B	B	B	-	-				
HCM 95th %tile Q(veh)	0.2	-	-	0.4	1.5	0.3	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings 9: Realigned Colfax Ave & Site Driveway #3

Stafford Logistics Center
PM Long Term Total

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	223	1092	27	8	1034	62	21	0	63	0
Future Volume (vph)	223	1092	27	8	1034	62	21	0	63	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	7	4		3	8		5	2	1	6
Permitted Phases	4		4	8		8	2		6	
Detector Phase	7	4	4	3	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	9.5	22.5	22.5	9.5	22.5	9.5	22.5
Total Split (s)	21.0	71.0	71.0	12.0	62.0	62.0	12.0	25.0	12.0	25.0
Total Split (%)	17.5%	59.2%	59.2%	10.0%	51.7%	51.7%	10.0%	20.8%	10.0%	20.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	None	Min
Act Effect Green (s)	95.9	93.8	93.8	85.1	79.5	79.5	11.1	5.5	12.7	8.0
Actuated g/C Ratio	0.80	0.78	0.78	0.71	0.66	0.66	0.09	0.05	0.11	0.07
v/c Ratio	0.62	0.46	0.02	0.03	0.52	0.07	0.18	0.03	0.47	0.49
Control Delay	18.7	3.7	0.0	4.0	12.5	0.1	47.9	0.1	57.3	4.5
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	4.0	0.0	4.0	12.5	0.1	47.9	0.1	57.3	4.5
LOS	B	A	A	A	B	A	D	A	E	A
Approach Delay		6.4			11.8			35.6		18.9
Approach LOS		A			B			D		B

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 10.0









Intersection LOS: A

Intersection Capacity Utilization 69.6%

ICU Level of Service C























Analysis Period (min) 15

Splits and Phases: 9: Realigned Colfax Ave & Site Driveway #3

			
Ø1	Ø2	Ø3	Ø4 (R)
12 s	25 s	12 s	71 s
			
Ø5	Ø6	Ø7	Ø8 (R)
12 s	25 s	21 s	62 s

























HCM 6th Signalized Intersection Summary 9: Realigned Colfax Ave & Site Driveway #3

Stafford Logistics Center
PM Long Term Total

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	1092	27	8	1034	62	21	0	7	63	0	167
Future Volume (veh/h)	223	1092	27	8	1034	62	21	0	7	63	0	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752	1752
Adj Flow Rate, veh/h	242	1187	29	9	1124	67	23	0	8	68	0	182
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	10	10	10	10	10	10	10	10	10
Cap, veh/h	369	2254	1005	341	2038	909	119	0	171	284	0	208
Arrive On Green	0.15	1.00	1.00	0.01	0.61	0.61	0.02	0.00	0.12	0.05	0.00	0.14
Sat Flow, veh/h	1668	3328	1485	1668	3328	1485	1668	0	1485	1668	0	1485
Grp Volume(v), veh/h	242	1187	29	9	1124	67	23	0	8	68	0	182
Grp Sat Flow(s),veh/h/ln	1668	1664	1485	1668	1664	1485	1668	0	1485	1668	0	1485
Q Serve(g_s), s	6.7	0.0	0.0	0.2	23.7	2.2	1.4	0.0	0.6	4.3	0.0	14.4
Cycle Q Clear(g_c), s	6.7	0.0	0.0	0.2	23.7	2.2	1.4	0.0	0.6	4.3	0.0	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	369	2254	1005	341	2038	909	119	0	171	284	0	208
V/C Ratio(X)	0.66	0.53	0.03	0.03	0.55	0.07	0.19	0.00	0.05	0.24	0.00	0.88
Avail Cap(c_a), veh/h	472	2254	1005	428	2038	909	186	0	254	310	0	254
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.48	0.48	0.48	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	0.0	8.6	13.6	9.4	45.8	0.0	47.2	43.5	0.0	50.6
Incr Delay (d2), s/veh	1.0	0.4	0.0	0.0	1.1	0.2	0.8	0.0	0.1	0.4	0.0	24.0
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(95%),veh/ln	3.6	0.2	0.0	0.2	13.7	1.3	1.1	0.0	0.4	3.2	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.4	0.0	8.6	14.7	9.6	46.6	0.0	47.3	44.0	0.0	74.6
LnGrp LOS	B	A	A	A	B	A	D	A	D	D	A	E
Approach Vol, veh/h	1458		1200				31		250			
Approach Delay, s/veh	2.3		14.4				46.8		66.3			
Approach LOS	A		B				D		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.1	18.3	5.8	85.8	7.2	21.3	13.6	78.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	7.5	20.5	7.5	66.5	7.5	20.5	16.5	57.5				
Max Q Clear Time (g_c+I1), s	6.3	2.6	2.2	2.0	3.4	16.4	8.7	25.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	13.0	0.0	0.4	0.4	10.6				
Intersection Summary												
HCM 6th Ctrl Delay	13.1											
HCM 6th LOS	B											

Timings
10: Picadilly Rd & 13th Ave/Realigned Colfax Ave

Stafford Logistics Center
PM Long Term Total

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	236	158	61	640	82	600	41	604	430	770	638	106
Future Volume (vph)	236	158	61	640	82	600	41	604	430	770	638	106
Turn Type	pm+pt	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	pm+ov	pm+pt	NA	Perm
Protected Phases	7	4		3	8	1	5	2	3	1	6	
Permitted Phases	4		4			8	2		2	6		6
Detector Phase	7	4	4	3	8	1	5	2	3	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	23.0	23.0	24.0	24.0	23.0	10.0	24.0	24.0	23.0	24.0	24.0
Total Split (s)	30.0	25.0	25.0	35.0	30.0	30.0	12.0	30.0	35.0	30.0	48.0	48.0
Total Split (%)	25.0%	20.8%	20.8%	29.2%	25.0%	25.0%	10.0%	25.0%	29.2%	25.0%	40.0%	40.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	5.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Min	None	None	C-Min	C-Min
Act Effect Green (s)	37.3	17.5	17.5	29.2	26.8	56.8	35.0	27.3	62.5	58.3	47.8	47.8
Actuated g/C Ratio	0.31	0.15	0.15	0.24	0.22	0.47	0.29	0.23	0.52	0.49	0.40	0.40
v/c Ratio	0.66	0.79	0.20	0.90	0.27	0.81	0.21	0.61	0.56	0.95	0.37	0.20
Control Delay	32.2	72.9	1.4	66.8	58.8	22.0	22.9	45.3	16.2	39.1	29.2	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	72.9	1.4	66.8	58.8	22.1	22.9	45.3	16.2	39.1	29.2	13.1
LOS	C	E	A	E	E	C	C	D	B	D	C	B
Approach Delay		42.3			46.0			32.8			33.1	
Approach LOS		D			D			C			C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 1 (1%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 37.9

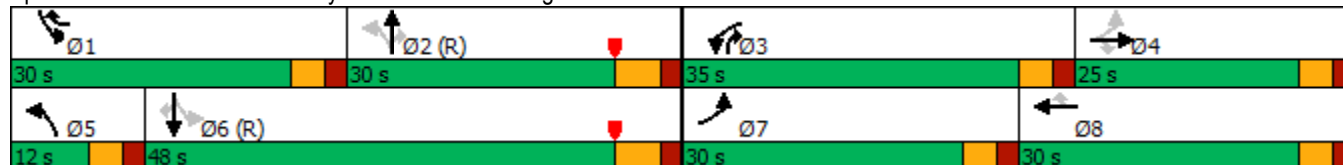
Intersection LOS: D

Intersection Capacity Utilization 77.7%

ICU Level of Service D

Analysis Period (min) 15

























Splits and Phases: 10: Picadilly Rd & 13th Ave/Realigned Colfax Ave



HCM 6th Signalized Intersection Summary

10: Picadilly Rd & 13th Ave/Realigned Colfax Ave

Stafford Logistics Center
PM Long Term Total




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	236	158	61	640	82	600	41	604	430	770	638	106
Future Volume (veh/h)	236	158	61	640	82	600	41	604	430	770	638	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1530	1530	1530	1752	1530	1752	1530	1752	1752	1752	1752	1530
Adj Flow Rate, veh/h	259	174	67	696	90	0	45	657	467	837	693	116
Peak Hour Factor	0.91	0.91	0.91	0.92	0.91	0.92	0.91	0.92	0.92	0.92	0.92	0.91
Percent Heavy Veh, %	25	25	25	10	25	10	25	10	10	10	10	25
Cap, veh/h	449	202	171	752	297		250	1240	730	900	2048	555
Arrive On Green	0.17	0.13	0.13	0.31	0.26	0.00	0.03	0.26	0.26	0.07	0.14	0.14
Sat Flow, veh/h	1457	1530	1296	3237	1530	1485	1457	4782	1485	3237	4782	1296
Grp Volume(v), veh/h	259	174	67	696	90	0	45	657	467	837	693	116
Grp Sat Flow(s),veh/h/ln	1457	1530	1296	1618	1530	1485	1457	1594	1485	1618	1594	1296
Q Serve(g_s), s	18.1	13.4	5.7	25.0	5.7	0.0	2.7	14.2	28.0	21.6	15.7	9.5
Cycle Q Clear(g_c), s	18.1	13.4	5.7	25.0	5.7	0.0	2.7	14.2	28.0	21.6	15.7	9.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	449	202	171	752	297		250	1240	730	900	2048	555
V/C Ratio(X)	0.58	0.86	0.39	0.93	0.30		0.18	0.53	0.64	0.93	0.34	0.21
Avail Cap(c_a), veh/h	504	255	216	809	319		288	1240	730	923	2048	555
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.85	0.85	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	51.0	47.7	40.4	38.0	0.0	31.1	38.2	22.6	31.7	36.2	33.5
Incr Delay (d2), s/veh	1.3	20.9	1.5	13.9	0.5	0.0	0.3	1.6	4.3	15.3	0.4	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(95%),veh/ln	10.8	10.4	3.4	15.8	3.9	0.0	1.7	9.4	15.7	16.5	11.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	71.9	49.1	54.4	38.5	0.0	31.4	39.8	26.9	46.9	36.6	34.4
LnGrp LOS	D	E	D	D	D		C	D	C	D	D	C
Approach Vol, veh/h	500			786			A			1169		
Approach Delay, s/veh	50.7			52.5			34.3			41.7		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.1	37.1	32.9	20.8	8.9	57.4	25.5	28.3				
Change Period (Y+Rc), s	5.0	6.0	5.0	5.0	5.0	6.0	5.0	5.0				
Max Green Setting (Gmax), s	25.0	24.0	30.0	20.0	7.0	42.0	25.0	25.0				
Max Q Clear Time (g_c+I1), s	23.6	30.0	27.0	15.4	4.7	17.7	20.1	7.7				
Green Ext Time (p_c), s	0.6	0.0	0.9	0.5	0.0	5.0	0.4	0.4				

Intersection Summary






HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.






Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	21	1180	12	0	1311
Future Vol, veh/h	0	21	1180	12	0	1311
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	10	10	10
Mvmt Flow	0	23	1283	13	0	1425
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	648	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.3	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	4	-	-	-	-
Pot Cap-1 Maneuver	0	339	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	339	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	16.4	0		0		
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	- 339		-		
HCM Lane V/C Ratio	-	- 0.067		-		
HCM Control Delay (s)	-	- 16.4		-		
HCM Lane LOS	-	- C		-		
HCM 95th %tile Q(veh)	-	- 0.2		-		

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	45	19	59	11	90	6	276	90	78	105	18
Future Vol, veh/h	70	45	19	59	11	90	6	276	90	78	105	18
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	25	25	25	25	25	25	25	25	25	25	25	25
Mvmt Flow	77	49	21	65	12	99	7	303	99	86	115	20
Number of Lanes	0	1	0	0	1	0	0	1	0	1	1	0







Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	1	1
HCM Control Delay	12.1	12	18.9	11.3
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	2%	52%	37%	100%	0%
Vol Thru, %	74%	34%	7%	0%	85%
Vol Right, %	24%	14%	56%	0%	15%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	372	134	160	78	123
LT Vol	6	70	59	78	0
Through Vol	276	45	11	0	105
RT Vol	90	19	90	0	18
Lane Flow Rate	409	147	176	86	135
Geometry Grp	5	2	2	7	7
Degree of Util (X)	0.651	0.268	0.304	0.169	0.243
Departure Headway (Hd)	5.735	6.563	6.223	7.08	6.468
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	630	545	575	505	553
Service Time	3.789	4.639	4.295	4.846	4.233
HCM Lane V/C Ratio	0.649	0.27	0.306	0.17	0.244
HCM Control Delay	18.9	12.1	12	11.3	11.3
HCM Lane LOS	C	B	B	B	B
HCM 95th-tile Q	4.8	1.1	1.3	0.6	0.9

Intersection												
Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	45	19	59	11	90	6	276	90	78	105	18
Future Vol, veh/h	70	45	19	59	11	90	6	276	90	78	105	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	25	25	25	25	25	25	25	25	25	25	25	25
Mvmt Flow	77	49	21	65	12	99	7	303	99	86	115	20
Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	719	713	125	699	674	353	135	0	0	402	0	0
Stage 1	297	297	-	367	367	-	-	-	-	-	-	-
Stage 2	422	416	-	332	307	-	-	-	-	-	-	-
Critical Hdwy	7.35	6.75	6.45	7.35	6.75	6.45	4.35	-	-	4.35	-	-
Critical Hdwy Stg 1	6.35	5.75	-	6.35	5.75	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.35	5.75	-	6.35	5.75	-	-	-	-	-	-	-
Follow-up Hdwy	3.725	4.225	3.525	3.725	4.225	3.525	2.425	-	-	2.425	-	-
Pot Cap-1 Maneuver	316	330	867	326	348	642	1319	-	-	1043	-	-
Stage 1	665	628	-	608	584	-	-	-	-	-	-	-
Stage 2	567	554	-	636	621	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	242	301	867	259	317	642	1319	-	-	1043	-	-
Mov Cap-2 Maneuver	242	301	-	259	317	-	-	-	-	-	-	-
Stage 1	660	577	-	604	580	-	-	-	-	-	-	-
Stage 2	466	550	-	521	570	-	-	-	-	-	-	-
Approach	EB		WB			NB			SB			
HCM Control Delay, s	29.4		21.1			0.1			3.4			
HCM LOS	D		C									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	1319	-	-	291	397	1043	-	-				
HCM Lane V/C Ratio	0.005	-	-	0.506	0.443	0.082	-	-				
HCM Control Delay (s)	7.7	0	-	29.4	21.1	8.8	-	-				
HCM Lane LOS	A	A	-	D	C	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	2.7	2.2	0.3	-	-				

Intersection

Int Delay, s/veh 106.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	2342	1346	21	79	121
Future Vol, veh/h	50	2342	1346	21	79	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	150	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	25	10	10	25	25	25
Mvmt Flow	54	2546	1463	23	86	132

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1486	0	0 2844 732
Stage 1	-	-	- 1463 -
Stage 2	-	-	- 1381 -
Critical Hdwy	4.6	-	- 7.3 7.4
Critical Hdwy Stg 1	-	-	- 6.3 -
Critical Hdwy Stg 2	-	-	- 6.3 -
Follow-up Hdwy	2.45	-	- 3.75 3.55
Pot Cap-1 Maneuver	350	-	- ~9 316
Stage 1	-	-	- 145 -
Stage 2	-	-	- 162 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	350	-	- ~8 316
Mov Cap-2 Maneuver	-	-	- ~8 -
Stage 1	-	-	- 123 -
Stage 2	-	-	- 162 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	\$ 2102.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	350	-	-	-	8	316
HCM Lane V/C Ratio	0.155	-	-	-	10.734	0.416
HCM Control Delay (s)	17.2	-	-	-	5285.2	24.3
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	0.5	-	-	-	12.3	2

Notes

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

Timings
13: Stephen D. Hogan Pkwy & Libson St

Stafford Logistics Center
PM Long Term Total



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	2342	1346	21	79	121
Future Volume (vph)	50	2342	1346	21	79	121
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	9.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	15.0	90.0	75.0	75.0	30.0	30.0
Total Split (%)	12.5%	75.0%	62.5%	62.5%	25.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?	Yes		Yes	Yes		
Recall Mode	None	C-Min	C-Min	C-Min	None	None
Act Effect Green (s)	98.5	98.5	89.6	89.6	12.5	12.5
Actuated g/C Ratio	0.82	0.82	0.75	0.75	0.10	0.10
v/c Ratio	0.23	0.95	0.60	0.02	0.57	0.52
Control Delay	4.8	19.0	9.3	3.4	68.3	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.8	19.0	9.3	3.4	68.3	19.2
LOS	A	B	A	A	E	B
Approach Delay		18.7	9.2		38.6	
Approach LOS		B	A		D	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 4:EBTL and 8:WBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 16.4

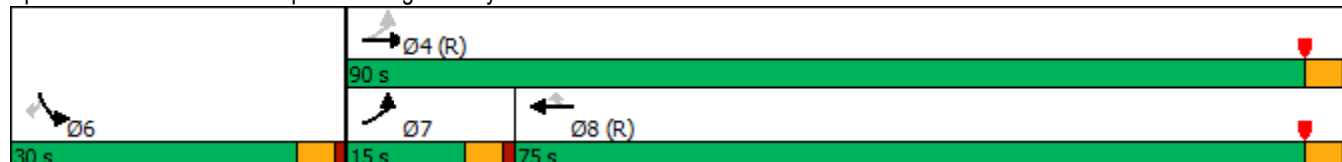
Intersection LOS: B

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15







Splits and Phases: 13: Stephen D. Hogan Pkwy & Libson St



HCM 6th Signalized Intersection Summary 13: Stephen D. Hogan Pkwy & Libson St

Stafford Logistics Center
PM Long Term Total



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	50	2342	1346	21	79	121	
Future Volume (veh/h)	50	2342	1346	21	79	121	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1530	1752	1752	1530	1530	1530	
Adj Flow Rate, veh/h	54	2546	1463	23	86	132	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	25	10	10	25	25	25	
Cap, veh/h	262	2678	2437	949	176	156	
Arrive On Green	0.03	0.80	0.73	0.73	0.12	0.12	
Sat Flow, veh/h	1457	3416	3416	1296	1457	1296	
Grp Volume(v), veh/h	54	2546	1463	23	86	132	
Grp Sat Flow(s),veh/h/ln	1457	1664	1664	1296	1457	1296	
Q Serve(g_s), s	1.0	76.4	25.2	0.6	6.6	12.0	
Cycle Q Clear(g_c), s	1.0	76.4	25.2	0.6	6.6	12.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	262	2678	2437	949	176	156	
V/C Ratio(X)	0.21	0.95	0.60	0.02	0.49	0.84	
Avail Cap(c_a), veh/h	339	2678	2437	949	310	275	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	6.7	9.8	7.7	4.4	49.3	51.7	
Incr Delay (d2), s/veh	0.4	9.2	1.1	0.0	2.1	11.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh/ln	0.6	31.0	13.0	0.3	4.5	13.6	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	7.1	18.9	8.8	4.4	51.4	63.3	
LnGrp LOS	A	B	A	A	D	E	
Approach Vol, veh/h		2600	1486		218		
Approach Delay, s/veh		18.7	8.7		58.6		
Approach LOS		B	A		E		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				101.0	19.0	8.7	92.4
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				85.5	25.5	10.5	70.5
Max Q Clear Time (g_c+I1), s				78.4	14.0	3.0	27.2
Green Ext Time (p_c), s				6.8	0.5	0.0	16.9
Intersection Summary							
HCM 6th Ctrl Delay			17.3				
HCM 6th LOS			B				

APPENDIX H. SIGNAL WARRANTS

WARRANT 2: Colfax Ave/I-70 Frontage Rd
Existing Four-Hour Vehicular Volume (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 3: Colfax Ave/I-70 Frontage Rd
Existing Peak Hour (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 2: Colfax Avenue/Lisbon Street
Short-Term Total Traffic Four-Hour Vehicular Volume (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 3: Colfax Avenue/Lisbon Street
Short-Term Total Traffic Peak Hour (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 2: Picadilly Road/I3th Avenue
Short-Term Total Traffic Four-Hour Vehicular Volume (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 3: Picadilly Road/I3th Avenue
Short-Term Total Traffic Hour (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 2: Colfax Avenue/Himalaya Street
Long-Term Background Traffic Four-Hour Vehicular Volume (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

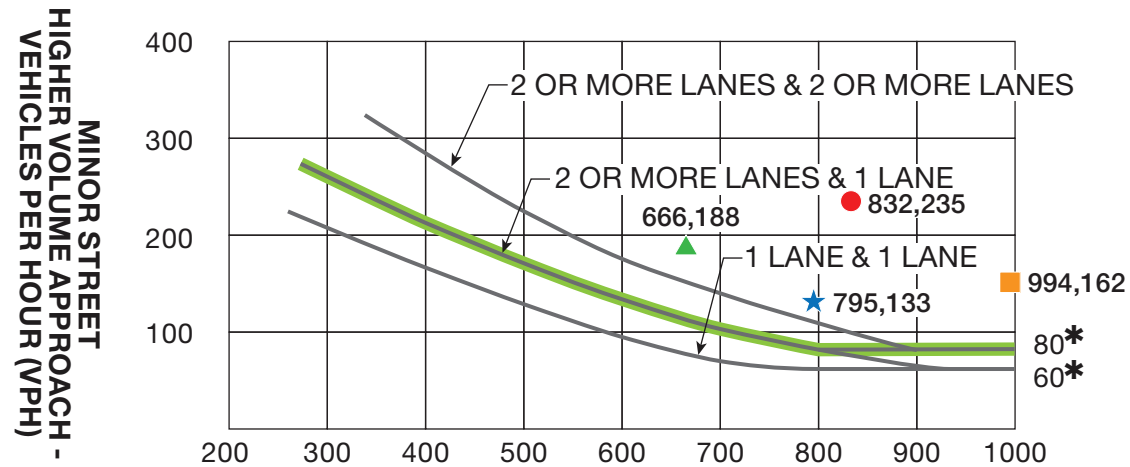
WARRANT 3: Colfax Avenue/Himalaya Street
Long-Term Background Traffic Peak Hour (70% Factor)
(Community Less than 10,000 Population or Above 40 mph On Major Street)

WARRANT 2: Colfax Avenue to I3th Avenue
Long-Term Total Traffic Four-Hour Vehicular Volume

WARRANT 3: Colfax Ave to I3th Avenue
Long-Term Total Traffic Peak Hour

WARRANT 2: Stephen D. Hogan Parkway/Lisbon Street
Long-Term Total Traffic Four-Hour Vehicular Volume

WARRANT 3: Stephen D. Hogan Parkway/Lisbon Street
Long-Term Total Traffic Peak Hour

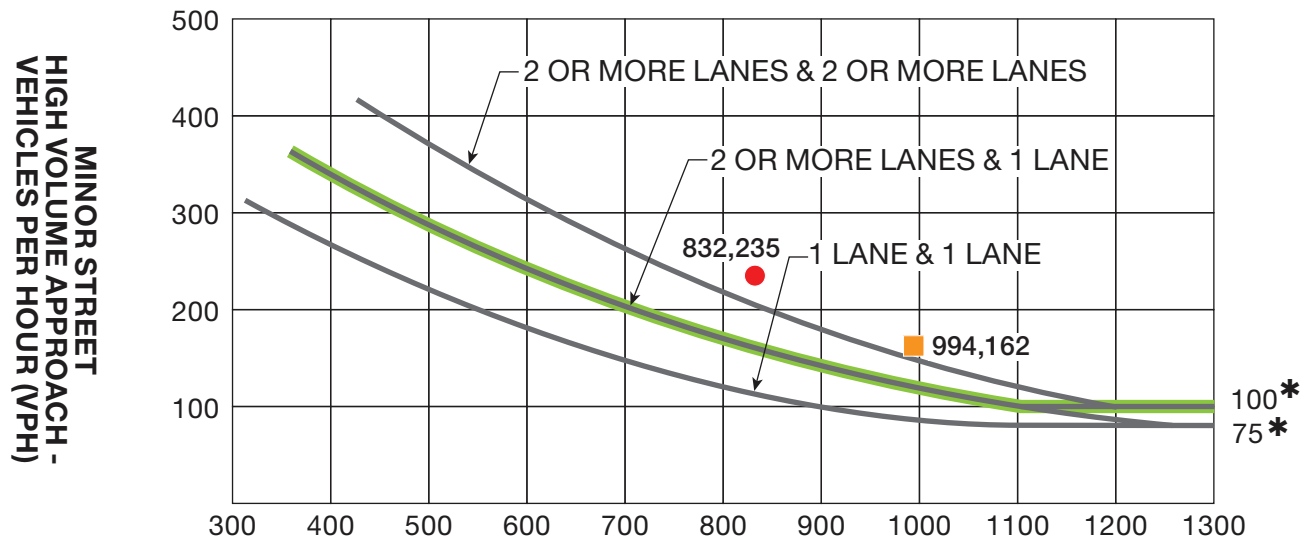


**MAJOR STREET - TOTAL OF BOTH APPROACHES -
VEHICLES PER HOUR (VPH)**

* Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

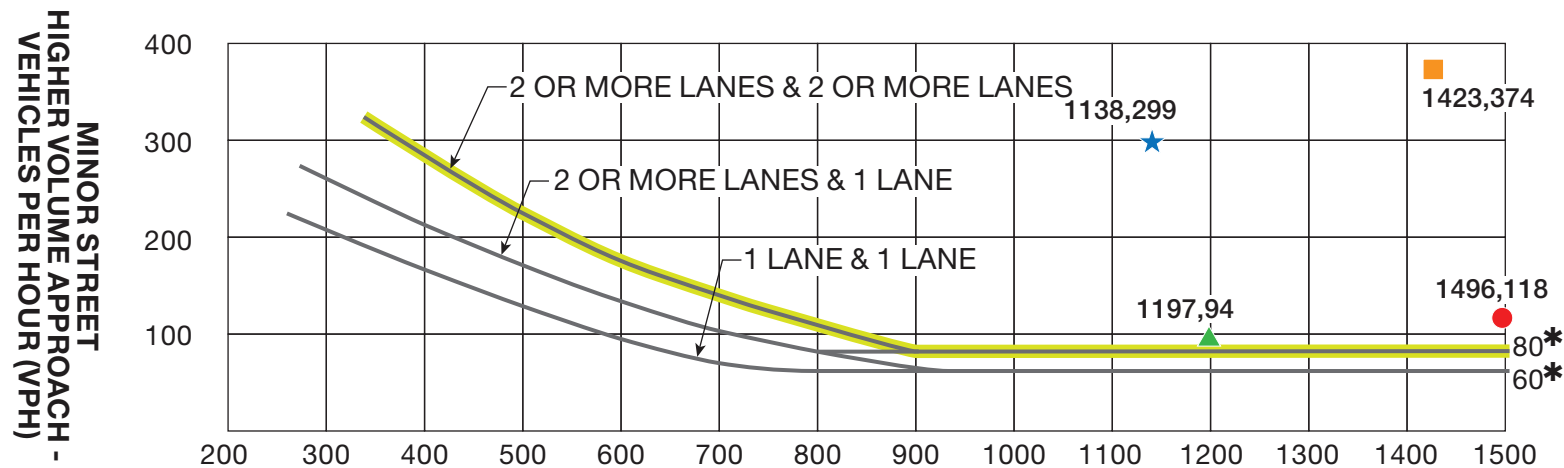
- = AM Peak Hour
- = PM Peak Hour
- ▲ = 80% AM Peak Hour
- ★ = 80% PM Peak Hour



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

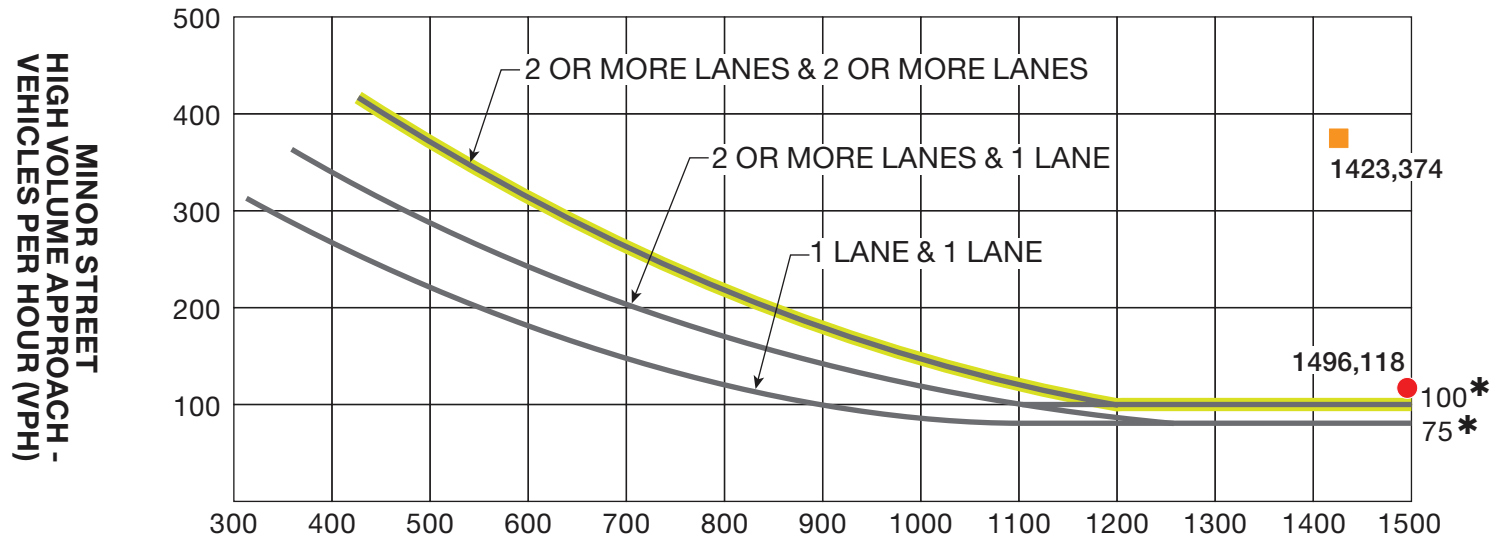
- = AM Peak Hour
- = PM Peak Hour



* Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = AM Peak Hour
- = PM Peak Hour
- ▲ = 80% of PM Peak Hour
- ★ = 80% of PM Peak Hour



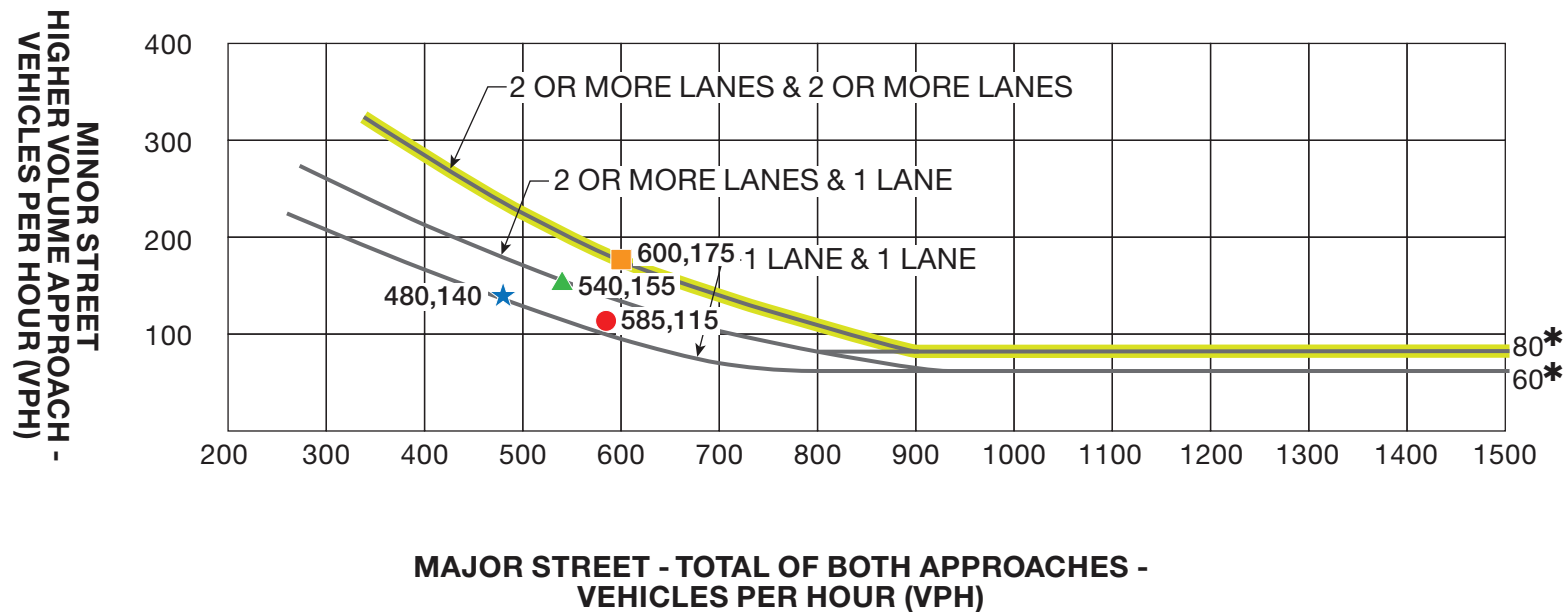
Stafford Logistics Center TIS - UPDATE 20-346 8/25/20

MAJOR STREET - TOTAL OF BOTH APPROACHES - VEHICLES PER HOUR (VPH)

* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

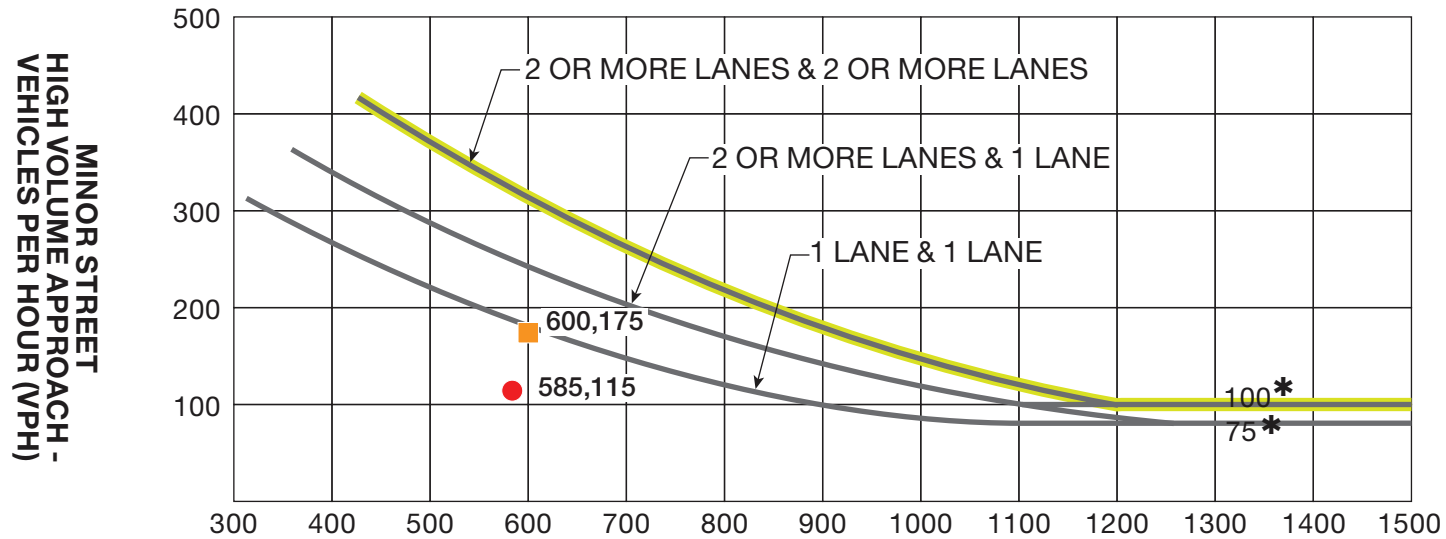
LEGEND

- = AM Peak Hour
- = PM Peak Hour



LEGEND

- = AM Peak Hour
- = PM Peak Hour
- ▲ = 90% of PM Peak Hour
- ★ = 80% of PM Peak Hour



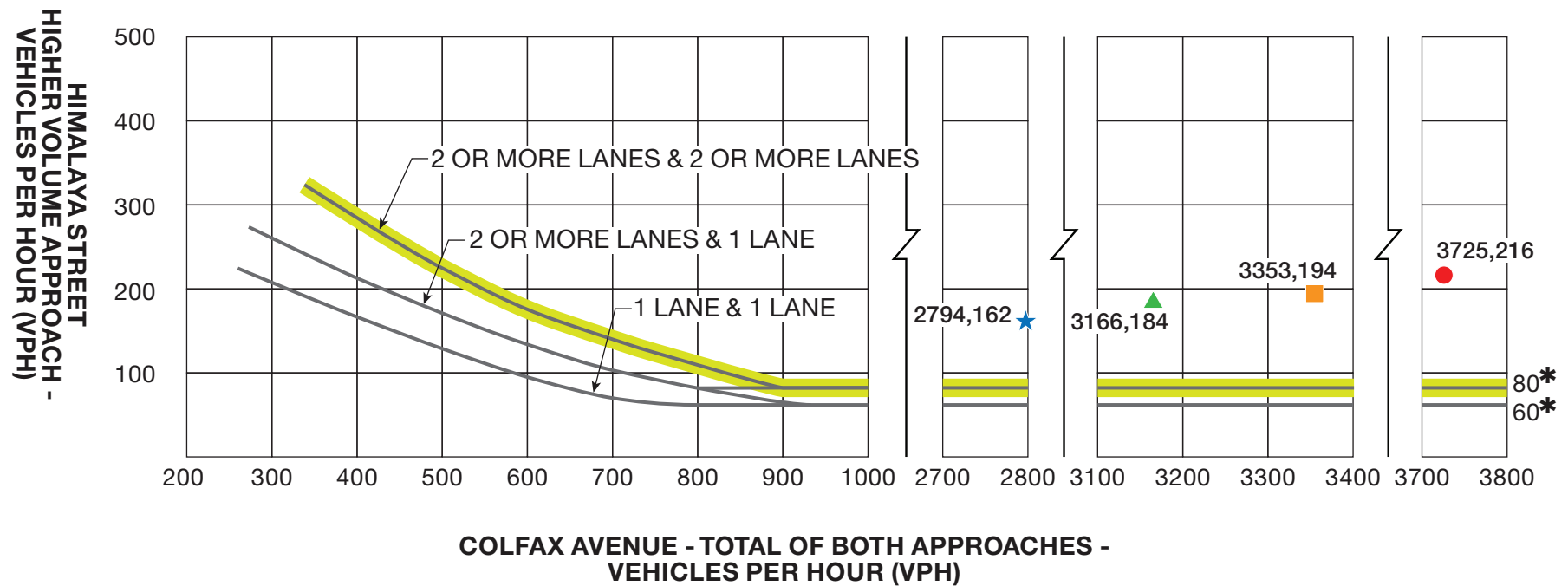
* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = AM Peak Hour
- = PM Peak Hour

WARRANT 3

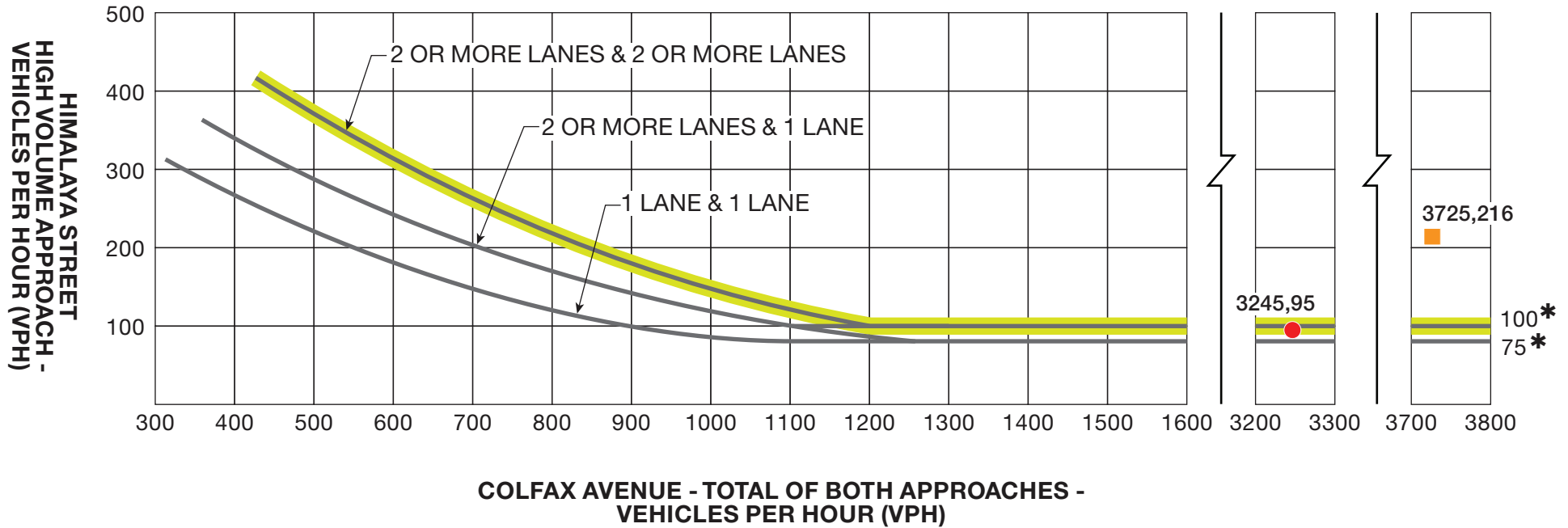
I 3th Ave. & Picadilly Rd. Short-Term Total Traffic Scenario 3
Short-Term Peak Hour (70% Factor)
 (Community Less than 10,000 Population or Above 40 mph On Major Street)



* Note: 80 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

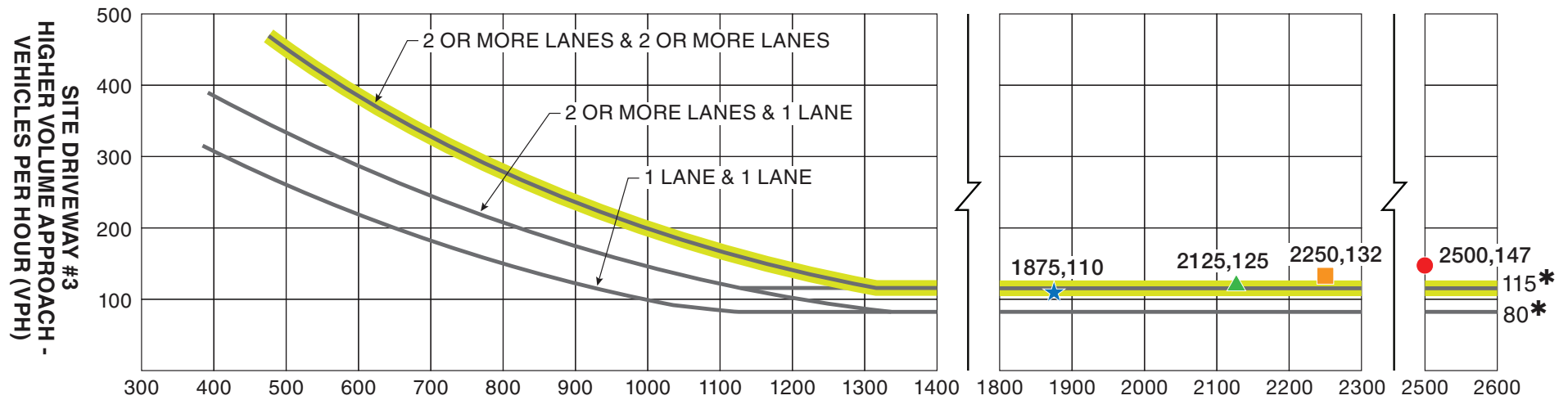
- = PM Peak Hour
- = 90% PM Peak Hour
- ▲ = 85% PM Peak Hour
- ★ = 75% PM Peak Hour



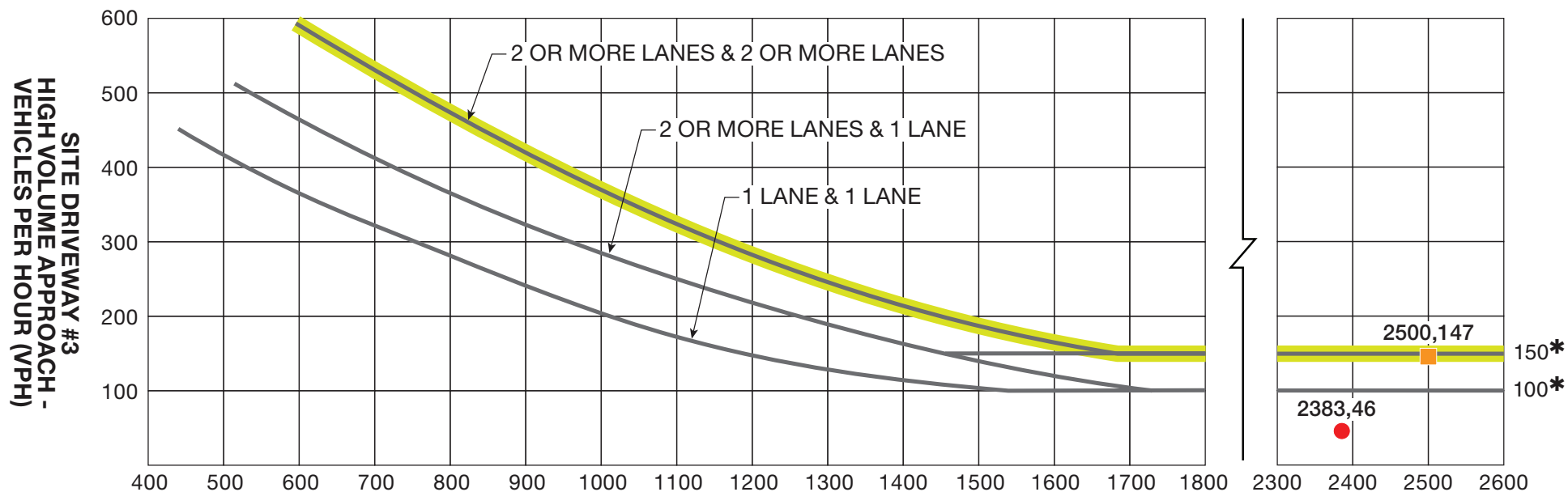
* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = AM Peak Hour
- = PM Peak Hour



* Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

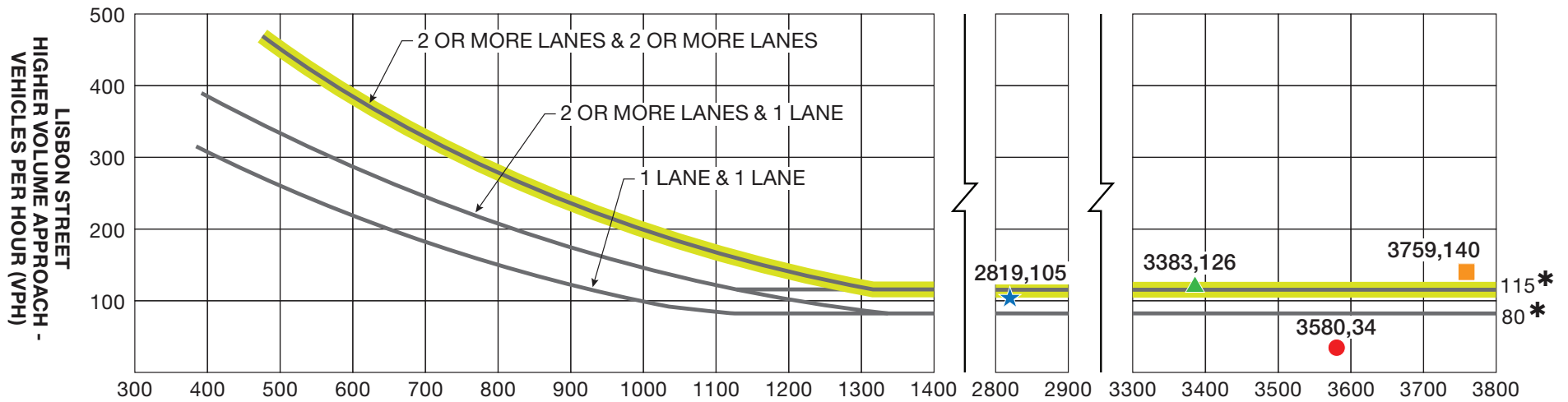


**REALIGNED COLFAX AVENUE - TOTAL OF BOTH APPROACHES -
VEHICLES PER HOUR (VPH)**

* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = AM Peak Hour
- = PM Peak Hour

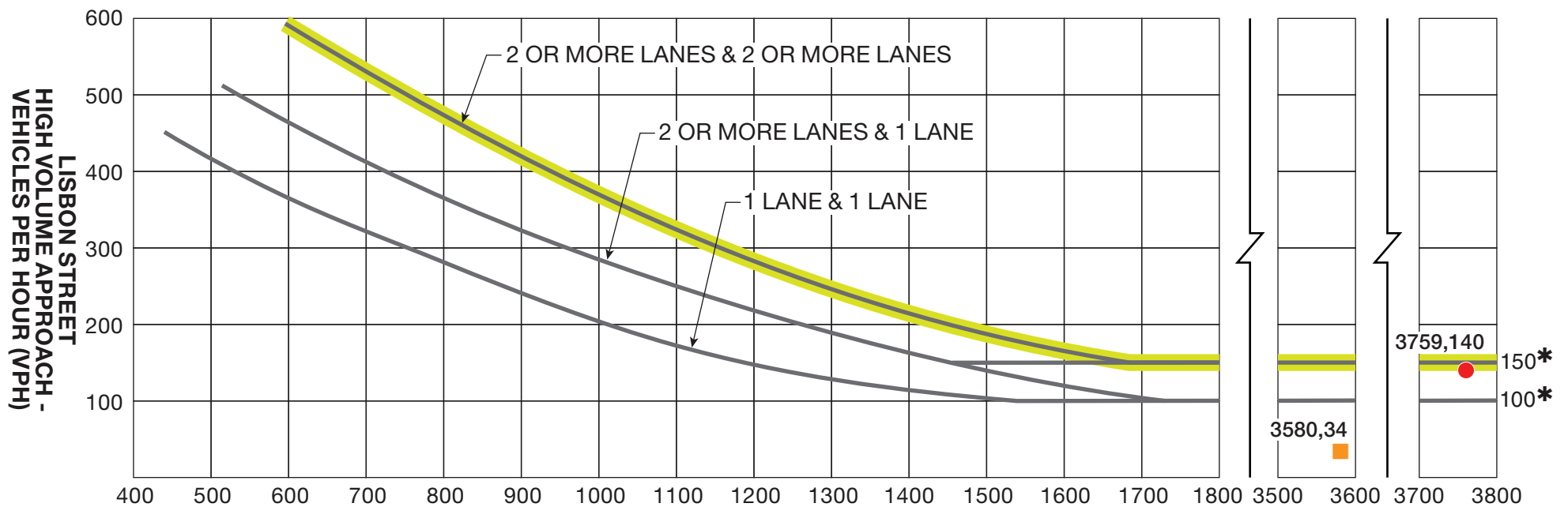


STEPHEN D. HOGAN PARKWAY - TOTAL OF BOTH APPROACHES - VEHICLES PER HOUR (VPH)

* Note: 115 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = AM Peak Hour
- = PM Peak Hour
- ▲ = 90% PM Peak Hour
- ★ = 75% PM Peak Hour



STEPHEN D. HOGAN PARKWAY - TOTAL OF BOTH APPROACHES - VEHICLES PER HOUR (VPH)

* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

LEGEND

- = PM Peak Hour
- = AM Peak Hour

APPENDIX I. PROGRESSION ANALYSIS

