WELLS + ASSOCIATES

BREEZEWAY PROPERTY TRAFFIC IMPACT STUDY

CITY OF FAIRFAX, VIRGINIA

1st Submission: **August 8, 2019**

2nd Submission: **August 25, 2020**

Revised: ***October 26, 2020***

BREEZEWAY PROPERTY

Transportation Impact Study

1st Submission: August 8, 2019

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TRAFFIC IMPACT STUDY
CITY OF FAIRFAX, VIRGINIA

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SECTION 1
INTRODUCTION

This report presents the results of a revised traffic impact study conducted in support of the proposed redevelopment of a site in the City of Fairfax currently developed with the 50-room Breezeway Motel, the 38-unit Fairfax Garden Apartments, and four (4) single family homes and presents an evaluation of the existing and future transportation network.

This study was conducted in accordance with a scoping agreement developed with City of Fairfax staff. The study scope was determined with City staff based on a review of key study intersections and roadways that would potentially be affected by the implementation of the proposed redevelopment and the number of new trips expected to be generated. **This study revision includes updating the proposed development plan to include up to 10,010 SF of commercial space and 62 residential dwelling units. Also included in this update is an additional analysis of future conditions that include the redevelopment of the adjacent American Legion (Toll Brothers) property on the east side of Oak Street (current redevelopment application not yet approved).**

The subject site is located south of Fairfax Boulevard, east of Walnut Street and west of Oak Street, in the City of Fairfax, Virginia, as shown on Figure 1-1.

The site consists of six (6) land parcels within the City of Fairfax. These parcels include:

Property ID	Address		Acreage
57-1-14-043	10829 Fairfax Blvd.		1.15 acres
57-1-14-055A	10807 - 10818 Cedar Ave		2.08 acres
57-1-14-083	3937 Walnut Street		0.56 acres
57-1-14-075A	3934 Oak Street		0.34 acres
57-1-14-076A	3932 Oak Street		0.25 acres
57-1-14-077A	3930 Oak Street		0.25 acres
		Total	4.63 acres

The applicant, Pulte Home Company, LLC. plans to develop 62 residential townhomes and up to 10,010 SF of commercial space. The site plan is shown on Figure 1-2.

According to the 24VAC30-155 (“Chapter 870”) regulations, all development proposals which meet certain specific trip generation thresholds are subject to the regulations as outlined in the Virginia Department of Transportation’s (VDOT) Traffic Impact Analysis Regulations Administrative Guidelines (“Administrative Guidelines”). In January 2012, an amendment to the Administrative Guidelines took effect, which determined a development proposal is considered to substantially impact the transportation network if it generates 5,000 or more net new daily vehicle trips located on, or within 3,000 feet of, a VDOT maintained roadway. Based on the trips anticipated to be generated by the subject development, the development would not require a VDOT Chapter 870 compliant traffic study.

Although a traffic impact analysis is not required per 24VAC30-155, the City of Fairfax has requested the submission of a traffic study in conjunction with this development application.

This traffic study was completed in accordance with the City of Fairfax policies and guidelines and is intended to address the following issues:

1. Estimation of the net new vehicle trip ends generated by the planned land uses during the AM and PM commuter peak hours and during the PM school peak hour.
2. Determination of the effects of the proposed development on the surrounding local roadway network.
3. Identification of potential road and/or operational improvements necessary to accommodate the project.

Based on the traffic study scoping form provided in Appendix A, tasks undertaken to prepare this study included the following:

1. A review of the applicant's conceptual plans for the subject site.
2. A field review of the subject site in order to determine existing roadway and intersection geometrics and traffic controls, access opportunities and/or constraints, and general traffic conditions.
3. Peak hour turning movement counts obtained at the following study intersections:
   - Fairfax Boulevard/Fairchester Drive, Walnut Street
   - Fairfax Boulevard/Meredith Drive/Oak Street
   - Walnut Street/Cedar Avenue
   - Oak Street/Cedar Avenue
   - Walnut Street/2nd Street
   - Oak Street/2nd Street
4. Calculation of existing AM and PM commuter peak hour intersection levels of service at the study intersections.
5. Identification of the number of net new peak hour trips that would be generated by the proposed mixed-use development less trips currently generated by the existing land uses based on standard Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition equations and weighted average rates.
6. Determination of future background traffic forecasts based on regional traffic growth and estimates of traffic that would be generated by other approved/planned developments in the site vicinity.
7. Calculation of future levels of service with and without the proposed development at the key study intersections for a proposed build-out year of 2024.

Sources of data for this analysis include traffic counts conducted by Wells + Associates Inc., information obtained from the City of Fairfax, the Institute of Transportation Engineers (ITE), VDOT, the Highway Capacity Manual 2000 (Synchro software, version 10), Pulte Home Company, LLC., and the files and library of Wells + Associates.

Conclusions

Based on the results of this traffic impact study, the following may be concluded:

1. The Fairfax Boulevard/Oak Street – Meredith Drive and Fairfax Boulevard/Walnut Street – Fairchester Drive signalized intersections currently operate at an overall LOS "C" or better during the AM and PM commuter peak periods based on Highway Capacity Manual calculations using the Synchro 10 traffic analysis software. Side street approaches at these intersections currently operate at LOS "E" or "F" during the peak periods due to long cycle lengths and the assignment of most of the green time to the Fairfax Boulevard Approaches.

2. Historic VDOT traffic data indicates that average daily traffic counts along Fairfax Boulevard have increased by approximately 0.55% per year between 2013 and 2018.

3. The Novus Fairfax Gateway and Paul VI Redevelopment approved pipeline developments are anticipated to generate 543 AM commuter peak hour trips, 912 PM commuter peak hour trips at full buildout.

4. Under future 2024 traffic conditions minimal increases in delay at the study intersections are expected due to the trips generated by approved pipeline developments in the vicinity of the site and overall levels of service would remain generally consistent with existing conditions.

5. The site is currently developed with the 50-room Breezeway Motel, the 38-unit Fairfax Garden Apartments, and four (4) single family homes.

6. The Applicant proposes to redevelop the site with 62 residential townhouse units and up to 10,010 SF of commercial uses.

7. The project is estimated to generate 40 AM peak commuter hour trips and 140 PM peak commuter hour trips upon buildout.

8. Under future 2024 traffic conditions, with the development of the subject site, intersection levels of service would remain generally consistent with existing and background conditions. The analyses show that the Fairfax Boulevard signalized intersections will continue to operate at LOS "C" or better during the AM and PM commuter peak periods.

9. All unsignalized intersection and access drive approaches will operate at LOS "B" or better during each of the studied peak periods.

10. Access to the commercial portion of the site will be via one full access driveway along Fairfax Boulevard and one right-in/right-out/left-out driveway on Walnut Street. Access to the northern residential portion of the site will be provided via one full access driveway along Walnut Street. Access to the southern residential portion of the site will be provided via one full access driveway along Oak Street.

11. The Applicant intends to improve the roadway geometrics at the Walnut Street/Cedar Avenue intersection by reconstructing the intersection to provide a typical four-legged stop sign controlled intersection in order to enhance vehicular, pedestrian and bicycle safety by reducing crossing widths and providing conventional design features recognized by the average motorist.

12. The Applicant intends to consolidate these access drives along Fairfax Boulevard from two locations currently serving the Breezeway Motel to a single location providing enhanced access management along this arterial roadway.

13. An alternative analysis has been added in this revision of the study to include the added impact of the potential redevelopment of the American Legion (Toll Brothers) site on the east side of Oak Street per the current development proposal for that site. Since the application for that redevelopment is not currently approved, this additional assessment is provided for informational purposes. The results indicate that both background and total future conditions would be generally consistent with those presented in this study that do not include the American Legion (Toll Brothers) redevelopment. This is primarily due to the relatively low increase in site traffic that would result from that redevelopment and the excess capacity along Oak Street that can adequately accommodate the additional traffic. Additional details regarding this additional alternative analysis are presented in Appendix F.

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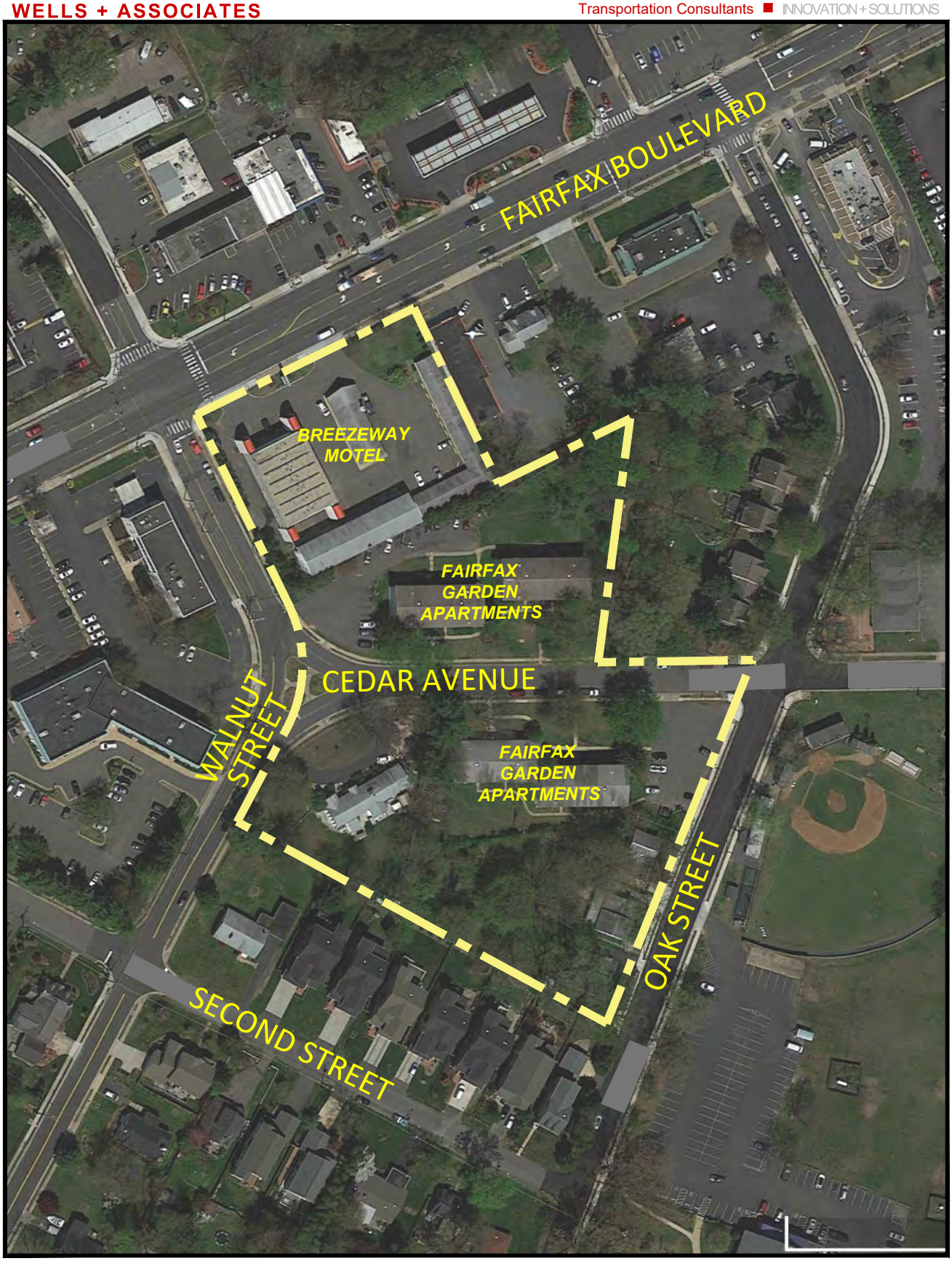

Figure 1-1
Site Location
PulteGroup, Inc.
Breezeway Property
City of Fairfax, Virginia

(X) - Study Intersection

NORTH

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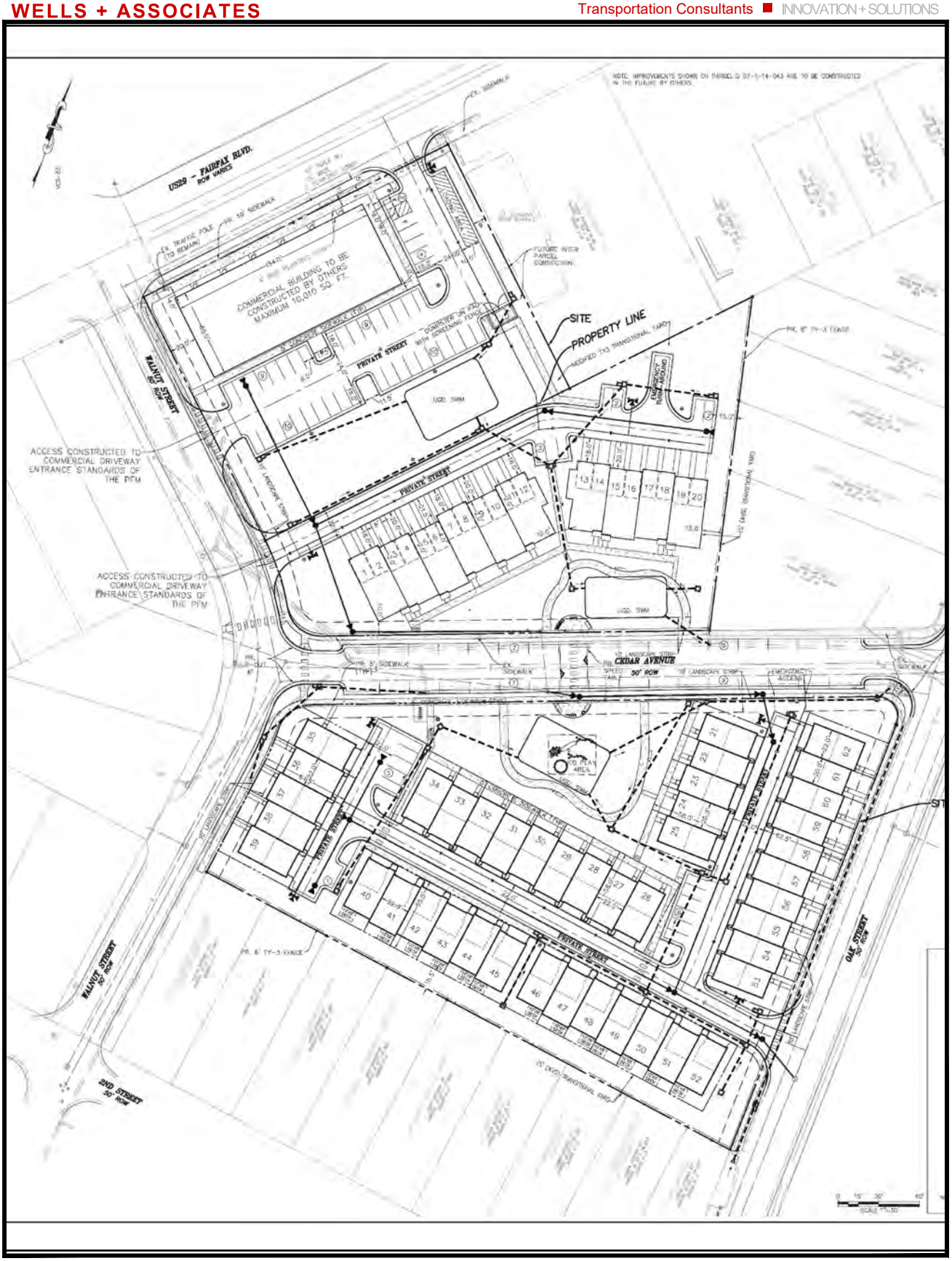

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Figure 1-2
Concept Plan
PulteGroup, Inc.
Breezeway Property
City of Fairfax, Virginia

Illustrative Layout by:
ATCS, P.L.C.
10.19.20

SECTION 2
BACKGROUND INFORMATION

Location and Surrounding Uses

As shown in Figure 1-1, the site is regionally located approximately 1/3 mile east of Main Street on Fairfax Boulevard in the City of Fairfax. Regional Access is provided by I-66 via Lee Jackson Memorial Highway/Main Street and Chain Bridge Road. Fairfax Boulevard/Arlington Boulevard provides access to/from I-495 (the Capital Beltway).

Properties immediately south of the site are generally residential in nature while commercial uses are predominant along Fairfax Boulevard.

Comprehensive Plan Land Use Recommendations

The City's Comprehensive Plan shows the subject parcels as Commercial Corridor and Multifamily Neighborhood on the Future Land Use Map.

Existing Transportation Network

Existing Road Network. The following are descriptions of the roadways in the vicinity of the proposed development.

Fairfax Boulevard is classified as an arterial roadway according to the City of Fairfax Comprehensive Plan. Within the vicinity of the subject site, Fairfax Boulevard is constructed as a five-lane, undivided roadway with a center two-way left turn lane and a posted speed limit of 35 miles per hour. Traffic signals are provided at major cross-streets including Main Street, Fairchester Drive/Walnut Street, and Meredith Drive/Oak Street. Based on 2018 VDOT average annual daily traffic (AADT) data, Fairfax Boulevard east of Main Street carries approximately 37,000 vehicles per day (vpd). This roadway currently provides access to the Breezeway Motel via two driveways.

Main Street is also classified by the Comprehensive Plan as an arterial roadway and is constructed as a four-lane, median-divided roadway with a posted speed limit of 35 miles per hour. Based on 2018 VDOT AADT data, Main Street east of the Kamp Washington intersection carries approximately 38,000 vpd.

Walnut Street is a two-lane north-south undivided roadway with a width of approximately 33 feet. Walnut Street currently provides access to residential and commercial properties south of Fairfax Boulevard and will provide access to the proposed development.

Cedar Avenue is a two-lane east-west discontinuous roadway. The section of Cedar Avenue west of Oak Street is approximately 30 feet in width. Cedar Avenue currently provides access to

the Fairfax Garden Apartments but will not provide direct access to general site traffic for the proposed development.

Oak Street is a two-lane north-south undivided roadway with a width of approximately 33 feet. Oak Street provides access to residential and commercial properties south of Fairfax Boulevard and to Paul VI Catholic High School via Cedar Avenue. Oak Street will provide access to the proposed development.

Second Street is a two-lane east-west undivided roadway with a width of between 24 and 36 feet. Second Street is approximately two (2) blocks in length and connects Fairfax Boulevard to the west with Oak Street to the east.

Existing lane use and traffic control at each of the study intersections is shown on Figure 2-1.

Public Transit Service. The site is served by the City of Fairfax's City-University Energysaver (CUE) Bus "Gold Route" along Main Street and Warwick Avenue This service provides access between the George Mason University (GMU) campus and the Vienna/Fairfax-GMU metrorail station, via University Drive, Chain Bridge Road, West Street, Main Street, Lee Highway, Jermantown Road, Orchard Street, Bevan Drive, Warwick Avenue and Fairfax Boulevard. Additionally, the site is served by the "Green Route" which provides service between the GMU campus, Old Town Fairfax, and the Vienna/Fairfax-GMU metrorail station via University Drive, Chain Bridge Road, Eaton Place, Fairfax Boulevard, Fairfax Circle, Arlington Boulevard, Nutley Street, Virginia Center Boulevard, Old Pickett Road, Pickett Road, Main Street, North Street, and George Mason Boulevard.

Pedestrian Facilities. Concrete sidewalks are provided along both sides of Fairfax Boulevard Walnut Street, Oak Street, and Cedar Avenue site frontages. Marked crosswalks are provided across the north, south, and east legs of the Fairfax Boulevard/Meredith Drive/Oak Street and the Fairfax Boulevard/Walnut Street/Fairchester Drive signalized intersections; and across all legs of the Cedar Avenue/Oak Street/Panther Place unsignalized intersection. A mid-block crosswalk is provided along Oak Street between Cedar Avenue and Second Street.

Future Transportation Network

The City of Fairfax's Comprehensive Plan provides recommended strategies for the improvement of the City's transportation network. In general, the Plan recommends that the City should strive to achieve a balance between allowing for the efficient movement of traffic and providing safe and convenient access to City businesses and residences for vehicles, pedestrians, bicycles, and other modes of transport. In terms of roadway operational improvements, the Plan recommends that through traffic should be encouraged to utilize the City's arterial system (cf. Comprehensive Plan, Strategy T-7.4.1). Therefore, no specific capacity improvements (i.e., roadway widening) are recommended for the collector streets that

immediately surround the subject site. Any improvements to these streets should focus on enhancing safety and the mobility of pedestrians, bicycles, and public transit.

The design of the existing Walnut Street/Cedar Avenue intersection is not conventional. The Walnut Street and Cedar Avenue approaches are separated by a triangular median island. Two-way traffic is permitted along each side of the median island that results in multiple conflict points and is potentially confusing to drivers as to who has right-of-way when traversing the intersection. The Applicant intends to improve this situation by reconstructing the intersection to provide a typical four-legged stop sign controlled intersection with Walnut Street operating and the major (uncontrolled) approach. Cedar Avenue (the east approach) and the existing commercial driveway (the west approach) will be stop sign controlled. This redesign will enhance vehicular, pedestrian and bicycle safety by reducing crossing widths and providing conventional design features recognized by the average motorist.

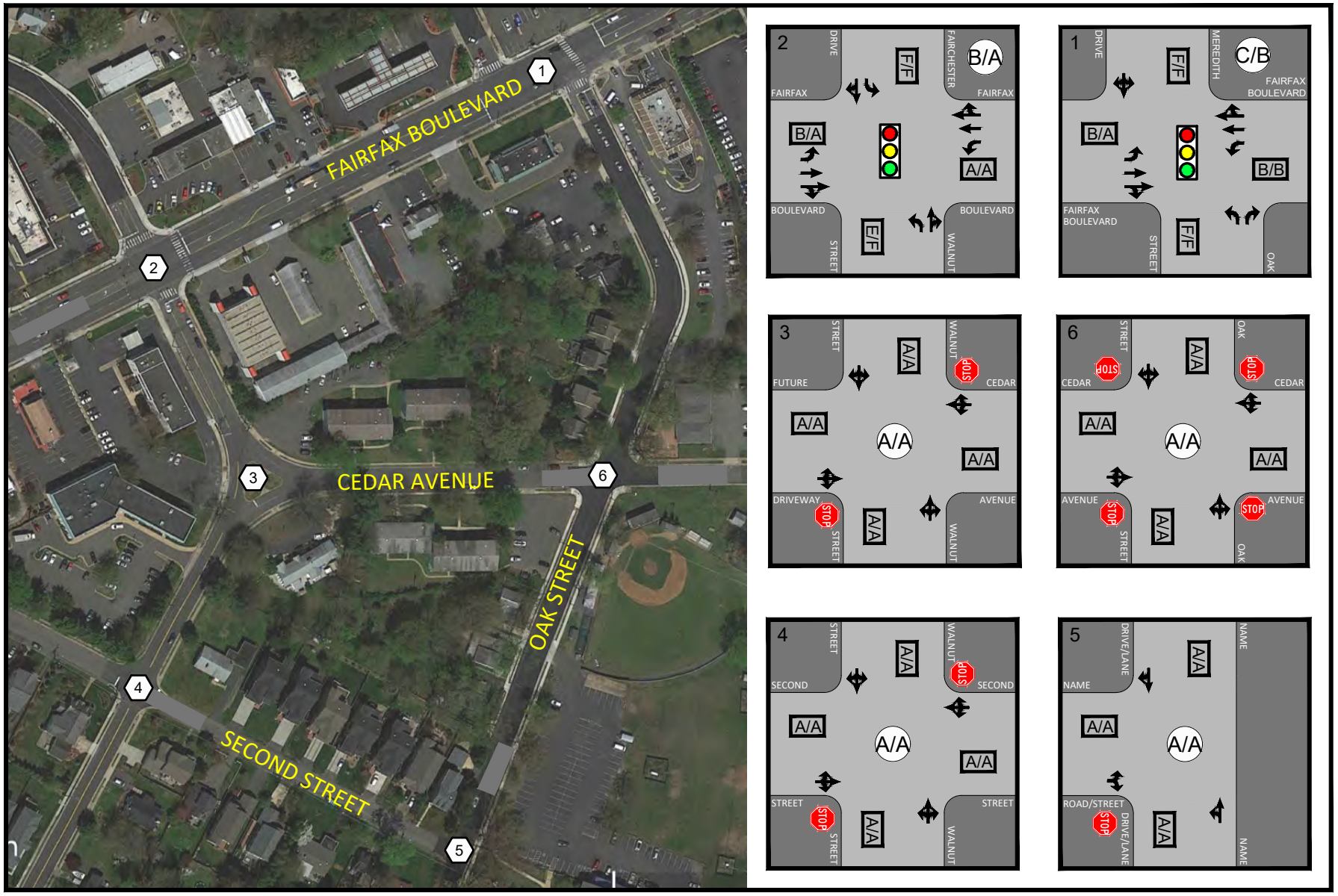

Figure 2-1
Existing Lane Use, Traffic Control and Levels of Service

Pulte Group, Inc.
City of Fairfax, Virginia

SECTION 3
STUDY SCOPE AND ANALYSIS PARAMETERS

Overview

The subject site is located south of Fairfax Boulevard, east of Walnut Street, and west of Oak Street in the City of Fairfax, Virginia. The subject property is comprised of five parcels totaling 4.63 acres north and south of Cedar Avenue. The parcel developed with the existing Breezeway Motel is zoned DR (Commercial Retail) and the parcels developed with existing residential uses are zoned RMF (Residential Multifamily) and RH (Residential High).

The primary objective of this study is to assess the impacts of the proposed development plan on the surrounding street system.

This traffic study was conducted in accordance with the scoping document and discussions with Wells + Associates, City staff, and the Applicant. A traffic study scoping meeting was held on June 25, 2019 and resulted in a scoping form dated July 3, 2019 that is provided in Appendix A. As previously noted, the revised development plan includes up to 10,010 SF of commercial space and 62 dwelling units. Additionally, site access has been updated per the current development plan.

Study Area

The study area was determined based on the intersections and roadways that potentially would be affected by implementation of the proposed development plan. The following intersections were selected for analysis and evaluation:

- Fairfax Boulevard/Meredith Drive/Oak Street
- Fairfax Boulevard/Fairchester Drive, Walnut Street
- Walnut Street/Cedar Avenue
- Walnut Street/Second Street
- Oak Street/Second Street
- Oak Street/Cedar Avenue-Panther Place
- All Site Access Drives

Site Development Program

The Applicant is proposing to redevelop the property with 62 residential units to include townhomes and stacked condos. A commercial building with up to 10,010 SF of space is proposed along Fairfax Boulevard.

Analysis Study Periods

The intersections within the study area were analyzed under AM and PM commuter peak hour conditions.

Existing Traffic Volumes

Existing AM and PM commuter peak hour turning movements and pedestrian counts were conducted on Thursday, July 11, 2019, at the study intersections from 6:00 AM to 9:00 AM and from 4:00 PM to 7:00 PM. These counts were compared to counts at the Fairfax Boulevard study intersection conducted when school was in session on Wednesday, February 3, 2016 and Thursday, March 1, 2018 after deducting traffic generated by the soon to be closed Paul VI Catholic High School. This comparison indicates that the current (July 11, 2019) counts were between 7% and 23% higher than counts collected during the school year (adjusted to reflect the closure of Paul VI) during the AM peak hour and between 3% amd 6% higher than counts collected during the school year (adjusted to reflect the closure of Paul VI) during the PM peak hour.

Based on this comparison, the higher current (July 11, 2019) counts were utilized in this traffic analysis. Additionally, counts along Fairfax Boulevard were balanced between the Walnut Street/Faichester Drive and Oak Street/Meredith Drive intersections in both directions by choosing the higher of the entering and exiting volumes at each intersection.

The existing vehicular traffic volumes balanced as described above are provided on Figure 3-1. All existing count data are included in Appendix B.

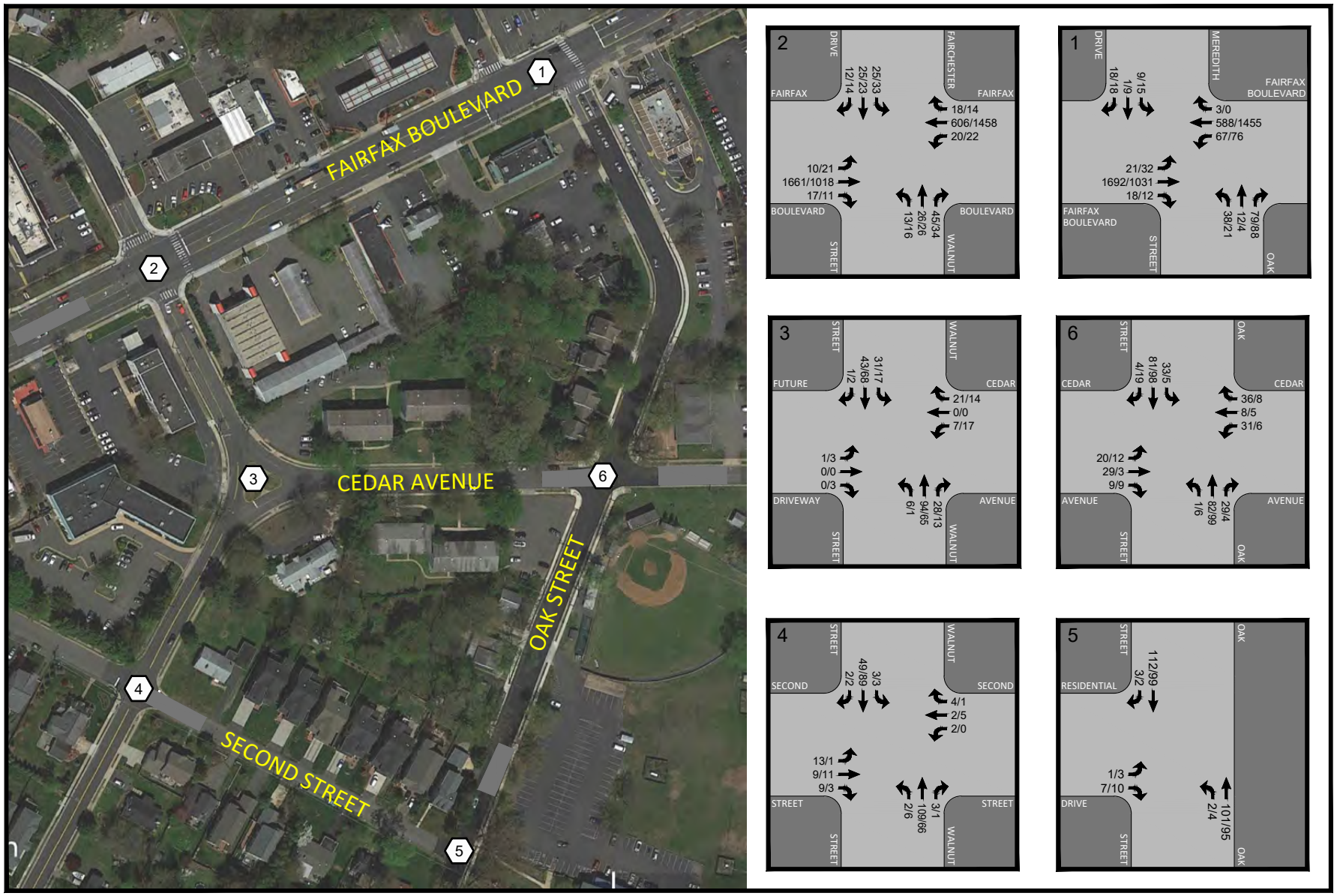

Figure 3-1
Existing Peak Hour Traffic Volumes

AM PEAK HOUR
PM PEAK HOUR
000 / 000

NORTH

Pulte Group, Inc.
City of Fairfax, Virginia

SECTION 4
EXISTING CONDITIONS ANALYSIS

Existing Intersection Levels of Service

Peak hour levels of service were calculated for the study intersections based on the existing lane use and traffic controls shown on Figure 2-1, the existing traffic volumes shown on Figure 3-1, and the 2000 Highway Capacity Manual (HCM) analysis procedures for signalized and unsignalized intersections. The results are presented in Appendix C and summarized on Table 4-1.

The analyses show that the signalized intersections along Fairfax Boulevard currently operate at level of service "C" (LOS "C") or better during the AM and PM peak commuter periods. The side street approaches to the signalized intersections operate at LOS "E" and "F" with average delays between 76.5 seconds and 105.7 seconds. However, the volume-to-capacity (v/c) ratios for the side street approaches at intersections along Fairfax Boulevard are well below 1.0, indicating that the lengthy delays are the result of long cycle lengths (190 seconds during the AM commuter peak hour and 220 seconds during the PM commuter peak hours) and the assignment of the predominance of the green time to the Fairfax Boulevard approaches, rather than insufficient capacity.

All approaches at the unsignalized intersections of Walnut Street/Cedar Avenue, Walnut Street/Second Street, Oak Street/Second Street, and Oak Street/Cedar Avenue – Panther Place operate at LOS "A" during each of the peak periods.

Table 4-1

Breezeway Property

Existing Intersection Capacity Analysis Summary

	Intersection	Intersection Control	Approach	Existing AM Peak	Existing PM Peak
1.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (17.8)	A (8.8)
			WB Appr	B (14.9)	B (17.3)
			NB Appr	F (87.1)	F (100.2)
			SB Appr	F (88.4)	F (102.4)
			Overall	**C (21.2)**	**B (18.7)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	B (13.0)	A (8.0)
			WB Appr	A (3.0)	A (1.7)
			NB Appr	E (76.5)	F (90.3)
			SB Appr	F (92.7)	F (105.7)
			Overall	**B (14.6)**	**A (9.4)**
3.	Walnut Street/Cedar Avenue	Stop	EB Appr	A (0.0)	A (9.4)
			WB Appr	A (9.4)	A (9.6)
			NB Appr	A (0.4)	A (0.1)
			SB Appr	A (3.2)	A (1.5)
			Overall	**A (2.4)**	**A (2.5)**
4.	Walnut Street/Second Street	Stop	EB Appr	A (7.5)	A (7.3)
			WB Appr	A (7.2)	A (7.3)
			NB Appr	A (7.8)	A (7.5)
			SB Appr	A (7.5)	A (7.7)
			Overall	**A (7.7)**	**A (7.6)**
5.	Oak Street/Second Street	Stop	EB Appr	A (7.0)	A (7.1)
			NB Appr	A (7.7)	A (7.7)
			SB Appr	A (7.8)	A (7.7)
			Overall	**A (7.7)**	**A (7.7)**
6.	Oak Street/Cedar Avenue/Panther Place	Stop	EB Appr	A (8.1)	A (7.6)
			WB Appr	A (8.0)	A (7.5)
			NB Appr	A (8.1)	A (7.9)
			SB Appr	A (8.4)	A (7.9)
			Overall	**A (8.2)**	**A (7.8)**

SECTION 5
ANALYSIS OF FUTURE CONDITIONS WITHOUT SITE DEVELOPMENT

Overview

Forecasts for traffic conditions without the redevelopment of the Breezeway Property were estimated at the study intersections based on a composite of existing traffic regional traffic growth, and pipeline development trips as described below. Future levels of service under these forecasted conditions were evaluated at the study intersections.

Regional Traffic Growth

A review of VDOT AADT volumes along Fairfax Boulevard and Main Street in the vicinity of the site indicates modest growth in traffic volumes over the past five (5) years. AADT volumes along Fairfax Boulevard east of Main Street rose from 36,000 vehicles in 2013 to 37,000 vehicles in 2018, an average annual increase of approximately 0.55% per year.

Based on these findings, existing traffic volumes were increased by 0.55% per year to the anticipated build-out of the site in 2024.

Traffic from Other Approved/Pending Developments

At the request of City staff, the following approved/pending developments were included as approved (i.e., "pipeline") developments:

- Novus Fairfax Gateway
  - 4,000 SF Office
  - 5,000 SF Quality Restaurant
  - 7,400 SF High Turn-Over Sit-Down Restaurant
  - 12,600 SF Shopping Center
  - 395 Residential Apartments

- Paul VI Redevelopment
  - 259 Residential Condominiums/Townhouses
  - 7 Single Family Dwelling Units
  - 24,000 SF of Community Space
  - 20,000 SF of Retail Space

As shown in Table 5-1, these pipeline developments are anticipated to generate 543 AM peak commuter hour trips, and 912 PM commuter peak hour trips at full buildout. It is noted that not all of these trips will utilize the study intersections along Fairfax Boulevard, Walnut Street and Oak Street.

An additional alternative background conditions analysis in included in Appendix F that includes the potential redevelopment of the American Legion (Toll Brothers) site located on the east side of Oak Street. Since that development application is not currently approved, this additional analysis is provided for informational purposes only.

Table 5-1
Breezeway Property - City of Fairfax
Background Development Trip Generation

Use	ITE Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
Novus Fairfax Gateway										
Office	710	4,000	SF	5	1	6	1	5	6	44
Quality Restaurant	931	5,000	SF	2	2	4	25	12	37	450
High Turnover Restaurant	932	7,400	SF	44	36	80	44	29	73	941
Shopping Center	820	12,600	SF	27	17	44	72	78	150	1,767
Apartments	220	395	DU	39	158	197	153	82	235	2,517
Total Novus Fairfax Gateway Trips	--			**117**	**214**	**331**	**295**	**206**	**501**	**5,719**
Paul VI - Redevelopment										
Condominiums	232	144	DU	13	58	71	40	24	64	767
Single Family Homes	210	7	DU	4	11	15	6	4	10	91
Townhomes	230	115	DU	10	48	58	45	22	67	726
Subtotal Residential		266	DU	27	117	144	91	50	141	1,584
Community Space	495	24,000	SF	32	17	49	32	34	66	812
Local Serving Retail	820	20,000	SF	12	7	19	98	106	204	2,386
Subtotal Commercial		44,000	SF	44	24	68	130	140	270	3,198
Total Paul VI Redevelopment				**71**	**141**	**212**	**221**	**190**	**411**	**4,782**
TOTAL BACKGROUND DEVELOPMENT TRIP GENERATION				**188**	**355**	**543**	**516**	**396**	**912**	**10,501**

Notes: (1) Based on Trip Generation from Development Traffic Impact Studies

Background Traffic Forecasts

The existing traffic volumes depicted on Figure 3-1, regional traffic growth, and the pipeline trip assignments shown on Figure 5-1 were added together to yield the background future traffic forecasts at the study intersections, shown on Figure 5-2.

Background Future Levels of Service

Peak hour levels of service were calculated for the study intersections based on the existing lane use and traffic controls, background future traffic forecasts, and the 2000 Highway Capacity Manual (HCM) analysis procedures for signalized and unsignalized intersections. The results are provided in Appendix D, shown on Figure 5-3, and summarized in Table 5-2.

The analyses show that the signalized intersections along Fairfax Boulevard will continue to operate at level of service "C" (LOS "C") or better during the AM and PM peak commuter periods. The side street approaches to the signalized intersections will continue to operate at LOS "E" and "F" with average delays between 76.6 seconds and 103.9 seconds. However, the volume-to-capacity (v/c) ratios for the side street approaches at intersections along Fairfax Boulevard will be well below 1.0, indicating that the lengthy delays will be the result of long cycle lengths (190 seconds during the AM commuter peak hour and 220 seconds during the PM commuter peak hours) and the assignment of the predominance of the green time to the Fairfax Boulevard approaches, rather than insufficient capacity.

All approaches at the unsignalized intersections of Walnut Street/Cedar Avenue, Walnut Street/Second Street, Oak Street/Second Street, and Oak Street/Cedar Avenue – Panther Place will operate at LOS "B" or better during each of the peak periods.

As previously noted, an additional alternative analysis is included in Appendix F that also includes the potential redevelopment of the (not currently approved) American Legion (Toll Brothers) redevelopment on the east side of Oak Street. The results of this additional anlaysis is generally consistent with the results summarized in Table 5-2 below with additional delays of less than 2 seconds/vehicle for any intersection approach included in the study.

Table 5-2

Breezeway Property

Background Future Intersection Capacity Analysis Summary

	Intersection	Intersection Control	Approach	Existing		Background Future	
				AM Peak	PM Peak	AM Peak	PM Peak
1.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (17.8)	A (8.8)	B (17.2)	A (8.1)
			WB Appr	B (14.9)	B (17.3)	B (13.8)	B (17.2)
			NB Appr	F (87.1)	F (100.2)	F (84.4)	F (100.3)
			SB Appr	F (88.4)	F (102.4)	F (88.3)	F (104.7)
			Overall	**C (21.2)**	**B (18.7)**	**C (20.3)**	**B (17.9)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	B (13.0)	A (8.0)	B (12.8)	A (8.3)
			WB Appr	A (3.0)	A (1.7)	A (2.8)	A (1.7)
			NB Appr	E (76.5)	F (90.3)	E (76.6)	F (90.4)
			SB Appr	F (92.7)	F (105.7)	F (91.7)	F (103.9)
			Overall	**B (14.6)**	**A (9.4)**	**B (14.0)**	**A (8.9)**
3.	Walnut Street/Cedar Avenue	Stop	EB Appr	A (0.0)	A (9.4)	B (10.7)	A (9.4)
			WB Appr	A (9.4)	A (9.6)	A (9.4)	A (9.5)
			NB Appr	A (0.4)	A (0.1)	A (0.4)	A (0.1)
			SB Appr	A (3.2)	A (1.5)	A (3.3)	A (1.7)
			Overall	**A (2.4)**	**A (2.5)**	**A (2.6)**	**A (2.5)**
4.	Walnut Street/Second Street	Stop	EB Appr	A (7.5)	A (7.3)	A (7.4)	A (7.3)
			WB Appr	A (7.2)	A (7.3)	A (7.2)	A (7.3)
			NB Appr	A (7.8)	A (7.5)	A (7.8)	A (7.5)
			SB Appr	A (7.5)	A (7.7)	A (7.4)	A (7.6)
			Overall	**A (7.7)**	**A (7.6)**	**A (7.6)**	**A (7.5)**
5.	Oak Street/Second Street	Stop	EB Appr	A (7.0)	A (7.1)	A (7.0)	A (7.1)
			NB Appr	A (7.7)	A (7.7)	A (7.8)	A (7.8)
			SB Appr	A (7.8)	A (7.7)	A (7.9)	A (7.8)
			Overall	**A (7.7)**	**A (7.7)**	**A (7.8)**	**A (7.8)**
6.	Oak Street/Cedar Avenue/Panther Place	Stop	EB Appr	A (8.1)	A (7.6)	A (8.1)	A (7.6)
			WB Appr	A (8.0)	A (7.5)	A (8.3)	A (7.8)
			NB Appr	A (8.1)	A (7.9)	A (8.2)	A (8.0)
			SB Appr	A (8.4)	A (7.9)	A (8.5)	A (8.0)
			Overall	**A (8.2)**	**A (7.8)**	**A (8.3)**	**A (7.9)**

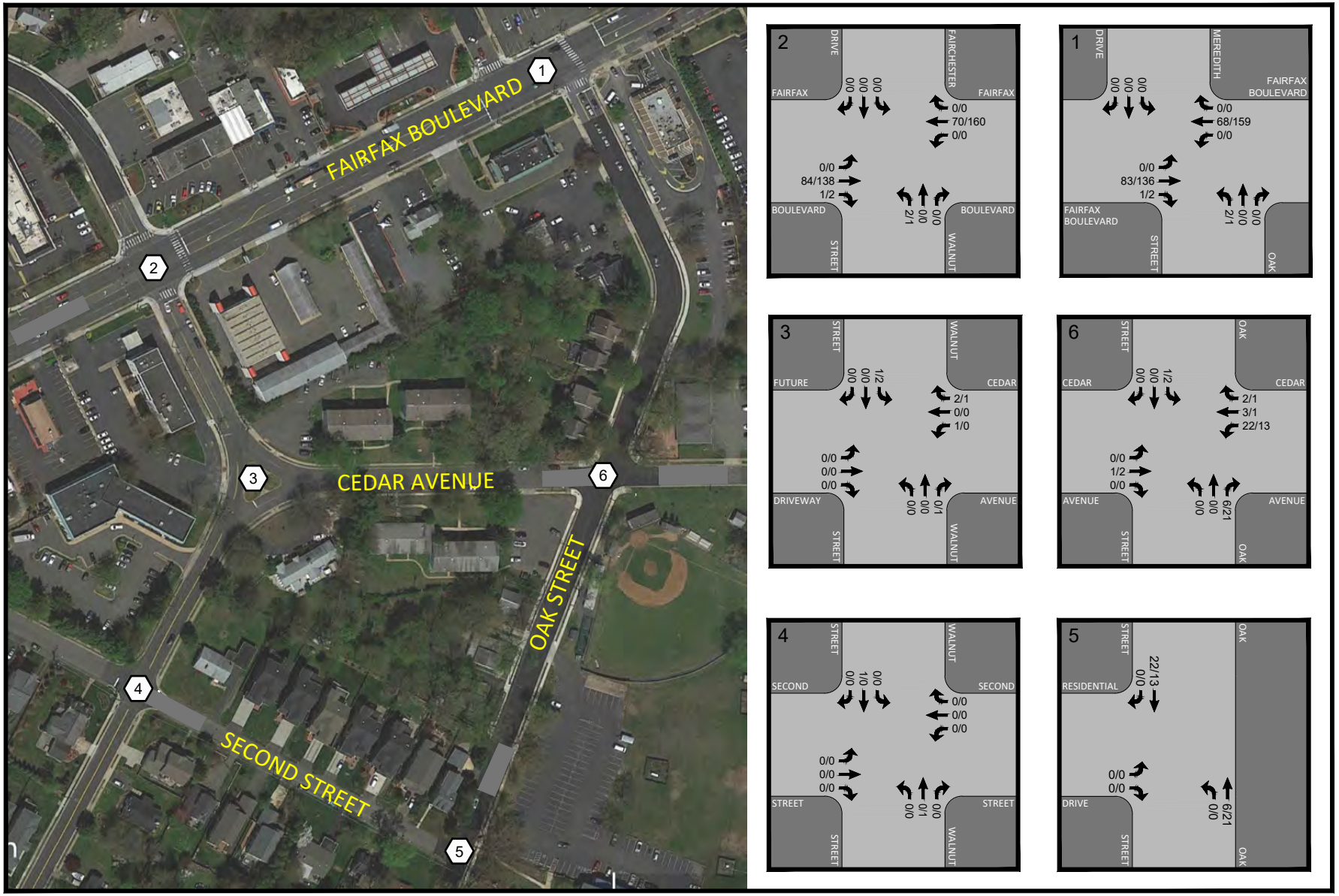

Figure 5-1
Pipeline Development Traffic Assignments
Includes Novus Fairfax Gateway and Paul VI Redevelopment

AM PEAK HOUR
PM PEAK HOUR
000 / 000

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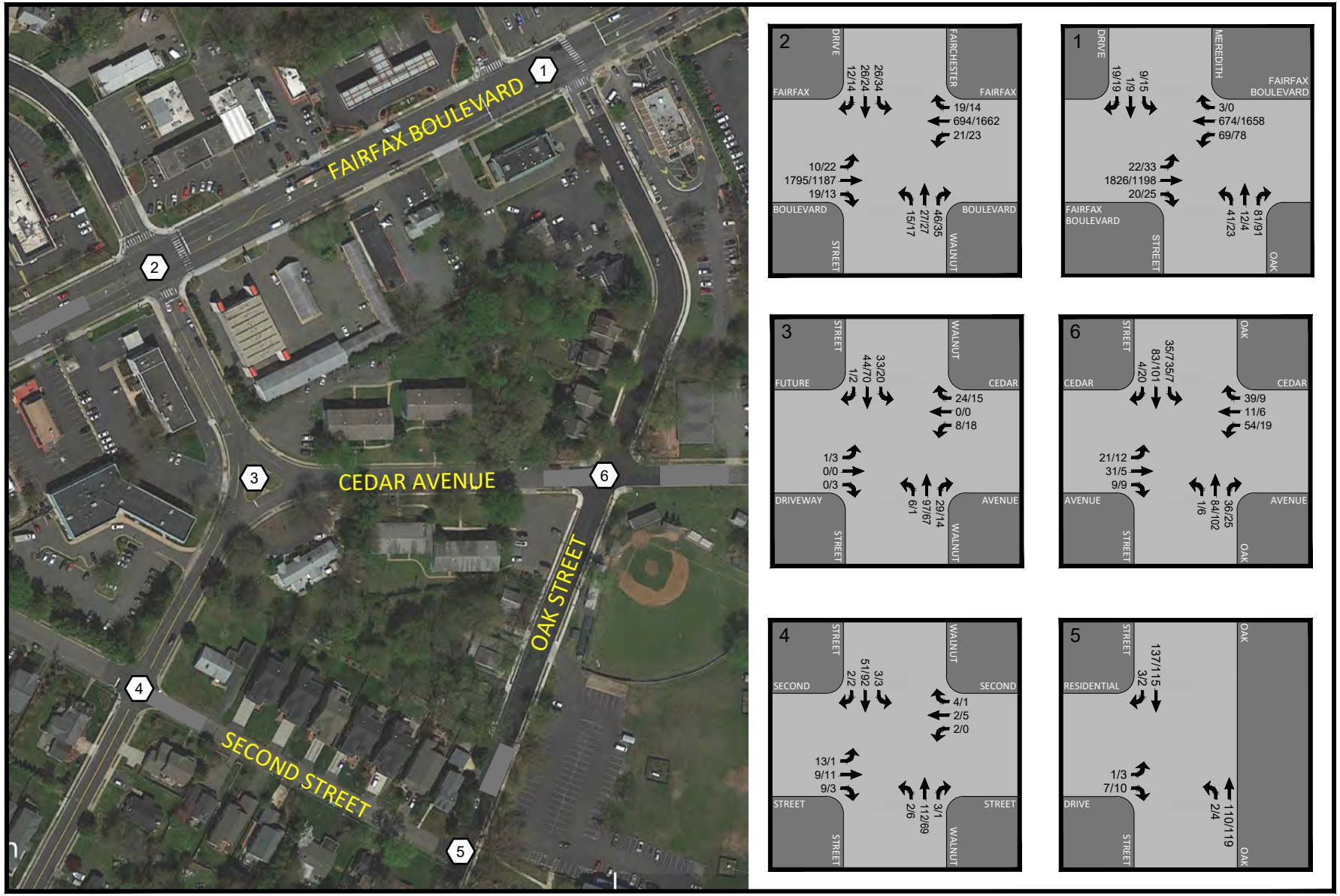

Figure 5-2
2024 Background Future Peak Hour Traffic Forecasts
With Pipeline Developments

AM PEAK HOUR
PM PEAK HOUR
000 / 000

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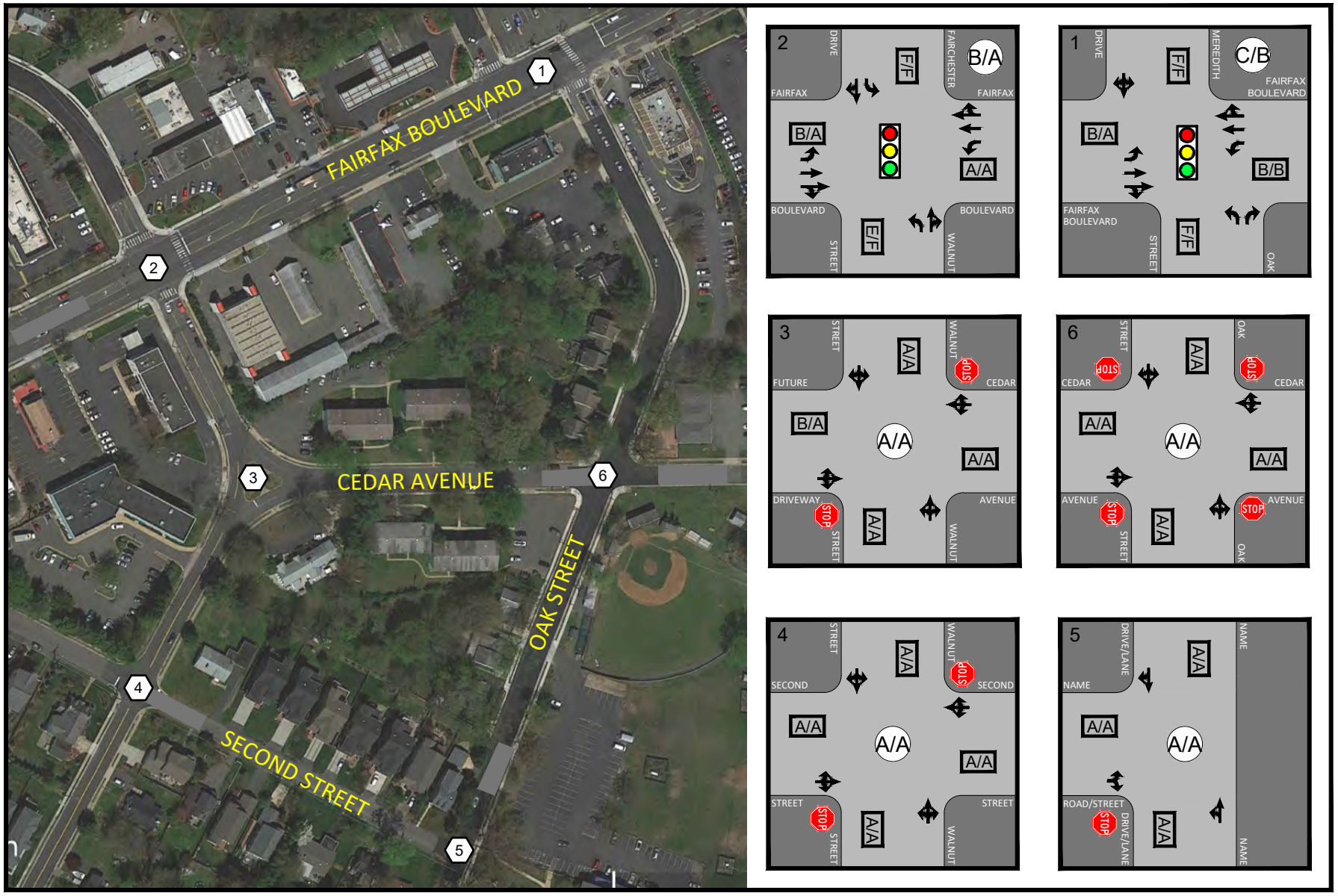

Figure 5-3
2024 Background Lane Use, Traffic Control and Levels of Service

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City of Fairfax, Virginia

SECTION 6
SITE ANALYSIS

Overview

Trips anticipated to be generated by the proposed development plan were forecasted and assigned to the surrounding roadway network. The generation, distribution, and assignment of site trips were based on the proposed redevelopment plan and program, as well as the locations of future site entrances in relation to the surrounding roadway network.

Existing Site Trips

As stated previously, the site is currently developed with the 50-room Breezeway Motel, the 38-unit Fairfax Garden Apartments, and four (4) single family homes. The redevelopment plan calls for the elimination of these uses and the construction of 62 residential townhouse units and a commercial building with up to 10,010 SF of space. Additionally, while traffic counts were conducted during the summer, Paul VI Catholic School generated some traffic as exhibited by by the traffic counts at the Oak Street/Cedar Avenue – Panther Place intersection. To provide a conservative analysis of future traffic conditions with the site, trips generated by the existing site uses and the activities at Paul VI Catholic School were not eliminated from the existing roadway network.

Proposed Site Access

The site plan provided on Figure 1-2 shows that access to the northern commercial portion of the site is proposed at two locations, one full-movement driveway along Fairfax Boulevard approximately 250' east of Walnut Street – Fairchester Drive and a Right-In/Right-Out/Left-Out driveway along Walnut Street. Access to the northern residential portion of the site will be provided via a full-movement driveway on Walnut Street south of the commercial driveway. Access to the southern residential parcel will be provided along Oak Street approximately 300' south of Cedar Avenue – Panther Place.

Trip Generation

Overview. Trip generation estimates for the AM and PM peak hours, as well as the average daily traffic, were derived from the standard Institute of Transportation Engineers (ITE) trip generation rates, as published in the Trip Generation Manual, 10th edition. The "Mullti-family Housing – Low-rise" (220) land use code was used for the proposed townhomes units. For purposes of this assessment, the "Shopping Center" (820) land use code was used for the commercial component; however, it is noted that another commercial use other than general retail may ultimately fill all or a portion of the commercial space.

The trip generation analysis for the existing and proposed uses is presented in Table 6-1 and reflects a reduction in peak hour and daily trips from the previous study submission. When compared to the existing uses on site, the proposed development plan would result in an

overall increase if two (2) additional AM peak hour trips, an overall increase of approximately 109 additional trips during the PM peak hour and approximately 1,237 additional daily trips. For purposes of this study, existing trips were not removed from the road network, and the total 40 AM peak hour trips and 140 PM peak hour trips for the proposed uses were added to the road network.

Table 6-1
Breezeway Property
ITE Trip Generation, 10th Edition

Land Use	Ref	Size	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily Total
Existing Site Uses										
Motel	320	50	Rooms	8	13	21	11	10	21	152
Multifamily (Low Rise)	220	6	DU's	1	2	3	1	1	2	44
Multifamily (Mid-Rise)	221	32	DU's	3	8	11	2	2	4	173
Single-Family Detached	210	4	DU's	1	2	3	3	1	4	38
Subtotal Existing Uses				**13**	**25**	**38**	**17**	**14**	**31**	**407**
Proposed Development Plan										
Town Homes - North Land Bay	220	20	D.U.	2	8	10	9	5	14	110
Town Homes - South Land Bay	220	42	D.U.	5	16	21	17	10	27	277
Commercial (Retail - Shopping Center)	820	10,010	SF	6	3	9	48	51	99	1,257
Subtotal Proposed Uses				**13**	**27**	**40**	**74**	**66**	**140**	**1,644**
Net Difference: Approved vs. Proposed				**0**	**2**	**2**	**57**	**52**	**109**	**1,237**

It should be noted that no reduction in site generated trips due to transit mode split was taken in this analysis. However, it is anticipated that the project would take advantage of public transit opportunities available in the proximity of the site.

Site Trip Distribution

As agreed upon in the scope with City staff, site trip distribution used in the analysis was based on existing travel patterns and engineering judgment. For purposes of this analysis, the following distribution was used in the forecasting of future site traffic:

To/From:	Residential	Commercial
West on Lee Highway/Fairfax Boulevard:	35%	35%
Northeast on Fairfax Boulevard:	50%	45%
Southeast on Main Street:	15%	15%
North on Fairchester Drive/Meredith Drive	0%	5%
TOTAL	100%	100%

Figure 6-1 graphically illustrates this trip distribution.

Site Trip Assignments

The assignments of the total vehicle trips generated upon the future build-out of the Breezeway Property redevelopment was based on the above distribution, and are depicted on Figures 6-2A and 6-2B.

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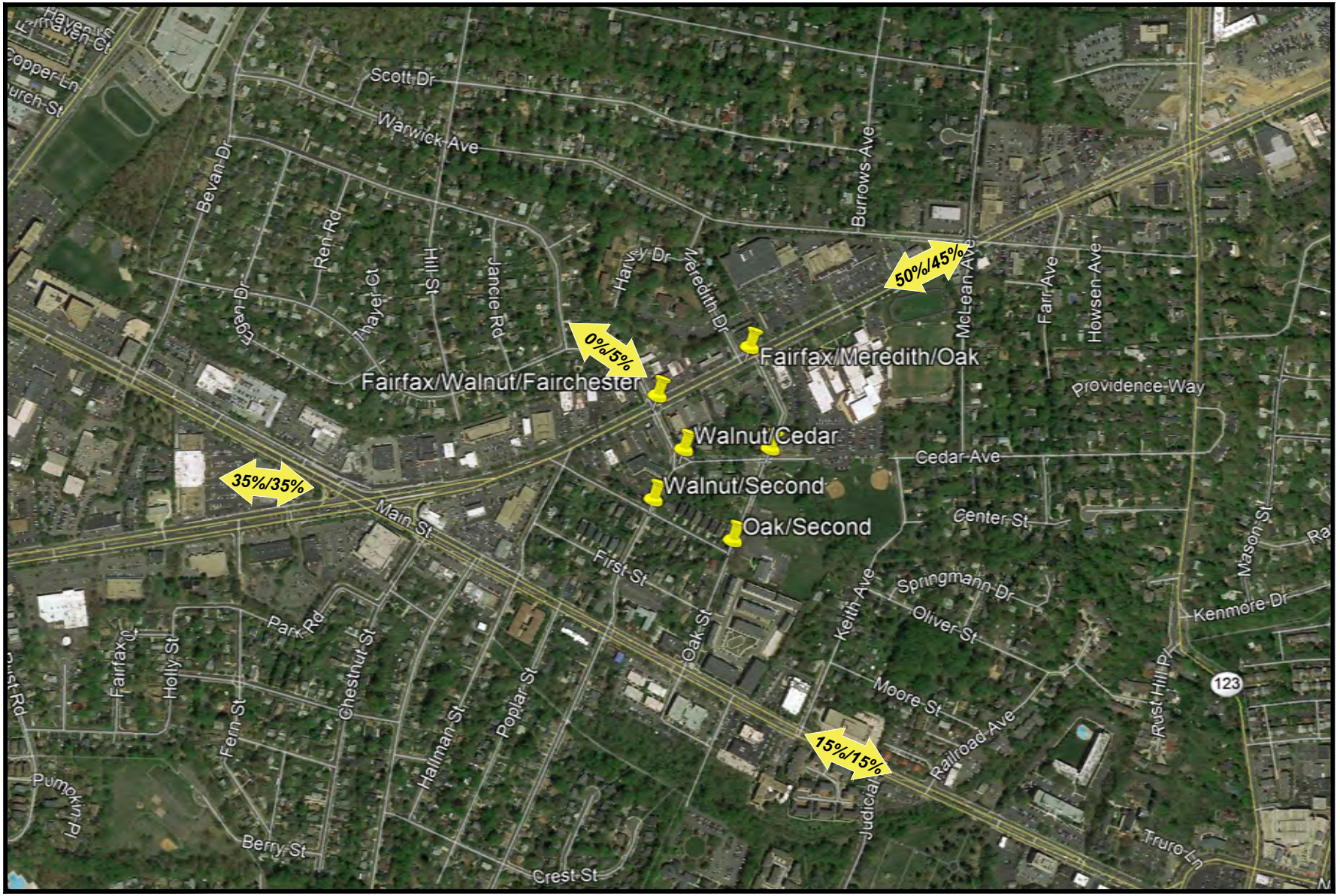

Figure 6-1
Site Traffic Directions of Approach
Breezeway Property

XX%/XX% - Residential/Commercial

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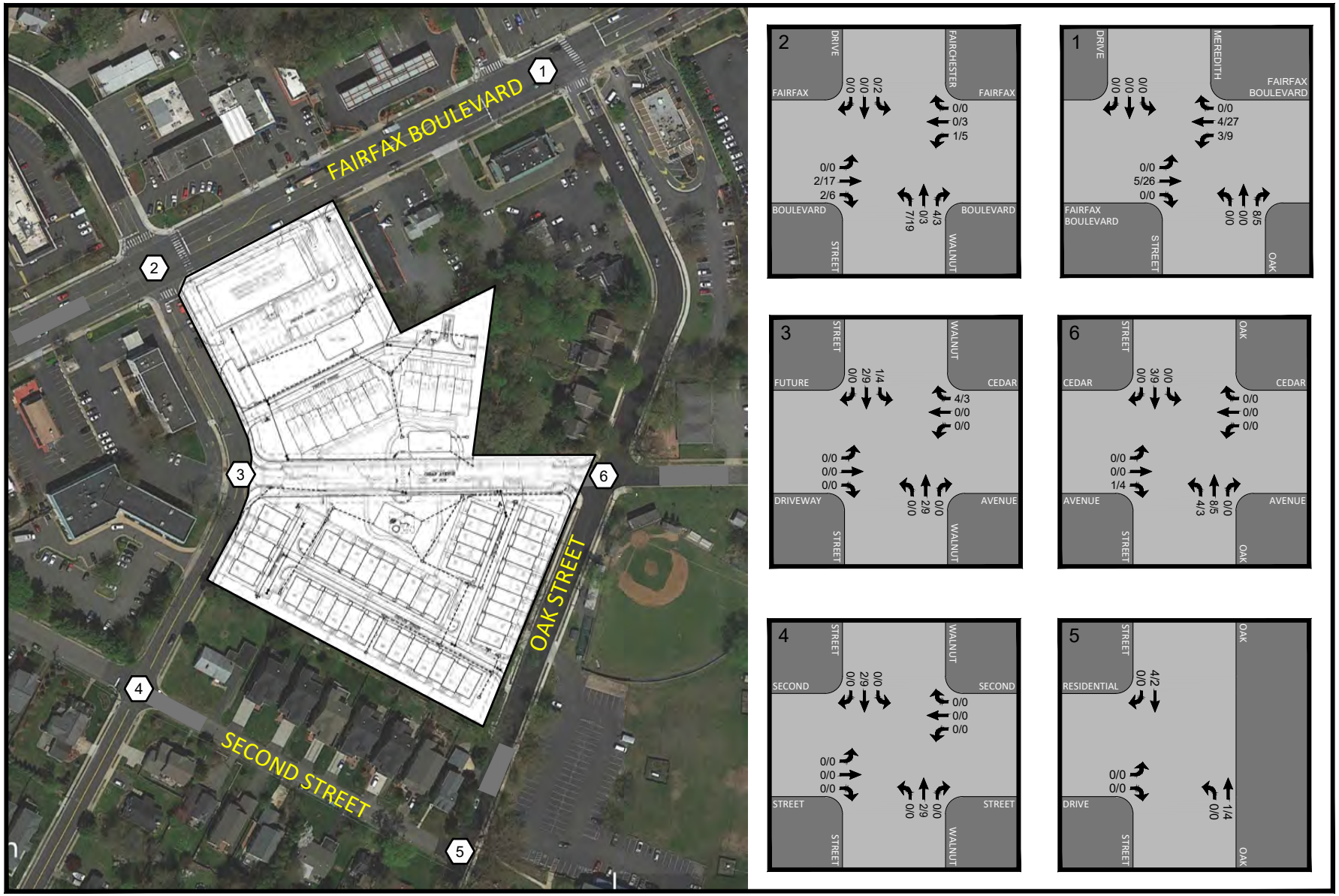

Figure 6-2A
2024 Site Traffic Assignments (Residential & Commercial)
Study Intersections

AM PEAK HOUR
PM PEAK HOUR
000 / 000

NORTH

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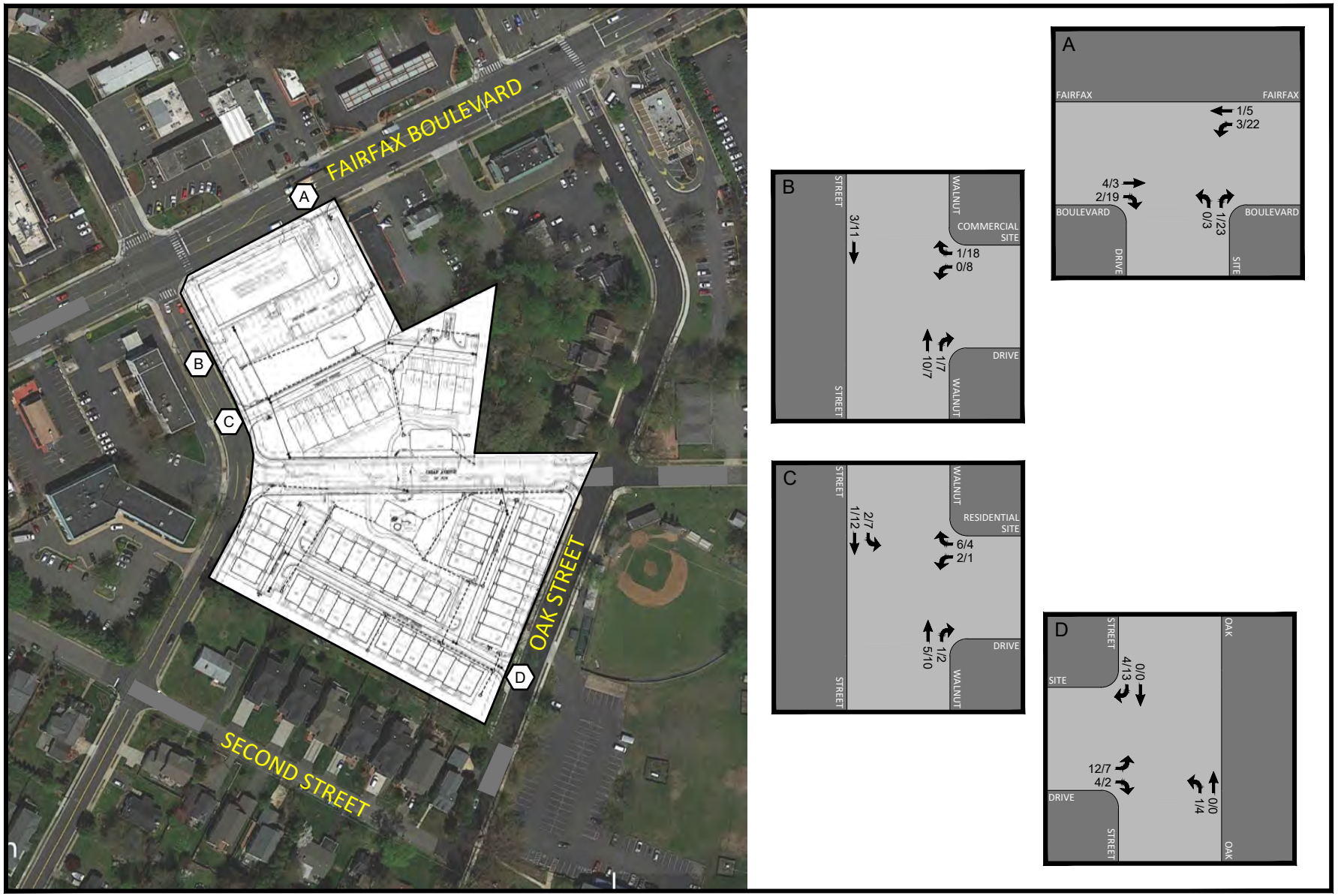

Figure 6-2B
Site Traffic Assignments (Residential & Commercial)
Site Driveways

AM PEAK HOUR
PM PEAK HOUR
000 / 000

NORTH

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SECTION 7
ANALYSIS OF FUTURE CONDITIONS WITH SITE DEVELOPMENT

Total Future Traffic Forecasts

Site trip assignments shown on Figures 6-2A and 6-2B were added to the background traffic forecasts to yield 2024 total future traffic forecasts, shown on Figures 7-1A and 7-1B.

Proposed Improvements

The design of the existing Walnut Street/Cedar Avenue intersection is not conventional. The Walnut Street and Cedar Avenue approaches are separated by a triangular median island. Two-way traffic is permitted along each side of the median island that results in multiple conflict points and is potentially confusing to drivers as to who has right-of-way when traversing the intersection. The Applicant intends to improve this situation by reconstructing the intersection to provide a typical four-legged stop sign controlled intersection with Walnut Street operating and the major (uncontrolled) approach. Cedar Avenue (the east approach) and the existing commercial driveway (the west approach) will be stop sign controlled. This redesign will enhance vehicular, pedestrian and bicycle safety by reducing crossing widths and providing conventional design features recognized by the average motorist.

Additionally, access to the existing Breezeway Motel is currently provided at two locations along Fairfax Boulevard. The Applicant intends to consolidate these access drives to a single location providing enhanced access management along this arterial roadway.

Lane use and traffic control at each of the study intersections for 2024 total future conditions is shown on Figure 7-2A and 7-2B.

Total Future Levels of Service with Proposed Development Plan

Future levels of service with the proposed development plan were determined at the study intersections based on the future traffic volumes shown on Figures 7-1A and 7-1B, future lane use and traffic control shown on Figures 7-2A and 7-2B, and the 2000 HCM methodologies for signalized and unsignalized intersections calculated using the Synchro 10 traffic analysis software. The results of these analyses are provided in Appendix E and summarized in Table 7-1.

As shown in Table 7-1, levels of service under future site development conditions would remain generally consistent with future background conditions (i.e., without site development).

The analyses show that the signalized intersections along Fairfax Boulevard will continue to operate at level of service "C" (LOS "C") or better during the AM and PM peak commuter periods. The side street approaches to the signalized intersections will continue to operate at LOS "E" and "F" with average delays between 76.5 seconds and 105.9 seconds. However, the volume-to-capacity (v/c) ratios for the side street approaches at intersections along Fairfax Boulevard will be well below 1.0, indicating that the lengthy delays will be the result of long cycle lengths (190 seconds during the AM commuter peak hour and 220 seconds during the PM commuter peak hours) and the assignment of the predominance of the green time to the Fairfax Boulevard approaches, rather than insufficient capacity.

All approaches at the unsignalized intersections of Walnut Street/Cedar Avenue, Walnut Street/Second Street, Oak Street/Second Street, and Oak Street/Cedar Avenue – Panther Place will continue to operate at LOS "B" or better during each of the peak periods.

As previously noted, an additional alternative analysis is included in Appendix F that also includes the potential redevelopment of the (not currently approved) American Legion (Toll Brothers) redevelopment on the east side of Oak Street as a pipeline development. The results of this additional anlaysis is generally consistent with the results summarized in Table 7-1 below with additional delays of less than 2 seconds/vehicle for any intersection approach included in the study.

Table 7-1

Breezeway Property

Total Future Intersection Capacity Analysis Summary

	Intersection	Intersection Control	Approach	Existing		Background Future		Total Future	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (17.8)	A (8.8)	B (17.2)	A (8.1)	B (18.5)	A (9.3)
			WB Appr	B (14.9)	B (17.3)	B (13.8)	B (17.2)	B (14.2)	B (17.6)
			NB Appr	F (87.1)	F (100.2)	F (84.4)	F (100.3)	F (84.3)	F (100.3)
			SB Appr	F (88.4)	F (102.4)	F (88.3)	F (104.7)	F (88.3)	F (104.7)
			Overall	**C (21.2)**	**B (18.7)**	**C (20.3)**	**B (17.9)**	**C (21.5)**	**B (18.6)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	B (13.0)	A (8.0)	B (12.8)	A (8.3)	B (12.9)	A (8.6)
			WB Appr	A (3.0)	A (1.7)	A (2.8)	A (1.7)	A (2.6)	B (11.9)
			NB Appr	E (76.5)	F (90.3)	E (76.6)	F (90.4)	E (76.5)	F (90.7)
			SB Appr	F (92.7)	F (105.7)	F (91.7)	F (103.9)	F (92.9)	F (105.9)
			Overall	**B (14.6)**	**A (9.4)**	**B (14.0)**	**A (8.9)**	**B (14.3)**	**B (15.4)**
3.	Walnut Street/Cedar Avenue	Stop	EB Appr	A (0.0)	A (9.4)	B (10.7)	A (9.4)	B (10.8)	A (9.5)
			WB Appr	A (9.4)	A (9.6)	A (9.4)	A (9.5)	A (9.4)	A (9.6)
			NB Appr	A (0.4)	A (0.1)	A (0.4)	A (0.1)	A (0.4)	A (0.1)
			SB Appr	A (3.2)	A (1.5)	A (3.3)	A (1.7)	A (3.3)	A (1.8)
			Overall	**A (2.4)**	**A (2.5)**	**A (2.6)**	**A (2.5)**	**A (2.6)**	**A (2.5)**
4.	Walnut Street/Second Street	Stop	EB Appr	A (7.5)	A (7.3)	A (7.4)	A (7.3)	A (7.4)	A (7.4)
			WB Appr	A (7.2)	A (7.3)	A (7.2)	A (7.3)	A (7.2)	A (7.3)
			NB Appr	A (7.8)	A (7.5)	A (7.8)	A (7.5)	A (7.8)	A (7.6)
			SB Appr	A (7.5)	A (7.7)	A (7.4)	A (7.6)	A (7.5)	A (7.7)
			Overall	**A (7.7)**	**A (7.6)**	**A (7.6)**	**A (7.5)**	**A (7.6)**	**A (7.6)**
5.	Oak Street/Second Street	Stop	EB Appr	A (7.0)	A (7.1)	A (7.0)	A (7.1)	A (7.1)	A (7.1)
			NB Appr	A (7.7)	A (7.7)	A (7.8)	A (7.8)	A (7.8)	A (7.9)
			SB Appr	A (7.8)	A (7.7)	A (7.9)	A (7.8)	A (7.9)	A (7.8)
			Overall	**A (7.7)**	**A (7.7)**	**A (7.8)**	**A (7.8)**	**A (7.8)**	**A (7.8)**
6.	Oak Street/Cedar Avenue/Panther Place	Stop	EB Appr	A (8.1)	A (7.6)	A (8.1)	A (7.6)	A (8.2)	A (7.6)
			WB Appr	A (8.0)	A (7.5)	A (8.3)	A (7.8)	A (8.3)	A (7.8)
			NB Appr	A (8.1)	A (7.9)	A (8.2)	A (8.0)	A (8.3)	A (8.1)
			SB Appr	A (8.4)	A (7.9)	A (8.5)	A (8.0)	A (8.5)	A (8.1)
			Overall	**A (8.2)**	**A (7.8)**	**A (8.3)**	**A (7.9)**	**A (8.3)**	**A (8.0)**
A.	Fairfax Boulevard/ Site Driveway	Stop	EB Appr	Future Intersection		Future Intersection		A (0.0)	A (0.0)
			WB Appr					A (0.1)	A (6.2)
			NB Appr					B (10.6)	B (12.8)
			Overall					**B (0.0)**	**A (0.5)**
B.	Walnut Street/ Commercial Site Driveway	Stop	WB Appr	Future Intersection		Future Intersection		A (8.7)	A (9.1)
			NB Appr					A (0.0)	A (0.0)
			SB Appr					A (0.0)	A (0.0)
			Overall					**A (0.0)**	**A (1.1)**
C.	Walnut Street/ Residential Site Driveway	Stop	WB Appr	Future Intersection		Future Intersection		A (9.0)	A (8.9)
			NB Appr					A (0.0)	A (0.0)
			SB Appr					A (0.2)	A (0.5)
			Overall					**A (0.4)**	**A (0.5)**
D.	Oak Street/ Residential Site Driveway	Stop	EB Appr	Future Intersection		Future Intersection		B (10.0)	B (10.0)
			NB Appr					A (0.1)	A (0.2)
			SB Appr					A (0.0)	A (0.0)
			Overall					**A (0.6)**	**A (0.4)**

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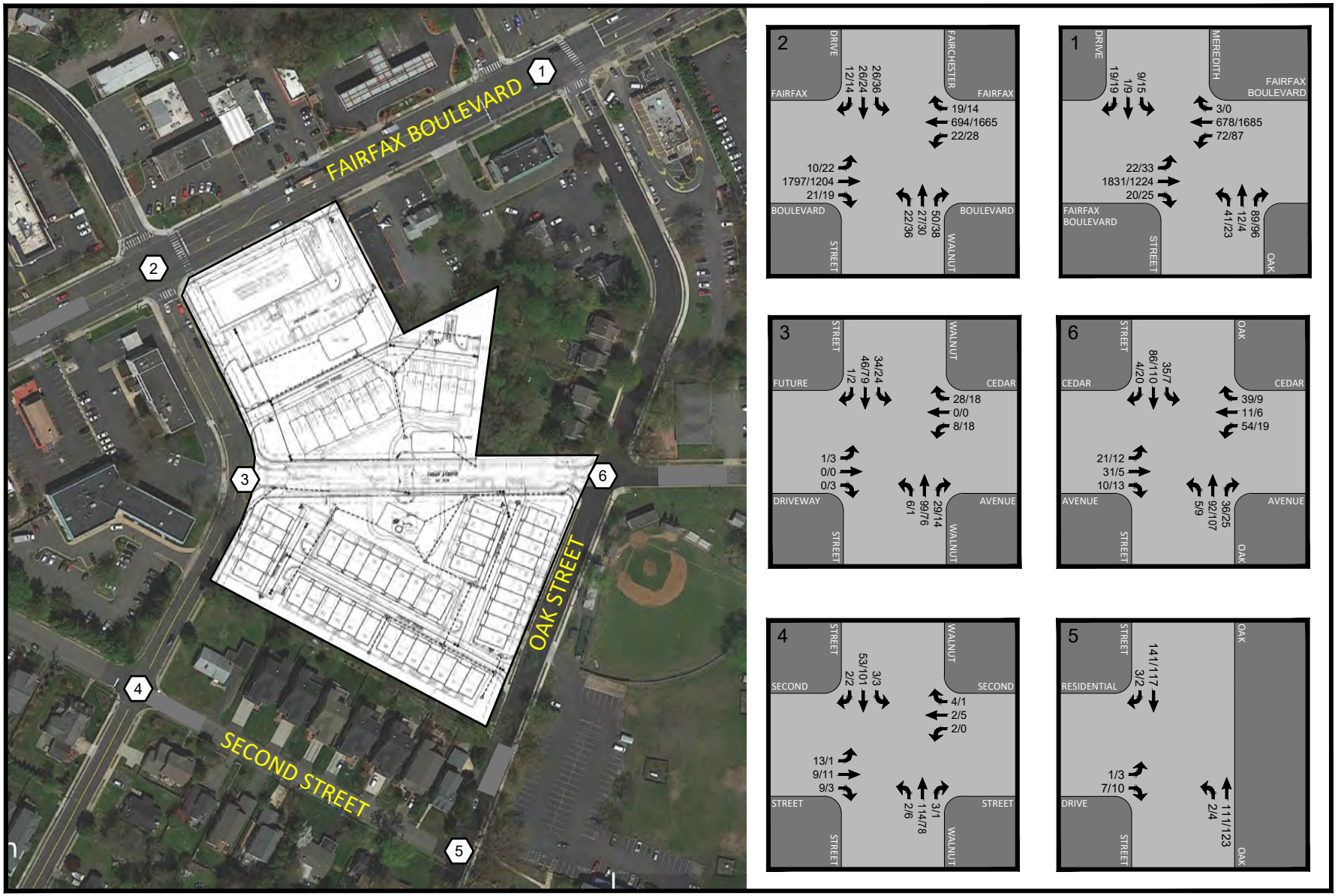

Figure 7-1A
2024 Total Future Peak Hour Traffic Forecasts
Study Intersections

AM PEAK HOUR
PM PEAK HOUR
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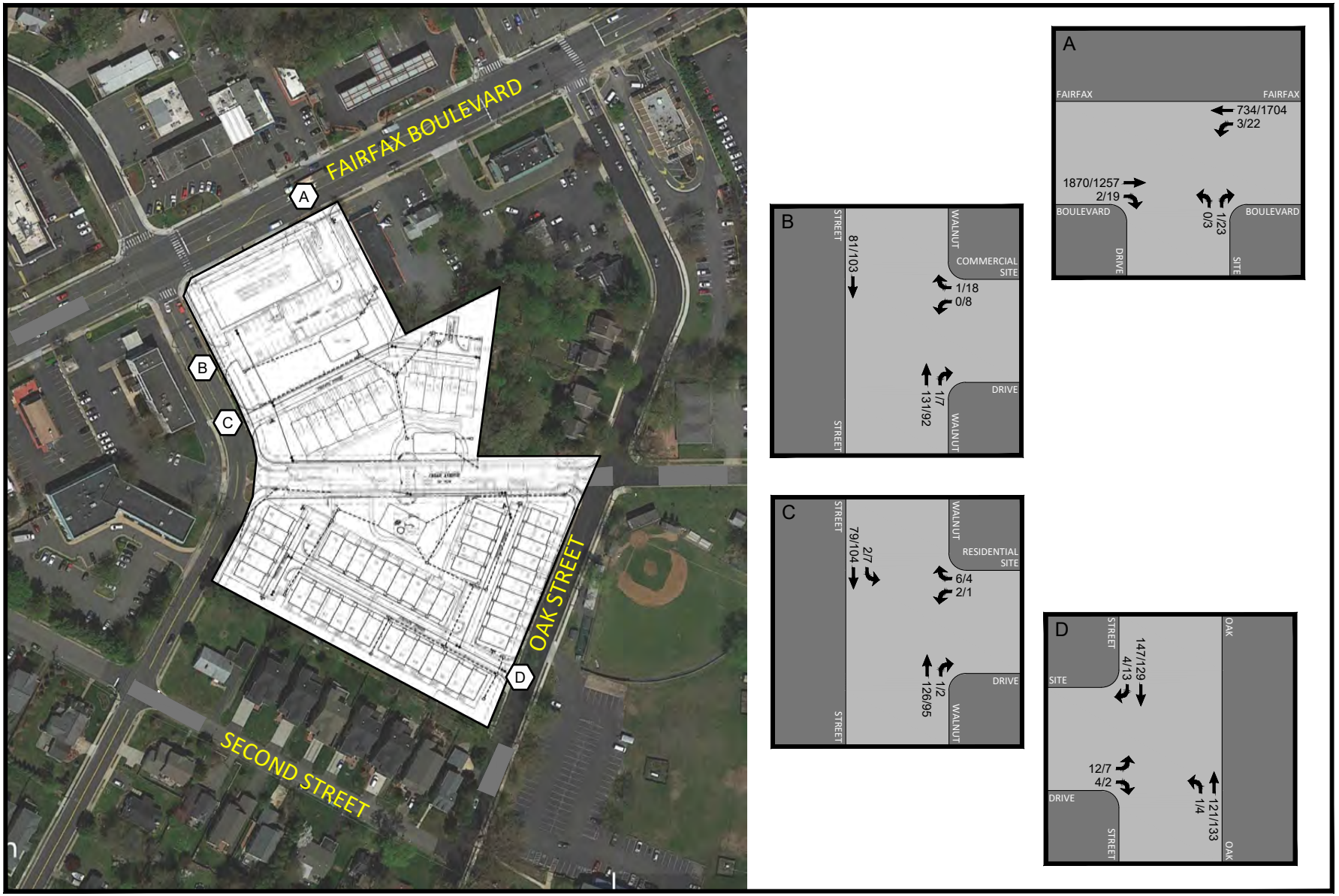

Figure 7-1B
2024 Total Future Peak hour Traffic Forecasts
Site Driveways

AM PEAK HOUR
PM PEAK HOUR
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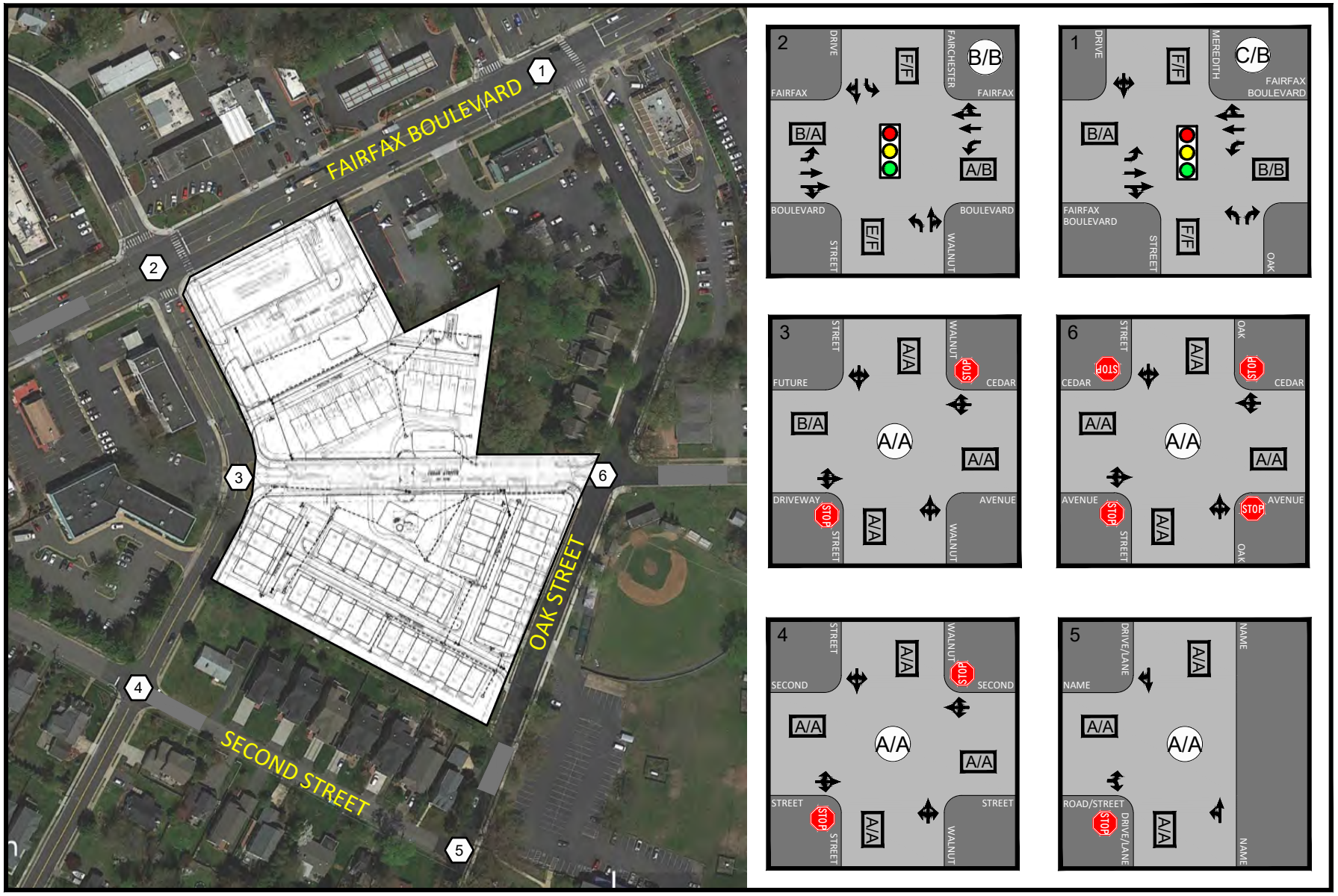

Figure 7-2A
2024 Total Future Lane Use, Traffic Control and Levels of Service Study Intersections

B/B - Approach LOS - AM/PM
B/B - Intersection LOS - AM/PM
Represents One Travel Lane
Signalized Intersection
Stop Sign

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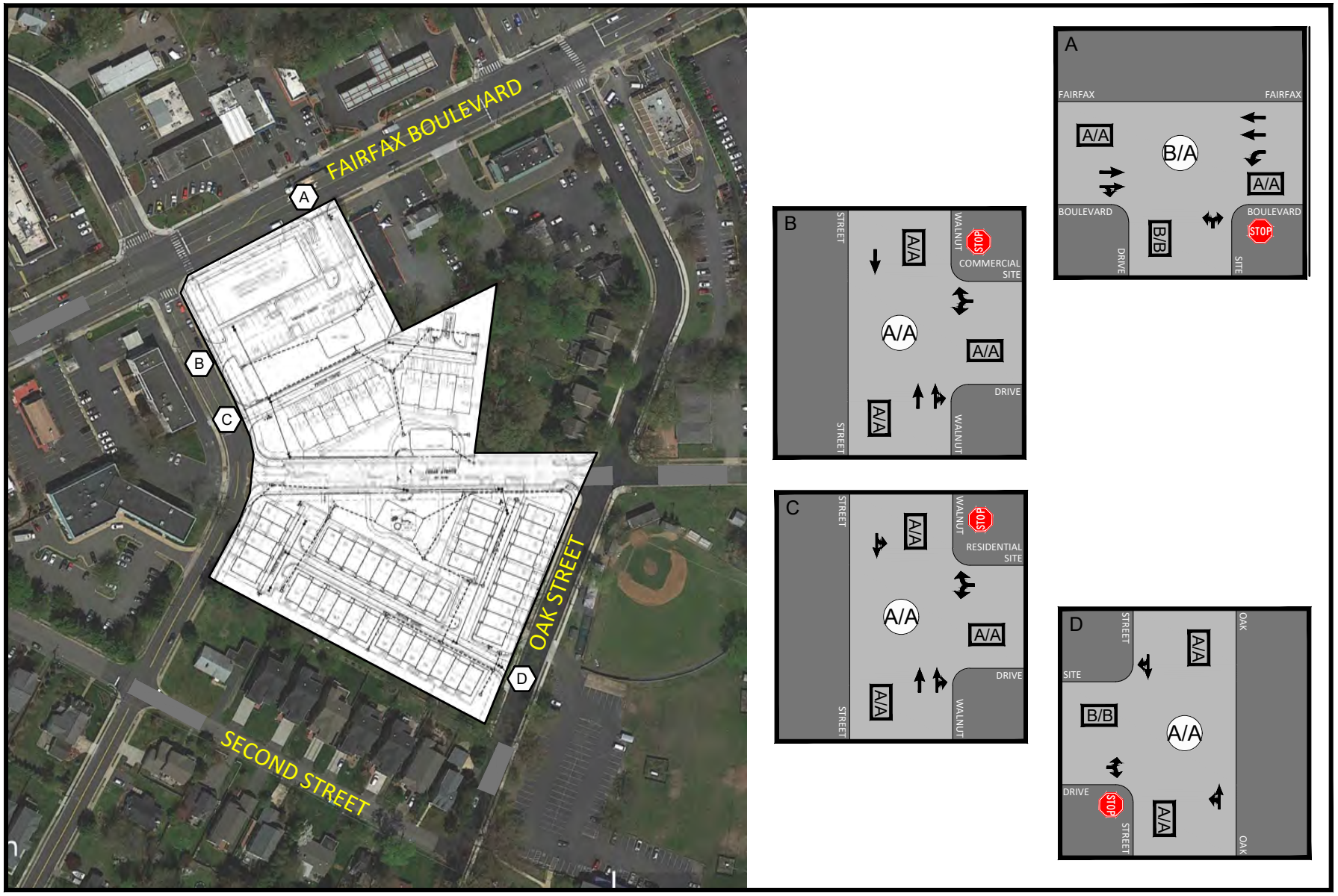

Figure 7-2B
2024 Total Future Lane Use, Traffic Control and Levels of Service
Site Driveways

B/B - Approach LOS - AM/PM
B/B - Intersection LOS - AM/PM
Represents One Travel Lane
Signalized Intersection
Stop Sign

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City of Fairfax, Virginia

SECTION 8
CONCLUSIONS

Based on the results of this traffic impact study, the following may be concluded:

1. The Fairfax Boulevard/Oak Street – Meredith Drive and Fairfax Boulevard/Walnut Street – Fairchester Drive signalized intersections currently operate at an overall LOS "C" or better during the AM and PM commuter peak periods based on Highway Capacity Manual calculations using the Synchro 10 traffic analysis software. Side street approaches at these intersections currently operate at LOS "E" or "F" during the peak periods due to long cycle lengths and the assignment of most of the green time to the Fairfax Boulevard Approaches.

2. Historic VDOT traffic data indicates that average daily traffic counts along Fairfax Boulevard have increased by approximately 0.55% per year between 2013 and 2018.

3. The Novus Fairfax Gateway and Paul VI Redevelopment approved pipeline developments are anticipated to generate 543 AM commuter peak hour trips, 912 PM commuter peak hour trips at full buildout.

4. Under future 2024 traffic conditions minimal increases in delay at the study intersections are expected due to the trips generated by approved pipeline developments in the vicinity of the site and overall levels of service would remain generally consistent with existing conditions.

5. The site is currently developed with the 50-room Breezeway Motel, the 38-unit Fairfax Garden Apartments, and four (4) single family homes.

6. The Applicant proposes to redevelop the site with 62 residential townhouse units and up to 10,010 SF of commercial uses.

7. The project is estimated to generate 40 AM peak commuter hour trips and 140 PM peak commuter hour trips upon buildout.

8. Under future 2024 traffic conditions, with the development of the subject site, intersection levels of service would remain generally consistent with existing and background conditions. The analyses show that the Fairfax Boulevard signalized intersections will continue to operate at LOS "C" or better during the AM and PM commuter peak periods.

9. All unsignalized intersection and access drive approaches will operate at LOS "B" or better during each of the studied peak periods.

10. Access to the commercial portion of the site will be via one full access driveway along Fairfax Boulevard and one right-in/right-out/left-out driveway on Walnut Street. Access to the northern residential portion of the site will be provided via one full access

driveway along Walnut Street. Access to the southern residential portion of the site will be provided via one full access driveway along Oak Street.

11. The Applicant intends to improve the roadway geometrics at the Walnut Street/Cedar Avenue intersection by reconstructing the intersection to provide a typical four-legged stop sign controlled intersection in order to enhance vehicular, pedestrian and bicycle safety by reducing crossing widths and providing conventional design features recognized by the average motorist.

12. The Applicant intends to consolidate these access drives along Fairfax Boulevard from two locations currently serving the Breezeway Motel to a single location providing enhanced access management along this arterial roadway.

13. An alternative analysis has been added in this revision of the study to include the added impact of the potential redevelopment of the American Legion (Toll Brothers) site on the east side of Oak Street per the current development proposal for that site. Since the application for that redevelopment is not currently approved, this additional assessment is provided for informational purposes. The results indicate that both background and total future conditions would be generally consistent with those presented in this study that do not include the American Legion (Toll Brothers) redevelopment. This is primarily due to the relatively low increase in site traffic that would result from that redevelopment and the excess capacity along Oak Street that can adequately accommodate the additional traffic. Additional details regarding this additional alternative analysis are presented in Appendix F.

APPENDIX A

City of Fairfax Scoping Agreement

SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

ROUTE 50 BREEZEWAY PROPERTY
CITY OF FAIRFAX, VIRGINIA
July 3, 2019
Scoping Meeting Held June 25, 2019

Contact Information			
Consultant Name: Tele: E-mail:	Christopher Turnbull - Wells + Associates, Inc. 703-917-6620 cturnbull@wellsandassociates.com		
Developer/Owner Name: Tele: E-mail:	Stephen S. Collins, Jr. P.E. 703.934.9369 Stephen.Collins@Pultegroup.com		
Project Information			
Project Name:	Route 50 Breezeway Property	Locality/County:	City of Fairfax
Project Location: (Attach regional and site specific location map)	The project is generally located south of Fairfax Boulevard, between Main Street and Chain Bridge Road. See Attachment 1 for the site location.		
Submission Type	Comp Plan ☐	Rezoning ☒ (SUP)	Site Plan ☐	Subd Plat ☐
Project Description: (Including details on the land use, acreage, phasing, access location, etc. Attach additional sheet if necessary)	The Applicant is proposing to redevelop the property with 62 residential units to include townhomes and stacked condos. And up to 10,920 square feet of commercial space. The Site Layout is provided as Attachment 2.		
Proposed Use(s): (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial ☐	Mixed Use ☒	Other ☐
(See Attachment – 3)	**Residential Uses(s)** Number of Units: 62 ITE LU Code(s): 221 **Commercial Use(s)** ITE LU Code(s): TBD Square Ft or Other Variable: 10,920		**Other Use(s)** ITE LU Code(s): ____ ____ ____ Independent Variable(s): ____ ____ ____	
Total Peak Hour Trip Projection:	Less than 100 ☐	100 – 499 ☒	500 – 999 ☐	1,000 or more ☐

Traffic Impact Analysis Assumptions			
Study Period	Existing Year: 2019	Build-out Year: 2024	Design Year: n/a
Study Area Boundaries	North: Fairfax Boulevard (US Route 50)	South: Second Street	
	East: Oak Street	West: Walnut Street	
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	• Novus Fairfax Gateway redevelopment • Paul VI Redevelopment		
Consistency With Comprehensive Plan (Land use, transportation plan)	The proposed development conforms with the City's 2035 Comprehensive Plan that identifies the northers portion of the site along Fairfax Boulevard as "Commercial Corridor" and the remainder of the site "Multifamily Neighborhood." The current CR (Commercial Retail) and RMF (Residential Multifamily) would permit the proposed land uses. The roadway network is consistent with the intent of the City Transportation Plan.		
Available Traffic Data (Historical, forecasts)	VDOT historical traffic count data indicates: 2018 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 37,000 vpd (Main Street to Chain Bridge Road) 2017 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 36,000 vpd (Main Street to Chain Bridge Road) 2016 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 36,000 vpd (Main Street to Chain Bridge Road) 2015 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 35,000 vpd (Main Street to Chain Bridge Road) 2014 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 36,000 vpd (Main Street to Chain Bridge Road) 2013 VDOT Average Annual Daily Traffic (AADT): Fairfax Boulevard (US Route 50): 36,000 vpd (Main Street to Chain Bridge Road)		
Trip Distribution (Pending data from existing traffic counts)(See Attachment 4)	From the West: 35%	From the Northeast: 50%Resid./45% Commercial	
	From the North: 0% Resid./5% Comm.	From the Southeast: 15%	
Annual Vehicle Trip Growth Rate:	1% or per VDOT AADT counts	Peak Period for Study (check all that apply)	☒ AM ☒ PM ☐ SAT
		Peak Hour of the Generator	N/A
Study Intersections and/or Road Segments (See Attachment 1)	1. Fairfax Boulevard/Meredith Drive, Oak Street	6. Oak Street/Cedar Avenue/Panther Place	
	2. Fairfax Blvd/Fairchester Drive, Walnut Street	7. Site Access Drives	
	3. Walnut Street/Cedar Avenue		
	4. Walnut Street/Second Street		
	5. Oak Street/Second Street		

Trip Adjustment Factors	Internal allowance: ☐ Yes ☒ No Reduction: _____% trips	Pass-by allowance: ☐ Yes ☒ No Reduction: %trips
Software Methodology	☒ Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☐ Other Synchro Version 8	
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	None	
Improvement(s) Assumed or to be Considered	Reconfigure Walnut Street/Cedar Avenue intersection to a conventional design.	
Background Traffic Studies Considered	• Avalon • Novus Fairfax Gateway Traffic Impact Analysis • Paul VI Redevelopment	
Plan Submission	☒ Master Development Plan (MDP) ☐ Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan ☐ Other Plan type (Final Site, Subd. Plan)	
Additional Issues to be Addressed	☐ Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis ☒ Bike/Ped Accommodations ☐ Intersection(s) ☐ TDM Measures ☐ Other _____	

NOTES on ASSUMPTIONS:

1. Synchro 8 will be used to conduct capacity analysis with peak hour factors measured in the field for existing conditions (0.85<PHF<0.92). Under background and total future conditions a PHF of 0.92 will be used for all movements.
2. Existing Synchro (signal timing) files to be provided by the city.

SCOPE OF WORK MEETING

ADDITIONS TO THE REQUIRED ELEMENTS, CHANGES TO THE METHODOLOGY OR STANDARD ASSUMPTIONS, AND SIGNATURE PAGE

Any additions to the Required Elements or changes to the Methodology or Standard Assumptions due to special circumstances that are approved by the City of Fairfax:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

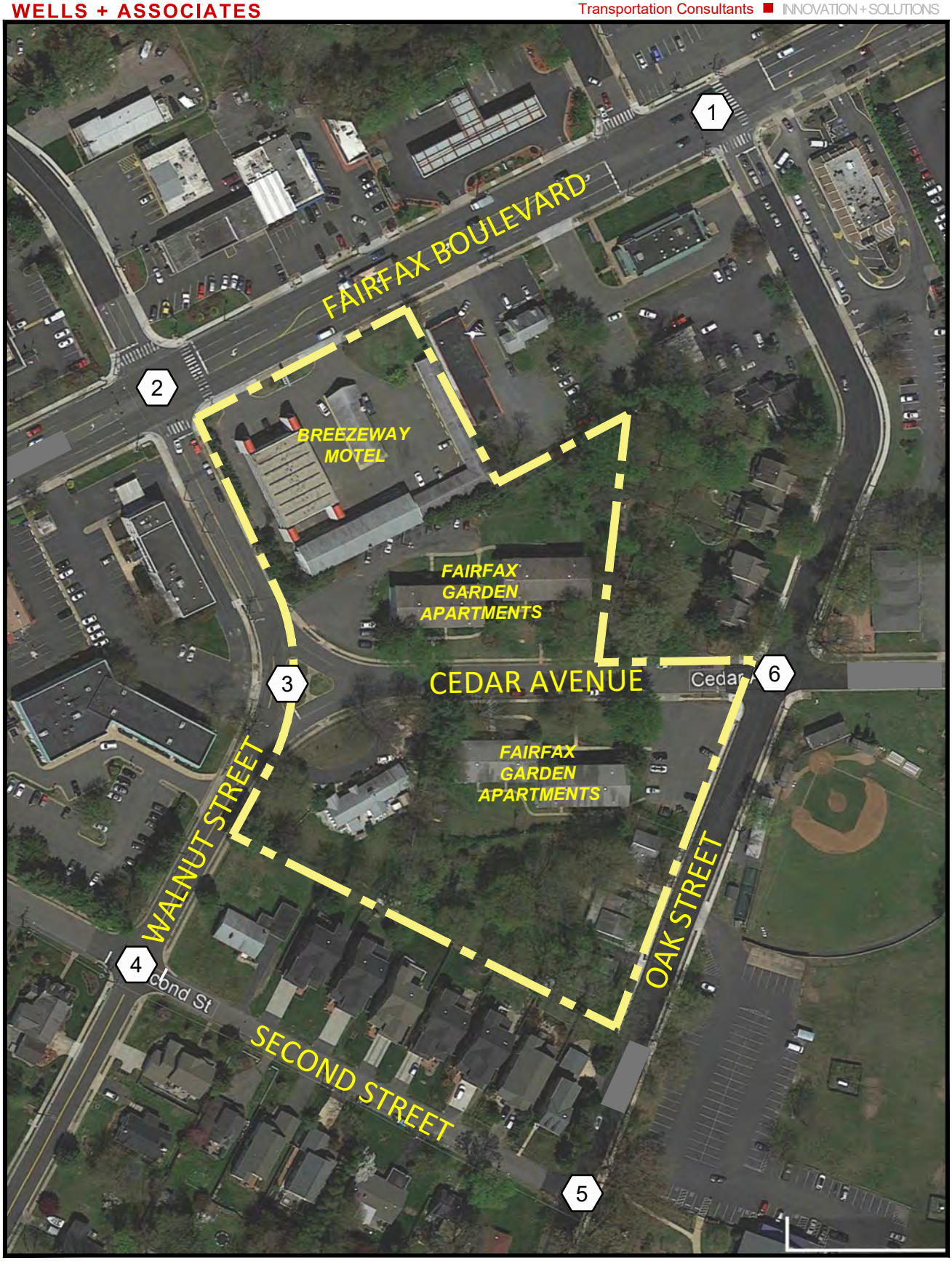
AGREED: _____ DATE: 07/03/2019
Consultant

PRINT NAME: Christopher Turnbull
Consultant

SIGNED: _____ DATE: _____

PRINT NAME: _____

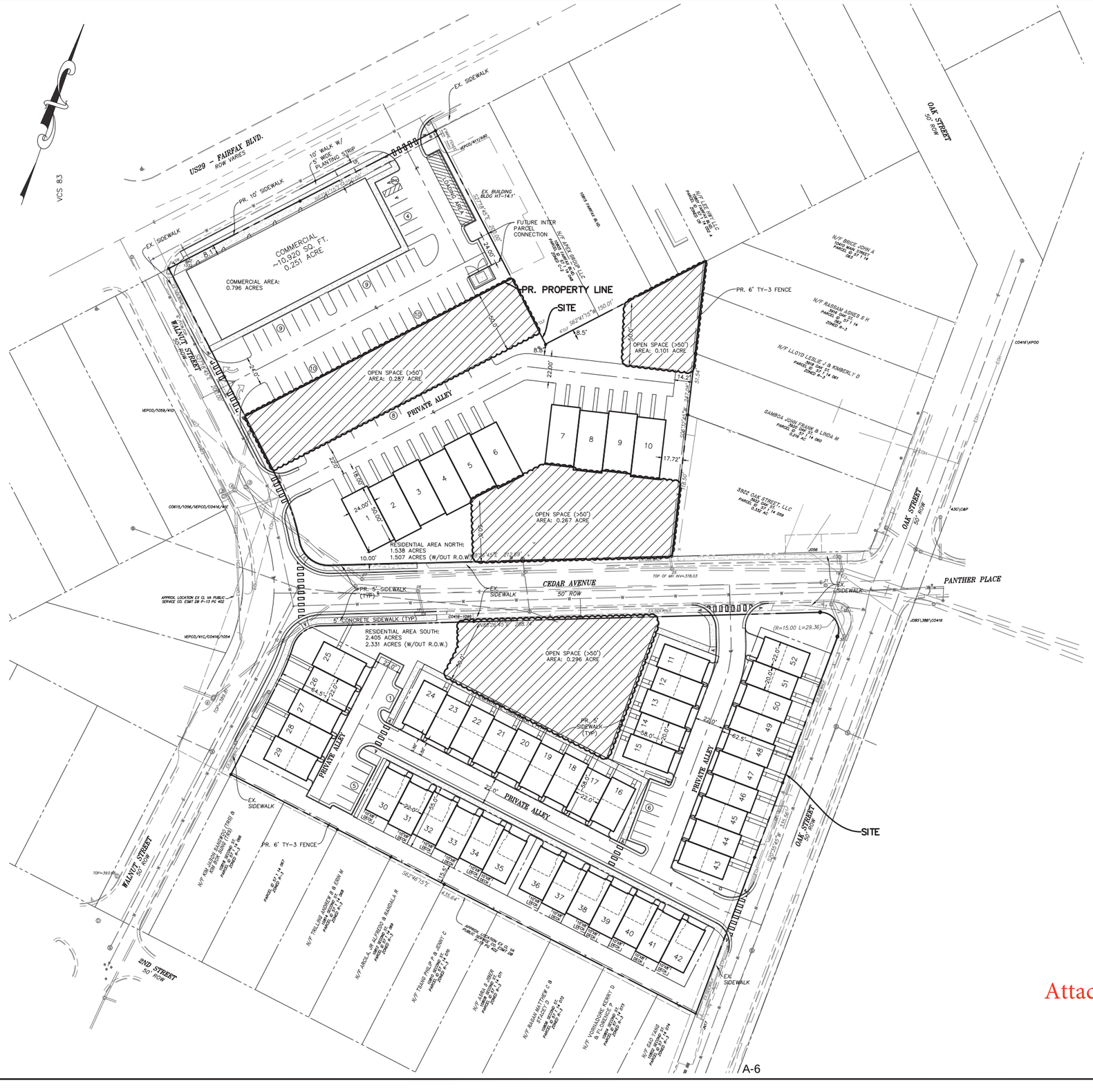
Attachments:
Attachment 1 - Site Location and Study Intersections
Attachment 2 – Site Layout
Attachment 3 – Trip Generation
Attachment 4 – Directions of Approach



Attachment 1
Site Location
PulteGroup, Inc.
Breezeway Property
City of Fairfax, Virginia

(X) - Study Intersection

NORTH



SITE AREA:

- 4.739 AC W/ R.O.W. DEDICATION
- 4.634 AC W/OUT R.O.W. DEDICATION
- RESIDENTIAL: (NORTH AND SOUTH OF CEDAR)

  3.838 AC = 1.507+2.331
- COMMERCIAL:

  0.796 AC

TOTAL OPEN SPACE REQUIRED: 20% SITE AREA

TOTAL OPEN SPACE PROVIDED: 24.8%

0.287 AC + 0.101 AC + 0.267 AC + 0.296 AC = 0.9510 AC

PARKING TABULATIONS:

PARKING TABULATIONS (PER FAIRFAX CITY ZONING ORDINANCE)				
PARKING TYPE	QUANTITY	REQUIREMENT	REQUIRED	PROVIDED
RESIDENTIAL	62 UNITS	2 SPACES/UNIT	124	TOTAL 144 20 SURFACE 104 GARAGE 20 TANDEM
COMMERCIAL	10,920 S.F.	1 SPACE/200 S.F.	55	TOTAL 44 44 SURFACE
		TOTAL	179	188

PRODUCT TYPES:

RESIDENTIAL PRODUCT TYPES	QUANTITY
TOWN HOME – REAR LOAD 20' WIDE	14
TOWN HOME – REAR LOAD 22' WIDE	15
TOWN HOME – FRONT LOAD 22' WIDE	13
STACKED CONDO – REAR LOAD 24' WIDE (2 DU / BUILDING)	20
TOTAL	62

Attachment 2

0 20' 40' 80'
SCALE:1" = 40'

A-6

SUBMISSION			REVISION		
NO.	DATE		NO.	DATE	DESCRIPTION
-	--/--/----		-	--/--/----	-
-	--/--/----		-	--/--/----	-
-	--/--/----		-	--/--/----	-
-	--/--/----		-	--/--/----	-
-	--/--/----		-	--/--/----	-
-	--/--/----		-	--/--/----	-

CLIENT
PULTE GROUP INC.
9302 LEE HIGHWAY, SUITE 1000
FAIRFAX, VA 22031

ATCS
13861 SUNRISE VALLEY DRIVE, SUITE 200
HERNDON, VIRGINIA 20171
(703) 430-7500 FAX (703) 430-0989
HERNDON - BALTIMORE - BLACKSBURG
CULPEPPER - NEWPORT NEWS - RALEIGH
WALDORF - RICHMOND - WASHINGTON, DC
WWW.ATCSPLC.COM

SITE LAYOUT
RT. 50 BREEZEWAY PROPERTY
LOCATION:
FAIRFAX CITY, VIRGINIA

AUTHOR: A.A.H.
CHECK: G.A.B.
PROJ#: 001271
DATE: 4/24/2019
SCALE: 1" = 40'

SHEET
CS-101
SHEET: 1 OF 1

FILE PATH: K:\DOCUMENT\1271 - Breezeway Metes\Civil\Design_3x\#001271-P-BASE_v5_REV2.6.dwg PLOT DATE:4/24/2019 12:30:47 PM BY: AMIR HABIBI

Attachment 3

Breezeway Property - City of Fairfax

Trip Generation Comparison Existing Residential Uses Vs. Proposed Residential Uses (1)

Use		ITE Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
Existing Residential Uses											
Multifamily (Low Rise)	Apartments	220	6	DU's	1	2	3	3	2	5	44
Multifamily (Mid-Rise)	Apartments	221	32	DU's	3	8	11	9	6	15	173
Single-Family Detached	Houses	210	4	DU's	1	2	3	3	1	4	38
Total Existing Uses			42		5	12	17	15	9	24	255
Proposed Residential Use											
Residential (Mid-Rise)	Town Homes	221	62	DU's	5	16	21	17	11	28	336
Difference Proposed Uses Less Existing Uses					0	4	4	2	2	4	81

Trip Generation Comparison Potential Commercial Uses Vs. Existing and By-Right Commercial Uses(1)

Use		ITE Land Use Code	Amount	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
Existing Commercial Use											
Motel		320	50	Rooms	8	13	21	11	10	21	152
Potential By-Right Commercial Uses (2)											
Allowed CR Zone Use	Most Similar ITE Land Use										
Art Gallery or Studio	Retail Shopping Center	820	10,920	SF	6	4	10	51	55	106	1,334
Catering or Delivery Service			8,800	SF	5	3	8	43	47	90	1,152
Retail General			8,800	SF	5	3	8	43	47	90	1,152
Retail large Format			8,800	SF	5	3	8	43	47	90	1,152
Shopping Centers			8,800	SF	5	3	8	43	47	90	1,152
Tobacco and Smoke Shop			8,800	SF	5	3	8	43	47	90	1,152
Services General			8,800	SF	5	3	8	43	47	90	1,152
Services Personal			8,800	SF	5	3	8	43	47	90	1,152
Building Supplies and Lumber Sales	Building Materials and Lumber Store	812	10,920	SF	11	6	17	11	11	22	N/A
Furniture, Appliance or carpeting/flooring store	Furniture Store	890	10,920	SF	3	1	4	3	3	6	103
Office, General	General Office	710	10,920	SF	11	2	13	2	12	14	106
Office, Medical	Medical-Dental Office	720	8,800	SF	20	6	26	9	23	32	250
Schools, technical, trade, business	Junior/Community College	540	10,920	SF	47	14	61	10	10	20	221
Brew Pub	Drinking Place	925	10,920	SF	0	0	0	82	42	124	N/A
Restaurant or Food Service	Quality Restaurant	931	8,800	SF	3	3	6	46	23	69	738
	High-Turnover Restaurant	932	8,800	SF	48	39	87	53	33	86	987
Day Care/Nursery School	Day Care Center	565	8,800	SF	51	46	97	46	52	98	419

Notes: (1) Based on Institute of Transportation Engineers', Trip Generation, 10th Edition
(2) Square footage based on ability to surface park use.

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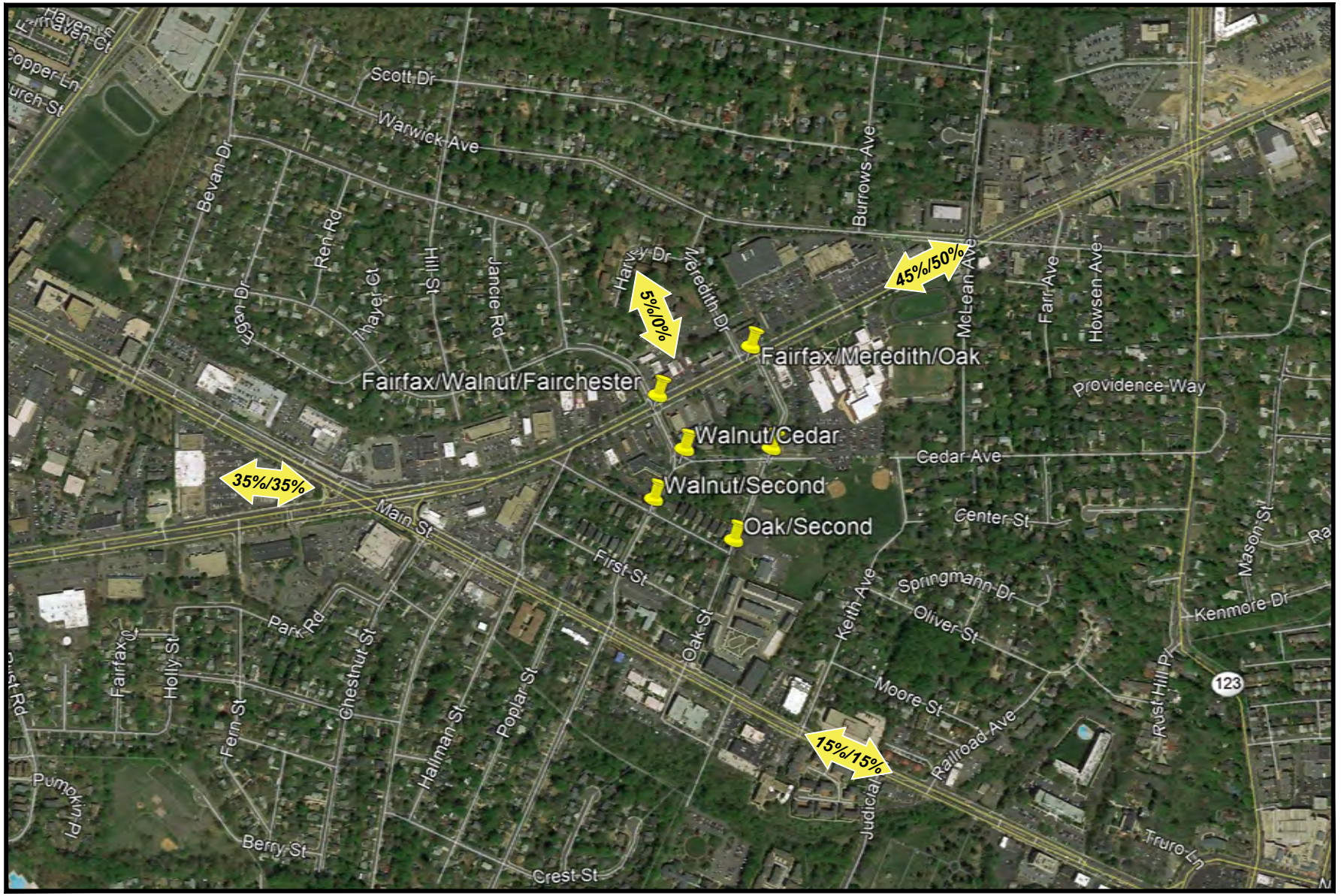


Attachment 4
Directions of Approach
Breezeway Property

XX%/XX% - *Commercial / Residential*

NORTH

Pulte Group, Inc.
City of Fairfax, Virginia

APPENDIX B

Existing Traffic Volumes

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Fairfax Boulevard & Meredith Drive/Oak Street
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: Halid & Salih
INPUTED BY: Dyron

SOUTHBOUND ROAD: Meredith Drive
NORTHBOUND ROAD: Oak Street
WESTBOUND ROAD: Fairfax Boulevard
EASTBOUND ROAD: Fairfax Boulevard

Time Period	Southbound Meredith Drive					Westbound Fairfax Boulevard					Northbound Oak Street					Eastbound Fairfax Boulevard					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	0	0	0	0		1	46	7	54		8	0	0	8		2	220	3	225		8	279	287
6:15 AM - 6:30 AM	5	0	4	9		1	44	5	50		5	0	1	6		3	345	4	352		15	402	417
6:30 AM - 6:45 AM	3	0	2	5		0	65	2	67		8	1	5	14		0	396	1	397		19	464	483
6:45 AM - 7:00 AM	2	0	1	3		0	82	4	86		11	0	3	14		3	406	1	410		17	496	513
7:00 AM - 7:15 AM	4	0	3	7		0	99	3	102		17	1	4	22		2	393	4	399		29	501	530
7:15 AM - 7:30 AM	3	0	0	3		0	117	10	127		9	1	6	16		0	412	3	415		19	542	561
7:30 AM - 7:45 AM	4	0	2	6		0	122	10	132		21	0	7	28		2	399	4	405		34	537	571
7:45 AM - 8:00 AM	8	1	3	12		0	133	16	149		14	1	4	19		2	386	3	391		31	540	571
8:00 AM - 8:15 AM	3	0	1	4		0	131	17	148		21	4	7	32		0	448	7	455		36	603	639
8:15 AM - 8:30 AM	4	0	2	6		1	150	21	172		17	3	6	26		1	400	5	406		32	578	610
8:30 AM - 8:45 AM	9	0	0	9		2	132	17	151		20	4	9	33		5	468	5	478		42	629	671
8:45 AM - 9:00 AM	2	1	6	9		0	143	12	155		21	1	16	38		12	370	4	386		47	541	588
Total	47	2	24	73		5	1264	124	1393		172	16	68	256		32	4643	44	4719		329	6112	6441
AM One Hour Volumes																							
6:00 AM - 7:00 AM	10	0	7	17	0.47	2	237	18	257	0.75	32	1	9	42	0.75	8	1367	9	1384	0.84	59	1641	1700
6:15 AM - 7:15 AM	14	0	10	24	0.67	1	290	14	305	0.75	41	2	13	56	0.64	8	1540	10	1558	0.95	80	1863	1943
6:30 AM - 7:30 AM	12	0	6	18	0.64	0	363	19	382	0.75	45	3	18	66	0.75	5	1607	9	1621	0.98	84	2003	2087
6:45 AM - 7:45 AM	13	0	6	19	0.68	0	420	27	447	0.85	58	2	20	80	0.71	7	1610	12	1629	0.98	99	2076	2175
7:00 AM - 8:00 AM	19	1	8	28	0.58	0	471	39	510	0.86	61	3	21	85	0.76	6	1590	14	1610	0.97	113	2120	2233
7:15 AM - 8:15 AM	18	1	6	25	0.52	0	503	53	556	0.93	65	6	24	95	0.74	4	1645	17	1666	0.92	120	2222	2342
7:30 AM - 8:30 AM	19	1	8	28	0.58	1	536	64	601	0.87	73	8	24	105	0.82	5	1633	19	1657	0.91	133	2258	2391
7:45 AM - 8:45 AM	24	1	6	31	0.65	3	546	71	620	0.90	72	12	26	110	0.83	8	1702	20	1730	0.90	141	2350	2491
8:00 AM - 9:00 AM	**18**	**1**	**9**	**28**	**0.78**	**3**	**556**	**67**	**626**	**0.91**	**79**	**12**	**38**	**129**	**0.85**	**18**	**1686**	**21**	**1725**	**0.90**	**157**	**2351**	**2508**
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	3	0	5	8		0	338	14	352		21	2	3	26		7	377	4	388		34	740	774
4:15 PM - 4:30 PM	2	0	0	2		0	311	13	324		27	0	7	34		7	229	11	247		36	571	607
4:30 PM - 4:45 PM	6	3	6	15		0	336	21	357		27	2	7	36		5	199	8	212		51	569	620
4:45 PM - 5:00 PM	7	6	4	17		0	310	28	338		13	0	4	17		3	226	9	238		34	576	610
5:00 PM - 5:15 PM	13	2	4	19		1	201	16	218		20	0	6	26		5	202	6	213		45	431	476
5:15 PM - 5:30 PM	3	2	4	9		3	195	14	212		19	1	7	27		7	192	7	206		36	418	454
5:30 PM - 5:45 PM	1	3	2	6		1	327	19	347		22	2	6	30		13	170	2	185		36	532	568
5:45 PM - 6:00 PM	13	5	5	23		1	313	20	334		19	2	3	24		3	156	7	166		47	500	547
6:00 PM - 6:15 PM	11	1	5	17		1	310	18	329		15	2	2	19		7	150	6	163		36	492	528
6:15 PM - 6:30 PM	8	4	6	18		3	318	17	338		6	3	4	13		0	198	10	208		31	546	577
6:30 PM - 6:45 PM	19	2	2	23		3	272	11	286		12	0	2	14		3	194	11	208		37	494	531
6:45 PM - 7:00 PM	19	1	7	27		0	253	16	269		10	0	5	15		6	162	5	173		42	442	484
Total	105	29	50	184		13	3484	207	3704		211	14	56	281		66	2455	86	2607		465	6311	6776
PM One Hour Volumes																							
4:00 PM - 5:00 PM	**18**	**9**	**15**	**42**	**0.62**	**0**	**1295**	**76**	**1371**	**0.96**	**88**	**4**	**21**	**113**	**0.78**	**22**	**1031**	**32**	**1085**	**0.70**	**155**	**2456**	**2611**
4:15 PM - 5:15 PM	28	11	14	53	0.70	1	1158	78	1237	0.87	87	2	24	113	0.78	20	856	34	910	0.92	166	2147	2313
4:30 PM - 5:30 PM	29	13	18	60	0.79	4	1042	79	1125	0.79	79	3	24	106	0.74	20	819	30	869	0.91	166	1994	2160
4:45 PM - 5:45 PM	24	13	14	51	0.67	5	1033	77	1115	0.80	74	3	23	100	0.83	28	790	24	842	0.88	151	1957	2108
5:00 PM - 6:00 PM	30	12	15	57	0.62	6	1036	69	1111	0.80	80	5	22	107	0.89	28	720	22	770	0.90	164	1881	2045
5:15 PM - 6:15 PM	28	11	16	55	0.60	6	1145	71	1222	0.88	75	7	18	100	0.83	30	668	22	720	0.87	155	1942	2097
5:30 PM - 6:30 PM	33	13	18	64	0.70	6	1268	74	1348	0.97	62	9	15	86	0.72	23	674	25	722	0.87	150	2070	2220
5:45 PM - 6:45 PM	51	12	18	81	0.88	8	1213	66	1287	0.95	52	7	11	70	0.73	13	698	34	745	0.90	151	2032	2183
6:00 PM - 7:00 PM	57	8	20	85	0.79	7	1153	62	1222	0.90	43	5	13	61	0.80	16	704	32	752	0.90	146	1974	2120

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Fairfax Boulevard & Fairchester Drive/Walnut Street
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: James & Inita
INPUTED BY: Dyron

SOUTHBOUND ROAD: Fairchester Drive
NORTHBOUND ROAD: Walnut Street
WESTBOUND ROAD: Fairfax Boulevard
EASTBOUND ROAD: Fairfax Boulevard

Time Period	Southbound Fairchester Drive					Westbound Fairfax Boulevard					Northbound Walnut Street					Eastbound Fairfax Boulevard					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	3	0	4	7		4	41	0	45		7	0	0	7		1	219	1	221		14	266	280
6:15 AM - 6:30 AM	5	4	5	14		4	57	0	61		4	1	2	7		0	329	1	330		21	391	412
6:30 AM - 6:45 AM	6	0	5	11		4	56	1	61		9	1	2	12		1	390	3	394		23	455	478
6:45 AM - 7:00 AM	8	34	6	48		3	74	3	80		15	1	0	16		1	271	70	342		64	422	486
7:00 AM - 7:15 AM	11	3	6	20		3	76	3	82		10	2	2	14		2	384	2	388		34	470	504
7:15 AM - 7:30 AM	5	2	6	13		3	127	12	142		15	4	2	21		0	348	1	349		34	491	525
7:30 AM - 7:45 AM	2	8	6	16		3	119	3	125		13	0	1	14		0	414	2	416		30	541	571
7:45 AM - 8:00 AM	8	4	4	16		8	174	6	188		8	5	2	15		8	363	2	373		31	561	592
8:00 AM - 8:15 AM	0	3	3	6		3	142	5	150		10	8	5	23		1	452	0	453		29	603	632
8:15 AM - 8:30 AM	3	14	9	26		5	131	3	139		18	4	3	25		4	416	1	421		51	560	611
8:30 AM - 8:45 AM	1	4	9	14		2	159	6	167		9	9	3	21		4	430	7	441		35	608	643
8:45 AM - 9:00 AM	0	7	7	14		6	155	5	166		11	5	8	24		29	308	6	343		38	509	547
Total	52	83	70	205		48	1311	47	1406		129	40	30	199		51	4324	96	4471		404	5877	6281
AM One Hour Volumes																							
6:00 AM - 7:00 AM	22	38	20	80	0.42	15	228	4	247	0.77	35	3	4	42	0.66	3	1209	75	1287	0.82	122	1534	1656
6:15 AM - 7:15 AM	30	41	22	93	0.48	14	263	7	284	0.87	38	5	6	49	0.77	4	1374	76	1454	0.92	142	1738	1880
6:30 AM - 7:30 AM	30	39	23	92	0.48	13	333	19	365	0.64	49	8	6	63	0.75	4	1393	76	1473	0.93	155	1838	1993
6:45 AM - 7:45 AM	26	47	24	97	0.51	12	396	21	429	0.76	53	7	5	65	0.77	3	1417	75	1495	0.90	162	1924	2086
7:00 AM - 8:00 AM	26	17	22	65	0.81	17	496	24	537	0.71	46	11	7	64	0.76	10	1509	7	1526	0.92	129	2063	2192
7:15 AM - 8:15 AM	15	17	19	51	0.80	17	562	26	605	0.80	46	17	10	73	0.79	9	1577	5	1591	0.88	124	2196	2320
7:30 AM - 8:30 AM	13	29	22	64	0.62	19	566	17	602	0.80	49	17	11	77	0.77	13	1645	5	1663	0.92	141	2265	2406
7:45 AM - 8:45 AM	12	25	25	62	0.60	18	606	20	644	0.86	45	26	13	84	0.84	17	1661	10	1688	0.93	146	2332	2478
8:00 AM - 9:00 AM	4	28	28	60	0.58	16	587	19	622	0.93	48	26	19	93	0.93	38	1606	14	1658	0.92	153	2280	2433
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	3	4	13	20		2	382	6	390		9	8	3	20		1	272	7	280		40	670	710
4:15 PM - 4:30 PM	4	4	1	9		4	344	5	353		8	4	4	16		3	218	10	231		25	584	609
4:30 PM - 4:45 PM	2	9	14	25		3	347	4	354		8	7	6	21		2	163	3	168		46	522	568
4:45 PM - 5:00 PM	5	6	5	16		5	385	7	397		9	7	3	19		5	171	1	177		35	574	609
5:00 PM - 5:15 PM	3	7	6	16		4	355	11	370		12	4	4	20		6	164	7	177		36	547	583
5:15 PM - 5:30 PM	7	7	4	18		6	327	6	339		7	16	0	23		2	185	12	199		41	538	579
5:30 PM - 5:45 PM	6	8	5	19		6	318	3	327		5	5	4	14		22	153	2	177		33	504	537
5:45 PM - 6:00 PM	3	4	9	16		6	337	5	348		3	5	7	15		0	151	5	156		31	504	535
6:00 PM - 6:15 PM	11	11	9	31		5	335	3	343		12	4	5	21		2	140	5	147		52	490	542
6:15 PM - 6:30 PM	11	6	8	25		4	337	11	352		6	6	1	13		4	193	1	198		38	550	588
6:30 PM - 6:45 PM	4	0	3	7		4	341	5	350		9	9	1	19		3	175	7	185		26	535	561
6:45 PM - 7:00 PM	4	6	14	24		7	330	7	344		6	3	3	12		1	142	3	146		36	490	526
Total	63	72	91	226		56	4138	73	4267		94	78	41	213		51	2127	63	2241		439	6508	6947
PM One Hour Volumes																							
4:00 PM - 5:00 PM	14	23	33	70	0.70	14	1458	22	1494	0.94	34	26	16	76	0.90	11	824	21	856	0.76	146	2350	2496
4:15 PM - 5:15 PM	14	26	26	66	0.66	16	1431	27	1474	0.93	37	22	17	76	0.90	16	716	21	753	0.81	142	2227	2369
4:30 PM - 5:30 PM	17	29	29	75	0.75	18	1414	28	1460	0.92	36	34	13	83	0.90	15	683	23	721	0.91	158	2181	2339
4:45 PM - 5:45 PM	21	28	20	69	0.91	21	1385	27	1433	0.90	33	32	11	76	0.83	35	673	22	730	0.92	145	2163	2308
5:00 PM - 6:00 PM	19	26	24	69	0.91	22	1337	25	1384	0.94	27	30	15	72	0.78	30	653	26	709	0.89	141	2093	2234
5:15 PM - 6:15 PM	27	30	27	84	0.68	23	1317	17	1357	0.97	27	30	16	73	0.79	26	629	24	679	0.85	157	2036	2193
5:30 PM - 6:30 PM	31	29	31	91	0.73	21	1327	22	1370	0.97	26	20	17	63	0.75	28	637	13	678	0.86	154	2048	2202
5:45 PM - 6:45 PM	29	21	29	79	0.64	19	1350	24	1393	0.99	30	24	14	68	0.81	9	659	18	686	0.87	147	2079	2226
6:00 PM - 7:00 PM	30	23	34	87	0.70	20	1343	26	1389	0.99	33	22	10	65	0.77	10	650	16	676	0.85	152	2065	2217

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Walnut Street & Cedar Avenue
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: Laura
INPUTED BY: Dyron

SOUTHBOUND ROAD: Walnut Street
NORTHBOUND ROAD: Walnut Street
WESTBOUND ROAD: Cedar Avenue
EASTBOUND ROAD: Driveway

Time Period	Southbound Walnut Street					Westbound Cedar Avenue					Northbound Walnut Street					Eastbound Driveway					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	0	1	2	3		1	0	0	1		0	9	0	9		0	0	0	0		12	1	13
6:15 AM - 6:30 AM	0	3	2	5		1	0	0	1		0	8	0	8		0	0	0	0		13	1	14
6:30 AM - 6:45 AM	0	1	1	2		2	0	1	3		2	14	0	16		0	0	0	0		18	3	21
6:45 AM - 7:00 AM	0	4	1	5		1	0	0	1		4	17	0	21		0	0	0	0		26	1	27
7:00 AM - 7:15 AM	0	6	1	7		1	0	1	2		1	13	0	14		0	0	0	0		21	2	23
7:15 AM - 7:30 AM	0	12	2	14		8	0	0	8		6	18	0	24		0	0	0	0		38	8	46
7:30 AM - 7:45 AM	0	13	2	15		2	0	1	3		9	19	0	28		0	0	0	0		43	3	46
7:45 AM - 8:00 AM	0	17	5	22		7	0	1	8		16	13	0	29		0	0	0	0		51	8	59
8:00 AM - 8:15 AM	0	8	2	10		5	0	1	6		10	18	0	28		0	0	0	0		38	6	44
8:15 AM - 8:30 AM	1	12	9	22		2	0	2	4		8	25	4	37		0	0	1	1		59	5	64
8:30 AM - 8:45 AM	0	9	4	13		5	0	1	6		6	23	2	31		0	0	0	0		44	6	50
8:45 AM - 9:00 AM	0	14	16	30		9	0	3	12		4	28	0	32		0	0	0	0		62	12	74
Total	1	100	47	148		44	0	11	55		66	205	6	277		0	0	1	1		425	56	481
AM One Hour Volumes																							
6:00 AM - 7:00 AM	0	9	6	15	0.75	5	0	1	6	0.50	6	48	0	54	0.64	0	0	0	0	0.00	69	6	75
6:15 AM - 7:15 AM	0	14	5	19	0.68	5	0	2	7	0.58	7	52	0	59	0.70	0	0	0	0	0.00	78	7	85
6:30 AM - 7:30 AM	0	23	5	28	0.50	12	0	2	14	0.44	13	62	0	75	0.78	0	0	0	0	0.00	103	14	117
6:45 AM - 7:45 AM	0	35	6	41	0.68	12	0	2	14	0.44	20	67	0	87	0.78	0	0	0	0	0.00	128	14	142
7:00 AM - 8:00 AM	0	48	10	58	0.66	18	0	3	21	0.66	32	63	0	95	0.82	0	0	0	0	0.00	153	21	174
7:15 AM - 8:15 AM	0	50	11	61	0.69	22	0	3	25	0.78	41	68	0	109	0.94	0	0	0	0	0.00	170	25	195
7:30 AM - 8:30 AM	1	50	18	69	0.78	16	0	5	21	0.66	43	75	4	122	0.82	0	0	1	1	0.25	191	22	213
7:45 AM - 8:45 AM	1	46	20	67	0.76	19	0	5	24	0.75	40	79	6	125	0.84	0	0	1	1	0.25	192	25	217
8:00 AM - 9:00 AM	**1**	**43**	**31**	**75**	**0.63**	**21**	**0**	**7**	**28**	**0.58**	**28**	**94**	**6**	**128**	**0.86**	**0**	**0**	**1**	**1**	**0.25**	**203**	**29**	**232**
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	11	1	12		2	0	7	9		1	21	0	22		0	0	0	0		34	9	43
4:15 PM - 4:30 PM	1	16	6	23		5	0	3	8		4	16	0	20		1	0	0	1		43	9	52
4:30 PM - 4:45 PM	1	13	3	17		5	0	8	13		3	16	0	19		1	0	2	3		36	16	52
4:45 PM - 5:00 PM	0	17	5	22		1	0	2	3		2	18	1	21		0	0	1	1		43	4	47
5:00 PM - 5:15 PM	0	22	3	25		3	0	4	7		4	15	0	19		1	0	0	1		44	8	52
5:15 PM - 5:30 PM	0	17	1	18		2	0	5	7		4	10	0	14		0	0	0	0		32	7	39
5:30 PM - 5:45 PM	0	12	4	16		4	0	9	13		3	16	0	19		0	0	0	0		35	13	48
5:45 PM - 6:00 PM	1	12	2	15		8	0	4	12		1	11	1	13		0	0	0	0		28	12	40
6:00 PM - 6:15 PM	0	14	4	18		2	0	5	7		0	18	0	18		3	0	1	4		36	11	47
6:15 PM - 6:30 PM	0	17	6	23		2	1	4	7		2	15	0	17		0	0	1	1		40	8	48
6:30 PM - 6:45 PM	0	13	0	13		2	0	1	3		1	17	0	18		0	0	0	0		31	3	34
6:45 PM - 7:00 PM	0	15	3	18		0	0	5	5		0	10	0	10		0	0	0	0		28	5	33
Total	3	179	38	220		36	1	57	94		25	183	2	210		6	0	5	11		430	105	535
PM One Hour Volumes																							
4:00 PM - 5:00 PM	2	57	15	74	0.80	13	0	20	33	0.63	10	71	1	82	0.93	2	0	3	5	0.42	156	38	194
4:15 PM - 5:15 PM	**2**	**68**	**17**	**87**	**0.87**	**14**	**0**	**17**	**31**	**0.60**	**13**	**65**	**1**	**79**	**0.94**	**3**	**0**	**3**	**6**	**0.50**	**166**	**37**	**203**
4:30 PM - 5:30 PM	1	69	12	82	0.82	11	0	19	30	0.58	13	59	1	73	0.87	2	0	3	5	0.42	155	35	190
4:45 PM - 5:45 PM	0	68	13	81	0.81	10	0	20	30	0.58	13	59	1	73	0.87	1	0	1	2	0.50	154	32	186
5:00 PM - 6:00 PM	1	63	10	74	0.74	17	0	22	39	0.75	12	52	1	65	0.86	1	0	0	1	0.25	139	40	179
5:15 PM - 6:15 PM	1	55	11	67	0.93	16	0	23	39	0.75	8	55	1	64	0.84	3	0	1	4	0.25	131	43	174
5:30 PM - 6:30 PM	1	55	16	72	0.78	16	1	22	39	0.75	6	60	1	67	0.88	3	0	2	5	0.31	139	44	183
5:45 PM - 6:45 PM	1	56	12	69	0.75	14	1	14	29	0.60	4	61	1	66	0.92	3	0	2	5	0.31	135	34	169
6:00 PM - 7:00 PM	0	59	13	72	0.78	6	1	15	22	0.79	3	60	0	63	0.88	3	0	2	5	0.31	135	27	162

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Walnut Street & Second Street
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: Amar
INPUTED BY: Dyron

SOUTHBOUND ROAD: Walnut Street
NORTHBOUND ROAD: Walnut Street
WESTBOUND ROAD: Second Street
EASTBOUND ROAD: Second Street

Time	Southbound Walnut Street					Westbound Second Street					Northbound Walnut Street					Eastbound Second Street					North & South	East & West	Total
Period	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	1	1	0	2		1	0	0	1		0	9	0	9		0	0	0	0		11	1	12
6:15 AM - 6:30 AM	0	2	1	3		0	0	0	0		0	10	0	10		1	0	0	1		13	1	14
6:30 AM - 6:45 AM	0	1	0	1		0	1	0	1		0	14	0	14		0	0	0	0		15	1	16
6:45 AM - 7:00 AM	0	3	0	3		0	2	0	2		1	21	0	22		1	0	1	2		25	4	29
7:00 AM - 7:15 AM	0	7	0	7		1	1	0	2		0	20	0	20		0	3	1	4		27	6	33
7:15 AM - 7:30 AM	0	15	0	15		1	0	0	1		0	11	3	14		0	0	3	3		29	4	33
7:30 AM - 7:45 AM	0	10	0	10		0	0	0	0		0	26	0	26		2	3	3	8		36	8	44
7:45 AM - 8:00 AM	0	18	0	18		1	1	0	2		2	23	2	27		3	4	5	12		45	14	59
8:00 AM - 8:15 AM	0	7	1	8		3	0	1	4		0	29	0	29		1	0	3	4		37	8	45
8:15 AM - 8:30 AM	1	11	2	14		0	1	1	2		0	32	0	32		2	3	0	5		46	7	53
8:30 AM - 8:45 AM	1	13	0	14		0	0	0	0		1	25	0	26		3	2	5	10		40	10	50
8:45 AM - 9:00 AM	2	10	0	12		2	0	2	4		0	23	1	24		3	3	5	11		36	15	51
Total	5	98	4	107		9	6	4	19		4	243	6	253		16	18	26	60		360	79	439
AM One Hour Volumes																							
6:00 AM - 7:00 AM	1	7	1	9	0.75	1	3	0	4	0.50	1	54	0	55	0.63	2	0	1	3	0.38	64	7	71
6:15 AM - 7:15 AM	0	13	1	14	0.50	1	4	0	5	0.63	1	65	0	66	0.75	2	3	2	7	0.44	80	12	92
6:30 AM - 7:30 AM	0	26	0	26	0.43	2	4	0	6	0.75	1	66	3	70	0.80	1	3	5	9	0.56	96	15	111
6:45 AM - 7:45 AM	0	35	0	35	0.58	2	3	0	5	0.63	1	78	3	82	0.79	3	6	8	17	0.53	117	22	139
7:00 AM - 8:00 AM	0	50	0	50	0.69	3	2	0	5	0.63	2	80	5	87	0.81	5	10	12	27	0.56	137	32	169
7:15 AM - 8:15 AM	0	50	1	51	0.71	5	1	1	7	0.44	2	89	5	96	0.83	6	7	14	27	0.56	147	34	181
7:30 AM - 8:30 AM	1	46	3	50	0.69	4	2	2	8	0.50	2	110	2	114	0.89	8	10	11	29	0.60	164	37	201
7:45 AM - 8:45 AM	**2**	**49**	**3**	**54**	**0.75**	**4**	**2**	**2**	**8**	**0.50**	**3**	**109**	**2**	**114**	**0.89**	**9**	**9**	**13**	**31**	**0.65**	**168**	**39**	**207**
8:00 AM - 9:00 AM	4	41	3	48	0.86	5	1	4	10	0.63	1	109	1	111	0.87	9	8	13	30	0.68	159	40	199
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	1	20	0	21		0	0	1	1		0	22	1	23		1	1	0	2		44	3	47
4:15 PM - 4:30 PM	0	21	1	22		0	0	0	0		0	14	1	15		1	2	4	7		37	7	44
4:30 PM - 4:45 PM	4	17	1	22		0	0	1	1		0	15	0	15		2	1	0	3		37	4	41
4:45 PM - 5:00 PM	1	19	0	20		0	2	0	2		0	19	2	21		1	1	1	3		41	5	46
5:00 PM - 5:15 PM	1	25	1	27		0	0	0	0		1	17	3	21		1	4	0	5		48	5	53
5:15 PM - 5:30 PM	0	22	2	24		1	0	0	1		0	14	0	14		0	5	0	5		38	6	44
5:30 PM - 5:45 PM	0	23	0	23		0	3	0	3		0	16	1	17		1	1	0	2		40	5	45
5:45 PM - 6:00 PM	0	14	0	14		0	1	1	2		1	13	0	14		2	3	0	5		28	7	35
6:00 PM - 6:15 PM	1	18	2	21		0	1	0	1		2	17	0	19		2	4	0	6		40	7	47
6:15 PM - 6:30 PM	1	21	0	22		1	0	0	1		0	13	1	14		0	3	0	3		36	4	40
6:30 PM - 6:45 PM	0	14	0	14		0	0	1	1		0	20	1	21		0	2	0	2		35	3	38
6:45 PM - 7:00 PM	1	19	0	20		0	1	0	1		0	10	0	10		2	0	1	3		30	4	34
Total	10	233	7	250		2	8	4	14		4	190	10	204		13	27	6	46		454	60	514
PM One Hour Volumes																							
4:00 PM - 5:00 PM	6	77	2	85	0.97	0	2	2	4	0.50	0	70	4	74	0.80	5	5	5	15	0.54	159	19	178
4:15 PM - 5:15 PM	6	82	3	91	0.84	0	2	1	3	0.38	1	65	6	72	0.86	5	8	5	18	0.64	163	21	184
4:30 PM - 5:30 PM	6	83	4	93	0.86	1	2	1	4	0.50	1	65	5	71	0.85	4	11	1	16	0.80	164	20	184
4:45 PM - 5:45 PM	**2**	**89**	**3**	**94**	**0.87**	**1**	**5**	**0**	**6**	**0.50**	**1**	**66**	**6**	**73**	**0.87**	**3**	**11**	**1**	**15**	**0.75**	**167**	**21**	**188**
5:00 PM - 6:00 PM	1	84	3	88	0.81	1	4	1	6	0.50	2	60	4	66	0.79	4	13	0	17	0.85	154	23	177
5:15 PM - 6:15 PM	1	77	4	82	0.85	1	5	1	7	0.58	3	60	1	64	0.84	5	13	0	18	0.75	146	25	171
5:30 PM - 6:30 PM	2	76	2	80	0.87	1	5	1	7	0.58	3	59	2	64	0.84	5	11	0	16	0.67	144	23	167
5:45 PM - 6:45 PM	2	67	2	71	0.81	1	2	2	5	0.63	3	63	2	68	0.81	4	12	0	16	0.67	139	21	160
6:00 PM - 7:00 PM	3	72	2	77	0.88	1	2	1	4	1.00	2	60	2	64	0.76	4	9	1	14	0.58	141	18	159

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Oak Street & Second Street
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: Maria
INPUTED BY: Dyron

SOUTHBOUND ROAD: Oak Street
NORTHBOUND ROAD: Oak Street
WESTBOUND ROAD: N/A
EASTBOUND ROAD: Second Street

Time Period	Southbound Oak Street					Westbound N/A					Northbound Oak Street					Eastbound Second Street					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	0	8	0	8		0	0	0	0		0	9	0	9		0	0	0	0		17	0	17
6:15 AM - 6:30 AM	0	5	0	5		0	0	0	0		0	8	0	8		1	0	0	1		13	1	14
6:30 AM - 6:45 AM	0	3	0	3		0	0	0	0		0	13	0	13		0	0	0	0		16	0	16
6:45 AM - 7:00 AM	1	4	0	5		0	0	0	0		0	14	0	14		2	0	0	2		19	2	21
7:00 AM - 7:15 AM	0	5	0	5		0	0	0	0		0	19	0	19		1	0	1	2		24	2	26
7:15 AM - 7:30 AM	0	11	0	11		0	0	0	0		0	15	0	15		0	0	0	0		26	0	26
7:30 AM - 7:45 AM	1	14	0	15		0	0	0	0		0	19	0	19		3	0	0	3		34	3	37
7:45 AM - 8:00 AM	0	20	0	20		0	0	0	0		0	19	0	19		4	0	2	6		39	6	45
8:00 AM - 8:15 AM	2	23	0	25		0	0	0	0		0	23	1	24		0	0	0	0		49	0	49
8:15 AM - 8:30 AM	1	36	0	37		0	0	0	0		0	23	0	23		5	0	0	5		60	5	65
8:30 AM - 8:45 AM	0	20	0	20		0	0	0	0		0	27	0	27		2	0	0	2		47	2	49
8:45 AM - 9:00 AM	0	33	0	33		0	0	0	0		0	28	1	29		0	0	1	1		62	1	63
Total	5	182	0	187		0	0	0	0		0	217	2	219		18	0	4	22		406	22	428
AM One Hour Volumes																							
6:00 AM - 7:00 AM	1	20	0	21	0.66	0	0	0	0	0.00	0	44	0	44	0.79	3	0	0	3	0.38	65	3	68
6:15 AM - 7:15 AM	1	17	0	18	0.90	0	0	0	0	0.00	0	54	0	54	0.71	4	0	1	5	0.63	72	5	77
6:30 AM - 7:30 AM	1	23	0	24	0.55	0	0	0	0	0.00	0	61	0	61	0.80	3	0	1	4	0.50	85	4	89
6:45 AM - 7:45 AM	2	34	0	36	0.60	0	0	0	0	0.00	0	67	0	67	0.88	6	0	1	7	0.58	103	7	110
7:00 AM - 8:00 AM	1	50	0	51	0.64	0	0	0	0	0.00	0	72	0	72	0.95	8	0	3	11	0.46	123	11	134
7:15 AM - 8:15 AM	3	68	0	71	0.71	0	0	0	0	0.00	0	76	1	77	0.80	7	0	2	9	0.38	148	9	157
7:30 AM - 8:30 AM	4	93	0	97	0.66	0	0	0	0	0.00	0	84	1	85	0.89	12	0	2	14	0.58	182	14	196
7:45 AM - 8:45 AM	3	99	0	102	0.69	0	0	0	0	0.00	0	92	1	93	0.86	11	0	2	13	0.54	195	13	208
8:00 AM - 9:00 AM	**3**	**112**	**0**	**115**	**0.78**	**0**	**0**	**0**	**0**	**0.00**	**0**	**101**	**2**	**103**	**0.89**	**7**	**0**	**1**	**8**	**0.40**	**218**	**8**	**226**
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	1	16	0	17		0	0	0	0		0	21	1	22		0	0	0	0		39	0	39
4:15 PM - 4:30 PM	0	16	0	16		0	0	0	0		0	20	0	20		1	0	0	1		36	1	37
4:30 PM - 4:45 PM	1	25	0	26		0	0	0	0		0	25	0	25		1	0	0	1		51	1	52
4:45 PM - 5:00 PM	0	31	0	31		0	0	0	0		0	17	3	20		1	0	1	2		51	2	53
5:00 PM - 5:15 PM	0	21	0	21		0	0	0	0		0	23	0	23		4	0	1	5		44	5	49
5:15 PM - 5:30 PM	1	22	0	23		0	0	0	0		0	30	1	31		4	0	1	5		54	5	59
5:30 PM - 5:45 PM	2	25	0	27		0	0	0	0		0	17	1	18		0	0	0	0		45	0	45
5:45 PM - 6:00 PM	3	15	0	18		0	0	0	0		0	30	1	31		3	0	0	3		49	3	52
6:00 PM - 6:15 PM	4	16	0	20		0	0	0	0		0	15	0	15		4	0	2	6		35	6	41
6:15 PM - 6:30 PM	0	26	0	26		0	0	0	0		0	7	1	8		2	0	1	3		34	3	37
6:30 PM - 6:45 PM	0	17	0	17		0	0	0	0		0	14	0	14		1	0	0	1		31	1	32
6:45 PM - 7:00 PM	0	18	0	18		0	0	0	0		0	14	1	15		2	0	1	3		33	3	36
Total	12	248	0	260		0	0	0	0		0	233	9	242		23	0	7	30		502	30	532
PM One Hour Volumes																							
4:00 PM - 5:00 PM	2	88	0	90	0.73	0	0	0	0	0.00	0	83	4	87	0.87	3	0	1	4	0.50	177	4	181
4:15 PM - 5:15 PM	1	93	0	94	0.76	0	0	0	0	0.00	0	85	3	88	0.88	7	0	2	9	0.45	182	9	191
4:30 PM - 5:30 PM	**2**	**99**	**0**	**101**	**0.81**	**0**	**0**	**0**	**0**	**0.00**	**0**	**95**	**4**	**99**	**0.80**	**10**	**0**	**3**	**13**	**0.65**	**200**	**13**	**213**
4:45 PM - 5:45 PM	3	99	0	102	0.82	0	0	0	0	0.00	0	87	5	92	0.74	9	0	3	12	0.60	194	12	206
5:00 PM - 6:00 PM	6	83	0	89	0.82	0	0	0	0	0.00	0	100	3	103	0.83	11	0	2	13	0.65	192	13	205
5:15 PM - 6:15 PM	10	78	0	88	0.81	0	0	0	0	0.00	0	92	3	95	0.77	11	0	3	14	0.58	183	14	197
5:30 PM - 6:30 PM	9	82	0	91	0.84	0	0	0	0	0.00	0	69	3	72	0.58	9	0	3	12	0.50	163	12	175
5:45 PM - 6:45 PM	7	74	0	81	0.78	0	0	0	0	0.00	0	66	2	68	0.55	10	0	3	13	0.54	149	13	162
6:00 PM - 7:00 PM	4	77	0	81	0.78	0	0	0	0	0.00	0	50	2	52	0.87	9	0	4	13	0.54	133	13	146

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Pulte Homes Breezeway - City of Fairfax
W+A JOB NO: 7476
INTERSECTION: Oak Street & Second Street
LOCATION: City of Fairfax, VA

DATE: 7/11/2019
DAY: Thursday
WEATHER: clear
COUNTED BY: Laura
INPUTED BY: Dyron

SOUTHBOUND ROAD: Oak Street
NORTHBOUND ROAD: Oak Street
WESTBOUND ROAD: Panther Place
EASTBOUND ROAD: Cedar Avenue

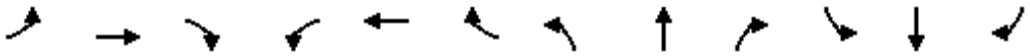
Time Period	Southbound Oak Street					Westbound Panther Place					Northbound Oak Street					Eastbound Cedar Avenue					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	2	9	1	12		0	1	0	1		0	8	0	8		1	1	1	3		20	4	24
6:15 AM - 6:30 AM	0	5	2	7		0	0	0	0		0	8	1	9		1	1	0	2		16	2	18
6:30 AM - 6:45 AM	1	3	0	4		0	0	0	0		1	12	0	13		0	1	2	3		17	3	20
6:45 AM - 7:00 AM	0	6	1	7		0	0	0	0		1	12	1	14		0	2	4	6		21	6	27
7:00 AM - 7:15 AM	2	6	1	9		1	1	1	3		3	16	0	19		1	0	2	3		28	6	34
7:15 AM - 7:30 AM	2	10	0	12		1	0	0	1		2	14	1	17		2	0	5	7		29	8	37
7:30 AM - 7:45 AM	0	13	1	14		1	0	0	1		4	13	0	17		1	5	7	13		31	14	45
7:45 AM - 8:00 AM	2	21	6	29		1	2	2	5		4	15	1	20		1	12	5	18		49	23	72
8:00 AM - 8:15 AM	0	19	5	24		6	2	7	15		8	22	0	30		0	7	7	14		54	29	83
8:15 AM - 8:30 AM	2	26	1	29		8	1	5	14		7	16	0	23		2	4	6	12		52	26	78
8:30 AM - 8:45 AM	1	14	11	26		5	2	6	13		5	22	1	28		4	4	5	13		54	26	80
8:45 AM - 9:00 AM	1	22	16	39		17	3	13	33		9	22	0	31		3	14	2	19		70	52	122
Total	13	154	45	212		40	12	34	86		44	180	5	229		16	51	46	113		441	199	640
AM One Hour Volumes																							
6:00 AM - 7:00 AM	3	23	4	30	0.63	0	1	0	1	0.25	2	40	2	44	0.79	2	5	7	14	0.58	74	15	89
6:15 AM - 7:15 AM	3	20	4	27	0.75	1	1	1	3	0.25	5	48	2	55	0.72	2	4	8	14	0.58	82	17	99
6:30 AM - 7:30 AM	5	25	2	32	0.67	2	1	1	4	0.33	7	54	2	63	0.83	3	3	13	19	0.68	95	23	118
6:45 AM - 7:45 AM	4	35	3	42	0.75	3	1	1	5	0.42	10	55	2	67	0.88	4	7	18	29	0.56	109	34	143
7:00 AM - 8:00 AM	6	50	8	64	0.55	4	3	3	10	0.50	13	58	2	73	0.91	5	17	19	41	0.57	137	51	188
7:15 AM - 8:15 AM	4	63	12	79	0.68	9	4	9	22	0.37	18	64	2	84	0.70	4	24	24	52	0.72	163	74	237
7:30 AM - 8:30 AM	4	79	13	96	0.83	16	5	14	35	0.58	23	66	1	90	0.75	4	28	25	57	0.79	186	92	278
7:45 AM - 8:45 AM	5	80	23	108	0.93	20	7	20	47	0.78	24	75	2	101	0.84	7	27	23	57	0.79	209	104	313
8:00 AM - 9:00 AM	**4**	**81**	**33**	**118**	**0.76**	**36**	**8**	**31**	**75**	**0.57**	**29**	**82**	**1**	**112**	**0.90**	**9**	**29**	**20**	**58**	**0.76**	**230**	**133**	**363**
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	7	20	3	30		1	2	1	4		4	20	1	25		0	0	1	1		55	5	60
4:15 PM - 4:30 PM	5	20	0	25		4	4	2	10		1	17	0	18		4	4	3	11		43	21	64
4:30 PM - 4:45 PM	8	25	3	36		3	3	3	9		1	27	2	30		3	1	2	6		66	15	81
4:45 PM - 5:00 PM	2	30	0	32		1	1	0	2		1	18	1	20		3	0	4	7		52	9	61
5:00 PM - 5:15 PM	5	23	1	29		1	0	2	3		1	24	2	27		2	1	3	6		56	9	65
5:15 PM - 5:30 PM	4	20	1	25		1	1	3	5		1	30	1	32		1	1	3	5		57	10	67
5:30 PM - 5:45 PM	8	28	0	36		0	1	1	2		0	18	1	19		2	1	2	5		55	7	62
5:45 PM - 6:00 PM	4	19	2	25		1	2	1	4		0	32	3	35		1	1	1	3		60	7	67
6:00 PM - 6:15 PM	3	20	1	24		0	0	2	2		0	19	2	21		3	0	0	3		45	5	50
6:15 PM - 6:30 PM	4	19	1	24		0	1	1	2		0	8	0	8		3	0	2	5		32	7	39
6:30 PM - 6:45 PM	2	22	0	24		0	0	0	0		0	15	1	16		0	0	1	1		40	1	41
6:45 PM - 7:00 PM	5	20	0	25		0	0	0	0		0	11	0	11		1	0	0	1		36	1	37
Total	57	266	12	335		12	15	16	43		9	239	14	262		23	9	22	54		597	97	694
PM One Hour Volumes																							
4:00 PM - 5:00 PM	22	95	6	123	0.85	9	10	6	25	0.63	7	82	4	93	0.78	10	5	10	25	0.57	216	50	266
4:15 PM - 5:15 PM	20	98	4	122	0.85	9	8	7	24	0.60	4	86	5	95	0.79	12	6	12	30	0.68	217	54	271
4:30 PM - 5:30 PM	**19**	**98**	**5**	**122**	**0.85**	**6**	**5**	**8**	**19**	**0.53**	**4**	**99**	**6**	**109**	**0.85**	**9**	**3**	**12**	**24**	**0.86**	**231**	**43**	**274**
4:45 PM - 5:45 PM	19	101	2	122	0.85	3	3	6	12	0.60	3	90	5	98	0.77	8	3	12	23	0.82	220	35	255
5:00 PM - 6:00 PM	21	90	4	115	0.80	3	4	7	14	0.70	2	104	7	113	0.81	6	4	9	19	0.79	228	33	261
5:15 PM - 6:15 PM	19	87	4	110	0.76	2	4	7	13	0.65	1	99	7	107	0.76	7	3	6	16	0.80	217	29	246
5:30 PM - 6:30 PM	19	86	4	109	0.76	1	4	5	10	0.63	0	77	6	83	0.59	9	2	5	16	0.80	192	26	218
5:45 PM - 6:45 PM	13	80	4	97	0.97	1	3	4	8	0.50	0	74	6	80	0.57	7	1	4	12	0.60	177	20	197
6:00 PM - 7:00 PM	14	81	2	97	0.97	0	1	3	4	0.50	0	53	3	56	0.67	7	0	3	10	0.50	153	14	167

APPENDIX C

Existing Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis
1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1692	18	67	588	3	38	12	79	9	1	18
Future Volume (vph)	21	1692	18	67	588	3	38	12	79	9	1	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3500		1805	3404			1830	1615		1708	
Flt Permitted	0.37	1.00		0.03	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	621	3500		66	3404			1830	1615		1708	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	25	1991	21	79	692	4	45	14	93	11	1	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	86	0	20	0
Lane Group Flow (vph)	25	2012	0	79	696	0	0	59	7	0	13	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	132.5	126.7		140.9	130.9			11.6	11.6		6.5	
Effective Green, g (s)	134.5	128.7		142.9	132.9			13.6	13.6		8.5	
Actuated g/C Ratio	0.71	0.68		0.75	0.70			0.07	0.07		0.04	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	474	2370		150	2381			130	115		76	
v/s Ratio Prot	0.00	c0.57		c0.03	0.20			c0.03			c0.01	
v/s Ratio Perm	0.04			0.36					0.00			
v/c Ratio	0.05	0.85		0.53	0.29			0.45	0.06		0.17	
Uniform Delay, d1	8.3	23.3		44.6	10.8			84.6	82.2		87.4	
Progression Factor	0.83	0.64		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.0		3.3	0.3			2.5	0.2		1.1	
Delay (s)	6.9	17.9		47.9	11.1			87.1	82.4		88.4	
Level of Service	A	B		D	B			F	F		F	
Approach Delay (s)		17.8			14.9			84.3			88.4	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1661	17	20	606	18	13	26	45	25	25	12
Future Volume (vph)	10	1661	17	20	606	18	13	26	45	25	25	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3501		1805	3397		1805	1572		1752	1771	
Flt Permitted	0.36	1.00		0.07	1.00		0.73	1.00		0.47	1.00	
Satd. Flow (perm)	636	3501		127	3397		1385	1572		871	1771	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	12	1954	20	24	713	21	15	31	53	29	29	14
RTOR Reduction (vph)	0	0	0	0	1	0	0	40	0	0	10	0
Lane Group Flow (vph)	12	1974	0	24	733	0	15	44	0	29	33	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	148.5	145.7		151.3	147.1		20.4	20.4		9.3	9.3	
Effective Green, g (s)	150.5	146.7		153.3	148.1		22.4	22.4		11.3	11.3	
Actuated g/C Ratio	0.79	0.77		0.81	0.78		0.12	0.12		0.06	0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	524	2703		148	2647		163	185		51	105	
v/s Ratio Prot	0.00	c0.56		c0.00	0.22			c0.03			0.02	
v/s Ratio Perm	0.02			0.13			0.01			c0.03		
v/c Ratio	0.02	0.73		0.16	0.28		0.09	0.24		0.57	0.31	
Uniform Delay, d1	4.2	11.3		12.6	5.9		74.7	76.1		87.0	85.6	
Progression Factor	1.00	1.00		0.98	0.42		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.8		0.5	0.3		0.2	0.7		13.7	1.7	
Delay (s)	4.2	13.1		12.9	2.7		75.0	76.7		100.7	87.3	
Level of Service	A	B		B	A		E	E		F	F	
Approach Delay (s)		13.0			3.0			76.5			92.7	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
3: Walnut Street & Cedar Avenue

10/22/2020

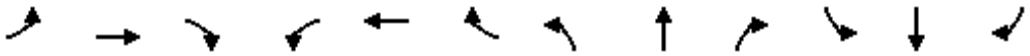
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	7	0	21	6	94	28	31	43	1
Future Volume (Veh/h)	0	0	0	7	0	21	6	94	28	31	43	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	0	0	0	8	0	25	7	111	33	36	51	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	290	282	52	265	266	128	52			144		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	290	282	52	265	266	128	52			144		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			97		
cM capacity (veh/h)	630	609	1016	672	621	923	1554			1438		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	0	33	151	88
Volume Left	0	8	7	36
Volume Right	0	25	33	1
cSH	1700	846	1554	1438
Volume to Capacity	0.00	0.04	0.00	0.03
Queue Length 95th (ft)	0	3	0	2
Control Delay (s)	0.0	9.4	0.4	3.2
Lane LOS	A	A	A	A
Approach Delay (s)	0.0	9.4	0.4	3.2
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	24.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/22/2020



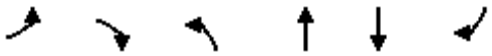
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	9	9	2	2	4	2	109	3	3	49	2
Future Volume (vph)	13	9	9	2	2	4	2	109	3	3	49	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	15	11	11	2	2	5	2	128	4	4	58	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	37	9	134	64
Volume Left (vph)	15	2	2	4
Volume Right (vph)	11	5	4	2
Hadj (s)	-0.06	-0.25	0.02	0.03
Departure Headway (s)	4.3	4.1	4.1	4.2
Degree Utilization, x	0.04	0.01	0.15	0.07
Capacity (veh/h)	801	828	860	847
Control Delay (s)	7.5	7.2	7.8	7.5
Approach Delay (s)	7.5	7.2	7.8	7.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.7			
Level of Service	A			
Intersection Capacity Utilization	16.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Oak Street & Second Street

10/22/2020



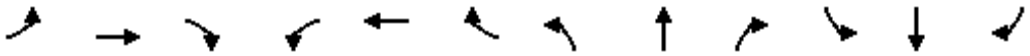
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	1	7	2	101	112	3
Future Volume (vph)	1	7	2	101	112	3
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	8	2	119	132	4

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	9	121	136
Volume Left (vph)	1	2	0
Volume Right (vph)	8	0	4
Hadj (s)	-0.48	0.04	0.02
Departure Headway (s)	4.0	4.1	4.0
Degree Utilization, x	0.01	0.14	0.15
Capacity (veh/h)	848	864	879
Control Delay (s)	7.0	7.7	7.8
Approach Delay (s)	7.0	7.7	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	29	9	31	8	36	1	82	29	33	81	4
Future Volume (vph)	20	29	9	31	8	36	1	82	29	33	81	4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	24	34	11	36	9	42	1	96	34	39	95	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	69	87	131	139
Volume Left (vph)	24	36	1	39
Volume Right (vph)	11	42	34	5
Hadj (s)	0.01	-0.17	-0.12	0.07
Departure Headway (s)	4.6	4.4	4.3	4.5
Degree Utilization, x	0.09	0.11	0.16	0.17
Capacity (veh/h)	719	753	796	762
Control Delay (s)	8.1	8.0	8.1	8.4
Approach Delay (s)	8.1	8.0	8.1	8.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1031	22	76	1455	0	21	4	88	15	9	18
Future Volume (vph)	32	1031	22	76	1455	0	21	4	88	15	9	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3496		1805	3406			1824	1615		1761	
Flt Permitted	0.09	1.00		0.18	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	156	3496		342	3406			1824	1615		1761	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	38	1213	26	89	1712	0	25	5	104	18	11	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	99	0	12	0
Lane Group Flow (vph)	38	1239	0	89	1712	0	0	30	5	0	38	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	162.9	156.7		166.9	158.7			9.4	9.4		10.5	
Effective Green, g (s)	164.9	158.7		168.9	160.7			11.4	11.4		12.5	
Actuated g/C Ratio	0.75	0.72		0.77	0.73			0.05	0.05		0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	164	2521		323	2487			94	83		100	
v/s Ratio Prot	0.01	0.35		c0.01	c0.50			c0.02			c0.02	
v/s Ratio Perm	0.17			0.20					0.00			
v/c Ratio	0.23	0.49		0.28	0.69			0.32	0.06		0.38	
Uniform Delay, d1	14.6	13.2		9.2	16.1			100.6	99.2		100.0	
Progression Factor	0.81	0.61		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.6		0.5	1.6			2.0	0.3		2.4	
Delay (s)	12.5	8.7		9.7	17.7			102.5	99.6		102.4	
Level of Service	B	A		A	B			F	F		F	
Approach Delay (s)		8.8			17.3			100.2			102.4	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	1018	11	22	1458	14	16	26	34	33	23	14
Future Volume (vph)	21	1018	11	22	1458	14	16	26	34	33	23	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.92		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3403		1805	1597		1752	1761	
Flt Permitted	0.10	1.00		0.21	1.00		0.71	1.00		0.54	1.00	
Satd. Flow (perm)	183	3500		390	3403		1355	1597		995	1761	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	25	1198	13	26	1715	16	19	31	40	39	27	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	25	0	0	10	0
Lane Group Flow (vph)	25	1211	0	26	1731	0	19	46	0	39	33	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	178.2	172.5		178.2	172.5		22.1	22.1		12.7	12.7	
Effective Green, g (s)	180.2	173.5		180.2	173.5		24.1	24.1		14.7	14.7	
Actuated g/C Ratio	0.82	0.79		0.82	0.79		0.11	0.11		0.07	0.07	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	195	2760		362	2683		148	174		66	117	
v/s Ratio Prot	c0.00	0.35		0.00	c0.51			c0.03			0.02	
v/s Ratio Perm	0.10			0.06			0.01			c0.04		
v/c Ratio	0.13	0.44		0.07	0.65		0.13	0.26		0.59	0.28	
Uniform Delay, d1	8.1	7.5		4.6	10.0		88.5	89.8		99.7	97.6	
Progression Factor	1.00	1.00		0.15	0.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.5		0.1	0.9		0.4	0.8		13.4	1.3	
Delay (s)	8.4	8.0		0.7	1.6		88.9	90.6		113.1	98.9	
Level of Service	A	A		A	A		F	F		F	F	
Approach Delay (s)		8.0			1.6			90.3			105.7	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
3: Walnut Street & Cedar Avenue

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	3	17	0	14	1	65	13	17	68	2
Future Volume (Veh/h)	3	0	3	17	0	14	1	65	13	17	68	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	4	0	4	20	0	16	1	76	15	20	80	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	222	214	81	210	208	84	82			91		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	222	214	81	210	208	84	82			91		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	97	100	98	100			99		
cM capacity (veh/h)	714	674	979	736	680	976	1515			1504		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	8	36	92	102
Volume Left	4	20	1	20
Volume Right	4	16	15	2
cSH	825	826	1515	1504
Volume to Capacity	0.01	0.04	0.00	0.01
Queue Length 95th (ft)	1	3	0	1
Control Delay (s)	9.4	9.6	0.1	1.5
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.6	0.1	1.5
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	21.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/22/2020

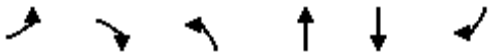
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	11	3	0	5	1	6	66	1	3	89	2
Future Volume (vph)	1	11	3	0	5	1	6	66	1	3	89	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	1	13	4	0	6	1	7	78	1	4	105	2

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	18	7	86	111
Volume Left (vph)	1	0	7	4
Volume Right (vph)	4	1	1	2
Hadj (s)	-0.09	-0.05	0.04	0.03
Departure Headway (s)	4.2	4.3	4.1	4.1
Degree Utilization, x	0.02	0.01	0.10	0.13
Capacity (veh/h)	806	797	857	872
Control Delay (s)	7.3	7.3	7.5	7.7
Approach Delay (s)	7.3	7.3	7.5	7.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Oak Street & Second Street

10/22/2020



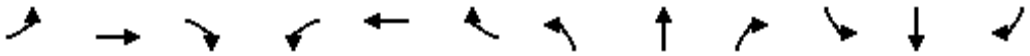
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	3	10	4	95	99	2
Future Volume (vph)	3	10	4	95	99	2
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	4	12	5	112	116	2

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	16	117	118
Volume Left (vph)	4	5	0
Volume Right (vph)	12	0	2
Hadj (s)	-0.37	0.04	0.02
Departure Headway (s)	4.0	4.1	4.1
Degree Utilization, x	0.02	0.13	0.13
Capacity (veh/h)	839	862	873
Control Delay (s)	7.1	7.7	7.7
Approach Delay (s)	7.1	7.7	7.7
Approach LOS	A	A	A

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	3	9	6	5	8	6	99	4	5	98	19
Future Volume (vph)	12	3	9	6	5	8	6	99	4	5	98	19
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	14	4	11	7	6	9	7	116	5	6	115	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	29	22	128	143
Volume Left (vph)	14	7	7	6
Volume Right (vph)	11	9	5	22
Hadj (s)	-0.10	-0.15	0.02	-0.05
Departure Headway (s)	4.4	4.4	4.2	4.1
Degree Utilization, x	0.04	0.03	0.15	0.16
Capacity (veh/h)	754	761	838	861
Control Delay (s)	7.6	7.5	7.9	7.9
Approach Delay (s)	7.6	7.5	7.9	7.9
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.8			
Level of Service	A			
Intersection Capacity Utilization	17.9%	ICU Level of Service	A	
Analysis Period (min)	15			

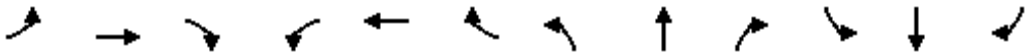
APPENDIX D

2024 Background Future Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1826	20	69	674	3	41	12	81	9	1	19
Future Volume (vph)	22	1826	20	69	674	3	41	12	81	9	1	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3500		1805	3404			1829	1615		1705	
Flt Permitted	0.36	1.00		0.04	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	599	3500		68	3404			1829	1615		1705	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1985	22	75	733	3	45	13	88	10	1	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	82	0	20	0
Lane Group Flow (vph)	24	2007	0	75	736	0	0	58	6	0	12	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	131.6	127.2		142.0	132.4			11.5	11.5		6.5	
Effective Green, g (s)	133.6	129.2		144.0	134.4			13.5	13.5		8.5	
Actuated g/C Ratio	0.70	0.68		0.76	0.71			0.07	0.07		0.04	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	449	2380		148	2407			129	114		76	
v/s Ratio Prot	0.00	c0.57		c0.03	0.22			c0.03			c0.01	
v/s Ratio Perm	0.04			0.35					0.00			
v/c Ratio	0.05	0.84		0.51	0.31			0.45	0.05		0.16	
Uniform Delay, d1	8.6	22.8		40.9	10.4			84.7	82.3		87.3	
Progression Factor	0.82	0.63		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	2.9		2.7	0.3			2.5	0.2		1.0	
Delay (s)	7.1	17.3		43.6	10.7			87.2	82.5		88.3	
Level of Service	A	B		D	B			F	F		F	
Approach Delay (s)		17.2			13.8			84.4			88.3	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1795	19	21	694	19	15	27	46	26	26	12
Future Volume (vph)	10	1795	19	21	694	19	15	27	46	26	26	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3397		1805	1571		1752	1773	
Flt Permitted	0.35	1.00		0.07	1.00		0.73	1.00		0.50	1.00	
Satd. Flow (perm)	608	3500		129	3397		1388	1571		918	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1951	21	23	754	21	16	29	50	28	28	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	40	0	0	9	0
Lane Group Flow (vph)	11	1972	0	23	775	0	16	39	0	28	32	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	148.9	146.1		151.7	147.5		20.0	20.0		8.9	8.9	
Effective Green, g (s)	150.9	147.1		153.7	148.5		22.0	22.0		10.9	10.9	
Actuated g/C Ratio	0.79	0.77		0.81	0.78		0.12	0.12		0.06	0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	504	2709		150	2655		160	181		52	101	
v/s Ratio Prot	0.00	c0.56		c0.00	0.23			c0.02			0.02	
v/s Ratio Perm	0.02			0.12			0.01			c0.03		
v/c Ratio	0.02	0.73		0.15	0.29		0.10	0.22		0.54	0.31	
Uniform Delay, d1	4.1	11.1		12.2	5.9		75.1	76.2		87.1	86.0	
Progression Factor	1.00	1.00		0.86	0.40		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.8		0.5	0.3		0.3	0.6		10.3	1.8	
Delay (s)	4.1	12.8		11.0	2.6		75.4	76.8		97.4	87.7	
Level of Service	A	B		B	A		E	E		F	F	
Approach Delay (s)		12.8			2.8			76.6			91.7	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
3: Walnut Street & Cedar Avenue

10/22/2020

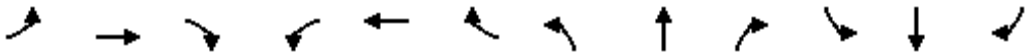
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	8	0	24	6	97	29	33	44	1
Future Volume (Veh/h)	1	0	0	8	0	24	6	97	29	33	44	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	0	9	0	26	7	105	32	36	48	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	282	272	48	256	256	121	49			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	272	48	256	256	121	49			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			98		
cM capacity (veh/h)	637	617	1020	682	629	930	1558			1447		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	35	144	85
Volume Left	1	9	7	36
Volume Right	0	26	32	1
cSH	637	851	1558	1447
Volume to Capacity	0.00	0.04	0.00	0.02
Queue Length 95th (ft)	0	3	0	2
Control Delay (s)	10.7	9.4	0.4	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.7	9.4	0.4	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	9	9	2	2	4	2	112	3	3	51	2
Future Volume (vph)	13	9	9	2	2	4	2	112	3	3	51	2
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
Hourly flow rate (vph)	14	10	10	2	2	4	2	122	3	3	55	2

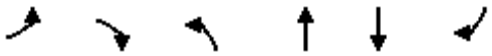
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	34	8	127	60
Volume Left (vph)	14	2	2	3
Volume Right (vph)	10	4	3	2
Hadj (s)	-0.06	-0.22	0.02	0.02
Departure Headway (s)	4.2	4.1	4.1	4.1
Degree Utilization, x	0.04	0.01	0.14	0.07
Capacity (veh/h)	807	828	863	852
Control Delay (s)	7.4	7.2	7.8	7.4
Approach Delay (s)	7.4	7.2	7.8	7.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street

10/22/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	1	7	2	110	137	3
Future Volume (vph)	1	7	2	110	137	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	8	2	120	149	3

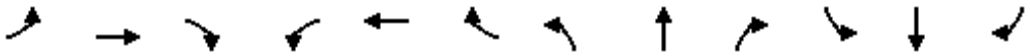
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	9	122	152
Volume Left (vph)	1	2	0
Volume Right (vph)	8	0	3
Hadj (s)	-0.48	0.04	0.02
Departure Headway (s)	4.0	4.1	4.1
Degree Utilization, x	0.01	0.14	0.17
Capacity (veh/h)	838	861	878
Control Delay (s)	7.0	7.8	7.9
Approach Delay (s)	7.0	7.8	7.9
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	17.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	31	9	54	11	39	1	84	36	35	83	4
Future Volume (vph)	21	31	9	54	11	39	1	84	36	35	83	4
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
Hourly flow rate (vph)	23	34	10	59	12	42	1	91	39	38	90	4

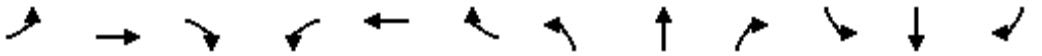
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	67	113	131	132
Volume Left (vph)	23	59	1	38
Volume Right (vph)	10	42	39	4
Hadj (s)	0.01	-0.08	-0.14	0.07
Departure Headway (s)	4.7	4.5	4.3	4.6
Degree Utilization, x	0.09	0.14	0.16	0.17
Capacity (veh/h)	714	744	786	747
Control Delay (s)	8.1	8.3	8.2	8.5
Approach Delay (s)	8.1	8.3	8.2	8.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.3			
Level of Service	A			
Intersection Capacity Utilization	29.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1198	25	78	1658	0	23	4	91	15	9	19
Future Volume (vph)	33	1198	25	78	1658	0	23	4	91	15	9	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3496		1805	3406			1821	1615		1756	
Flt Permitted	0.08	1.00		0.16	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	138	3496		307	3406			1821	1615		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1302	27	85	1802	0	25	4	99	16	10	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	94	0	14	0
Lane Group Flow (vph)	36	1329	0	85	1802	0	0	29	5	0	33	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	165.0	158.9		169.0	160.9			9.3	9.3		8.5	
Effective Green, g (s)	167.0	160.9		171.0	162.9			11.3	11.3		10.5	
Actuated g/C Ratio	0.76	0.73		0.78	0.74			0.05	0.05		0.05	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	151	2556		300	2521			93	82		83	
v/s Ratio Prot	0.01	0.38		c0.01	c0.53			c0.02			c0.02	
v/s Ratio Perm	0.17			0.21					0.00			
v/c Ratio	0.24	0.52		0.28	0.71			0.31	0.06		0.39	
Uniform Delay, d1	15.4	12.8		9.3	15.7			100.6	99.3		101.7	
Progression Factor	0.82	0.57		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.7		0.5	1.8			1.9	0.3		3.1	
Delay (s)	13.4	8.0		9.8	17.5			102.5	99.6		104.7	
Level of Service	B	A		A	B			F	F		F	
Approach Delay (s)		8.1			17.2			100.3			104.7	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1187	13	23	1662	14	17	27	35	34	24	14
Future Volume (vph)	22	1187	13	23	1662	14	17	27	35	34	24	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3403		1805	1595		1752	1762	
Flt Permitted	0.09	1.00		0.18	1.00		0.72	1.00		0.56	1.00	
Satd. Flow (perm)	160	3500		349	3403		1370	1595		1032	1762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1290	14	25	1807	15	18	29	38	37	26	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	25	0	0	10	0
Lane Group Flow (vph)	24	1304	0	25	1822	0	18	42	0	37	31	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	178.7	173.0		178.5	172.9		21.7	21.7		12.3	12.3	
Effective Green, g (s)	180.7	174.0		180.5	173.9		23.7	23.7		14.3	14.3	
Actuated g/C Ratio	0.82	0.79		0.82	0.79		0.11	0.11		0.07	0.07	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	2768		330	2689		147	171		67	114	
v/s Ratio Prot	c0.00	0.37		0.00	c0.54			c0.03			0.02	
v/s Ratio Perm	0.11			0.06			0.01			c0.04		
v/c Ratio	0.14	0.47		0.08	0.68		0.12	0.25		0.55	0.27	
Uniform Delay, d1	9.2	7.7		4.8	10.4		88.7	90.0		99.7	97.9	
Progression Factor	1.00	1.00		0.14	0.07		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.1	1.0		0.4	0.8		9.5	1.3	
Delay (s)	9.6	8.2		0.8	1.7		89.1	90.7		109.2	99.2	
Level of Service	A	A		A	A		F	F		F	F	
Approach Delay (s)		8.3			1.7			90.4			103.9	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
3: Walnut Street & Cedar Avenue

10/22/2020

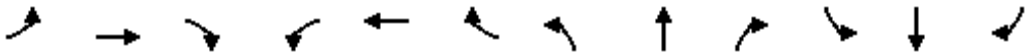
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	3	18	0	15	1	67	14	20	70	2
Future Volume (Veh/h)	3	0	3	18	0	15	1	67	14	20	70	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	3	20	0	16	1	73	15	22	76	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	220	211	77	206	204	80	78			88		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220	211	77	206	204	80	78			88		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	98	100			99		
cM capacity (veh/h)	716	676	984	740	681	980	1520			1508		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	36	89	100
Volume Left	3	20	1	22
Volume Right	3	16	15	2
cSH	829	830	1520	1508
Volume to Capacity	0.01	0.04	0.00	0.01
Queue Length 95th (ft)	1	3	0	1
Control Delay (s)	9.4	9.5	0.1	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.5	0.1	1.7
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	21.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	11	3	0	5	1	6	69	1	3	92	2
Future Volume (vph)	1	11	3	0	5	1	6	69	1	3	92	2
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
Hourly flow rate (vph)	1	12	3	0	5	1	7	75	1	3	100	2

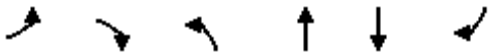
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	6	83	105
Volume Left (vph)	1	0	7	3
Volume Right (vph)	3	1	1	2
Hadj (s)	-0.07	-0.07	0.04	0.03
Departure Headway (s)	4.2	4.3	4.1	4.1
Degree Utilization, x	0.02	0.01	0.09	0.12
Capacity (veh/h)	808	805	860	876
Control Delay (s)	7.3	7.3	7.5	7.6
Approach Delay (s)	7.3	7.3	7.5	7.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.5			
Level of Service	A			
Intersection Capacity Utilization	16.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street

10/22/2020



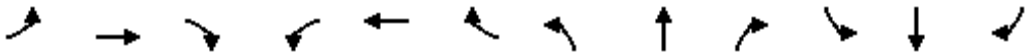
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	3	10	4	119	115	2
Future Volume (vph)	3	10	4	119	115	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	11	4	129	125	2

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	14	133	127
Volume Left (vph)	3	4	0
Volume Right (vph)	11	0	2
Hadj (s)	-0.39	0.04	0.02
Departure Headway (s)	4.1	4.1	4.1
Degree Utilization, x	0.02	0.15	0.14
Capacity (veh/h)	830	862	871
Control Delay (s)	7.1	7.8	7.8
Approach Delay (s)	7.1	7.8	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	19.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	5	9	19	6	9	6	102	25	7	101	20
Future Volume (vph)	12	5	9	19	6	9	6	102	25	7	101	20
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
Hourly flow rate (vph)	13	5	10	21	7	10	7	111	27	8	110	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	28	38	145	140
Volume Left (vph)	13	21	7	8
Volume Right (vph)	10	10	27	22
Hadj (s)	-0.09	-0.01	-0.07	-0.05
Departure Headway (s)	4.5	4.5	4.1	4.2
Degree Utilization, x	0.03	0.05	0.17	0.16
Capacity (veh/h)	742	734	846	847
Control Delay (s)	7.6	7.8	8.0	8.0
Approach Delay (s)	7.6	7.8	8.0	8.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.9			
Level of Service	A			
Intersection Capacity Utilization	19.1%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX E

2024 Total Future Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1831	20	72	678	3	41	12	89	9	1	19
Future Volume (vph)	22	1831	20	72	678	3	41	12	89	9	1	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3500		1805	3404			1829	1615		1705	
Flt Permitted	0.36	1.00		0.03	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	598	3500		66	3404			1829	1615		1705	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1990	22	78	737	3	45	13	97	10	1	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	90	0	20	0
Lane Group Flow (vph)	24	2012	0	78	740	0	0	58	7	0	12	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	131.3	126.9		142.3	132.4			11.5	11.5		6.5	
Effective Green, g (s)	133.3	128.9		144.3	134.4			13.5	13.5		8.5	
Actuated g/C Ratio	0.70	0.68		0.76	0.71			0.07	0.07		0.04	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	447	2374		149	2407			129	114		76	
v/s Ratio Prot	0.00	c0.57		c0.03	0.22			c0.03			c0.01	
v/s Ratio Perm	0.04			0.37					0.00			
v/c Ratio	0.05	0.85		0.52	0.31			0.45	0.06		0.16	
Uniform Delay, d1	8.7	23.1		44.4	10.4			84.7	82.3		87.3	
Progression Factor	1.01	0.68		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	2.9		3.3	0.3			2.5	0.2		1.0	
Delay (s)	8.8	18.7		47.7	10.7			87.2	82.6		88.3	
Level of Service	A	B		D	B			F	F		F	
Approach Delay (s)		18.5			14.2			84.3			88.3	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1797	21	22	694	19	22	27	50	26	26	12
Future Volume (vph)	10	1797	21	22	694	19	22	27	50	26	26	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3397		1805	1565		1752	1773	
Flt Permitted	0.35	1.00		0.07	1.00		0.73	1.00		0.47	1.00	
Satd. Flow (perm)	608	3500		128	3397		1388	1565		871	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1953	23	24	754	21	24	29	54	28	28	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	43	0	0	9	0
Lane Group Flow (vph)	11	1976	0	24	775	0	24	40	0	28	32	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	148.8	146.0		151.6	147.4		20.1	20.1		9.0	9.0	
Effective Green, g (s)	150.8	147.0		153.6	148.4		22.1	22.1		11.0	11.0	
Actuated g/C Ratio	0.79	0.77		0.81	0.78		0.12	0.12		0.06	0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	503	2707		149	2653		161	182		50	102	
v/s Ratio Prot	0.00	c0.56		c0.00	0.23			c0.03			0.02	
v/s Ratio Perm	0.02			0.13			0.02			c0.03		
v/c Ratio	0.02	0.73		0.16	0.29		0.15	0.22		0.56	0.31	
Uniform Delay, d1	4.1	11.2		12.4	5.9		75.5	76.1		87.1	85.9	
Progression Factor	1.00	1.00		0.87	0.35		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.8		0.5	0.3		0.4	0.6		13.6	1.7	
Delay (s)	4.2	12.9		11.3	2.4		75.9	76.7		100.7	87.6	
Level of Service	A	B		B	A		E	E		F	F	
Approach Delay (s)		12.9			2.6			76.5			92.9	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

3: Walnut Street & Cedar Avenue

10/23/2020

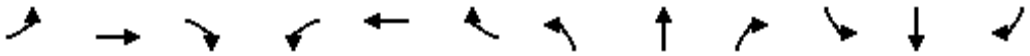
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	8	0	28	6	99	29	34	46	1
Future Volume (Veh/h)	1	0	0	8	0	28	6	99	29	34	46	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	0	9	0	30	7	108	32	37	50	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	292	278	50	262	263	124	51			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292	278	50	262	263	124	51			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			97		
cM capacity (veh/h)	624	611	1018	674	623	927	1555			1443		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	39	147	88
Volume Left	1	9	7	37
Volume Right	0	30	32	1
cSH	624	853	1555	1443
Volume to Capacity	0.00	0.05	0.00	0.03
Queue Length 95th (ft)	0	4	0	2
Control Delay (s)	10.8	9.4	0.4	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.8	9.4	0.4	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	25.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	9	9	2	2	4	2	114	3	3	53	2
Future Volume (vph)	13	9	9	2	2	4	2	114	3	3	53	2
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
Hourly flow rate (vph)	14	10	10	2	2	4	2	124	3	3	58	2

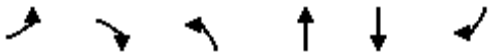
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	34	8	129	63
Volume Left (vph)	14	2	2	3
Volume Right (vph)	10	4	3	2
Hadj (s)	-0.06	-0.22	0.02	0.02
Departure Headway (s)	4.3	4.1	4.1	4.1
Degree Utilization, x	0.04	0.01	0.15	0.07
Capacity (veh/h)	804	825	862	852
Control Delay (s)	7.4	7.2	7.8	7.5
Approach Delay (s)	7.4	7.2	7.8	7.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street

10/23/2020



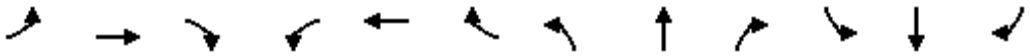
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	1	7	2	111	141	3
Future Volume (vph)	1	7	2	111	141	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	8	2	121	153	3

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	9	123	156
Volume Left (vph)	1	2	0
Volume Right (vph)	8	0	3
Hadj (s)	-0.48	0.04	0.02
Departure Headway (s)	4.0	4.1	4.1
Degree Utilization, x	0.01	0.14	0.18
Capacity (veh/h)	835	860	877
Control Delay (s)	7.1	7.8	7.9
Approach Delay (s)	7.1	7.8	7.9
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Oak Street & Cedar Avenue

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	31	10	54	11	39	5	92	36	35	86	4
Future Volume (vph)	21	31	10	54	11	39	5	92	36	35	86	4
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
Hourly flow rate (vph)	23	34	11	59	12	42	5	100	39	38	93	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	68	113	144	135
Volume Left (vph)	23	59	5	38
Volume Right (vph)	11	42	39	4
Hadj (s)	0.00	-0.08	-0.12	0.07
Departure Headway (s)	4.7	4.6	4.4	4.6
Degree Utilization, x	0.09	0.14	0.18	0.17
Capacity (veh/h)	707	735	781	744
Control Delay (s)	8.2	8.3	8.3	8.5
Approach Delay (s)	8.2	8.3	8.3	8.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.3			
Level of Service	A			
Intersection Capacity Utilization	33.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
101: Site Driveway A & Fairfax Boulevard

10/23/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1870	2	3	734	0	1
Future Volume (Veh/h)	1870	2	3	734	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2033	2	3	798	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	250			387		
pX, platoon unblocked			0.68		0.72	0.68
vC, conflicting volume			2035		2439	1018
vC1, stage 1 conf vol					2034	
vC2, stage 2 conf vol					405	
vCu, unblocked vol			1587		1730	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			280		102	643

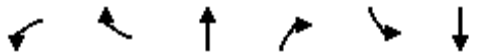
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1355	680	3	399	399	1
Volume Left	0	0	3	0	0	0
Volume Right	0	2	0	0	0	1
cSH	1700	1700	280	1700	1700	643
Volume to Capacity	0.80	0.40	0.01	0.23	0.23	0.00
Queue Length 95th (ft)	0	0	1	0	0	0
Control Delay (s)	0.0	0.0	18.0	0.0	0.0	10.6
Lane LOS			C			B
Approach Delay (s)	0.0		0.1			10.6
Approach LOS						B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

102: Walnut Street & Site Driveway B

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	1	131	1	0	81
Future Volume (Veh/h)	0	1	131	1	0	81
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	142	1	0	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						131
pX, platoon unblocked	0.99					
vC, conflicting volume	230	72			143	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	72			143	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	745	976			1437	

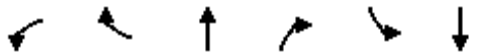
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	1	95	48	88
Volume Left	0	0	0	0
Volume Right	1	0	1	0
cSH	976	1700	1700	1700
Volume to Capacity	0.00	0.06	0.03	0.05
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	8.7	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

103: Walnut Street & Site Driveway C

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	6	126	1	2	79
Future Volume (Veh/h)	2	6	126	1	2	79
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	7	137	1	2	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						264
pX, platoon unblocked	1.00					
vC, conflicting volume	228	69			138	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	69			138	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	742	980			1443	

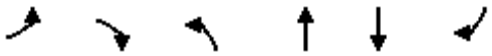
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	9	91	47	88
Volume Left	2	0	0	2
Volume Right	7	0	1	0
cSH	915	1700	1700	1443
Volume to Capacity	0.01	0.05	0.03	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.2
Lane LOS	A			A
Approach Delay (s)	9.0	0.0		0.2
Approach LOS	A			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

104: Oak Street & Site Driveway D

10/23/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	4	1	121	147	4
Future Volume (Veh/h)	12	4	1	121	147	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	1	132	160	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	296	162	164			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	296	162	164			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	695	883	1414			

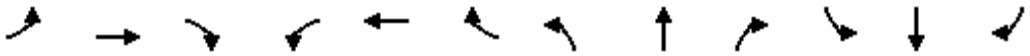
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	133	164
Volume Left	13	1	0
Volume Right	4	0	4
cSH	731	1414	1700
Volume to Capacity	0.02	0.00	0.10
Queue Length 95th (ft)	2	0	0
Control Delay (s)	10.0	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.0	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1224	25	87	1685	0	23	4	96	15	9	19
Future Volume (vph)	33	1224	25	87	1685	0	23	4	96	15	9	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3496		1805	3406			1821	1615		1756	
Flt Permitted	0.08	1.00		0.15	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	131	3496		294	3406			1821	1615		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1330	27	95	1832	0	25	4	104	16	10	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	99	0	14	0
Lane Group Flow (vph)	36	1357	0	95	1832	0	0	29	5	0	33	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	164.6	158.4		169.4	160.8			9.3	9.3		8.5	
Effective Green, g (s)	166.6	160.4		171.4	162.8			11.3	11.3		10.5	
Actuated g/C Ratio	0.76	0.73		0.78	0.74			0.05	0.05		0.05	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	147	2548		294	2520			93	82		83	
v/s Ratio Prot	0.01	0.39		c0.01	c0.54			c0.02			c0.02	
v/s Ratio Perm	0.18			0.24					0.00			
v/c Ratio	0.24	0.53		0.32	0.73			0.31	0.07		0.39	
Uniform Delay, d1	16.2	13.2		9.8	16.1			100.6	99.3		101.7	
Progression Factor	0.96	0.64		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.8	0.7		0.6	1.9			1.9	0.3		3.1	
Delay (s)	16.4	9.1		10.5	18.0			102.5	99.7		104.7	
Level of Service	B	A		B	B			F	F		F	
Approach Delay (s)		9.3			17.6			100.3			104.7	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1204	19	28	1665	14	36	30	38	36	24	14
Future Volume (vph)	22	1204	19	28	1665	14	36	30	38	36	24	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3498		1805	3403		1805	1600		1752	1762	
Flt Permitted	0.09	1.00		0.18	1.00		0.72	1.00		0.52	1.00	
Satd. Flow (perm)	158	3498		337	3403		1372	1600		966	1762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1309	21	30	1810	15	39	33	41	39	26	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	24	0	0	10	0
Lane Group Flow (vph)	24	1330	0	30	1825	0	39	50	0	39	31	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	178.0	172.3		178.0	172.3		22.3	22.3		12.9	12.9	
Effective Green, g (s)	180.0	173.3		180.0	173.3		24.3	24.3		14.9	14.9	
Actuated g/C Ratio	0.82	0.79		0.82	0.79		0.11	0.11		0.07	0.07	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	2755		320	2680		151	176		65	119	
v/s Ratio Prot	c0.00	0.38		0.00	c0.54			c0.03			0.02	
v/s Ratio Perm	0.11			0.07			0.03			c0.04		
v/c Ratio	0.14	0.48		0.09	0.68		0.26	0.28		0.60	0.26	
Uniform Delay, d1	9.5	8.0		5.1	10.7		89.6	89.9		99.7	97.3	
Progression Factor	1.00	1.00		1.00	0.99		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.1	1.4		0.9	0.9		14.0	1.2	
Delay (s)	9.9	8.6		5.2	12.0		90.5	90.8		113.7	98.5	
Level of Service	A	A		A	B		F	F		F	F	
Approach Delay (s)		8.6			11.9			90.7			105.9	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
3: Walnut Street & Cedar Avenue

10/23/2020

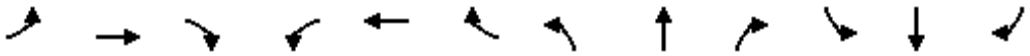
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	3	18	0	18	1	76	14	24	79	2
Future Volume (Veh/h)	3	0	3	18	0	18	1	76	14	24	79	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	3	20	0	20	1	83	15	26	86	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											367	
pX, platoon unblocked												
vC, conflicting volume	252	239	87	234	232	90	88			98		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	239	87	234	232	90	88			98		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	98	100			98		
cM capacity (veh/h)	678	650	971	708	656	967	1508			1495		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	40	99	114
Volume Left	3	20	1	26
Volume Right	3	20	15	2
cSH	799	818	1508	1495
Volume to Capacity	0.01	0.05	0.00	0.02
Queue Length 95th (ft)	1	4	0	1
Control Delay (s)	9.5	9.6	0.1	1.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.5	9.6	0.1	1.8
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	22.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Walnut Street & Second Street

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	11	3	0	5	1	6	78	1	3	101	2
Future Volume (vph)	1	11	3	0	5	1	6	78	1	3	101	2
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
Hourly flow rate (vph)	1	12	3	0	5	1	7	85	1	3	110	2

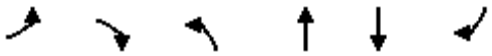
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	6	93	115
Volume Left (vph)	1	0	7	3
Volume Right (vph)	3	1	1	2
Hadj (s)	-0.07	-0.07	0.04	0.03
Departure Headway (s)	4.3	4.3	4.1	4.1
Degree Utilization, x	0.02	0.01	0.11	0.13
Capacity (veh/h)	796	794	858	873
Control Delay (s)	7.4	7.3	7.6	7.7
Approach Delay (s)	7.4	7.3	7.6	7.7
Approach LOS	A	A	A	A

Intersection Summary			
Delay	7.6		
Level of Service	A		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street

10/23/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	3	10	4	123	117	2
Future Volume (vph)	3	10	4	123	117	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	11	4	134	127	2

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	14	138	129
Volume Left (vph)	3	4	0
Volume Right (vph)	11	0	2
Hadj (s)	-0.39	0.04	0.02
Departure Headway (s)	4.1	4.1	4.1
Degree Utilization, x	0.02	0.16	0.15
Capacity (veh/h)	826	862	870
Control Delay (s)	7.1	7.9	7.8
Approach Delay (s)	7.1	7.9	7.8
Approach LOS	A	A	A

Intersection Summary			
Delay	7.8		
Level of Service	A		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
6: Oak Street & Cedar Avenue

10/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	5	13	19	6	9	9	107	25	7	110	20
Future Volume (vph)	12	5	13	19	6	9	9	107	25	7	110	20
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
Hourly flow rate (vph)	13	5	14	21	7	10	10	116	27	8	120	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	32	38	153	150
Volume Left (vph)	13	21	10	8
Volume Right (vph)	14	10	27	22
Hadj (s)	-0.15	-0.01	-0.06	-0.04
Departure Headway (s)	4.5	4.6	4.2	4.2
Degree Utilization, x	0.04	0.05	0.18	0.17
Capacity (veh/h)	742	724	839	841
Control Delay (s)	7.6	7.8	8.1	8.1
Approach Delay (s)	7.6	7.8	8.1	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	20.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

101: Site Driveway A & Fairfax Boulevard

10/23/2020

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1257	19	23	22	3	23
Future Volume (Veh/h)	1257	19	23	22	3	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1366	21	25	24	3	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	250			387		
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			1387		1438	694
vC1, stage 1 conf vol					1376	
vC2, stage 2 conf vol					62	
vCu, unblocked vol			1141		1201	342
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	96
cM capacity (veh/h)			528		228	567

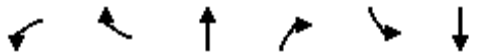
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	911	476	25	12	12	28
Volume Left	0	0	25	0	0	3
Volume Right	0	21	0	0	0	25
cSH	1700	1700	528	1700	1700	489
Volume to Capacity	0.54	0.28	0.05	0.01	0.01	0.06
Queue Length 95th (ft)	0	0	4	0	0	5
Control Delay (s)	0.0	0.0	12.2	0.0	0.0	12.8
Lane LOS			B			B
Approach Delay (s)	0.0		6.2			12.8
Approach LOS						B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

102: Walnut Street & Site Driveway B

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	18	92	7	0	103
Future Volume (Veh/h)	8	18	92	7	0	103
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	20	100	8	0	112
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						145
pX, platoon unblocked	0.99					
vC, conflicting volume	216	54			108	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204	54			108	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	759	1002			1480	

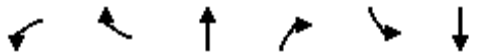
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	29	67	41	112
Volume Left	9	0	0	0
Volume Right	20	0	8	0
cSH	911	1700	1700	1700
Volume to Capacity	0.03	0.04	0.02	0.07
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	9.1	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.1	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

103: Walnut Street & Site Driveway C

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	4	95	2	7	104
Future Volume (Veh/h)	1	4	95	2	7	104
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	4	103	2	8	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						261
pX, platoon unblocked	1.00					
vC, conflicting volume	233	52			105	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230	52			105	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	732	1004			1484	

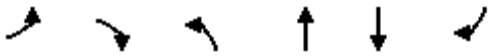
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	5	69	36	121
Volume Left	1	0	0	8
Volume Right	4	0	2	0
cSH	934	1700	1700	1484
Volume to Capacity	0.01	0.04	0.02	0.01
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.9	0.0	0.0	0.5
Lane LOS	A			A
Approach Delay (s)	8.9	0.0		0.5
Approach LOS	A			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

104: Oak Street & Site Driveway D

10/23/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	2	4	133	129	13
Future Volume (Veh/h)	7	2	4	133	129	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	4	145	140	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	300	147	154			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	147	154			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	690	900	1426			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	149	154
Volume Left	8	4	0
Volume Right	2	0	14
cSH	723	1426	1700
Volume to Capacity	0.01	0.00	0.09
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.0	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.0	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	20.2%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX F

Alternative Additional Analyses Including the Potential Redevelopment of the American Legion (Toll Brothers) Site as Pipeline Development

Alternative Table 7-1 - With Potential American Legion (Toll Brothers) Redevelopment

Breezeway Property

Total Future Intersection Capacity Analysis Summary

	Intersection	Intersection Control	Approach	Existing		Background Future		Total Future	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
1.	Fairfax Boulevard & Meredith Drive/Oak Street	Signal	EB Appr	B (17.8)	A (8.8)	B (18.4)	A (8.9)	B (19.8)	B (10.0)
			WB Appr	B (14.9)	B (17.3)	B (15.5)	B (17.3)	B (16.0)	B (17.8)
			NB Appr	F (87.1)	F (100.2)	F (84.2)	F (100.1)	F (84.1)	F (100.0)
			SB Appr	F (88.4)	F (102.4)	F (88.3)	F (104.7)	F (88.3)	F (104.7)
			Overall	**C (21.2)**	**B (18.7)**	**C (22.0)**	**B (18.6)**	**C (23.2)**	**B (19.4)**
2.	Fairfax Boulevard & Fairchester Drive/Walnut Street	Signal	EB Appr	B (13.0)	A (8.0)	B (12.8)	A (8.3)	B (12.9)	A (8.6)
			WB Appr	A (3.0)	A (1.7)	A (2.8)	A (1.7)	A (2.6)	A (2.8)
			NB Appr	E (76.5)	F (90.3)	E (76.6)	F (90.4)	E (76.5)	F (90.7)
			SB Appr	F (92.7)	F (105.7)	F (81.7)	F (103.9)	F (92.9)	F (105.9)
			Overall	**B (14.6)**	**A (9.4)**	**B (14.0)**	**A (8.9)**	**B (14.3)**	**B (10.5)**
3.	Walnut Street/Cedar Avenue	Stop	EB Appr	A (0.0)	A (9.4)	B (10.7)	A (9.4)	B (10.8)	A (9.5)
			WB Appr	A (9.4)	A (9.6)	A (9.4)	A (9.5)	A (9.4)	A (9.6)
			NB Appr	A (0.4)	A (0.1)	A (0.4)	A (0.1)	A (0.4)	A (0.1)
			SB Appr	A (3.2)	A (1.5)	A (3.3)	A (1.7)	A (3.3)	A (1.8)
			Overall	**A (2.4)**	**A (2.5)**	**A (2.6)**	**A (2.5)**	**A (2.6)**	**A (2.5)**
4.	Walnut Street/Second Street	Stop	EB Appr	A (7.5)	A (7.3)	A (7.4)	A (7.3)	A (7.4)	A (7.4)
			WB Appr	A (7.2)	A (7.3)	A (7.2)	A (7.3)	A (7.2)	A (7.3)
			NB Appr	A (7.8)	A (7.5)	A (7.8)	A (7.5)	A (7.8)	A (7.6)
			SB Appr	A (7.5)	A (7.7)	A (7.4)	A (7.6)	A (7.5)	A (7.7)
			Overall	**A (7.7)**	**A (7.6)**	**A (7.6)**	**A (7.5)**	**A (7.6)**	**A (7.6)**
5.	Oak Street/Second Street	Stop	EB Appr	A (7.0)	A (7.1)	A (7.2)	A (7.3)	A (7.2)	A (7.3)
			WB Appr	Future Driveway		A (7.6)	A (7.5)	A (7.6)	A (7.5)
			NB Appr	A (7.7)	A (7.7)	A (7.9)	A (8.0)	A (7.9)	A (8.1)
			SB Appr	A (7.8)	A (7.7)	A (8.2)	A (8.0)	A (8.2)	A (8.1)
			Overall	**A (7.7)**	**A (7.7)**	**A (8.0)**	**A (8.0)**	**A (8.0)**	**A (8.0)**
6.	Oak Street/Cedar Avenue/Panther Place	Stop	EB Appr	A (8.1)	A (7.6)	A (8.2)	A (7.7)	A (8.3)	A (7.8)
			WB Appr	A (8.0)	A (7.5)	A (8.4)	A (7.9)	A (8.4)	A (7.9)
			NB Appr	A (8.1)	A (7.9)	A (8.4)	A (8.1)	A (8.6)	A (8.2)
			SB Appr	A (8.4)	A (7.9)	A (8.6)	A (8.2)	A (8.7)	A (8.3)
			Overall	**A (8.2)**	**A (7.8)**	**A (8.5)**	**A (8.1)**	**A (8.6)**	**A (8.2)**
A.	Fairfax Boulevard/ Site Driveway	Stop	EB Appr	Future Intersection		Future Intersection		A (0.0)	A (0.0)
			WB Appr					A (0.1)	A (0.2)
			NB Appr					B (10.6)	B (12.8)
			Overall					**B (0.0)**	**B (0.2)**
B.	Walnut Street/ Commercial Site Driveway	Stop	WB Appr	Future Intersection		Future Intersection		A (8.7)	A (9.1)
			NB Appr					A (0.0)	A (0.0)
			SB Appr					A (0.0)	A (0.0)
			Overall					**A (0.0)**	**A (1.1)**
C.	Walnut Street/ Residential Site Driveway	Stop	WB Appr	Future Intersection		Future Intersection		A (9.0)	A (8.9)
			NB Appr					A (0.0)	A (0.0)
			SB Appr					A (0.2)	A (0.5)
			Overall					**A (0.4)**	**A (0.5)**
D.	Oak Street/ Residential Driveway	Stop	EB Appr	Future Intersection		Future Intersection		B (10.3)	B (10.3)
			NB Appr					A (0.1)	A (0.2)
			SB Appr					A (0.0)	A (0.0)
			Overall					**A (0.5)**	**A (0.4)**

1: Meredith Drive/Fairfax Boulevard
Trip Distribution

Traffic Component	Southbound Meredith Drive Right	Southbound Meredith Drive Through	Southbound Meredith Drive Left	Westbound Fairfax Boulevard Right	Westbound Fairfax Boulevard Through	Westbound Fairfax Boulevard Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Fairfax Boulevard Right	Eastbound Fairfax Boulevard Through	Eastbound Fairfax Boulevard Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial					45%						-45%	
Two Over Two Town Homes					50%						-50%	
Town Homes						50%	-50%					

1: Meredith Drive/Fairfax Boulevard 2024
AM Peak Hour

Traffic Component			Southbound Meredith Drive Right	Southbound Meredith Drive Through	Southbound Meredith Drive Left	Westbound Fairfax Boulevard Right	Westbound Fairfax Boulevard Through	Westbound Fairfax Boulevard Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Fairfax Boulevard Right	Eastbound Fairfax Boulevard Through	Eastbound Fairfax Boulevard Left
Existing Traffic Volume			18	1	9	3	588	67	79	12	38	18	1,692	21
Growth			1	-	-	-	18	2	2	-	1	1	51	1
Existing Adjusted			19	1	9	3	606	69	81	12	39	19	1,743	22
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214					22						50	
Paul VI - Redevelopment	71	141					46				2	1	33	
Toll Brothers - American Legion	26	48						13	24					
Subtotal	214	403	-	-	-	-	68	13	24	-	2	1	83	-
Background (With Toll Brothers Included)			19	1	9	3	674	82	105	12	41	20	1,826	22
Site Assignment														
Commercial	6	3	-	-	-	-	3	-	-	-	-	-	1	-
Two Over Two Town Homes	2	8	-	-	-	-	1	-	-	-	-	-	4	-
Town Homes	5	16	-	-	-	-	-	3	8	-	-	-	-	-
Site Total	**13**	**27**	**-**	**-**	**-**	**-**	**4**	**3**	**8**	**-**	**-**	**-**	**5**	**-**
Total Future (With Toll Brothers Included)			**19**	**1**	**9**	**3**	**678**	**85**	**113**	**12**	**41**	**20**	**1,831**	**22**

1: Meredith Drive/Fairfax Boulevard
PM Peak Hour

Traffic Component			Southbound Meredith Drive Right	Southbound Meredith Drive Through	Southbound Meredith Drive Left	Westbound Fairfax Boulevard Right	Westbound Fairfax Boulevard Through	Westbound Fairfax Boulevard Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Fairfax Boulevard Right	Eastbound Fairfax Boulevard Through	Eastbound Fairfax Boulevard Left
Existing Traffic Volume			18	9	15	-	1,455	76	88	4	21	22	1,031	32
Growth			1	-	-	-	44	2	3	-	1	1	31	1
Existing Adjusted			19	9	15	-	1,499	78	91	4	22	23	1,062	33
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206					60						32	
Paul VI - Redevelopment	221	190					99				1	2	104	
Toll Brothers - American Legion	26	48						24	16					
Subtotal	542	444	-	-	-	-	159	24	16	-	1	2	136	-
Background (With Toll Brothers Included)			19	9	15	-	1,658	102	107	4	23	25	1,198	33
Site Assignment														
Commercial	48	51	-	-	-	-	22	-	-	-	-	-	23	-
Two Over Two Town Homes	9	5	-	-	-	-	5	-	-	-	-	-	3	-
Town Homes	17	10	-	-	-	-	-	9	5	-	-	-	-	-
Site Total	**74**	**66**	**-**	**-**	**-**	**-**	**27**	**9**	**5**	**-**	**-**	**-**	**26**	**-**
Total Future (With Toll Brothers Included)			**19**	**9**	**15**	**-**	**1,685**	**111**	**112**	**4**	**23**	**25**	**1,224**	**33**

2: Fairchester Drive/Fairfax Boulevard
Trip Distribution

Traffic Component	Southbound Fairchester Drive			Westbound Fairfax Boulevard			Northbound Walnut Street			Eastbound Fairfax Boulevard		
	Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial			5%		-5%			-5%	-30%		35%	
Two Over Two Town Homes						50%	-50%		-25%	25%		
Town Homes									-25%	25%		

2: Fairchester Drive/Fairfax Boulevard
AM Peak Hour

2024

Traffic Component			Southbound Fairchester Drive			Westbound Fairfax Boulevard			Northbound Walnut Street			Eastbound Fairfax Boulevard		
			Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume			12	25	25	18	606	20	45	26	13	17	1,661	10
Growth			-	1	1	1	18	1	1	1	-	1	50	-
Existing Adjusted			12	26	26	19	624	21	46	27	13	18	1,711	10
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214					22						50	
Paul VI - Redevelopment	71	141					48				2	1	34	
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	-	-	-	70	-	-	-	2	1	84	-
Background (With Toll Brothers Included)			12	26	26	19	694	21	46	27	15	19	1,795	10
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	-	1	-	2	-
Two Over Two Town Homes	2	8	-	-	-	-	-	1	4	-	2	1	-	-
Town Homes	5	16	-	-	-	-	-	-	-	-	4	1	-	-
Site Total	**13**	**27**	**-**	**-**	**-**	**-**	**-**	**1**	**4**	**-**	**7**	**2**	**2**	**-**
Total Future (With Toll Brothers Included)			**12**	**26**	**26**	**19**	**694**	**22**	**50**	**27**	**22**	**21**	**1,797**	**10**

2: Fairchester Drive/Fairfax Boulevard
PM Peak Hour

Traffic Component			Southbound Fairchester Drive			Westbound Fairfax Boulevard			Northbound Walnut Street			Eastbound Fairfax Boulevard		
			Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume			14	23	33	14	1,458	22	34	26	16	11	1,018	21
Growth			-	1	1	-	44	1	1	1	-	-	31	1
Existing Adjusted			14	24	34	14	1,502	23	35	27	16	11	1,049	22
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206					60						32	
Paul VI - Redevelopment	221	190					100				1	2	106	
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	-	-	-	160	-	-	-	1	2	138	-
Background (With Toll Brothers Included)			14	24	34	14	1,662	23	35	27	17	13	1,187	22
Site Assignment														
Commercial	48	51	-	-	2	-	3	-	-	3	15	-	17	-
Two Over Two Town Homes	9	5	-	-	-	-	-	5	3	-	1	2	-	-
Town Homes	17	10	-	-	-	-	-	-	-	-	3	4	-	-
Site Total	**74**	**66**	**-**	**-**	**2**	**-**	**3**	**5**	**3**	**3**	**19**	**6**	**17**	**-**
Total Future (With Toll Brothers Included)			**14**	**24**	**36**	**14**	**1,665**	**28**	**38**	**30**	**36**	**19**	**1,204**	**22**

3: Walnut Street/Cedar Avenue
Trip Distribution

Traffic Component	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Cedar Avenue Right	Westbound Cedar Avenue Through	Westbound Cedar Avenue Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Commercial Drive Right	Eastbound Commercial Drive Through	Eastbound Commercial Drive Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial		-15%						15%				
Two Over Two Town Homes		-25%						25%				
Town Homes			25%	-25%								

3: Walnut Street/Cedar Avenue
AM Peak Hour

2024

Traffic Component	IN	OUT	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Cedar Avenue Right	Westbound Cedar Avenue Through	Westbound Cedar Avenue Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Commercial Drive Right	Eastbound Commercial Drive Through	Eastbound Commercial Drive Left
Existing Traffic Volume			1	43	31	21	-	7	28	94	6	-	-	1
Growth			-	1	1	1	-	-	1	3	-	-	-	-
Existing Adjusted			1	44	32	22	-	7	29	97	6	-	-	1
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141			1	2		1						
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	-	1	2	-	1	-	-	-	-	-	-
Background (With Toll Brothers Included)			1	44	33	24	-	8	29	97	6	-	-	1
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	1	-	-	-	-
Two Over Two Town Homes	2	8	-	2	-	-	-	-	-	1	-	-	-	-
Town Homes	5	16	-	-	1	4	-	-	-	-	-	-	-	-
Site Total	**13**	**27**	**-**	**2**	**1**	**4**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**1**	**46**	**34**	**28**	**-**	**8**	**29**	**99**	**6**	**-**	**-**	**1**

3: Walnut Street/Cedar Avenue
PM Peak Hour

Traffic Component	IN	OUT	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Cedar Avenue Right	Westbound Cedar Avenue Through	Westbound Cedar Avenue Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Commercial Drive Right	Eastbound Commercial Drive Through	Eastbound Commercial Drive Left
Existing Traffic Volume			2	68	17	14	-	17	13	65	1	3	-	3
Growth			-	2	1	-	-	1	-	2	-	-	-	-
Existing Adjusted			2	70	18	14	-	18	13	67	1	3	-	3
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190			2	1			1					
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	-	2	1	-	-	1	-	-	-	-	-
Background (With Toll Brothers Included)			2	70	20	15	-	18	14	67	1	3	-	3
Site Assignment														
Commercial	48	51	-	8	-	-	-	-	-	7	-	-	-	-
Two Over Two Town Homes	9	5	-	1	-	-	-	-	-	2	-	-	-	-
Town Homes	17	10	-	-	4	3	-	-	-	-	-	-	-	-
Site Total	**74**	**66**	**-**	**9**	**4**	**3**	**-**	**-**	**-**	**9**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**2**	**79**	**24**	**18**	**-**	**18**	**14**	**76**	**1**	**3**	**-**	**3**

4: Walnut Street/Second Street
Trip Distribution

Traffic Component	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Second Street Right	Westbound Second Street Through	Westbound Second Street Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial		-15%						15%				
Two Over Two Town Homes		-25%						25%				
Town Homes												

4: Walnut Street/Second Street
AM Peak Hour
2024

Traffic Component	IN	OUT	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Second Street Right	Westbound Second Street Through	Westbound Second Street Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Existing Traffic Volume			2	49	3	4	2	2	3	109	2	9	9	13
Growth			-	1	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			2	50	3	4	2	2	3	112	2	9	9	13
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141		1						-				
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	1	-	-	-	-	-	-	-	-	-	-
Background (With Toll Brothers Included)			2	51	3	4	2	2	3	112	2	9	9	13
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	1	-	-	-	-
Two Over Two Town Homes	2	8	-	2	-	-	-	-	-	1	-	-	-	-
Town Homes	5	16	-	-	-	-	-	-	-	-	-	-	-	-
Site Total	**13**	**27**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**2**	**53**	**3**	**4**	**2**	**2**	**3**	**114**	**2**	**9**	**9**	**13**

4: Walnut Street/Second Street
PM Peak Hour

Traffic Component	IN	OUT	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Second Street Right	Westbound Second Street Through	Westbound Second Street Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Existing Traffic Volume			2	89	3	1	5	-	1	66	6	3	11	1
Growth			-	3	-	-	-	-	-	2	-	-	-	-
Existing Adjusted			2	92	3	1	5	-	1	68	6	3	11	1
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190		-						1				
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	-	-	-	-	-	-	1	-	-	-	-
Background (With Toll Brothers Included)			2	92	3	1	5	-	1	69	6	3	11	1
Site Assignment														
Commercial	48	51	-	8	-	-	-	-	-	7	-	-	-	-
Two Over Two Town Homes	9	5	-	1	-	-	-	-	-	2	-	-	-	-
Town Homes	17	10	-	-	-	-	-	-	-	-	-	-	-	-
Site Total	**74**	**66**	**-**	**9**	**-**	**-**	**-**	**-**	**-**	**9**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**2**	**101**	**3**	**1**	**5**	**-**	**1**	**78**	**6**	**3**	**11**	**1**

5.: Oak Street/Second Street
Trip Distribution

Traffic Component	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Future Toll Brothers Right	Westbound Future Toll Brothers Through	Westbound Future Toll Brothers Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial												
Two Over Two Town Homes												
Town Homes		-25%						25%				

5.: Oak Street/Second Street
AM Peak Hour

2024

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Future Toll Brothers Right	Westbound Future Toll Brothers Through	Westbound Future Toll Brothers Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Existing Traffic Volume			3	112	-	-	-	-	-	101	2	7	-	1
Growth			-	3	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			3	115	-	-	-	-	-	104	2	7	-	1
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141		22						6				
Toll Brothers - American Legion	26	48		12	6	12		12	6	7				
Subtotal	214	403	-	34	6	12	-	12	6	13	-	-	-	-
Background (With Toll Brothers Included)			3	149	6	12	-	12	6	117	2	7	-	1
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	2	8	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	5	16	-	4	-	-	-	-	-	1	-	-	-	-
Site Total	**13**	**27**	**-**	**4**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**3**	**153**	**6**	**12**	**-**	**12**	**6**	**118**	**2**	**7**	**-**	**1**

5.: Oak Street/Second Street
PM Peak Hour

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Future Toll Brothers Right	Westbound Future Toll Brothers Through	Westbound Future Toll Brothers Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Second Street Right	Eastbound Second Street Through	Eastbound Second Street Left
Existing Traffic Volume			2	99	-	-	-	-	-	95	4	10	-	3
Growth			-	3	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			2	102	-	-	-	-	-	98	4	10	-	3
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190		13						21				
Toll Brothers - American Legion	26	48		9	12	8		8	12	12				
Subtotal	542	444	-	22	12	8	-	8	12	33	-	-	-	-
Background (With Toll Brothers Included)			2	124	12	8	-	8	12	131	4	10	-	3
Site Assignment														
Commercial	48	51	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	9	5	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	17	10	-	2	-	-	-	-	-	4	-	-	-	-
Site Total	**74**	**66**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**4**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**2**	**126**	**12**	**8**	**-**	**8**	**12**	**135**	**4**	**10**	**-**	**3**

6.: Oak Street/Cedar Avenue
Trip Distribution

Traffic Component	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Panther Place Right	Westbound Panther Place Through	Westbound Panther Place Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Cedar Avenue Right	Eastbound Cedar Avenue Through	Eastbound Cedar Avenue Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial												
Two Over Two Town Homes												
Town Homes		50%						-50%	-25%	25%		

6.: Oak Street/Cedar Avenue
AM Peak Hour
2024

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Panther Place Right	Westbound Panther Place Through	Westbound Panther Place Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Cedar Avenue Right	Eastbound Cedar Avenue Through	Eastbound Cedar Avenue Left
Existing Traffic Volume			4	81	33	36	8	31	29	82	1	9	29	20
Growth			-	2	1	1	-	1	1	2	-	-	1	1
Existing Adjusted			4	83	34	37	8	32	30	84	1	9	30	21
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141			1	2	3	22	6				1	
Toll Brothers - American Legion	26	48		13						24				
Subtotal	214	403	-	13	1	2	3	22	6	24	-	-	1	-
Background (With Toll Brothers Included)			4	96	35	39	11	54	36	108	1	9	31	21
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	2	8	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	5	16	-	3	-	-	-	-	-	8	4	1	-	-
Site Total	**13**	**27**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**8**	**4**	**1**	**-**	**-**
Total Future (With Toll Brothers Included)			**4**	**99**	**35**	**39**	**11**	**54**	**36**	**116**	**5**	**10**	**31**	**21**

6.: Oak Street/Cedar Avenue
PM Peak Hour

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound Panther Place Right	Westbound Panther Place Through	Westbound Panther Place Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Cedar Avenue Right	Eastbound Cedar Avenue Through	Eastbound Cedar Avenue Left
Existing Traffic Volume			19	98	5	8	5	6	4	99	6	9	3	12
Growth			1	3	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			20	101	5	8	5	6	4	102	6	9	3	12
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190			2	1	1	13	21				2	
Toll Brothers - American Legion	26	48		24						16				
Subtotal	542	444	-	24	2	1	1	13	21	16	-	-	2	-
Background (With Toll Brothers Included)			20	125	7	9	6	19	25	118	6	9	5	12
Site Assignment														
Commercial	48	51	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	9	5	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	17	10	-	9	-	-	-	-	-	5	3	4	-	-
Site Total	**74**	**66**	**-**	**9**	**-**	**-**	**-**	**-**	**-**	**5**	**3**	**4**	**-**	**-**
Total Future (With Toll Brothers Included)			**20**	**134**	**7**	**9**	**6**	**19**	**25**	**123**	**9**	**13**	**5**	**12**

A.: Commercial Drive/Fairfax Boulevard
Trip Distribution

Traffic Component	Southbound None			Westbound Fairfax Boulevard			Northbound Commercial Drive			Eastbound Fairfax Boulevard		
	Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Pipeline Developments												
Novus Fairfax Gateway				Assignment Per Novus Gateway TIA								
Paul VI - Redevelopment				Assignment Per Paul VI TIA								
Toll Brothers - American Legion				Assignment per Toll Brothers - American Legion TIA								
Breezeway Site Development												
Commercial						45%	-45%		-5%	40%		
Two Over Two Town Homes				50%							-50%	
Town Homes												

A.: Commercial Drive/Fairfax Boulevard
AM Peak Hour

2024

Traffic Component			Southbound None			Westbound Fairfax Boulevard			Northbound Commercial Drive			Eastbound Fairfax Boulevard		
	IN	OUT	Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume							644						1,731	
Growth			-	-	-	-	19	-	-	-	-	-	52	-
Existing Adjusted			-	-	-	-	663	-	-	-	-	-	1,783	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214					22						50	
Paul VI - Redevelopment	71	141					48						33	
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	-	-	-	70	-	-	-	-	-	83	-
Background (With Toll Brothers Included)			-	-	-	-	733	-	-	-	-	-	1,866	-
Site Assignment														
Commercial	6	3	-	-	-	-	-	3	1	-	-	2	-	-
Two Over Two Town Homes	2	8	-	-	-	-	1	-	-	-	-	-	4	-
Town Homes	5	16	-	-	-	-	-	-	-	-	-	-	-	-
Site Total	**13**	**27**	**-**	**-**	**-**	**-**	**1**	**3**	**1**	**-**	**-**	**2**	**4**	**-**
Total Future (With Toll Brothers Included)			**-**	**-**	**-**	**-**	**734**	**3**	**1**	**-**	**-**	**2**	**1,870**	**-**

A.: Commercial Drive/Fairfax Boulevard
PM Peak Hour

Traffic Component			Southbound None			Westbound Fairfax Boulevard			Northbound Commercial Drive			Eastbound Fairfax Boulevard		
	IN	OUT	Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume							1,494						1,085	
Growth			-	-	-	-	45	-	-	-	-	-	33	-
Existing Adjusted			-	-	-	-	1,539	-	-	-	-	-	1,118	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206					60						32	
Paul VI - Redevelopment	221	190					100						104	
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	-	-	-	160	-	-	-	-	-	136	-
Background (With Toll Brothers Included)			-	-	-	-	1,699	-	-	-	-	-	1,254	-
Site Assignment														
Commercial	48	51	-	-	-	-	-	22	23	-	3	19	-	-
Two Over Two Town Homes	9	5	-	-	-	-	5	-	-	-	-	-	3	-
Town Homes	17	10	-	-	-	-	-	-	-	-	-	-	-	-
Site Total	**74**	**66**	**-**	**-**	**-**	**-**	**5**	**22**	**23**	**-**	**3**	**19**	**3**	**-**
Total Future (With Toll Brothers Included)			**-**	**-**	**-**	**-**	**1,704**	**22**	**23**	**-**	**3**	**19**	**1,257**	**-**

B.: Walnut Street/Commercial RIRO Drive
Trip Distribution

Traffic Component	Southbound Walnut Street			Westbound Commercial RIRO Drive			Northbound Walnut Street			Eastbound None		
	Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial				-35%		-15%	15%					
Two Over Two Town Homes		75%						-75%				
Town Homes		25%						-25%				

B.: Walnut Street/Commercial RIRO Drive
AM Peak Hour

2024

Traffic Component			Southbound Walnut Street			Westbound Commercial RIRO Drive			Northbound Walnut Street			Eastbound None		
			Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume				75						116				
Growth			-	2	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			-	77	-	-	-	-	-	119	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141		1						2				
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	1	-	-	-	-	-	2	-	-	-	-
Background (With Toll Brothers Included)			-	78	-	-	-	-	-	121	-	-	-	-
Site Assignment														
Commercial	6	3	-	-	-	1	-	-	1	-	-	-	-	-
Two Over Two Town Homes	2	8	-	2	-	-	-	-	-	6	-	-	-	-
Town Homes	5	16	-	1	-	-	-	-	-	4	-	-	-	-
Site Total	**13**	**27**	**-**	**3**	**-**	**1**	**-**	**-**	**1**	**10**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**-**	**81**	**-**	**1**	**-**	**-**	**1**	**131**	**-**	**-**	**-**	**-**

B.: Walnut Street/Commercial RIRO Drive
PM Peak Hour

Traffic Component			Southbound Walnut Street			Westbound Commercial RIRO Drive			Northbound Walnut Street			Eastbound None		
			Right	Through	Left	Right	Through	Left	Right	Through	Left	Right	Through	Left
Existing Traffic Volume				87						82				
Growth			-	3	-	-	-	-	-	2	-	-	-	-
Existing Adjusted			-	90	-	-	-	-	-	84	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190		2						1				
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	2	-	-	-	-	-	1	-	-	-	-
Background (With Toll Brothers Included)			-	92	-	-	-	-	-	85	-	-	-	-
Site Assignment														
Commercial	48	51	-	-	-	18	-	8	7	-	-	-	-	-
Two Over Two Town Homes	9	5	-	7	-	-	-	-	-	4	-	-	-	-
Town Homes	17	10	-	4	-	-	-	-	-	3	-	-	-	-
Site Total	**74**	**66**	**-**	**11**	**-**	**18**	**-**	**8**	**7**	**7**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**-**	**103**	**-**	**18**	**-**	**8**	**7**	**92**	**-**	**-**	**-**	**-**

C.: Walnut Street/Residential Drive
Trip Distribution

Traffic Component	Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Residential Drive Right	Westbound Residential Drive Through	Westbound Residential Drive Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound None Right	Eastbound None Through	Eastbound None Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial		-15%						15%				
Two Over Two Town Homes			75%	-75%		-25%	25%					
Town Homes		25%						-25%				

C.: Walnut Street/Residential Drive
AM Peak Hour
2024

Traffic Component			Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Residential Drive Right	Westbound Residential Drive Through	Westbound Residential Drive Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound None Right	Eastbound None Through	Eastbound None Left
Existing Traffic Volume			-	75	-	-	-	-	-	116	-	-	-	-
Growth			-	2	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			-	77	-	-	-	-	-	119	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141		1						2				
Toll Brothers - American Legion	26	48												
Subtotal	214	403	-	1	-	-	-	-	-	2	-	-	-	-
Background (With Toll Brothers Included)			-	78	-	-	-	-	-	121	-	-	-	-
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	1	-	-	-	-
Two Over Two Town Homes	2	8	-	-	2	6	-	2	1	-	-	-	-	-
Town Homes	5	16	-	1	-	-	-	-	-	4	-	-	-	-
Site Total	**13**	**27**	**-**	**1**	**2**	**6**	**-**	**2**	**1**	**5**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**-**	**79**	**2**	**6**	**-**	**2**	**1**	**126**	**-**	**-**	**-**	**-**

C.: Walnut Street/Residential Drive
PM Peak Hour

Traffic Component			Southbound Walnut Street Right	Southbound Walnut Street Through	Southbound Walnut Street Left	Westbound Residential Drive Right	Westbound Residential Drive Through	Westbound Residential Drive Left	Northbound Walnut Street Right	Northbound Walnut Street Through	Northbound Walnut Street Left	Eastbound None Right	Eastbound None Through	Eastbound None Left
Existing Traffic Volume			-	87	-	-	-	-	-	82	-	-	-	-
Growth			-	3	-	-	-	-	-	2	-	-	-	-
Existing Adjusted			-	90	-	-	-	-	-	84	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190		2						1				
Toll Brothers - American Legion	26	48												
Subtotal	542	444	-	2	-	-	-	-	-	1	-	-	-	-
Background (With Toll Brothers Included)			-	92	-	-	-	-	-	85	-	-	-	-
Site Assignment														
Commercial	48	51	-	8	-	-	-	-	-	7	-	-	-	-
Two Over Two Town Homes	9	5	-	-	7	4	-	1	2	-	-	-	-	-
Town Homes	17	10	-	4	-	-	-	-	-	3	-	-	-	-
Site Total	**74**	**66**	**-**	**12**	**7**	**4**	**-**	**1**	**2**	**10**	**-**	**-**	**-**	**-**
Total Future (With Toll Brothers Included)			**-**	**104**	**7**	**4**	**-**	**1**	**2**	**95**	**-**	**-**	**-**	**-**

D.: Oak Street/Residential Drive
Trip Distribution

Traffic Component	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound None Right	Westbound None Through	Westbound None Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Residential Drive Right	Eastbound Residential Drive Through	Eastbound Residential Drive Left
Pipeline Developments												
Novus Fairfax Gateway					Assignment Per Novus Gateway TIA							
Paul VI - Redevelopment					Assignment Per Paul VI TIA							
Toll Brothers - American Legion					Assignment per Toll Brothers - American Legion TIA							
Breezeway Site Development												
Commercial												
Two Over Two Town Homes												
Town Homes	75%								25%	-25%		-75%

D.: Oak Street/Residential Drive
AM Peak Hour

2024

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound None Right	Westbound None Through	Westbound None Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Residential Drive Right	Eastbound Residential Drive Through	Eastbound Residential Drive Left
Existing Traffic Volume				121						112				
Growth			-	4	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			-	125	-	-	-	-	-	115	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	117	214												
Paul VI - Redevelopment	71	141		22						6				
Toll Brothers - American Legion	26	48		18						19				
Subtotal	214	403	-	40	-	-	-	-	-	25	-	-	-	-
Background (With Toll Brothers Included)			-	165	-	-	-	-	-	140	-	-	-	-
Site Assignment														
Commercial	6	3	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	2	8	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	5	16	4	-	-	-	-	-	-	-	1	4	-	12
Site Total	**13**	**27**	**4**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**4**	**-**	**12**
Total Future (With Toll Brothers Included)			**4**	**165**	**-**	**-**	**-**	**-**	**-**	**140**	**1**	**4**	**-**	**12**

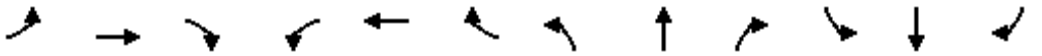
D.: Oak Street/Residential Drive
PM Peak Hour

Traffic Component	IN	OUT	Southbound Oak Street Right	Southbound Oak Street Through	Southbound Oak Street Left	Westbound None Right	Westbound None Through	Westbound None Left	Northbound Oak Street Right	Northbound Oak Street Through	Northbound Oak Street Left	Eastbound Residential Drive Right	Eastbound Residential Drive Through	Eastbound Residential Drive Left
Existing Traffic Volume				113						109				
Growth			-	3	-	-	-	-	-	3	-	-	-	-
Existing Adjusted			-	116	-	-	-	-	-	112	-	-	-	-
Pipeline Developments	IN	OUT												
Novus Fairfax Gateway	295	206												
Paul VI - Redevelopment	221	190		13						21				
Toll Brothers - American Legion	26	48		21						20				
Subtotal	542	444	-	34	-	-	-	-	-	41	-	-	-	-
Background (With Toll Brothers Included)			-	150	-	-	-	-	-	153	-	-	-	-
Site Assignment														
Commercial	48	51	-	-	-	-	-	-	-	-	-	-	-	-
Two Over Two Town Homes	9	5	-	-	-	-	-	-	-	-	-	-	-	-
Town Homes	17	10	13	-	-	-	-	-	-	-	4	2	-	7
Site Total	**74**	**66**	**13**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**2**	**-**	**7**
Total Future (With Toll Brothers Included)			**13**	**150**	**-**	**-**	**-**	**-**	**-**	**153**	**4**	**2**	**-**	**7**

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1826	20	82	674	3	41	12	105	9	1	19
Future Volume (vph)	22	1826	20	82	674	3	41	12	105	9	1	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3500		1805	3404			1829	1615		1705	
Flt Permitted	0.36	1.00		0.03	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	605	3500		64	3404			1829	1615		1705	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1985	22	89	733	3	45	13	114	10	1	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	106	0	20	0
Lane Group Flow (vph)	24	2007	0	89	736	0	0	58	8	0	12	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	130.3	125.9		143.3	132.4			11.5	11.5		6.5	
Effective Green, g (s)	132.3	127.9		144.4	134.4			13.5	13.5		8.5	
Actuated g/C Ratio	0.70	0.67		0.76	0.71			0.07	0.07		0.04	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	449	2356		157	2407			129	114		76	
v/s Ratio Prot	0.00	c0.57		c0.04	0.22			c0.03			c0.01	
v/s Ratio Perm	0.04			0.39					0.01			
v/c Ratio	0.05	0.85		0.57	0.31			0.45	0.07		0.16	
Uniform Delay, d1	8.9	23.8		50.7	10.4			84.7	82.4		87.3	
Progression Factor	0.81	0.65		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.1		4.6	0.3			2.5	0.3		1.0	
Delay (s)	7.3	18.5		55.3	10.7			87.2	82.7		88.3	
Level of Service	A	B		E	B			F	F		F	
Approach Delay (s)		18.4			15.5			84.2			88.3	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

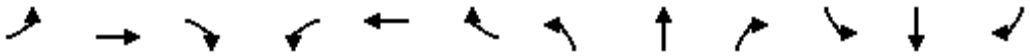
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1795	19	21	694	19	15	27	46	26	26	12
Future Volume (vph)	10	1795	19	21	694	19	15	27	46	26	26	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3397		1805	1571		1752	1773	
Flt Permitted	0.35	1.00		0.07	1.00		0.73	1.00		0.50	1.00	
Satd. Flow (perm)	608	3500		129	3397		1388	1571		918	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1951	21	23	754	21	16	29	50	28	28	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	40	0	0	9	0
Lane Group Flow (vph)	11	1972	0	23	775	0	16	39	0	28	32	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	148.9	146.1		151.7	147.5		20.0	20.0		8.9	8.9	
Effective Green, g (s)	150.9	147.1		153.7	148.5		22.0	22.0		10.9	10.9	
Actuated g/C Ratio	0.79	0.77		0.81	0.78		0.12	0.12		0.06	0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	504	2709		150	2655		160	181		52	101	
v/s Ratio Prot	0.00	c0.56		c0.00	0.23			c0.02			0.02	
v/s Ratio Perm	0.02			0.12			0.01			c0.03		
v/c Ratio	0.02	0.73		0.15	0.29		0.10	0.22		0.54	0.31	
Uniform Delay, d1	4.1	11.1		12.2	5.9		75.1	76.2		87.1	86.0	
Progression Factor	1.00	1.00		0.86	0.40		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.8		0.5	0.3		0.3	0.6		10.3	1.8	
Delay (s)	4.1	12.8		11.0	2.6		75.4	76.8		97.4	87.7	
Level of Service	A	B		B	A		E	E		F	F	
Approach Delay (s)		12.8			2.8			76.6			91.7	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

3: Walnut Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	8	0	24	6	97	29	33	44	1
Future Volume (Veh/h)	1	0	0	8	0	24	6	97	29	33	44	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	1	0	0	9	0	26	7	105	32	36	48	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	282	272	48	256	256	121	49			137		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	282	272	48	256	256	121	49			137		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			98		
cM capacity (veh/h)	637	617	1020	682	629	930	1558			1447		

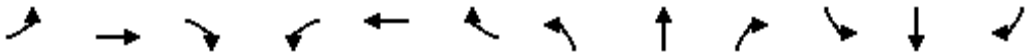
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	35	144	85
Volume Left	1	9	7	36
Volume Right	0	26	32	1
cSH	637	851	1558	1447
Volume to Capacity	0.00	0.04	0.00	0.02
Queue Length 95th (ft)	0	3	0	2
Control Delay (s)	10.7	9.4	0.4	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.7	9.4	0.4	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	24.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

4: Walnut Street & Second Street

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	9	9	2	2	4	2	112	3	3	51	2
Future Volume (vph)	13	9	9	2	2	4	2	112	3	3	51	2
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
Hourly flow rate (vph)	14	10	10	2	2	4	2	122	3	3	55	2

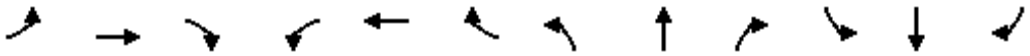
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	34	8	127	60
Volume Left (vph)	14	2	2	3
Volume Right (vph)	10	4	3	2
Hadj (s)	-0.06	-0.22	0.02	0.02
Departure Headway (s)	4.2	4.1	4.1	4.1
Degree Utilization, x	0.04	0.01	0.14	0.07
Capacity (veh/h)	807	828	863	852
Control Delay (s)	7.4	7.2	7.8	7.4
Approach Delay (s)	7.4	7.2	7.8	7.4
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.7%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street/Driveway

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	0	7	12	0	12	2	117	6	6	149	3
Future Volume (vph)	1	0	7	12	0	12	2	117	6	6	149	3
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
Hourly flow rate (vph)	1	0	8	13	0	13	2	127	7	7	162	3

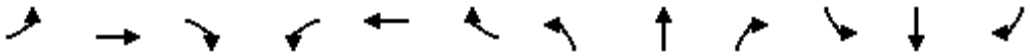
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	26	136	172
Volume Left (vph)	1	13	2	7
Volume Right (vph)	8	13	7	3
Hadj (s)	-0.48	-0.17	0.01	0.03
Departure Headway (s)	4.1	4.4	4.2	4.1
Degree Utilization, x	0.01	0.03	0.16	0.20
Capacity (veh/h)	798	751	845	854
Control Delay (s)	7.2	7.6	7.9	8.2
Approach Delay (s)	7.2	7.6	7.9	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	22.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	31	9	54	11	39	1	108	36	35	96	4
Future Volume (vph)	21	31	9	54	11	39	1	108	36	35	96	4
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
Hourly flow rate (vph)	23	34	10	59	12	42	1	117	39	38	104	4

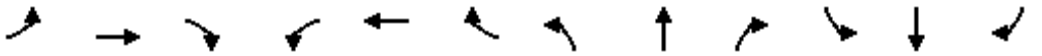
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	67	113	157	146
Volume Left (vph)	23	59	1	38
Volume Right (vph)	10	42	39	4
Hadj (s)	0.01	-0.08	-0.11	0.07
Departure Headway (s)	4.8	4.6	4.4	4.6
Degree Utilization, x	0.09	0.14	0.19	0.19
Capacity (veh/h)	694	724	777	741
Control Delay (s)	8.2	8.4	8.4	8.6
Approach Delay (s)	8.2	8.4	8.4	8.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	34.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1198	25	102	1658	0	23	4	107	15	9	19
Future Volume (vph)	33	1198	25	102	1658	0	23	4	107	15	9	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3496		1805	3406			1821	1615		1756	
Flt Permitted	0.08	1.00		0.16	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	138	3496		302	3406			1821	1615		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1302	27	111	1802	0	25	4	116	16	10	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	110	0	14	0
Lane Group Flow (vph)	36	1329	0	111	1802	0	0	29	6	0	33	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	163.7	157.5		169.9	160.6			9.5	9.5		8.5	
Effective Green, g (s)	165.7	159.5		171.9	162.6			11.5	11.5		10.5	
Actuated g/C Ratio	0.75	0.72		0.78	0.74			0.05	0.05		0.05	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	151	2534		306	2517			95	84		83	
v/s Ratio Prot	0.01	0.38		c0.02	c0.53			c0.02			c0.02	
v/s Ratio Perm	0.17			0.27					0.00			
v/c Ratio	0.24	0.52		0.36	0.72			0.31	0.07		0.39	
Uniform Delay, d1	15.5	13.4		9.9	15.9			100.4	99.2		101.7	
Progression Factor	0.80	0.60		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.7		0.7	1.8			1.8	0.4		3.1	
Delay (s)	13.1	8.7		10.7	17.7			102.2	99.5		104.7	
Level of Service	B	A		B	B			F	F		F	
Approach Delay (s)		8.9			17.3			100.1			104.7	
Approach LOS		A			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/22/2020

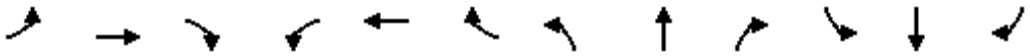
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1187	13	23	1662	14	17	27	35	34	24	14
Future Volume (vph)	22	1187	13	23	1662	14	17	27	35	34	24	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.91		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3403		1805	1595		1752	1762	
Flt Permitted	0.09	1.00		0.18	1.00		0.72	1.00		0.56	1.00	
Satd. Flow (perm)	160	3500		349	3403		1370	1595		1032	1762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1290	14	25	1807	15	18	29	38	37	26	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	25	0	0	10	0
Lane Group Flow (vph)	24	1304	0	25	1822	0	18	42	0	37	31	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	178.7	173.0		178.5	172.9		21.7	21.7		12.3	12.3	
Effective Green, g (s)	180.7	174.0		180.5	173.9		23.7	23.7		14.3	14.3	
Actuated g/C Ratio	0.82	0.79		0.82	0.79		0.11	0.11		0.07	0.07	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	2768		330	2689		147	171		67	114	
v/s Ratio Prot	c0.00	0.37		0.00	c0.54			c0.03			0.02	
v/s Ratio Perm	0.11			0.06			0.01			c0.04		
v/c Ratio	0.14	0.47		0.08	0.68		0.12	0.25		0.55	0.27	
Uniform Delay, d1	9.2	7.7		4.8	10.4		88.7	90.0		99.7	97.9	
Progression Factor	1.00	1.00		0.14	0.06		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.1	1.0		0.4	0.8		9.5	1.3	
Delay (s)	9.6	8.2		0.7	1.7		89.1	90.7		109.2	99.2	
Level of Service	A	A		A	A		F	F		F	F	
Approach Delay (s)		8.3			1.7			90.4			103.9	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

3: Walnut Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	3	18	0	15	1	67	14	20	70	2
Future Volume (Veh/h)	3	0	3	18	0	15	1	67	14	20	70	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	3	0	3	20	0	16	1	73	15	22	76	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	220	211	77	206	204	80	78			88		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220	211	77	206	204	80	78			88		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	98	100			99		
cM capacity (veh/h)	716	676	984	740	681	980	1520			1508		

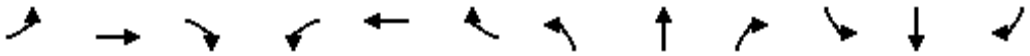
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	36	89	100
Volume Left	3	20	1	22
Volume Right	3	16	15	2
cSH	829	830	1520	1508
Volume to Capacity	0.01	0.04	0.00	0.01
Queue Length 95th (ft)	1	3	0	1
Control Delay (s)	9.4	9.5	0.1	1.7
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.5	0.1	1.7
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	21.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

4: Walnut Street & Second Street

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	11	3	0	5	1	6	69	1	3	92	2
Future Volume (vph)	1	11	3	0	5	1	6	69	1	3	92	2
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
Hourly flow rate (vph)	1	12	3	0	5	1	7	75	1	3	100	2

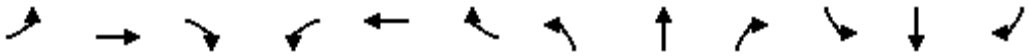
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	6	83	105
Volume Left (vph)	1	0	7	3
Volume Right (vph)	3	1	1	2
Hadj (s)	-0.07	-0.07	0.04	0.03
Departure Headway (s)	4.2	4.3	4.1	4.1
Degree Utilization, x	0.02	0.01	0.09	0.12
Capacity (veh/h)	808	805	860	876
Control Delay (s)	7.3	7.3	7.5	7.6
Approach Delay (s)	7.3	7.3	7.5	7.6
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.5			
Level of Service	A			
Intersection Capacity Utilization	16.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street/Driveway

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	0	10	8	0	8	4	131	12	12	124	2
Future Volume (vph)	3	0	10	8	0	8	4	131	12	12	124	2
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
Hourly flow rate (vph)	3	0	11	9	0	9	4	142	13	13	135	2

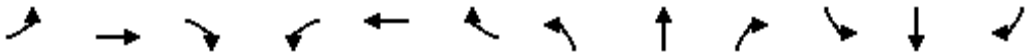
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	14	18	159	150
Volume Left (vph)	3	9	4	13
Volume Right (vph)	11	9	13	2
Hadj (s)	-0.39	-0.17	-0.01	0.04
Departure Headway (s)	4.2	4.4	4.1	4.2
Degree Utilization, x	0.02	0.02	0.18	0.17
Capacity (veh/h)	786	749	856	849
Control Delay (s)	7.3	7.5	8.0	8.0
Approach Delay (s)	7.3	7.5	8.0	8.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	22.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

6: Oak Street & Cedar Avenue

10/22/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	5	9	19	6	9	6	118	25	7	125	20
Future Volume (vph)	12	5	9	19	6	9	6	118	25	7	125	20
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
Hourly flow rate (vph)	13	5	10	21	7	10	7	128	27	8	136	22

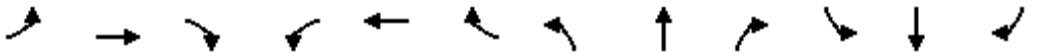
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	28	38	162	166
Volume Left (vph)	13	21	7	8
Volume Right (vph)	10	10	27	22
Hadj (s)	-0.09	-0.01	-0.06	-0.04
Departure Headway (s)	4.6	4.6	4.2	4.2
Degree Utilization, x	0.04	0.05	0.19	0.19
Capacity (veh/h)	721	714	838	840
Control Delay (s)	7.7	7.9	8.1	8.2
Approach Delay (s)	7.7	7.9	8.1	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.1			
Level of Service	A			
Intersection Capacity Utilization	20.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1831	20	85	678	3	41	12	113	9	1	19
Future Volume (vph)	22	1831	20	85	678	3	41	12	113	9	1	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3500		1805	3404			1829	1615		1705	
Flt Permitted	0.36	1.00		0.03	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	604	3500		62	3404			1829	1615		1705	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1990	22	92	737	3	45	13	123	10	1	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	114	0	20	0
Lane Group Flow (vph)	24	2012	0	92	740	0	0	58	9	0	12	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	130.0	125.6		143.4	132.4			11.5	11.5		6.5	
Effective Green, g (s)	132.0	127.6		144.4	134.4			13.5	13.5		8.5	
Actuated g/C Ratio	0.69	0.67		0.76	0.71			0.07	0.07		0.04	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	447	2350		159	2407			129	114		76	
v/s Ratio Prot	0.00	c0.57		c0.04	0.22			c0.03			c0.01	
v/s Ratio Perm	0.04			0.40					0.01			
v/c Ratio	0.05	0.86		0.58	0.31			0.45	0.08		0.16	
Uniform Delay, d1	9.0	24.1		53.1	10.4			84.7	82.4		87.3	
Progression Factor	1.00	0.69		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.2		5.0	0.3			2.5	0.3		1.0	
Delay (s)	9.0	19.9		58.1	10.7			87.2	82.7		88.3	
Level of Service	A	B		E	B			F	F		F	
Approach Delay (s)		19.8			16.0			84.1			88.3	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/23/2020

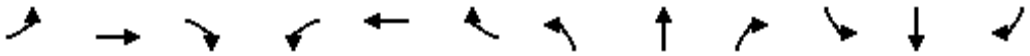
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1797	21	22	694	19	22	27	50	26	26	12
Future Volume (vph)	10	1797	21	22	694	19	22	27	50	26	26	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.90		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3500		1805	3397		1805	1565		1752	1773	
Flt Permitted	0.35	1.00		0.07	1.00		0.73	1.00		0.47	1.00	
Satd. Flow (perm)	608	3500		128	3397		1388	1565		871	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	1953	23	24	754	21	24	29	54	28	28	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	43	0	0	9	0
Lane Group Flow (vph)	11	1976	0	24	775	0	24	40	0	28	32	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	148.8	146.0		151.6	147.4		20.1	20.1		9.0	9.0	
Effective Green, g (s)	150.8	147.0		153.6	148.4		22.1	22.1		11.0	11.0	
Actuated g/C Ratio	0.79	0.77		0.81	0.78		0.12	0.12		0.06	0.06	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	503	2707		149	2653		161	182		50	102	
v/s Ratio Prot	0.00	c0.56		c0.00	0.23			c0.03			0.02	
v/s Ratio Perm	0.02			0.13			0.02			c0.03		
v/c Ratio	0.02	0.73		0.16	0.29		0.15	0.22		0.56	0.31	
Uniform Delay, d1	4.1	11.2		12.4	5.9		75.5	76.1		87.1	85.9	
Progression Factor	1.00	1.00		0.87	0.35		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	1.8		0.5	0.3		0.4	0.6		13.6	1.7	
Delay (s)	4.2	12.9		11.3	2.4		75.9	76.7		100.7	87.6	
Level of Service	A	B		B	A		E	E		F	F	
Approach Delay (s)		12.9			2.6			76.5			92.9	
Approach LOS		B			A			E			F	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

3: Walnut Street & Cedar Avenue

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	8	0	28	6	99	29	34	46	1
Future Volume (Veh/h)	1	0	0	8	0	28	6	99	29	34	46	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	1	0	0	9	0	30	7	108	32	37	50	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											366	
pX, platoon unblocked												
vC, conflicting volume	292	278	50	262	263	124	51			140		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292	278	50	262	263	124	51			140		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			97		
cM capacity (veh/h)	624	611	1018	674	623	927	1555			1443		

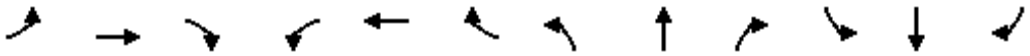
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	39	147	88
Volume Left	1	9	7	37
Volume Right	0	30	32	1
cSH	624	853	1555	1443
Volume to Capacity	0.00	0.05	0.00	0.03
Queue Length 95th (ft)	0	4	0	2
Control Delay (s)	10.8	9.4	0.4	3.3
Lane LOS	B	A	A	A
Approach Delay (s)	10.8	9.4	0.4	3.3
Approach LOS	B	A		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	25.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

4: Walnut Street & Second Street

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	13	9	9	2	2	4	2	114	3	3	53	2
Future Volume (vph)	13	9	9	2	2	4	2	114	3	3	53	2
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
Hourly flow rate (vph)	14	10	10	2	2	4	2	124	3	3	58	2

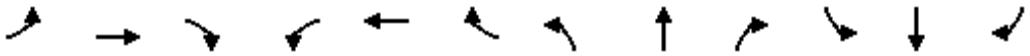
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	34	8	129	63
Volume Left (vph)	14	2	2	3
Volume Right (vph)	10	4	3	2
Hadj (s)	-0.06	-0.22	0.02	0.02
Departure Headway (s)	4.3	4.1	4.1	4.1
Degree Utilization, x	0.04	0.01	0.15	0.07
Capacity (veh/h)	804	825	862	852
Control Delay (s)	7.4	7.2	7.8	7.5
Approach Delay (s)	7.4	7.2	7.8	7.5
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.8%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street/Driveway

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	0	7	12	0	12	2	118	6	6	153	3
Future Volume (vph)	1	0	7	12	0	12	2	118	6	6	153	3
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
Hourly flow rate (vph)	1	0	8	13	0	13	2	128	7	7	166	3

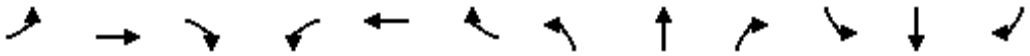
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	9	26	137	176
Volume Left (vph)	1	13	2	7
Volume Right (vph)	8	13	7	3
Hadj (s)	-0.48	-0.17	0.01	0.03
Departure Headway (s)	4.1	4.4	4.2	4.1
Degree Utilization, x	0.01	0.03	0.16	0.20
Capacity (veh/h)	795	749	844	854
Control Delay (s)	7.2	7.6	7.9	8.2
Approach Delay (s)	7.2	7.6	7.9	8.2
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	22.2%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

6: Oak Street & Cedar Avenue

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	31	10	54	11	39	5	116	36	35	99	4
Future Volume (vph)	21	31	10	54	11	39	5	116	36	35	99	4
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
Hourly flow rate (vph)	23	34	11	59	12	42	5	126	39	38	108	4

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	68	113	170	150
Volume Left (vph)	23	59	5	38
Volume Right (vph)	11	42	39	4
Hadj (s)	0.00	-0.08	-0.10	0.07
Departure Headway (s)	4.8	4.7	4.4	4.6
Degree Utilization, x	0.09	0.15	0.21	0.19
Capacity (veh/h)	687	715	773	738
Control Delay (s)	8.3	8.4	8.6	8.7
Approach Delay (s)	8.3	8.4	8.6	8.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.6			
Level of Service	A			
Intersection Capacity Utilization	35.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

101: Site Driveway A & Fairfax Boulevard 10/23/2020

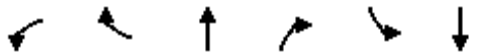
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1870	2	3	734	0	1
Future Volume (Veh/h)	1870	2	3	734	0	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2033	2	3	798	0	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	250			387		
pX, platoon unblocked			0.68		0.72	0.68
vC, conflicting volume			2035		2439	1018
vC1, stage 1 conf vol					2034	
vC2, stage 2 conf vol					405	
vCu, unblocked vol			1587		1730	96
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			280		102	643

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	1355	680	3	399	399	1
Volume Left	0	0	3	0	0	0
Volume Right	0	2	0	0	0	1
cSH	1700	1700	280	1700	1700	643
Volume to Capacity	0.80	0.40	0.01	0.23	0.23	0.00
Queue Length 95th (ft)	0	0	1	0	0	0
Control Delay (s)	0.0	0.0	18.0	0.0	0.0	10.6
Lane LOS			C			B
Approach Delay (s)	0.0		0.1			10.6
Approach LOS						B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

102: Walnut Street & Site Driveway B 10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	1	131	1	0	81
Future Volume (Veh/h)	0	1	131	1	0	81
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	142	1	0	88
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						131
pX, platoon unblocked	0.99					
vC, conflicting volume	230	72			143	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	72			143	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	745	976			1437	

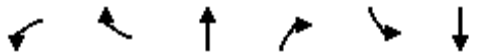
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	1	95	48	88
Volume Left	0	0	0	0
Volume Right	1	0	1	0
cSH	976	1700	1700	1700
Volume to Capacity	0.00	0.06	0.03	0.05
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.7	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	8.7	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

103: Walnut Street & Site Driveway C

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	6	126	1	2	79
Future Volume (Veh/h)	2	6	126	1	2	79
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	7	137	1	2	86
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						264
pX, platoon unblocked	1.00					
vC, conflicting volume	228	69			138	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	222	69			138	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	742	980			1443	

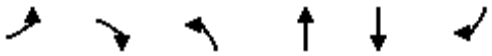
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	9	91	47	88
Volume Left	2	0	0	2
Volume Right	7	0	1	0
cSH	915	1700	1700	1443
Volume to Capacity	0.01	0.05	0.03	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	9.0	0.0	0.0	0.2
Lane LOS	A			A
Approach Delay (s)	9.0	0.0		0.2
Approach LOS	A			

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	15.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

104: Oak Street & Site Driveway D

10/23/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	4	1	140	165	4
Future Volume (Veh/h)	12	4	1	140	165	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	4	1	152	179	4
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	335	181	183			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	335	181	183			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	660	862	1392			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	17	153	183
Volume Left	13	1	0
Volume Right	4	0	4
cSH	698	1392	1700
Volume to Capacity	0.02	0.00	0.11
Queue Length 95th (ft)	2	0	0
Control Delay (s)	10.3	0.1	0.0
Lane LOS	B	A	
Approach Delay (s)	10.3	0.1	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis

1: Oak Street/Meredith Drive & Fairfax Boulevard

10/23/2020

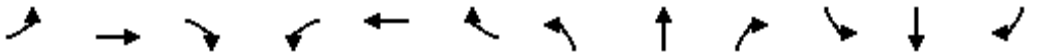
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	1224	25	111	1685	0	23	4	112	15	9	19
Future Volume (vph)	33	1224	25	111	1685	0	23	4	112	15	9	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	4.6		5.6	4.6			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1597	3496		1805	3406			1821	1615		1756	
Flt Permitted	0.08	1.00		0.15	1.00			0.96	1.00		0.98	
Satd. Flow (perm)	132	3496		285	3406			1821	1615		1756	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	1330	27	121	1832	0	25	4	122	16	10	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	116	0	14	0
Lane Group Flow (vph)	36	1357	0	121	1832	0	0	29	6	0	33	0
Heavy Vehicles (%)	13%	3%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		7	7	
Permitted Phases	2			6					4			
Actuated Green, G (s)	162.3	156.1		171.1	160.5			9.6	9.6		8.5	
Effective Green, g (s)	164.3	158.1		173.1	162.5			11.6	11.6		10.5	
Actuated g/C Ratio	0.75	0.72		0.79	0.74			0.05	0.05		0.05	
Clearance Time (s)	6.6	6.6		6.6	6.6			6.5	6.5		6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	146	2512		304	2515			96	85		83	
v/s Ratio Prot	0.01	0.39		c0.02	c0.54			c0.02			c0.02	
v/s Ratio Perm	0.18			0.29					0.00			
v/c Ratio	0.25	0.54		0.40	0.73			0.30	0.08		0.39	
Uniform Delay, d1	16.3	14.2		10.8	16.3			100.3	99.1		101.7	
Progression Factor	0.93	0.64		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.8	0.8		0.9	1.9			1.8	0.4		3.1	
Delay (s)	16.0	9.9		11.7	18.2			102.1	99.5		104.7	
Level of Service	B	A		B	B			F	F		F	
Approach Delay (s)		10.0			17.8			100.0			104.7	
Approach LOS		B			B			F			F	

Intersection Summary			
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	24.2
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: Walnut Street/Fairchester Drive & Fairfax Boulevard

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1204	19	28	1665	14	36	30	38	36	24	14
Future Volume (vph)	22	1204	19	28	1665	14	36	30	38	36	24	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.92		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3498		1805	3403		1805	1600		1752	1762	
Flt Permitted	0.09	1.00		0.18	1.00		0.72	1.00		0.52	1.00	
Satd. Flow (perm)	158	3498		337	3403		1372	1600		966	1762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1309	21	30	1810	15	39	33	41	39	26	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	24	0	0	10	0
Lane Group Flow (vph)	24	1330	0	30	1825	0	39	50	0	39	31	0
Heavy Vehicles (%)	8%	3%	0%	0%	6%	0%	0%	5%	12%	3%	3%	0%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			7			3	
Permitted Phases	2			6			7			3		
Actuated Green, G (s)	178.0	172.3		178.0	172.3		22.3	22.3		12.9	12.9	
Effective Green, g (s)	180.0	173.3		180.0	173.3		24.3	24.3		14.9	14.9	
Actuated g/C Ratio	0.82	0.79		0.82	0.79		0.11	0.11		0.07	0.07	
Clearance Time (s)	6.6	6.6		6.6	6.6		6.5	6.5		6.5	6.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	175	2755		320	2680		151	176		65	119	
v/s Ratio Prot	c0.00	0.38		0.00	c0.54			c0.03			0.02	
v/s Ratio Perm	0.11			0.07			0.03			c0.04		
v/c Ratio	0.14	0.48		0.09	0.68		0.26	0.28		0.60	0.26	
Uniform Delay, d1	9.5	8.0		5.1	10.7		89.6	89.9		99.7	97.3	
Progression Factor	1.00	1.00		0.07	0.17		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		0.1	1.0		0.9	0.9		14.0	1.2	
Delay (s)	9.9	8.6		0.5	2.9		90.5	90.8		113.7	98.5	
Level of Service	A	A		A	A		F	F		F	F	
Approach Delay (s)		8.6			2.8			90.7			105.9	
Approach LOS		A			A			F			F	

Intersection Summary			
HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	220.0	Sum of lost time (s)	20.7
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

3: Walnut Street & Cedar Avenue

10/23/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	3	18	0	18	1	76	14	24	79	2
Future Volume (Veh/h)	3	0	3	18	0	18	1	76	14	24	79	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	3	0	3	20	0	20	1	83	15	26	86	2
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											367	
pX, platoon unblocked												
vC, conflicting volume	252	239	87	234	232	90	88			98		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	252	239	87	234	232	90	88			98		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	97	100	98	100			98		
cM capacity (veh/h)	678	650	971	708	656	967	1508			1495		

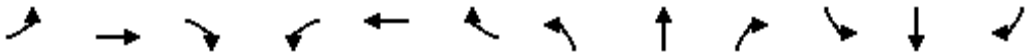
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	6	40	99	114
Volume Left	3	20	1	26
Volume Right	3	20	15	2
cSH	799	818	1508	1495
Volume to Capacity	0.01	0.05	0.00	0.02
Queue Length 95th (ft)	1	4	0	1
Control Delay (s)	9.5	9.6	0.1	1.8
Lane LOS	A	A	A	A
Approach Delay (s)	9.5	9.6	0.1	1.8
Approach LOS	A	A		

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	22.3%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

4: Walnut Street & Second Street

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	11	3	0	5	1	6	78	1	3	101	2
Future Volume (vph)	1	11	3	0	5	1	6	78	1	3	101	2
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
Hourly flow rate (vph)	1	12	3	0	5	1	7	85	1	3	110	2

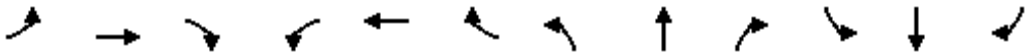
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	16	6	93	115
Volume Left (vph)	1	0	7	3
Volume Right (vph)	3	1	1	2
Hadj (s)	-0.07	-0.07	0.04	0.03
Departure Headway (s)	4.3	4.3	4.1	4.1
Degree Utilization, x	0.02	0.01	0.11	0.13
Capacity (veh/h)	796	794	858	873
Control Delay (s)	7.4	7.3	7.6	7.7
Approach Delay (s)	7.4	7.3	7.6	7.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.6			
Level of Service	A			
Intersection Capacity Utilization	16.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

5: Oak Street & Second Street/Driveway

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	0	10	8	0	8	4	135	12	12	126	2
Future Volume (vph)	3	0	10	8	0	8	4	135	12	12	126	2
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
Hourly flow rate (vph)	3	0	11	9	0	9	4	147	13	13	137	2

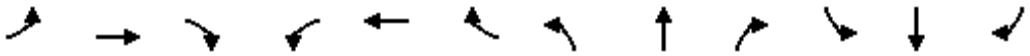
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	14	18	164	152
Volume Left (vph)	3	9	4	13
Volume Right (vph)	11	9	13	2
Hadj (s)	-0.39	-0.17	-0.01	0.04
Departure Headway (s)	4.2	4.4	4.1	4.2
Degree Utilization, x	0.02	0.02	0.19	0.18
Capacity (veh/h)	782	746	855	848
Control Delay (s)	7.3	7.5	8.1	8.1
Approach Delay (s)	7.3	7.5	8.1	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.0			
Level of Service	A			
Intersection Capacity Utilization	22.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

6: Oak Street & Cedar Avenue

10/23/2020



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	12	5	13	19	6	9	9	123	25	7	134	20
Future Volume (vph)	12	5	13	19	6	9	9	123	25	7	134	20
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
Hourly flow rate (vph)	13	5	14	21	7	10	10	134	27	8	146	22

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	32	38	171	176
Volume Left (vph)	13	21	10	8
Volume Right (vph)	14	10	27	22
Hadj (s)	-0.15	-0.01	-0.05	-0.03
Departure Headway (s)	4.6	4.7	4.2	4.2
Degree Utilization, x	0.04	0.05	0.20	0.21
Capacity (veh/h)	721	704	831	834
Control Delay (s)	7.8	7.9	8.2	8.3
Approach Delay (s)	7.8	7.9	8.2	8.3
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	21.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis

101: Site Driveway A & Fairfax Boulevard 10/23/2020

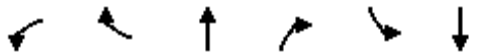
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1257	19	22	1704	3	23
Future Volume (Veh/h)	1257	19	22	1704	3	23
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1366	21	24	1852	3	25
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	250			387		
pX, platoon unblocked			0.87		0.75	0.87
vC, conflicting volume			1387		2350	694
vC1, stage 1 conf vol					1376	
vC2, stage 2 conf vol					974	
vCu, unblocked vol			1141		1339	342
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	96
cM capacity (veh/h)			528		223	567

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1
Volume Total	911	476	24	926	926	28
Volume Left	0	0	24	0	0	3
Volume Right	0	21	0	0	0	25
cSH	1700	1700	528	1700	1700	487
Volume to Capacity	0.54	0.28	0.05	0.54	0.54	0.06
Queue Length 95th (ft)	0	0	4	0	0	5
Control Delay (s)	0.0	0.0	12.1	0.0	0.0	12.8
Lane LOS			B			B
Approach Delay (s)	0.0		0.2			12.8
Approach LOS						B

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

102: Walnut Street & Site Driveway B 10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	18	92	7	0	103
Future Volume (Veh/h)	8	18	92	7	0	103
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	20	100	8	0	112
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						145
pX, platoon unblocked	0.99					
vC, conflicting volume	216	54			108	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	204	54			108	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	98			100	
cM capacity (veh/h)	759	1002			1480	

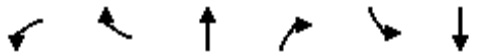
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	29	67	41	112
Volume Left	9	0	0	0
Volume Right	20	0	8	0
cSH	911	1700	1700	1700
Volume to Capacity	0.03	0.04	0.02	0.07
Queue Length 95th (ft)	2	0	0	0
Control Delay (s)	9.1	0.0	0.0	0.0
Lane LOS	A			
Approach Delay (s)	9.1	0.0		0.0
Approach LOS	A			

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

103: Walnut Street & Site Driveway C

10/23/2020



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	4	95	2	7	104
Future Volume (Veh/h)	1	4	95	2	7	104
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	4	103	2	8	113
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						261
pX, platoon unblocked	1.00					
vC, conflicting volume	233	52			105	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230	52			105	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			99	
cM capacity (veh/h)	732	1004			1484	

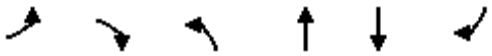
Direction, Lane #	WB 1	NB 1	NB 2	SB 1
Volume Total	5	69	36	121
Volume Left	1	0	0	8
Volume Right	4	0	2	0
cSH	934	1700	1700	1484
Volume to Capacity	0.01	0.04	0.02	0.01
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	8.9	0.0	0.0	0.5
Lane LOS	A			A
Approach Delay (s)	8.9	0.0		0.5
Approach LOS	A			

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

104: Oak Street & Site Driveway D

10/23/2020



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	2	4	153	150	13
Future Volume (Veh/h)	7	2	4	153	150	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	2	4	166	163	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	344	170	177			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344	170	177			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	100	100			
cM capacity (veh/h)	651	874	1399			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	10	170	177
Volume Left	8	4	0
Volume Right	2	0	14
cSH	686	1399	1700
Volume to Capacity	0.01	0.00	0.10
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.3	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	10.3	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		