Flagship Carwash and Restaurant

APPENDIX

A: Appendix A - Scoping Documents

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APPENDIX A

Appendix A - Scoping Documents

Transportation Consultants
INNOVATION + SOLUTIONS

PRE-SCOPE OF WORK MEETING FORM

Information on the Project
Traffic Impact Analysis Base Assumptions

The locality will need to send this form to the project applicant at least two (2) weeks prior to the scheduled scope of work meeting on the proposed project. The applicant is responsible for having this form completed and returned to VDOT and the locality no less than three (3) business days prior to the Meeting. If a completed form is not received by this deadline, the scope of work meeting may be postponed.

Contact Information	
Consultant Name: Tele: E-mail:	Michael Pinkoske & Mike Workosky Wells + Associates, Inc. mrpinkoske@mjwells.com & mjworkosky@mjwells.com 703.917.6620
Developer/Owner Name: Tele: E-mail:	Guy Paolozzi paolozzi@cox.net 703-969-3413

Project Information				
Project Name:	Flagship Car Wash and Chick-fil-a			
Project Location: (Attach regional and site specific location map)	The subject site is generally located on the south side of Maple Avenue W (Route 123), west of Nutley Street (Route 243) and east of James Madison Drive in Vienna, Virginia as shown in **Figure 1**.			
Project Description: Including type of application (rezoning, subdivision, site plan), acreage, business square ft, number of dwelling units, access location, etc. Attach additional sheet if necessary)	As proposed the existing car wash would be razed and redeveloped with a car wash and fast food restaurant with a drive thru facility. Vehicular access to the site would remain via two (2) right-in right-out driveways along Maple Avenue W. The existing service drive would be maintained and allow for left turns onto Maple Avenue W at James Madison Drive. A copy of the proposed plan is attached.			
Locality/County:	Vienna, Virginia			
Proposed Use: (Check all that apply; attach additional pages as necessary)	Residential ☐	Commercial **X**	Mixed Use ☐	Other ☐

	Commercial Use: *Fast Food Rest. w/Drive Thru (LU Code 934) & Car Wash (**See Table 1**)* It is noted that limited ITE data is available for car washes. As such, peak hour traffic counts collected on site will used for the analysis of future conditions.	**Commercial**: Per ITE the following trip reductions are assumed for Fast Food Restaurant w/Drive Thru **51% AM & 47% PM** pass-by. **28% AM 23% PM** diverted link.

Traffic Impact Analysis Assumptions

Study Period	Existing Year: 2014	Build-out Year: 2017			Design Year: N/A
Study Area Boundaries (Attach map)	North:	South:			
	East: Maple Ave W & Nutley St	West: Maple Ave W & James Madison Dr			
External Factors That Could Affect Project (Planned road improvements, other nearby developments)	No roadway improvements are planned within the study area.				
Consistency With Comprehensive Plan	Yes.				
Available Traffic Data (Historical, forecasts)	Existing AM and PM, and Saturday peak hour vehicular, pedestrian and bicycle traffic counts will be provided by the Town for the intersection of Maple Avenue & Nutley Street (Gorove Slade). The counts were conducted in May 2014. This data will be used and supplemented by additional count data to be collected by Wells + Associates. For reference only, VDOT published average annual daily traffic AADT for Maple Avenue W & Nutley Street from 2010 to 2013.				
Trip Distribution (Attach sketch) **See Figure 1**	Road Name: Maple Avenue W.	N ___%	S __%	E 35%	W 30%
	Road Name: Nutley Street	N 10%	S 25%	E __%	W __%
Annual Vehicle Trip Growth Rate:	A growth rate of (1.0) percent, compounded, for three (3) years is proposed for all movements at Maple Avenue & Nutley Street and thru movements on Maple Avenue W at other intersections.	Peak Period for Study (circle all that apply)	**AM**	**PM**	**SAT**

	2013	2012	2011	2010
Maple Avenue W	26,000	26,000	30,000	30,000
Nutley Street	19,000	19,000	26,000	26,000

Study Intersections and/or Road Segments (Attach additional sheets as necessary)	1. Maple Ave W/James Madison Dr	3. Maple Avenue/Nutley Street (traffic counts provided by the Town will be used for the weekday peak hours)
	2. Maple Ave /Two(2) site driveways	4. Service Drive & McDonalds Driveway
Trip Adjustment Factors	Internal allowance: ☐ Yes **X** No Reduction: _____% trips	Pass-by allowance: **X** Yes ☐ No Reduction: See trip generation table
Software Methodology	**X** Synchro ☐ HCS (v.2000/+) ☐ aaSIDRA ☐ CORSIM ☐ Other	
Traffic Signal Proposed or Affected (Analysis software to be used, progression speed, cycle length)	No additional signals are proposed. Synchro version 7 software will be used for intersection analysis.	
Improvement(s) Assumed or to be Considered	No roadway improvements are assumed in the study area.	
Background Traffic Studies Considered	No pipeline developments are assumed, a regional growth of 1.0 will be applied to all turning movements at the intersection of Maple Avenue & Nutley Street and all thru movements at other intersections along Maple Avenue.	
Plan Submission	☐ Master Development Plan (MDP) X Generalized Development Plan (GDP) ☐ Preliminary/Sketch Plan	
Additional Issues to be addressed	X Queuing analysis ☐ Actuation/Coordination ☐ Weaving analysis ☐ Merge analysis X Bike/Ped Accommodations X Intersection(s) ☐ TDM Measures ☐ Other _____	

NOTES on ASSUMPTIONS:

- The proposed does ***not*** trigger VDOT 870 trip thresholds of 5,000 total daily trips, as shown in **Table 1.**
- The study will include a discussion regarding the directions of approach for the site trips justification of the reductions assumed and on site traffic circulation and queueing.
- The study will include an assessment of the on-site loading.
- The study will include adjustments to existing traffic currently using the service drive adjacent to the car wash not associated with the car wash as these movements will be restricted in the future.
- Field measured PHF's will be used if between 0.85 and 0.92. If lower, a 0.85 PHF will be used and future conditions will include 0.92 PHF consistent with VDOT's methodology.

Flagship Carwash – Chick-Fil-A
Scope Form Signature Page
Town of Vienna, Virginia

APPLICANT OR CONSULTANT
Wells + Associates, Inc.

_____
Signature

December 18, 2014
_____
Date

LOCAL GOVERNMENT REPRESENTATIVE

_____
Signature

_____
Date

O:\PROJECTS\6001-65006268 CHICK-FIL-A CAR WASH\GRAPHICS\6268 - GRAPHICS.DWG

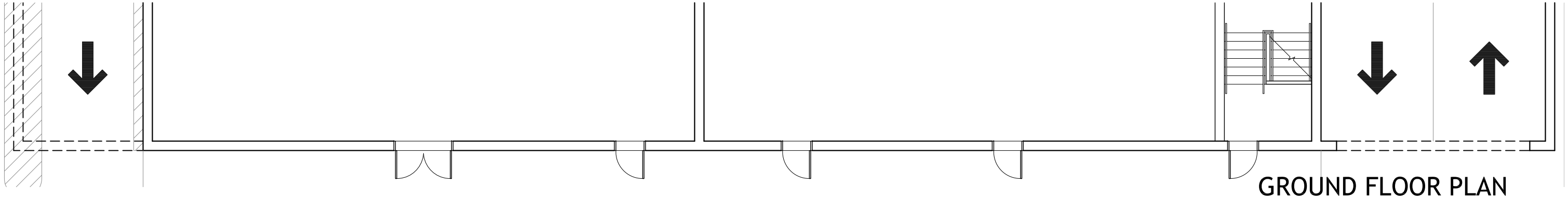
Figure 1
Site Location, Directional Distribution, and
Study Intersections
Flagship Car Wash/Chick-fil-A
Vienna, Virginia

JCP

Table 1
Flagship Car Wash & Chick-fil-A
Site Trip Generation Analysis - Peak Hour of Adjacent Street [1]

Scenario	Land Use Code	Amount	Units	AM Peak Hour [2] In	AM Peak Hour [2] Out	AM Peak Hour [2] Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Average Daily Trips	SAT Peak Hour [3] In	SAT Peak Hour [3] Out	SAT Peak Hour [3] Total	Average Daily Trips
Car Wash				Peak hour data will be based on observed traffic data										
Fast-food Restaurant with Drive-thru	934	6,900	SF	160	154	314	118	108	226	3,424	208	200	408	4,983

Note(s):
1. Trip generation based on the Institute of Transportation Engineers' Trip Generation, 9th Edition rates/equations as appropriate.



GROUND FLOOR PLAN

SCALE: 3/32"=1'-0"

FRONT ELEVATION

SCALE: 3/32"=1'-0"

JCA ARCHITECTS
1801 ROBERT FULTON DR. SUITE 410
RESTON, VIRGINIA

SCHEMATIC DESIGN FOR

VIENNA CAR WASH

TOWN OF VIENNA, Virginia

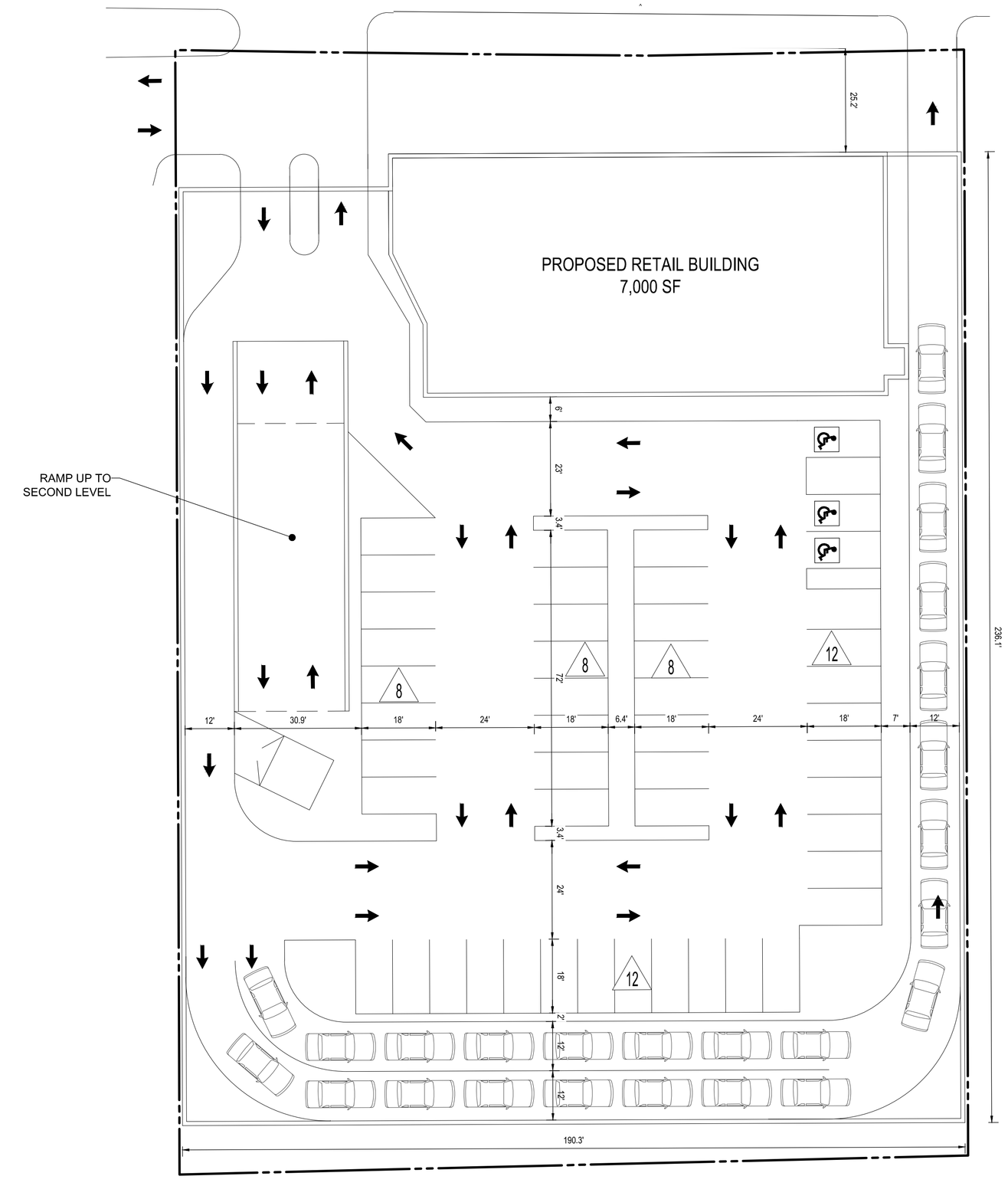
JULY 30, 2013

OWNER :
GUY PAOLOZZI

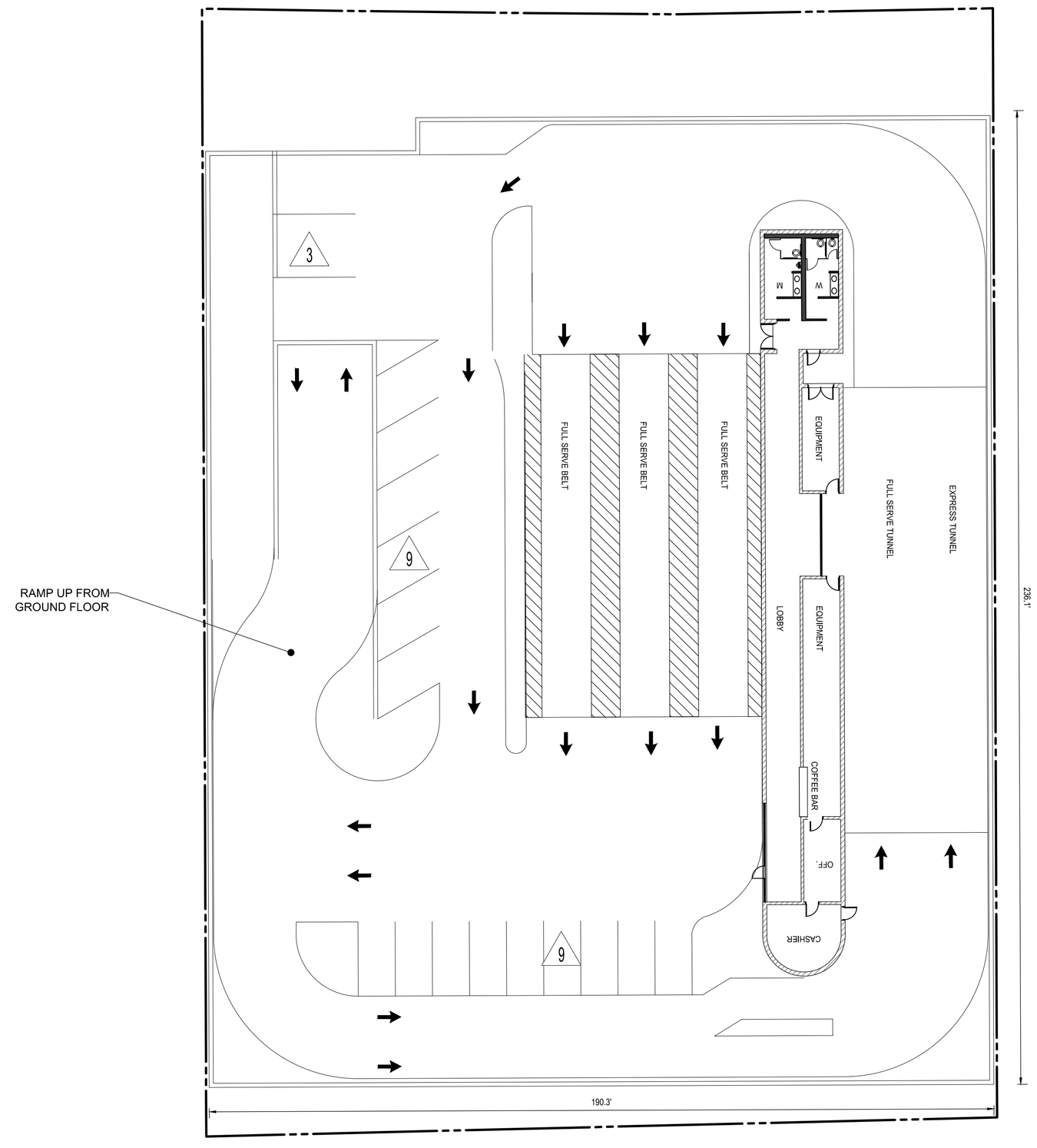
MAPLE AVENUE - VA RTE. 123

VARIABLE WIDTH RIGHT-OF-WAY

ASPHALT PAVED PUBLIC ROADWAY



FIRST FLOOR



SECOND FLOOR

20 10 5 0 20

1"= 20'

A-8

C:\USERS\NICHOLAS.GEORGAS\APPDATA\LOCAL\TEMP\ACPUBLISH_6480\S09651201CADDWG.DWG PRINTED BY: NICHOLAS.GEORGAS 12.12.14 @ 12:15 PM

BOHLER ENGINEERING

SITE CIVIL AND CONSULTING ENGINEERING
LANDSCAPE ARCHITECTURE
LAND DEVELOPMENT PROGRAM MANAGEMENT TRANSPORTATION
SUSTAINABLE DESIGN PERMITTING SERVICES LOCAL SERVICES

WARREN, NJ
- UPSTATE NEW YORK
- BOSTON, MA
- NEW YORK METRO
- CENTRAL NEW JERSEY/SOUTHERN NJ
- LEHIGH VALLEY, PA
- SOUTHEASTERN, PA

BALTIMORE, MD
- SOUTHERN MARYLAND
- NORTHERN VIRGINIA
- CENTRAL VIRGINIA
- RICHMOND, VA
- CHARLOTTE, NC
- RALEIGH, NC

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE. IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, NORTH CAROLINA AND DELAWARE CALL - **811**
(WV 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777)
(VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8555)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	S09651201
DRAWN BY:	NTG
CHECKED BY:	DBL
DATE:	12/12/14
SCALE:	1"=20'
CAD I.D.:	CA0

PROJECT:

CONCEPT PLAN

FOR

FLAGSHIP CARWASH

LOCATION OF SITE
MAPLE AVENUE
TOWN OF VIENNA

BOHLER ENGINEERING
22636 DAVIS DRIVE, SUITE 250
STERLING, VIRGINIA 20164
Phone: (703) 709-9500
Fax: (703) 709-9501
VA@BohlerEng.com

SHEET TITLE:

FLOOR PLAN LAYOUT 12/12/14

SHEET NUMBER:

1

APPENDIX B

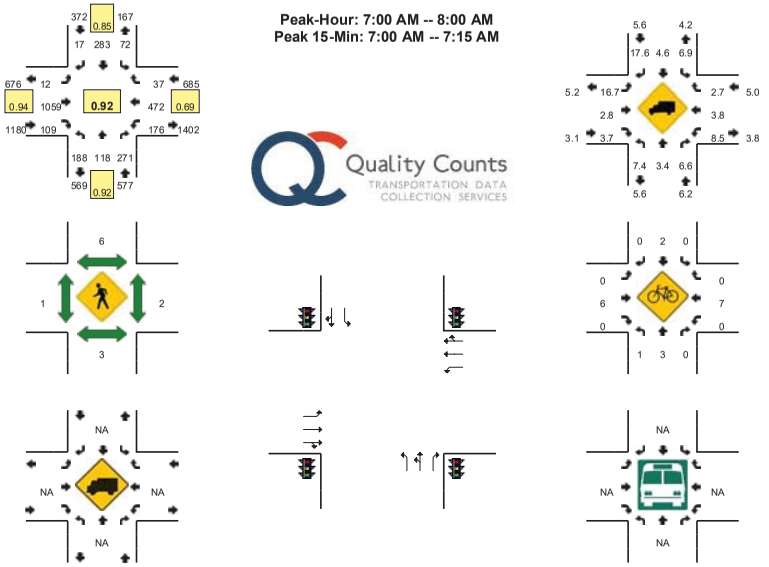
Appendix B - Traffic Counts

Transportation Consultants
INNOVATION + SOLUTIONS

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Nutley St SW -- Route 123 | **QC JOB #:** 12465531
CITY/STATE: Vienna, VA | **DATE:** Thu, May 08 2014

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



15-Min Count Period Beginning At	Nutley St SW (Northbound)				Nutley St SW (Southbound)				Route 123 (Eastbound)				Route 123 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	12	5	36	0	4	16	5	0	0	124	17	0	25	41	1	0	286	
6:15 AM	11	8	51	1	1	17	0	0	1	175	34	0	26	36	1	0	362	
6:30 AM	44	14	50	1	11	27	1	0	0	219	25	0	50	64	5	0	511	
6:45 AM	83	27	58	1	22	38	7	0	2	206	21	0	47	95	10	0	617	1776
7:00 AM	71	30	40	0	32	75	2	0	2	235	27	0	51	175	22	0	762	2252
7:15 AM	33	27	61	1	20	68	6	0	2	292	26	0	42	96	0	0	674	2564
7:30 AM	44	24	72	0	8	72	5	0	2	259	23	0	47	88	2	0	646	2699
7:45 AM	39	37	98	0	12	68	4	0	6	273	33	0	36	113	13	0	732	2814
8:00 AM	44	50	62	1	7	66	3	0	2	252	28	0	31	88	14	1	649	2701
8:15 AM	40	51	84	0	13	54	5	0	5	251	36	0	46	91	5	0	681	2708
8:30 AM	51	41	97	1	10	68	4	0	4	224	32	0	46	105	9	0	692	2754
8:45 AM	47	44	69	3	12	59	2	0	3	255	31	0	42	107	8	0	682	2704

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	284	120	160	0	128	300	8	0	8	940	108	0	204	700	88	0	3048
Heavy Trucks	8	4	4		12	12	0		0	8	0		0	12	0		60
Pedestrians		0				8				0				8			16
Bicycles	1	3	0		0	0	0		0	1	0		0	2	0		7
Railroad Stopped Buses																	

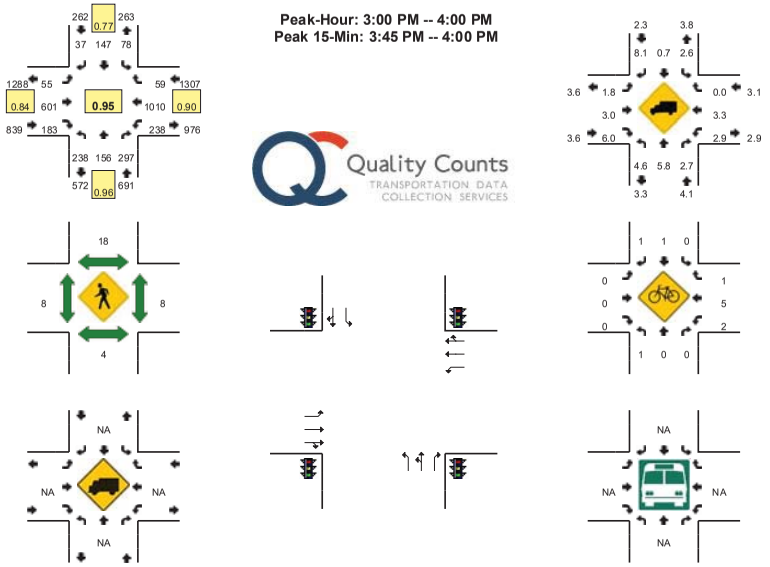
Comments:

Report generated on 5/27/2014 6:58 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Nutley St SW -- Route 123 | **QC JOB #:** 12465533
CITY/STATE: Vienna, VA | **DATE:** Thu, May 08 2014

Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:45 PM -- 4:00 PM



15-Min Count Period Beginning At	Nutley St SW (Northbound)				Nutley St SW (Southbound)				Route 123 (Eastbound)				Route 123 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
2:00 PM	72	32	77	2	18	35	14	0	16	141	36	1	61	179	14	1	699	
2:15 PM	49	31	90	1	34	58	13	0	12	151	57	0	61	231	8	1	797	
2:30 PM	51	32	84	1	21	43	7	0	9	154	38	1	75	261	7	0	784	
2:45 PM	57	31	93	4	22	47	12	0	10	111	31	1	76	198	14	0	707	2987
3:00 PM	57	45	82	1	22	33	7	0	14	127	38	4	66	225	25	0	746	3034
3:15 PM	52	37	65	1	17	46	12	0	15	138	41	1	60	246	14	0	745	2982
3:30 PM	52	37	81	2	16	35	7	0	13	185	53	0	53	246	9	0	789	2987
3:45 PM	73	37	69	0	23	33	11	0	6	151	51	2	59	293	11	0	819	3099

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	292	148	276	0	92	132	44	0	24	604	204	8	236	1172	44	0	3276
Heavy Trucks	12	4	12		4	4	0		0	24	16		0	28	0		104
Pedestrians		0				16				20				8			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	1		1
Railroad Stopped Buses																	

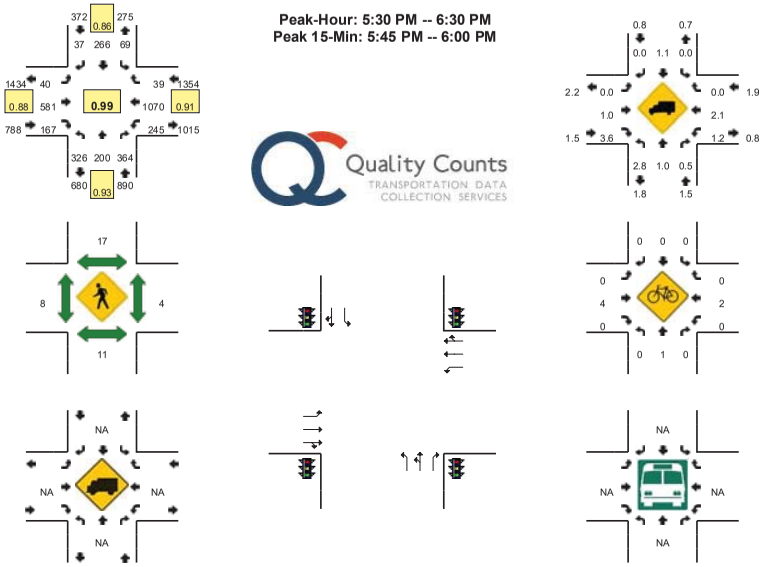
Comments:

Report generated on 5/27/2014 6:58 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Nutley St SW -- Route 123 | **QC JOB #:** 12465532
CITY/STATE: Vienna, VA | **DATE:** Thu, May 08 2014

Peak-Hour: 5:30 PM -- 6:30 PM
Peak 15-Min: 5:45 PM -- 6:00 PM



15-Min Count Period Beginning At	Nutley St SW (Northbound)				Nutley St SW (Southbound)				Route 123 (Eastbound)				Route 123 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	60	36	62	2	25	53	11	0	12	151	34	0	62	277	10	0	795	
4:15 PM	69	44	73	1	14	34	7	0	12	169	53	0	54	296	6	0	832	
4:30 PM	72	54	81	0	20	48	16	0	10	128	35	1	66	238	5	1	775	
4:45 PM	66	49	97	1	19	47	12	0	11	153	44	2	53	286	10	0	850	3252
5:00 PM	54	49	90	2	16	50	12	0	5	176	43	1	72	264	10	1	845	3302
5:15 PM	90	48	76	1	13	79	5	0	11	134	48	1	66	255	11	0	838	3308
5:30 PM	88	47	86	0	13	89	10	0	10	141	34	1	69	248	10	0	846	3379
5:45 PM	81	45	80	1	15	63	13	0	7	181	54	0	46	262	13	0	861	3390
6:00 PM	69	54	94	1	20	55	9	0	10	119	36	2	73	297	7	0	846	3391
6:15 PM	85	54	104	1	21	59	5	0	9	140	43	1	56	263	9	1	851	3404
6:30 PM	92	60	82	0	13	66	11	0	9	136	27	0	51	262	5	0	814	3372
6:45 PM	50	55	99	0	14	45	8	0	9	147	46	0	70	271	5	0	819	3330

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	324	180	320	4	60	252	52	0	28	724	216	0	184	1048	52	0	3444
Heavy Trucks	8	4	4		0	4	0		0	8	8		4	16	0		56
Pedestrians		0				4				12				4			20
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad Stopped Buses																	

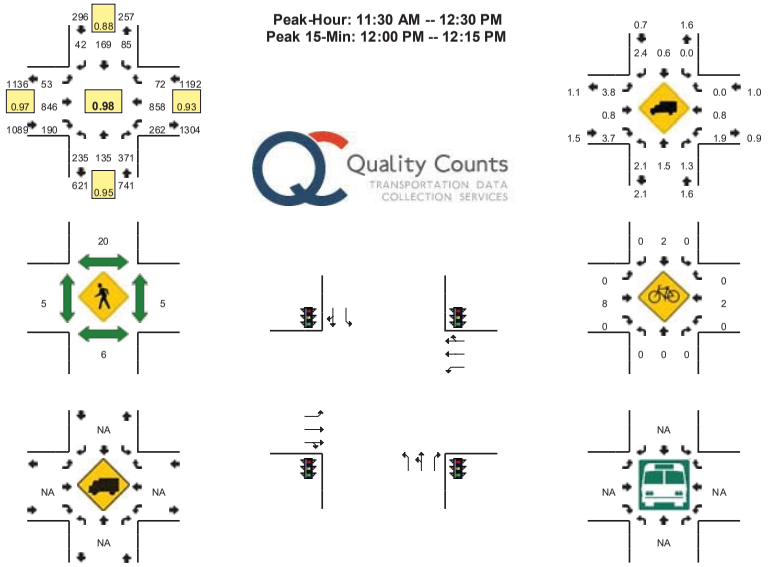
Comments:

Report generated on 5/27/2014 6:58 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Nutley St SW -- Route 123 | **QC JOB #:** 12465553
CITY/STATE: Vienna, VA | **DATE:** Sat, May 10 2014

Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 12:00 PM -- 12:15 PM



15-Min Count Period Beginning At	Nutley St SW (Northbound)				Nutley St SW (Southbound)				Route 123 (Eastbound)				Route 123 (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
11:00 AM	62	27	109	0	19	42	12	0	16	172	43	0	65	198	12	0	777	
11:15 AM	46	33	95	0	13	39	5	0	12	191	43	1	87	192	14	1	772	
11:30 AM	54	41	96	1	27	38	6	0	13	209	52	0	56	180	18	0	791	
11:45 AM	62	29	101	0	20	38	13	0	16	220	46	0	67	213	16	2	843	3183
12:00 PM	60	38	94	0	22	42	11	0	10	210	49	2	59	228	21	0	846	3252
12:15 PM	57	27	80	1	16	51	12	0	11	207	43	1	78	237	17	0	838	3318
12:30 PM	64	23	91	2	15	31	13	0	14	189	46	1	66	196	15	0	766	3293
12:45 PM	71	39	107	0	19	59	7	0	9	171	45	3	73	229	12	0	844	3294

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	240	152	376	0	88	168	44	0	40	840	196	8	236	912	84	0	3384
Heavy Trucks	0	4	4		0	0	0		4	20	8		8	4	0		52
Pedestrians		12				20				12				4			48
Bicycles	0	0	0		0	0	0		0	2	0		0	0	0		2
Railroad Stopped Buses																	

Comments:

Report generated on 5/27/2014 6:58 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Maple Ave. & James Madison Dr.
LOCATION: Fairfax County,VA

DATE: 1/27/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Luz & Eduvina
INPUTED BY: agan

SOUTHBOUND ROAD: Maple Avenue West - 123
NORTHBOUND ROAD: Chain Bridge Road - 123
WESTBOUND ROAD: Driveway
EASTBOUND ROAD: James Madison Drive - 7249

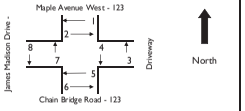
Time Period	Southbound Maple Avenue West - 123					Westbound Driveway					Northbound Chain Bridge Road - 123					Eastbound James Madison Drive - 7249					North & South	East & West	Total
	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF	Right	Thru	Left	Total	PHF			
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	3	23	7	33		1	1	4	6		8	131	9	148		2	2	6	10		181	16	197
6:15 AM - 6:30 AM	7	29	8	44		0	1	1	2		9	160	17	186		1	1	9	11		230	13	243
6:30 AM - 6:45 AM	42	46	9	97		0	1	0	1		12	232	17	261		4	1	9	14		358	15	373
6:45 AM - 7:00 AM	84	64	11	159		1	0	0	1		10	230	26	266		3	3	14	20		425	21	446
7:00 AM - 7:15 AM	70	97	7	174		0	1	1	2		6	248	20	274		13	0	9	22		448	24	472
7:15 AM - 7:30 AM	12	96	15	123		0	1	0	1		5	288	19	312		14	1	15	30		435	31	466
7:30 AM - 7:45 AM	19	91	13	123		1	0	2	3		9	256	26	291		17	0	7	24		414	27	441
7:45 AM - 8:00 AM	6	93	9	108		0	0	0	0		9	267	34	310		3	0	6	9		418	9	427
8:00 AM - 8:15 AM	8	101	8	117		1	0	1	2		6	251	40	297		12	1	3	16		414	18	432
8:15 AM - 8:30 AM	9	124	25	158		0	0	0	0		1	295	24	320		14	2	6	22		478	22	500
8:30 AM - 8:45 AM	11	110	13	134		2	0	1	3		13	271	21	305		16	0	8	24		439	27	466
8:45 AM - 9:00 AM	10	97	28	135		2	0	2	4		7	261	22	290		19	0	4	23		425	27	452
Total	281	971	153	1405		8	5	12	25		95	2890	275	3260		118	11	96	225		4665	250	4915
AM One Hour Volumes																							
6:00 AM - 7:00 AM	136	162	35	333	0.52	2	3	5	10	0.42	39	753	69	861	0.81	10	7	38	55	0.69	1194	65	1259
6:15 AM - 7:15 AM	203	236	35	474	0.68	1	3	2	6	0.75	37	870	80	987	0.90	21	5	41	67	0.76	1461	73	1534
6:30 AM - 7:30 AM	208	303	42	553	0.79	1	3	1	5	0.63	33	998	82	1113	0.89	34	5	47	86	0.72	1666	91	1757
6:45 AM - 7:45 AM	185	348	46	579	0.83	2	2	3	7	0.58	30	1022	91	1143	0.92	47	4	45	96	0.80	1722	103	1825
7:00 AM - 8:00 AM	**107**	**377**	**44**	**528**	**0.76**	**1**	**2**	**3**	**6**	**0.50**	**29**	**1059**	**99**	**1187**	**0.95**	**47**	**1**	**37**	**85**	**0.71**	**1715**	**91**	**1806**
7:15 AM - 8:15 AM	45	381	45	471	0.96	2	1	3	6	0.50	29	1062	119	1210	0.97	46	2	31	79	0.66	1681	85	1766
7:30 AM - 8:30 AM	42	409	55	506	0.80	2	0	3	5	0.42	25	1069	124	1218	0.95	46	3	22	71	0.74	1724	76	1800
7:45 AM - 8:45 AM	34	428	55	517	0.82	3	0	2	5	0.42	29	1084	119	1232	0.96	45	3	23	71	0.74	1749	76	1825
8:00 AM - 9:00 AM	38	432	74	544	0.86	5	0	4	9	0.56	27	1078	107	1212	0.95	61	3	21	85	0.89	1756	94	1850
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	19	268	27	314		0	1	0	1		7	147	23	177		18	0	3	21		491	22	513
4:15 PM - 4:30 PM	10	316	10	336		0	0	4	4		10	142	11	163		18	2	7	27		499	31	530
4:30 PM - 4:45 PM	23	291	18	332		2	0	3	5		7	132	17	156		18	1	7	26		488	31	519
4:45 PM - 5:00 PM	12	242	17	271		1	0	0	1		12	147	18	177		14	1	7	22		448	23	471
5:00 PM - 5:15 PM	11	273	20	304		0	1	4	5		5	177	26	208		21	0	6	27		512	32	544
5:15 PM - 5:30 PM	10	274	15	299		5	0	3	8		2	159	26	187		11	0	11	22		486	30	516
5:30 PM - 5:45 PM	7	276	12	295		0	0	0	0		5	154	23	182		32	0	6	38		477	38	515
5:45 PM - 6:00 PM	19	281	5	305		2	1	0	3		7	186	25	218		26	1	5	32		523	35	558
6:00 PM - 6:15 PM	14	274	13	301		0	1	0	1		6	125	18	149		19	0	3	22		450	23	473
6:15 PM - 6:30 PM	41	256	11	308		0	0	2	2		5	131	24	160		13	0	8	21		468	23	491
6:30 PM - 6:45 PM	15	269	14	298		3	0	3	6		8	133	16	157		24	1	4	29		455	35	490
6:45 PM - 7:00 PM	12	233	6	251		0	0	1	1		1	119	23	143		15	0	5	20		394	21	415
Total	193	3253	168	3614		13	4	20	37		75	1752	250	2077		229	6	72	307		5691	344	6035
PM One Hour Volumes																							
4:00 PM - 5:00 PM	64	1117	72	1253	0.93	3	1	7	11	0.55	36	568	69	673	0.95	68	4	24	96	0.89	1926	107	2033
4:15 PM - 5:15 PM	56	1122	65	1243	0.92	3	1	11	15	0.75	34	598	72	704	0.85	71	4	27	102	0.94	1947	117	2064
4:30 PM - 5:30 PM	56	1080	70	1206	0.91	8	1	10	19	0.59	26	615	87	728	0.88	64	2	31	97	0.90	1934	116	2050
4:45 PM - 5:45 PM	40	1065	64	1169	0.96	6	1	7	14	0.44	24	637	93	754	0.91	78	1	30	109	0.72	1923	123	2046
5:00 PM - 6:00 PM	47	1104	52	1203	0.99	7	2	7	16	0.50	19	676	100	795	0.91	90	1	28	119	0.78	1998	135	2133
5:15 PM - 6:15 PM	50	1105	45	1200	0.98	7	2	3	12	0.38	20	624	92	736	0.84	88	1	25	114	0.75	1936	126	2062
5:30 PM - 6:30 PM	**81**	**1087**	**41**	**1209**	**0.98**	**2**	**2**	**2**	**6**	**0.50**	**23**	**596**	**90**	**709**	**0.81**	**90**	**1**	**22**	**113**	**0.74**	**1918**	**119**	**2037**
5:45 PM - 6:45 PM	89	1080	43	1212	0.98	5	2	5	12	0.50	26	575	83	684	0.78	82	2	20	104	0.81	1896	116	2012
6:00 PM - 7:00 PM	82	1032	44	1158	0.94	3	1	6	10	0.42	20	508	81	609	0.95	71	1	20	92	0.79	1767	102	1869

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Maple Ave. & James Madison Dr.
LOCATION: Fairfax County,VA
DATE: 1/27/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
AM 15 Minute Volumes													
6:00 AM - 6:15 AM							1						
6:15 AM - 6:30 AM	1	1	1				4						
6:30 AM - 6:45 AM			1				3	8					
6:45 AM - 7:00 AM	4		4	2		2	1	1					
7:00 AM - 7:15 AM	8	1	1				9	1					
7:15 AM - 7:30 AM					1		3	4					
7:30 AM - 7:45 AM							3						
7:45 AM - 8:00 AM		1	1	1	1	1	3						
8:00 AM - 8:15 AM		1		1		1	6	3					
8:15 AM - 8:30 AM							3	1					
8:30 AM - 8:45 AM			1				1	2					
8:45 AM - 9:00 AM		4					8	2					
Total	13	8	9	4	2	4	45	22					
AM One Hour Volumes													
6:00 AM - 7:00 AM	5	1	6	2	0	2	9	9	6	8	2	18	34
6:15 AM - 7:15 AM	13	2	7	2	0	2	17	10	15	9	2	27	53
6:30 AM - 7:30 AM	12	1	6	2	1	2	16	14	13	8	3	30	54
6:45 AM - 7:45 AM	12	1	5	2	1	2	16	6	13	7	3	22	45
7:00 AM - 8:00 AM	**8**	**2**	**2**	**1**	**2**	**1**	**18**	**5**	**10**	**3**	**3**	**23**	**39**
7:15 AM - 8:15 AM	0	2	1	2	2	2	15	7	2	3	4	22	31
7:30 AM - 8:30 AM	0	2	1	2	1	2	15	4	2	3	3	19	27
7:45 AM - 8:45 AM	0	2	2	2	1	2	13	6	2	4	3	19	28
8:00 AM - 9:00 AM	0	5	1	1	0	1	18	8	5	2	1	26	34
PM 15 Minute Volumes													
4:00 PM - 4:15 PM		1	4				3	9					
4:15 PM - 4:30 PM	2	4	2	1			4	3					
4:30 PM - 4:45 PM	5	2	2				7	4					
4:45 PM - 5:00 PM	4		1				5	3					
5:00 PM - 5:15 PM	1	1					2	7					
5:15 PM - 5:30 PM		1	2				7	3					
5:30 PM - 5:45 PM	5						2	6					
5:45 PM - 6:00 PM	1	1		3			5	4					
6:00 PM - 6:15 PM	1		3	1	1		1	7					
6:15 PM - 6:30 PM	1						2	3					
6:30 PM - 6:45 PM	5						4	9					
6:45 PM - 7:00 PM		2					6	3					
Total	25	12	14	5	1	0	48	61					
PM One Hour Volumes													
4:00 PM - 5:00 PM	11	7	9	1	0	0	19	19	18	10	0	38	66
4:15 PM - 5:15 PM	12	7	5	1	0	0	18	17	19	6	0	35	60
4:30 PM - 5:30 PM	10	4	5	0	0	0	21	17	14	5	0	38	57
4:45 PM - 5:45 PM	10	2	3	0	0	0	16	19	12	3	0	35	50
5:00 PM - 6:00 PM	7	3	2	3	0	0	16	20	10	5	0	36	51
5:15 PM - 6:15 PM	7	2	5	4	1	0	15	20	9	9	1	35	54
5:30 PM - 6:30 PM	**8**	**1**	**3**	**4**	**1**	**0**	**10**	**20**	**9**	**7**	**1**	**30**	**47**
5:45 PM - 6:45 PM	8	1	3	4	1	0	12	23	9	7	1	35	52
6:00 PM - 7:00 PM	7	2	3	1	1	0	13	22	9	4	1	35	49

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Maple Ave. & James Madison Dr.
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Irman & Amar
INPUTED BY: agan

SOUTHBOUND ROAD: Maple Avenue West - 123
NORTHBOUND ROAD: Chain Bridge Road - 123
WESTBOUND ROAD: Driveway
EASTBOUND ROAD: James Madison Drive - 7249

Time Period	Southbound Maple Avenue West - 123					Westbound Driveway					Northbound Chain Bridge Road - 123					Eastbound James Madison Drive - 7249					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			
15 Minute Volumes																							
10:00 AM - 10:15 AM	3	128	30	161		5		4	9		10	172	21	203		3	1	6	10		364	19	383
10:15 AM - 10:30 AM	4	145	35	184		3		6	9		11	141	11	163		5		6	11		347	20	367
10:30 AM - 10:45 AM	6	133	29	168		3		4	7		10	161	13	184		6	1	7	14		352	21	373
10:45 AM - 11:00 AM	11	149	30	190		1		3	4		7	153	10	170		8		13	21		360	25	385
11:00 AM - 11:15 AM	6	158	37	201		1	1	7	9		12	171	13	196		12	1	9	22		397	31	428
11:15 AM - 11:30 AM	3	175	26	204		1		5	6		7	163	11	181		7	3	3	13		385	19	404
11:30 AM - 11:45 AM	3	160	37	200		3		2	5		13	218	18	249		13		5	18		449	23	472
11:45 AM - 12:00 PM	8	186	33	227		3		6	9		11	189	13	213		5	1	6	12		440	21	461
12:00 PM - 12:15 PM	7	207	45	259		1	1	6	8		7	194	25	226		13		9	22		485	30	515
12:15 PM - 12:30 PM	3	187	49	239		3		2	5		12	210	17	239		12		2	14		478	19	497
12:30 PM - 12:45 PM	3	191	28	222		5		3	8		12	217	21	250		9		6	15		472	23	495
12:45 PM - 1:00 PM	4	190	32	226		5		5	10		16	195	27	238		10	1	3	14		464	24	488
1:00 PM - 1:15 PM	3	207	43	253		1		4	5		6	193	19	218		9		3	12		471	17	488
1:15 PM - 1:30 PM	7	202	43	252		2		4	6		12	195	26	233		9	1	2	12		485	18	503
1:30 PM - 1:45 PM	3	196	46	245		3	2	5	10		7	179	21	207		15	1	6	22		452	32	484
1:45 PM - 2:00 PM	4	235	36	275		5		6	11		6	197	21	224		3	1	4	8		499	19	518
2:00 PM - 2:15 PM	7	236	39	282		2		5	7		9	167	22	198		11	1	5	17		480	24	504
2:15 PM - 2:30 PM	3	206	34	243		2	1	4	7		7	163	18	188		10	1	6	17		431	24	455
2:30 PM - 2:45 PM	11	187	40	238		3		2	5		9	184	24	217		10	1	4	15		455	20	475
2:45 PM - 3:00 PM	3	207	43	253		4		3	7		15	147	19	181		9		2	11		434	18	452
-																							
-																							
-																							
-																							
Total	102	3685	735	4522		56	5	86	147		199	3609	370	4178		179	14	107	300		8700	447	9147
One Hour Volumes																							
10:00 AM - 11:00 AM	24	555	124	703	0.925	12		17	29	0.8056	38	627	55	720	0.8867	22	2	32	56	0.6667	1423	85	1508
10:15 AM - 11:15 AM	27	585	131	743	0.9241	8	1	20	29	0.8056	40	626	47	713	0.9094	31	2	35	68	0.7727	1456	97	1553
10:30 AM - 11:30 AM	26	615	122	763	0.935	6	1	19	26	0.7222	36	648	47	731	0.9324	33	5	32	70	0.7955	1494	96	1590
10:45 AM - 11:45 AM	23	642	130	795	0.9743	6	1	17	24	0.6667	39	705	52	796	0.7992	40	4	30	74	0.8409	1591	98	1689
11:00 AM - 12:00 PM	20	679	133	832	0.9163	8	1	20	29	0.8056	43	741	55	839	0.8424	37	5	23	65	0.7386	1671	94	1765
11:15 AM - 12:15 PM	21	728	141	890	0.8591	8	1	19	28	0.7778	38	764	67	869	0.8725	38	4	23	65	0.7386	1759	93	1852
11:30 AM - 12:30 PM	**21**	**740**	**164**	**925**	**0.893**	**10**	**1**	**16**	**27**	**0.75**	**43**	**811**	**73**	**927**	**0.931**	**43**	**1**	**22**	**66**	**0.75**	**1852**	**93**	**1945**
11:45 AM - 12:45 PM	21	771	155	947	0.9141	12	1	17	30	0.8333	42	810	76	928	0.928	39	1	23	63	0.7159	1875	93	1968
12:00 PM - 1:00 PM	17	775	154	946	0.9131	14	1	16	31	0.775	47	816	90	953	0.953	44	1	20	65	0.7386	1899	96	1995
12:15 PM - 1:15 PM	13	775	152	940	0.9289	14		14	28	0.7	46	815	84	945	0.945	40	1	14	55	0.9167	1885	83	1968
12:30 PM - 1:30 PM	17	790	146	953	0.9417	13		16	29	0.725	46	800	93	939	0.939	37	2	14	53	0.8833	1892	82	1974
12:45 PM - 1:45 PM	17	795	164	976	0.9644	11	2	18	31	0.775	41	762	93	896	0.9412	43	3	14	60	0.6818	1872	91	1963
1:00 PM - 2:00 PM	17	840	168	1025	0.9318	11	2	19	32	0.7273	31	764	87	882	0.9464	36	3	15	54	0.6136	1907	86	1993
1:15 PM - 2:15 PM	21	869	164	1054	0.9344	12	2	20	34	0.7727	34	738	90	862	0.9249	38	4	17	59	0.6705	1916	93	2009
1:30 PM - 2:30 PM	17	873	155	1045	0.9264	12	3	20	35	0.7955	29	706	82	817	0.9118	39	4	21	64	0.7273	1862	99	1961
1:45 PM - 2:45 PM	25	864	149	1038	0.9202	12	1	17	30	0.6818	31	711	85	827	0.923	34	4	19	57	0.8382	1865	87	1952
2:00 PM - 3:00 PM	24	836	156	1016	0.9007	11	1	14	26	0.9286	40	661	83	784	0.9032	40	3	17	60	0.8824	1800	86	1886
-	17	600	117	734	0.7253	9	1	9	19	0.6786	31	494	61	586	0.6751	29	2	12	43	0.6324	1320	62	1382
-	14	394	83	491	0.4852	7		5	12	0.4286	24	331	43	398	0.4585	19	1	6	26	0.4333	889	38	927
-	3	207	43	253	0.25	4		3	7	0.25	15	147	19	181	0.25	9		2	11	0.25	434	18	452
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Maple Ave. & James Madison Dr.
LOCATION: Fairfax County,VA

DATE: 1/27/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Eduvina
INPUTED BY: agan

SOUTHBOUND ROAD: Maple Avenue West - 123
NORTHBOUND ROAD: Chain Bridge Road - 123
WESTBOUND ROAD: Driveway
EASTBOUND ROAD: James Madison Drive - 7249

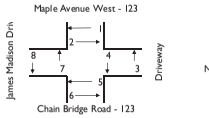
Time Period	Southbound Maple Avenue West - 123				Westbound Driveway				Northbound Chain Bridge Road - 123				Eastbound James Madison Drive - 7249				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
6:00 AM - 6:15 AM				0				0				0				0	0	0	0
6:15 AM - 6:30 AM				0				0				0		1		1	0	1	1
6:30 AM - 6:45 AM				0				0			1	1	1			1	1	1	2
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0		1		1	2			2	1	2	3
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0		1		1				0	1	0	1
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM		1		1				0				0				0	1	0	1
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM		1		1				0				0				0	1	0	1
Total	0	2	0	2	0	0	0	0	0	2	1	3	3	1	0	4	5	4	9
AM One Hour Volumes																			
6:00 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	2	1	2	3
6:15 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	2	1	2	3
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	1	1	2	3	0	0	3	2	3	5
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	2	1	2	3
7:00 AM - 8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**2**	**0**	**0**	**2**	**2**	**2**	**4**
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	2	0	2	2	0	0	2	2	2	4
7:30 AM - 8:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
7:45 AM - 8:45 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2	0	2
8:00 AM - 9:00 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM		3		3				0		1		1				0	4	0	4
4:15 PM - 4:30 PM				0				0		2		2				0	2	0	2
4:30 PM - 4:45 PM		2		2				0		2		2				0	4	0	4
4:45 PM - 5:00 PM		2		2				0				0				0	2	0	2
5:00 PM - 5:15 PM				0				0		2		2				0	2	0	2
5:15 PM - 5:30 PM	1			1				0		1		1				0	2	0	2
5:30 PM - 5:45 PM		1		1				0				0				0	1	0	1
5:45 PM - 6:00 PM		1		1				0				0				0	1	0	1
6:00 PM - 6:15 PM		1		1	1			1		1		1				0	2	1	3
6:15 PM - 6:30 PM		1		1				0		1		1				0	2	0	2
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	1	11	0	12	1	0	0	1	0	10	0	10	0	0	0	0	22	1	23
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	7	0	7	0	0	0	0	0	5	0	5	0	0	0	0	12	0	12
4:15 PM - 5:15 PM	0	4	0	4	0	0	0	0	0	6	0	6	0	0	0	0	10	0	10
4:30 PM - 5:30 PM	1	4	0	5	0	0	0	0	0	5	0	5	0	0	0	0	10	0	10
4:45 PM - 5:45 PM	1	3	0	4	0	0	0	0	0	3	0	3	0	0	0	0	7	0	7
5:00 PM - 6:00 PM	1	2	0	3	0	0	0	0	0	3	0	3	0	0	0	0	6	0	6
5:15 PM - 6:15 PM	1	3	0	4	1	0	0	1	0	2	0	2	0	0	0	0	6	1	7
5:30 PM - 6:30 PM	**0**	**4**	**0**	**4**	**1**	**0**	**0**	**1**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**6**	**1**	**7**
5:45 PM - 6:45 PM	0	3	0	3	1	0	0	1	0	2	0	2	0	0	0	0	5	1	6
6:00 PM - 7:00 PM	0	2	0	2	1	0	0	1	0	2	0	2	0	0	0	0	4	1	5

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Chik-fil-A Car Wash
W + A JOB NO: 6268
INTERSECTION: Maple Ave. & James Madison Dr.
LOCATION: Fairfax County,VA
DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Irman
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1+2	3+4	5+6	7+8	Total
15 Minute Volumes													
10:00 AM - 10:15 AM	1			1			2						
10:15 AM - 10:30 AM							2	2					
10:30 AM - 10:45 AM	1	1	1				2	4					
10:45 AM - 11:00 AM	2	1		1			1	4					
11:00 AM - 11:15 AM	1						1	3					
11:15 AM - 11:30 AM	2			1			2	1					
11:30 AM - 11:45 AM		3	1	1			5						
11:45 AM - 12:00 PM		3		1			6	1					
12:00 PM - 12:15 PM				2									
12:15 PM - 12:30 PM		3					1						
12:30 PM - 12:45 PM	4	4					4	1					
12:45 PM - 1:00 PM							4	3					
1:00 PM - 1:15 PM							1	4					
1:15 PM - 1:30 PM							5	2					
1:30 PM - 1:45 PM				4	2		3	2					
1:45 PM - 2:00 PM				4			2	3					
2:00 PM - 2:15 PM	3	1					1						
2:15 PM - 2:30 PM	1	5					1	4					
2:30 PM - 2:45 PM	1	2					5	3					
2:45 PM - 3:00 PM	2				1		4	4					
-													
-													
-													
-													
Total	18	23	11	8	1	0	52	41					
One Hour Volumes													
10:00 AM - 11:00 AM	4	2	2	1			7	10	6	3		17	26
10:15 AM - 11:15 AM	4	2	1	1			6	13	6	2		19	27
10:30 AM - 11:30 AM	6	2	1	2			6	12	8	3		18	29
10:45 AM - 11:45 AM	5	4	1	3			9	8	9	4		17	30
11:00 AM - 12:00 PM	3	6	1	3			14	5	9	4		19	32
11:15 AM - 12:15 PM	2	6	1	5			13	2	8	6		15	29
11:30 AM - 12:30 PM		**9**	**1**	**4**			**12**	**1**	**9**	**5**		**13**	**27**
11:45 AM - 12:45 PM	4	10		3			11	2	14	3		13	30
12:00 PM - 1:00 PM	4	7		2			9	4	11	2		13	26
12:15 PM - 1:15 PM	4	7					10	8	11			18	29
12:30 PM - 1:30 PM	4	4					14	10	8			24	32
12:45 PM - 1:45 PM			4	2			13	11		6		24	30
1:00 PM - 2:00 PM			8	2			11	11		10		22	32
1:15 PM - 2:15 PM	3	1	8	2			11	7	4	10		18	32
1:30 PM - 2:30 PM	4	6	8	2			7	9	10	10		16	36
1:45 PM - 2:45 PM	5	8	4				9	10	13	4		19	36
2:00 PM - 3:00 PM	7	8			1		11	11	15		1	22	38
-	4	7			1		10	11	11		1	21	33
-	3	2			1		9	7	5		1	16	22
-	2				1		4	4	2		1	8	11
-													

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & McDonalds Driveway
LOCATION: Fairfax County,VA
DATE: 2/3/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan
SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: McDonalds Driveways
EASTBOUND ROAD: Driveway

Time Period	Southbound Service Drive Right	Thru	Left	Total	PHF	Westbound McDonalds Driveways Right	Thru	Left	Total	PHF	Northbound Service Drive Right	Thru	Left	Total	PHF	Eastbound Driveway Right	Thru	Left	Total	PHF	North & South	East & West	Total
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	6	0	0	6		10	0	7	17		0	0	0	0		0	13	1	14		6	31	37
6:15 AM - 6:30 AM	0	0	0	0		14	0	0	14		0	1	0	1		0	14	3	17		1	31	32
6:30 AM - 6:45 AM	3	0	0	3		12	0	5	17		0	0	0	0		0	13	2	15		3	32	35
6:45 AM - 7:00 AM	2	0	0	2		16	0	4	20		0	0	0	0		0	16	3	19		2	39	41
7:00 AM - 7:15 AM	5	0	0	5		14	0	8	22		3	0	1	4		3	9	1	13		9	35	44
7:15 AM - 7:30 AM	3	0	1	4		12	0	4	16		0	0	0	0		3	15	0	18		4	34	38
7:30 AM - 7:45 AM	5	0	0	5		17	0	5	22		2	0	1	3		5	19	0	24		8	46	54
7:45 AM - 8:00 AM	2	0	0	2		13	0	6	19		1	2	0	3		4	13	1	18		5	37	42
8:00 AM - 8:15 AM	3	0	0	3		16	0	5	21		5	0	0	5		3	15	3	21		8	42	50
8:15 AM - 8:30 AM	5	1	2	8		11	0	5	16		2	3	0	5		1	13	7	21		13	37	50
8:30 AM - 8:45 AM	6	1	0	7		20	0	12	32		2	2	2	6		4	21	5	30		13	62	75
8:45 AM - 9:00 AM	6	1	0	7		18	0	7	25		1	5	0	6		3	18	7	28		13	53	66
Total	46	3	3	52		173	0	68	241		16	13	4	33		26	179	33	238		85	479	564
AM One Hour Volumes																							
6:00 AM - 7:00 AM	11	0	0	11	0.46	52	0	16	68	0.85	0	1	0	1	0.25	0	56	9	65	0.86	12	133	145
6:15 AM - 7:15 AM	10	0	0	10	0.50	56	0	17	73	0.83	3	1	1	5	0.31	3	52	9	64	0.84	15	137	152
6:30 AM - 7:30 AM	13	0	1	14	0.70	54	0	21	75	0.85	3	0	1	4	0.25	6	53	6	65	0.86	18	140	158
6:45 AM - 7:45 AM	15	0	1	16	0.80	59	0	21	80	0.91	5	0	2	7	0.44	11	59	4	74	0.77	23	154	177
7:00 AM - 8:00 AM	**15**	**0**	**1**	**16**	**0.80**	**56**	**0**	**23**	**79**	**0.90**	**6**	**2**	**2**	**10**	**0.63**	**15**	**56**	**2**	**73**	**0.76**	**26**	**152**	**178**
7:15 AM - 8:15 AM	13	0	1	14	0.70	58	0	20	78	0.89	8	2	1	11	0.55	15	62	4	81	0.84	25	159	184
7:30 AM - 8:30 AM	15	1	2	18	0.56	57	0	21	78	0.89	10	5	1	16	0.80	13	60	11	84	0.88	34	162	196
7:45 AM - 8:45 AM	16	2	2	20	0.63	60	0	28	88	0.69	10	7	2	19	0.79	12	62	16	90	0.75	39	178	217
8:00 AM - 9:00 AM	20	3	2	25	0.78	65	0	29	94	0.73	10	10	2	22	0.92	11	67	22	100	0.83	47	194	241
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	3	3		13	0	4	17		0	1	1	2		5	10	11	26		5	43	48
4:15 PM - 4:30 PM	9	3	0	12		14	0	6	20		2	3	0	5		0	14	11	25		17	45	62
4:30 PM - 4:45 PM	7	2	0	9		11	0	5	16		0	3	3	6		1	13	9	23		15	39	54
4:45 PM - 5:00 PM	3	1	1	5		6	0	7	13		2	0	0	2		4	10	13	27		7	40	47
5:00 PM - 5:15 PM	7	1	0	8		7	0	8	15		2	3	1	6		1	14	10	25		14	40	54
5:15 PM - 5:30 PM	7	3	1	11		3	0	2	5		0	1	0	1		3	6	7	16		12	21	33
5:30 PM - 5:45 PM	3	0	1	4		3	0	3	6		1	2	0	3		2	7	5	14		7	20	27
5:45 PM - 6:00 PM	4	2	0	6		7	0	4	11		2	0	4	6		2	9	7	18		12	29	41
6:00 PM - 6:15 PM	5	0	0	5		7	0	4	11		3	0	0	3		1	11	6	18		8	29	37
6:15 PM - 6:30 PM	0	2	0	2		4	0	3	7		2	0	0	2		1	12	3	16		4	23	27
6:30 PM - 6:45 PM	10	0	0	10		6	0	11	17		0	1	1	2		0	16	4	20		12	37	49
6:45 PM - 7:00 PM	5	1	0	6		6	0	4	10		0	1	1	2		0	7	1	8		8	18	26
Total	60	15	6	81		87	0	61	148		14	15	11	40		20	129	87	236		121	384	505
PM One Hour Volumes																							
4:00 PM - 5:00 PM	19	6	4	29	0.60	44	0	22	66	0.83	4	7	4	15	0.63	10	47	44	101	0.94	44	167	211
4:15 PM - 5:15 PM	26	7	1	34	0.71	38	0	26	64	0.80	6	9	4	19	0.79	6	51	43	100	0.93	53	164	217
4:30 PM - 5:30 PM	24	7	2	33	0.75	27	0	22	49	0.77	4	7	4	15	0.63	9	43	39	91	0.84	48	140	188
4:45 PM - 5:45 PM	20	5	3	28	0.64	19	0	20	39	0.65	5	6	1	12	0.50	10	37	35	82	0.76	40	121	161
5:00 PM - 6:00 PM	21	6	2	29	0.66	20	0	17	37	0.62	5	6	5	16	0.67	8	36	29	73	0.73	45	110	155
5:15 PM - 6:15 PM	19	5	2	26	0.59	20	0	13	33	0.75	6	3	4	13	0.54	8	33	25	66	0.92	39	99	138
5:30 PM - 6:30 PM	**12**	**4**	**1**	**17**	**0.71**	**21**	**0**	**14**	**35**	**0.80**	**8**	**2**	**4**	**14**	**0.58**	**6**	**39**	**21**	**66**	**0.92**	**31**	**101**	**132**
5:45 PM - 6:45 PM	19	4	0	23	0.58	24	0	22	46	0.68	7	1	5	13	0.54	4	48	20	72	0.90	36	118	154
6:00 PM - 7:00 PM	20	3	0	23	0.58	23	0	22	45	0.66	5	2	2	9	0.75	2	46	14	62	0.78	32	107	139

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & McDonalds Driveway
LOCATION: Fairfax County, VA

DATE: 2/3/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: McDonalds Driveways
EASTBOUND ROAD: Driveway

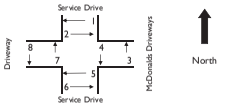
Time Period	Southbound Service Drive				Westbound McDonalds Driveways				Northbound Service Drive				Eastbound Driveway				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
6:00 AM - 6:15 AM				0				0				0				0	0	0	0
6:15 AM - 6:30 AM				0				0		1		1				0	1	0	1
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0				0				0				0	0	0	0
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM				0				0				0				0	0	0	0
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0	1			1		1		1				0	1	1	2
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
Total	0	0	0	0	1	0	0	1	0	2	0	2	0	0	0	0	2	1	3
AM One Hour Volumes																			
6:00 AM - 7:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
6:15 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
6:30 AM - 7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM - 8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM - 8:30 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	1	1	2
7:45 AM - 8:45 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	1	1	2
8:00 AM - 9:00 AM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	1	1	2
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM		2		2	1			1		1		1				0	3	1	4
4:15 PM - 4:30 PM				0				0		1		1				0	1	0	1
4:30 PM - 4:45 PM		1		1				0				0				0	1	0	1
4:45 PM - 5:00 PM		1		1				0				0				0	1	0	1
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM				0				0				0				0	0	0	0
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM	1			1		1		1				0				0	1	1	2
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	1	4	0	5	1	1	0	2	0	2	0	2	0	0	0	0	7	2	9
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	4	0	4	1	0	0	1	0	2	0	2	0	0	0	0	6	1	7
4:15 PM - 5:15 PM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3	0	3
4:30 PM - 5:30 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
4:45 PM - 5:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM - 6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM - 6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM - 6:30 PM	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**2**
5:45 PM - 6:45 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1	2
6:00 PM - 7:00 PM	1	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	1	1	2

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & McDonalds Driveway
LOCATION: Fairfax County, VA
DATE: 2/3/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1+2	3+4	5+6	7+8	Total
AM 15 Minute Volumes													
6:00 AM - 6:15 AM													
6:15 AM - 6:30 AM						1		3					
6:30 AM - 6:45 AM							1						
6:45 AM - 7:00 AM							1						
7:00 AM - 7:15 AM					5	1	1	1					
7:15 AM - 7:30 AM													
7:30 AM - 7:45 AM													
7:45 AM - 8:00 AM				1			1						
8:00 AM - 8:15 AM			2	1		1		1					
8:15 AM - 8:30 AM													
8:30 AM - 8:45 AM													
8:45 AM - 9:00 AM													
Total	0	0	2	2	5	3	4	5					
AM One Hour Volumes													
6:00 AM - 7:00 AM	0	0	0	0	0	1	2	3	0	0	1	5	6
6:15 AM - 7:15 AM	0	0	0	0	5	2	3	4	0	0	7	7	14
6:30 AM - 7:30 AM	0	0	0	0	5	1	3	1	0	0	6	4	10
6:45 AM - 7:45 AM	0	0	0	0	5	1	2	1	0	0	6	3	9
7:00 AM - 8:00 AM	**0**	**0**	**0**	**1**	**5**	**1**	**2**	**1**	**0**	**1**	**6**	**3**	**10**
7:15 AM - 8:15 AM	0	0	2	2	0	1	1	1	0	4	1	2	7
7:30 AM - 8:30 AM	0	0	2	2	0	1	1	1	0	4	1	2	7
7:45 AM - 8:45 AM	0	0	2	2	0	1	1	1	0	4	1	2	7
8:00 AM - 9:00 AM	0	0	2	1	0	1	0	1	0	3	1	1	5
PM 15 Minute Volumes													
4:00 PM - 4:15 PM		1					2	1					
4:15 PM - 4:30 PM	2	1		1	2	4	4	1					
4:30 PM - 4:45 PM	1		1		5	2	2	1					
4:45 PM - 5:00 PM					4		1						
5:00 PM - 5:15 PM								1					
5:15 PM - 5:30 PM													
5:30 PM - 5:45 PM					3								
5:45 PM - 6:00 PM					1								
6:00 PM - 6:15 PM	1					1	1	3					
6:15 PM - 6:30 PM	1							1					
6:30 PM - 6:45 PM					3								
6:45 PM - 7:00 PM					2	2							
Total	5	2	1	1	20	9	10	8					
PM One Hour Volumes													
4:00 PM - 5:00 PM	3	2	1	1	11	6	9	3	5	2	17	12	36
4:15 PM - 5:15 PM	3	1	1	1	11	6	7	3	4	2	17	10	33
4:30 PM - 5:30 PM	1	0	1	0	9	2	3	2	1	1	11	5	18
4:45 PM - 5:45 PM	0	0	0	0	7	0	1	1	0	0	7	2	9
5:00 PM - 6:00 PM	0	0	0	0	4	0	0	1	0	0	4	1	5
5:15 PM - 6:15 PM	1	0	0	0	4	1	1	3	1	0	5	4	10
5:30 PM - 6:30 PM	**2**	**0**	**0**	**0**	**4**	**1**	**1**	**4**	**2**	**0**	**5**	**5**	**12**
5:45 PM - 6:45 PM	2	0	0	0	4	1	1	4	2	0	5	5	12
6:00 PM - 7:00 PM	2	0	0	0	5	3	1	4	2	0	8	5	15

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & McDonalds Driveway
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: McDonalds Driveway

Time Period	Southbound Service Drive					Westbound 0					Northbound Service Drive					Eastbound McDonalds 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			
15 Minute Volumes																							
10:00 AM - 10:15 AM	1	5		6		17		9	26		3	3		6		1	17	11	29		12	55	67
10:15 AM - 10:30 AM	6	1	1	8		10		8	18		1	3		4		1	19	15	35		12	53	65
10:30 AM - 10:45 AM	6			6		11		7	18		1	2		3		3	10	17	30		9	48	57
10:45 AM - 11:00 AM	2			2		10		3	13			2	1	3			6	9	15		5	28	33
11:00 AM - 11:15 AM	6	2		8		8		3	11			1	1	2			10	13	23		10	34	44
11:15 AM - 11:30 AM	8	1		9		8		3	11		1	4		5		3	5	17	25		14	36	50
11:30 AM - 11:45 AM	3	1	1	5		8		4	12		1	1		2		1	18	17	36		7	48	55
11:45 AM - 12:00 PM	10	1		11		11		7	18			1	1	2		3	15	21	39		13	57	70
12:00 PM - 12:15 PM	7	4	1	12		10		6	16			1	1	2		2	15	20	37		14	53	67
12:15 PM - 12:30 PM	5	1		6		16		5	21		1	1	1	3		2	22	26	50		9	71	80
12:30 PM - 12:45 PM	8	6	4	18		7		12	19		2	1		3		2	18	14	34		21	53	74
12:45 PM - 1:00 PM	8	6	3	17		10		4	14		1	1		2		3	8	18	29		19	43	62
1:00 PM - 1:15 PM	7			7		4		6	10		1	4		5		2	12	20	34		12	44	56
1:15 PM - 1:30 PM	6	4		10		9		1	10		3	3	3	9		5	13	22	40		19	50	69
1:30 PM - 1:45 PM	6	3	1	10		14		5	19			2	4	6		1	16	25	42		16	61	77
1:45 PM - 2:00 PM	5	2		7		8		4	12			4	3	7		1	7	20	28		14	40	54
2:00 PM - 2:15 PM	5	1	2	8		9		4	13				1	1		1	10	20	31		9	44	53
2:15 PM - 2:30 PM	5	2	1	8		10		1	11		1	3	2	6		3	6	17	26		14	37	51
2:30 PM - 2:45 PM	7	4		11		7		5	12			1	1	2		1	13	24	38		13	50	63
2:45 PM - 3:00 PM	3	3	6	12		8		3	11		1	2	3	6		2	9	17	28		18	39	57
-																							
-																							
-																							
-																							
Total	114	47	20	181		195	0	100	295		17	40	22	79		37	249	363	649		260	944	1204

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & McDonalds Driveway
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: McDonalds Driveway

Time Period	Southbound Service Drive					Westbound 0					Northbound Service Drive					Eastbound McDonalds 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			
15 Minute Volumes																							
10:00 AM - 10:15 AM	1	5		6		17		9	26		3	3		6		1	17	11	29		12	55	67
10:15 AM - 10:30 AM	6	1	1	8		10		8	18		1	3		4		1	19	15	35		12	53	65
10:30 AM - 10:45 AM	6			6		11		7	18		1	2		3		3	10	17	30		9	48	57
10:45 AM - 11:00 AM	2			2		10		3	13			2	1	3			6	9	15		5	28	33
11:00 AM - 11:15 AM	6	2		8		8		3	11			1	1	2			10	13	23		10	34	44
11:15 AM - 11:30 AM	8	1		9		8		3	11		1	4		5		3	5	17	25		14	36	50
11:30 AM - 11:45 AM	3	1	1	5		8		4	12		1	1		2		1	18	17	36		7	48	55
11:45 AM - 12:00 PM	10	1		11		11		7	18			1	1	2		3	15	21	39		13	57	70
12:00 PM - 12:15 PM	7	4	1	12		10		6	16			1	1	2		2	15	20	37		14	53	67
12:15 PM - 12:30 PM	5	1		6		16		5	21		1	1	1	3		2	22	26	50		9	71	80
12:30 PM - 12:45 PM	8	6	4	18		7		12	19		2	1		3		2	18	14	34		21	53	74
12:45 PM - 1:00 PM	8	6	3	17		10		4	14		1	1		2		3	8	18	29		19	43	62
1:00 PM - 1:15 PM	7			7		4		6	10		1	4		5		2	12	20	34		12	44	56
1:15 PM - 1:30 PM	6	4		10		9		1	10		3	3	3	9		5	13	22	40		19	50	69
1:30 PM - 1:45 PM	6	3	1	10		14		5	19			2	4	6		1	16	25	42		16	61	77
1:45 PM - 2:00 PM	5	2		7		8		4	12			4	3	7		1	7	20	28		14	40	54
2:00 PM - 2:15 PM	5	1	2	8		9		4	13				1	1		1	10	20	31		9	44	53
2:15 PM - 2:30 PM	5	2	1	8		10		1	11		1	3	2	6		3	6	17	26		14	37	51
2:30 PM - 2:45 PM	7	4		11		7		5	12			1	1	2		1	13	24	38		13	50	63
2:45 PM - 3:00 PM	3	3	6	12		8		3	11		1	2	3	6		2	9	17	28		18	39	57
-																							
-																							
-																							
-																							
Total	114	47	20	181		195	0	100	295		17	40	22	79		37	249	363	649		260	944	1204
One Hour Volumes																							
10:00 AM - 11:00 AM	15	6	1	22	0.6875	48		27	75	0.7212	5	10	1	16	0.6667	5	52	52	109	0.7786	38	184	222
10:15 AM - 11:15 AM	20	3	1	24	0.75	39		21	60	0.8333	2	8	2	12	0.75	4	45	54	103	0.7357	36	163	199
10:30 AM - 11:30 AM	22	3		25	0.6944	37		16	53	0.7361	2	9	2	13	0.65	6	31	56	93	0.775	38	146	184
10:45 AM - 11:45 AM	19	4	1	24	0.6667	34		13	47	0.9038	2	8	2	12	0.6	4	39	56	99	0.6875	36	146	182
11:00 AM - 12:00 PM	27	5	1	33	0.75	35		17	52	0.7222	2	7	2	11	0.55	7	48	68	123	0.7885	44	175	219
11:15 AM - 12:15 PM	28	7	2	37	0.7708	37		20	57	0.7917	2	7	2	11	0.55	9	53	75	137	0.8782	48	194	242
11:30 AM - 12:30 PM	**25**	**7**	**2**	**34**	**0.708**	**45**		**22**	**67**	**0.798**	**2**	**4**	**3**	**9**	**0.75**	**8**	**70**	**84**	**162**	**0.81**	**43**	**229**	**272**
11:45 AM - 12:45 PM	30	12	5	47	0.6528	44		30	74	0.881	3	4	3	10	0.8333	9	70	81	160	0.8	57	234	291
12:00 PM - 1:00 PM	28	17	8	53	0.7361	43		27	70	0.8333	4	4	2	10	0.8333	9	63	78	150	0.75	63	220	283
12:15 PM - 1:15 PM	28	13	7	48	0.6667	37		27	64	0.7619	5	7	1	13	0.65	9	60	78	147	0.735	61	211	272
12:30 PM - 1:30 PM	29	16	7	52	0.7222	30		23	53	0.6974	7	9	3	19	0.5278	12	51	74	137	0.8563	71	190	261
12:45 PM - 1:45 PM	27	13	4	44	0.6471	37		16	53	0.6974	5	10	7	22	0.6111	11	49	85	145	0.8631	66	198	264
1:00 PM - 2:00 PM	24	9	1	34	0.85	35		16	51	0.6711	4	13	10	27	0.75	9	48	87	144	0.8571	61	195	256
1:15 PM - 2:15 PM	22	10	3	35	0.875	40		14	54	0.7105	3	9	11	23	0.6389	8	46	87	141	0.8393	58	195	253
1:30 PM - 2:30 PM	21	8	4	33	0.825	41		14	55	0.7237	1	9	10	20	0.7143	6	39	82	127	0.756	53	182	235
1:45 PM - 2:45 PM	22	9	3	34	0.7727	34		14	48	0.9231	1	8	7	16	0.5714	6	36	81	123	0.8092	50	171	221
2:00 PM - 3:00 PM	20	10	9	39	0.8125	34		13	47	0.9038	2	6	7	15	0.625	7	38	78	123	0.8092	54	170	224
-	15	9	7	31	0.6458	25		9	34	0.7083	2	6	6	14	0.5833	6	28	58	92	0.6053	45	126	171
-	10	7	6	23	0.4792	15		8	23	0.4792	1	3	4	8	0.3333	3	22	41	66	0.4342	31	89	120
-	3	3	6	12	0.25	8		3	11	0.25	1	2	3	6	0.25	2	9	17	28	0.25	18	39	57
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr.& McDonalds Driveway
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: McDonalds Driveway

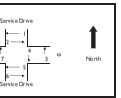
Time Period	Southbound Service Drive				Westbound 0				Northbound Service Drive				Eastbound McDonalds Driveway				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
15 Minute Volumes																			
10:00 AM - 10:15 AM										1		1					1		1
10:15 AM - 10:30 AM										1		1					1		1
10:30 AM - 10:45 AM										1		1					1		1
10:45 AM - 11:00 AM																			
11:00 AM - 11:15 AM		1		1						1		1					2		2
11:15 AM - 11:30 AM																			
11:30 AM - 11:45 AM										1		1					1		1
11:45 AM - 12:00 PM																			
12:00 PM - 12:15 PM																			
12:15 PM - 12:30 PM														1		1		1	1
12:30 PM - 12:45 PM																			
12:45 PM - 1:00 PM																			
1:00 PM - 1:15 PM					1			1										1	1
1:15 PM - 1:30 PM		2		2													2		2
1:30 PM - 1:45 PM																			
1:45 PM - 2:00 PM																			
2:00 PM - 2:15 PM																			
2:15 PM - 2:30 PM																			
2:30 PM - 2:45 PM		1		1						1		1					2		2
2:45 PM - 3:00 PM		1		1													1		1
-																			
-																			
-																			
-																			
Total	0	5	0	5	1	0	0	1	0	6	0	6	0	1	0	1	11	2	13
One Hour Volumes																			
10:00 AM - 11:00 AM										3		3					3		3
10:15 AM - 11:15 AM		1		1						3		3					4		4
10:30 AM - 11:30 AM		1		1						2		2					3		3
10:45 AM - 11:45 AM		1		1						2		2					3		3
11:00 AM - 12:00 PM		1		1						2		2					3		3
11:15 AM - 12:15 PM										1		1					1		1
11:30 AM - 12:30 PM										1		1		1		1	1	1	2
11:45 AM - 12:45 PM														1		1		1	1
12:00 PM - 1:00 PM														1		1		1	1
12:15 PM - 1:15 PM					1			1						1		1		2	2
12:30 PM - 1:30 PM		2		2	1			1									2	1	3
12:45 PM - 1:45 PM		2		2	1			1									2	1	3
1:00 PM - 2:00 PM		2		2	1			1									2	1	3
1:15 PM - 2:15 PM		2		2													2		2
1:30 PM - 2:30 PM																			
1:45 PM - 2:45 PM		1		1						1		1					2		2
2:00 PM - 3:00 PM		2		2						1		1					3		3
-		2		2						1		1					3		3
-		2		2						1		1					3		3
-		1		1													1		1
-																			

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: Chik-fil-A Car Wash
W + A JOB NO: 6268
INTERSECTION: Service Dr & McDonalds Driveway
LOCATION: Fairfax County,VA
DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Salih
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
15Minute Volumes													
10:00 AM - 10:15 AM						1							
10:15 AM - 10:30 AM							2	1					
10:30 AM - 10:45 AM	1			2	1								
10:45 AM - 11:00 AM						1							
11:00 AM - 11:15 AM							1						
11:15 AM - 11:30 AM		1	1	1			1	2					
11:30 AM - 11:45 AM		1	1	1			1	3					
11:45 AM - 12:00 PM													
12:00 PM - 12:15 PM													
12:15 PM - 12:30 PM				2	2	2	2						
12:30 PM - 12:45 PM													
12:45 PM - 1:00 PM													
1:00 PM - 1:15 PM	1												
1:15 PM - 1:30 PM	1												
1:30 PM - 1:45 PM	1					1	1	4					
1:45 PM - 2:00 PM						2							
2:00 PM - 2:15 PM				1	3	2							
2:15 PM - 2:30 PM						2							
2:30 PM - 2:45 PM						8		9	4				
2:45 PM - 3:00 PM													
-													
-													
-													
-													
Total	3	1	2	7	19	11	20	18					

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & Site Driveway - North
LOCATION: Fairfax County,VA

DATE: 1/27/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Nane
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: Site Driveway - North

Time Period	Southbound Service Drive					Westbound 0					Northbound Service Drive					Eastbound Site Driveway - North					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		0	0	0	0		0	0	1	1		0	0	0	0		1	0	1
6:15 AM - 6:30 AM	0	0	0	0		0	0	0	0		1	0	1	2		0	0	0	0		2	0	2
6:30 AM - 6:45 AM	0	0	0	0		0	1	0	1		1	0	2	3		0	0	0	0		3	1	4
6:45 AM - 7:00 AM	0	0	0	0		0	0	0	0		1	0	4	5		0	0	0	0		5	0	5
7:00 AM - 7:15 AM	0	0	0	0		0	0	0	0		0	0	3	3		0	0	0	0		3	0	3
7:15 AM - 7:30 AM	0	0	0	0		0	0	0	0		0	0	3	3		0	0	0	0		3	0	3
7:30 AM - 7:45 AM	0	0	0	0		0	0	0	0		0	0	3	3		0	0	0	0		3	0	3
7:45 AM - 8:00 AM	0	0	0	0		0	0	0	0		1	0	6	7		0	0	0	0		7	0	7
8:00 AM - 8:15 AM	0	0	0	0		0	0	1	1		1	0	5	6		0	0	0	0		6	1	7
8:15 AM - 8:30 AM	0	0	0	0		0	0	2	2		10	0	5	15		0	0	0	0		15	2	17
8:30 AM - 8:45 AM	0	0	0	0		0	1	0	1		6	0	8	14		0	1	0	1		14	2	16
8:45 AM - 9:00 AM	0	0	0	0		0	0	0	0		5	0	6	11		0	0	0	0		11	0	11
Total	0	0	0	0		0	2	3	5		26	0	47	73		0	1	0	1		73	6	79
AM One Hour Volumes																							
6:00 AM - 7:00 AM	0	0	0	0	0.00	0	1	0	1	0.25	3	0	8	11	0.55	0	0	0	0	0.00	11	1	12
6:15 AM - 7:15 AM	0	0	0	0	0.00	0	1	0	1	0.25	3	0	10	13	0.65	0	0	0	0	0.00	13	1	14
6:30 AM - 7:30 AM	0	0	0	0	0.00	0	1	0	1	0.25	2	0	12	14	0.70	0	0	0	0	0.00	14	1	15
6:45 AM - 7:45 AM	0	0	0	0	0.00	0	0	0	0	0.00	1	0	13	14	0.70	0	0	0	0	0.00	14	0	14
7:00 AM - 8:00 AM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0.00**	**1**	**0**	**15**	**16**	**0.57**	**0**	**0**	**0**	**0**	**0.00**	**16**	**0**	**16**
7:15 AM - 8:15 AM	0	0	0	0	0.00	0	0	1	1	0.25	2	0	17	19	0.68	0	0	0	0	0.00	19	1	20
7:30 AM - 8:30 AM	0	0	0	0	0.00	0	0	3	3	0.38	12	0	19	31	0.52	0	0	0	0	0.00	31	3	34
7:45 AM - 8:45 AM	0	0	0	0	0.00	0	1	3	4	0.50	18	0	24	42	0.70	0	1	0	1	0.25	42	5	47
8:00 AM - 9:00 AM	0	0	0	0	0.00	0	1	3	4	0.50	22	0	24	46	0.77	0	1	0	1	0.25	46	5	51
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	0	0		0	0	0	0		13	0	3	16		0	0	0	0		16	0	16
4:15 PM - 4:30 PM	0	0	0	0		0	1	0	1		12	0	5	17		0	2	0	2		17	3	20
4:30 PM - 4:45 PM	0	0	0	0		0	0	1	1		10	0	1	11		0	4	0	4		11	5	16
4:45 PM - 5:00 PM	0	0	0	0		0	0	0	0		6	0	4	10		0	0	0	0		10	0	10
5:00 PM - 5:15 PM	0	0	0	0		0	2	1	3		13	0	1	14		0	0	0	0		14	3	17
5:15 PM - 5:30 PM	0	0	0	0		0	5	4	9		6	0	2	8		0	0	0	0		8	9	17
5:30 PM - 5:45 PM	0	0	0	0		0	0	1	1		8	0	2	10		0	0	0	0		10	1	11
5:45 PM - 6:00 PM	0	0	0	0		0	0	1	1		5	0	3	8		0	0	0	0		8	1	9
6:00 PM - 6:15 PM	0	0	0	0		0	0	3	3		2	0	2	4		0	0	0	0		4	3	7
6:15 PM - 6:30 PM	0	0	0	0		0	0	3	3		0	0	0	0		0	0	0	0		0	3	3
6:30 PM - 6:45 PM	0	0	0	0		0	0	0	0		0	0	1	1		0	0	0	0		1	0	1
6:45 PM - 7:00 PM	0	0	0	0		0	0	0	0		0	0	1	1		1	0	0	1		1	1	2
Total	0	0	0	0		0	8	14	22		75	0	25	100		1	6	0	7		100	29	129
PM One Hour Volumes																							
4:00 PM - 5:00 PM	0	0	0	0	0.00	0	1	1	2	0.50	41	0	13	54	0.79	0	6	0	6	0.38	54	8	62
4:15 PM - 5:15 PM	0	0	0	0	0.00	0	3	2	5	0.42	41	0	11	52	0.76	0	6	0	6	0.38	52	11	63
4:30 PM - 5:30 PM	0	0	0	0	0.00	0	7	6	13	0.36	35	0	8	43	0.77	0	4	0	4	0.25	43	17	60
4:45 PM - 5:45 PM	0	0	0	0	0.00	0	7	6	13	0.36	33	0	9	42	0.75	0	0	0	0	0.00	42	13	55
5:00 PM - 6:00 PM	0	0	0	0	0.00	0	7	7	14	0.39	32	0	8	40	0.71	0	0	0	0	0.00	40	14	54
5:15 PM - 6:15 PM	0	0	0	0	0.00	0	5	9	14	0.39	21	0	9	30	0.75	0	0	0	0	0.00	30	14	44
5:30 PM - 6:30 PM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**8**	**8**	**0.67**	**15**	**0**	**7**	**22**	**0.55**	**0**	**0**	**0**	**0**	**0.00**	**22**	**8**	**30**
5:45 PM - 6:45 PM	0	0	0	0	0.00	0	0	7	7	0.58	7	0	6	13	0.41	0	0	0	0	0.00	13	7	20
6:00 PM - 7:00 PM	0	0	0	0	0.00	0	0	6	6	0.50	2	0	4	6	0.38	1	0	0	1	0.25	6	7	13

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & Site Driveway - North
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Nane
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: Site Driveway - North

Time Period	Southbound Service Drive					Westbound 0					Northbound Service Drive					Eastbound Site Driveway - North					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			
15 Minute Volumes																							
10:00 AM - 10:15 AM							1	1	2		14		4	18			2		2		18	4	22
10:15 AM - 10:30 AM							1		1		15		4	19			2		2		19	3	22
10:30 AM - 10:45 AM							2		2		17		4	21			3		3		21	5	26
10:45 AM - 11:00 AM											13		9	22		1	3		4		22	4	26
11:00 AM - 11:15 AM											14		4	18		2	8		10		18	10	28
11:15 AM - 11:30 AM							1	1	2		17		5	22			2		2		22	4	26
11:30 AM - 11:45 AM											15		8	23			5		5		23	5	28
11:45 AM - 12:00 PM							1		1		19		13	32			1		1		32	2	34
12:00 PM - 12:15 PM							2		2		19		5	24			1		1		24	3	27
12:15 PM - 12:30 PM											22		11	33		2	2		4		33	4	37
12:30 PM - 12:45 PM											12		9	21			2		2		21	2	23
12:45 PM - 1:00 PM							1		1		26		6	32			3		3		32	4	36
1:00 PM - 1:15 PM							2		2		22		8	30			3		3		30	5	35
1:15 PM - 1:30 PM								1	1		24		10	34			2		2		34	3	37
1:30 PM - 1:45 PM							2		2		20		12	32			3		3		32	5	37
1:45 PM - 2:00 PM											16		11	27			1		1		27	1	28
2:00 PM - 2:15 PM							1		1		14		11	25			1		1		25	2	27
2:15 PM - 2:30 PM							1		1		17		9	26			1		1		26	2	28
2:30 PM - 2:45 PM							1	1	2		21		13	34		1	3		4		34	6	40
2:45 PM - 3:00 PM											24		14	38			2		2		38	2	40
Total	0	0	0	0		0	16	4	20		361	0	170	531		6	50	0	56		531	76	607
One Hour Volumes																							
10:00 AM - 11:00 AM							4	1	5	0.625	59		21	80	0.9091	1	10		11	0.6875	80	16	96
10:15 AM - 11:15 AM							3		3	0.375	59		21	80	0.9091	3	16		19	0.475	80	22	102
10:30 AM - 11:30 AM							3	1	4	0.5	61		22	83	0.9432	3	16		19	0.475	83	23	106
10:45 AM - 11:45 AM							1	1	2	0.25	59		26	85	0.9239	3	18		21	0.525	85	23	108
11:00 AM - 12:00 PM							2	1	3	0.375	65		30	95	0.7422	2	16		18	0.45	95	21	116
11:15 AM - 12:15 PM							4	1	5	0.625	70		31	101	0.7891		9		9	0.45	101	14	115
11:30 AM - 12:30 PM							**3**		**3**	**0.375**	**75**		**37**	**112**	**0.848**	**2**	**9**		**11**	**0.55**	**112**	**14**	**126**
11:45 AM - 12:45 PM							3		3	0.375	72		38	110	0.8333	2	6		8	0.5	110	11	121
12:00 PM - 1:00 PM							3		3	0.375	79		31	110	0.8333	2	8		10	0.625	110	13	123
12:15 PM - 1:15 PM							3		3	0.375	82		34	116	0.8788	2	10		12	0.75	116	15	131
12:30 PM - 1:30 PM							3	1	4	0.5	84		33	117	0.8603		10		10	0.8333	117	14	131
12:45 PM - 1:45 PM							5	1	6	0.75	92		36	128	0.9412		11		11	0.9167	128	17	145
1:00 PM - 2:00 PM							4	1	5	0.625	82		41	123	0.9044		9		9	0.75	123	14	137
1:15 PM - 2:15 PM							3	1	4	0.5	74		44	118	0.8676		7		7	0.5833	118	11	129
1:30 PM - 2:30 PM							4		4	0.5	67		43	110	0.8594		6		6	0.5	110	10	120
1:45 PM - 2:45 PM							3	1	4	0.5	68		44	112	0.8235	1	6		7	0.4375	112	11	123
2:00 PM - 3:00 PM							3	1	4	0.5	76		47	123	0.8092	1	7		8	0.5	123	12	135
-							2	1	3	0.375	62		36	98	0.6447	1	6		7	0.4375	98	10	108
-							1	1	2	0.25	45		27	72	0.4737	1	5		6	0.375	72	8	80
-											24		14	38	0.25		2		2	0.25	38	2	40
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & Site Driveway - South
LOCATION: Fairfax County,VA

DATE: 1/27/2015
DAY: Tuesday
WEATHER: clear
COUNTED BY: Amina
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: Site Driveway - South
EASTBOUND ROAD: Driveway

Time Period	Southbound Service Drive					Westbound Site Driveway - South					Northbound Service Drive					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	0	0	0		0	0	0	0		0	0	11	11		0	0	0	0		11	0	11
6:15 AM - 6:30 AM	0	0	0	0		0	0	0	0		0	3	16	19		0	0	0	0		19	0	19
6:30 AM - 6:45 AM	0	0	0	0		0	0	0	0		0	2	14	16		0	0	0	0		16	0	16
6:45 AM - 7:00 AM	0	0	0	0		0	0	0	0		0	6	11	17		0	0	0	0		17	0	17
7:00 AM - 7:15 AM	0	0	0	0		0	0	0	0		0	3	12	15		0	0	0	0		15	0	15
7:15 AM - 7:30 AM	0	0	0	0		0	0	0	0		0	3	9	12		1	0	0	1		12	1	13
7:30 AM - 7:45 AM	0	0	0	0		0	0	0	0		0	3	14	17		0	0	0	0		17	0	17
7:45 AM - 8:00 AM	0	0	0	0		0	0	0	0		0	7	10	17		0	0	0	0		17	0	17
8:00 AM - 8:15 AM	0	1	0	1		0	0	0	0		0	7	15	22		0	0	0	0		23	0	23
8:15 AM - 8:30 AM	0	3	0	3		0	0	0	0		0	15	8	23		1	0	0	1		26	1	27
8:30 AM - 8:45 AM	0	0	0	0		0	3	0	3		0	13	15	28		0	0	0	0		28	3	31
8:45 AM - 9:00 AM	0	0	0	0		2	5	2	9		0	10	20	30		0	0	0	0		30	9	39
Total	0	4	0	4		2	8	2	12		0	72	155	227		2	0	0	2		231	14	245
AM One Hour Volumes																							
6:00 AM - 7:00 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	11	52	63	0.83	0	0	0	0	0.00	63	0	63
6:15 AM - 7:15 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	14	53	67	0.88	0	0	0	0	0.00	67	0	67
6:30 AM - 7:30 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	14	46	60	0.88	1	0	0	1	0.25	60	1	61
6:45 AM - 7:45 AM	0	0	0	0	0.00	0	0	0	0	0.00	0	15	46	61	0.90	1	0	0	1	0.25	61	1	62
7:00 AM - 8:00 AM	**0**	**0**	**0**	**0**	**0.00**	**0**	**0**	**0**	**0**	**0.00**	**0**	**16**	**45**	**61**	**0.90**	**1**	**0**	**0**	**1**	**0.25**	**61**	**1**	**62**
7:15 AM - 8:15 AM	0	1	0	1	0.25	0	0	0	0	0.00	0	20	48	68	0.77	1	0	0	1	0.25	69	1	70
7:30 AM - 8:30 AM	0	4	0	4	0.33	0	0	0	0	0.00	0	32	47	79	0.86	1	0	0	1	0.25	83	1	84
7:45 AM - 8:45 AM	0	4	0	4	0.33	0	3	0	3	0.25	0	42	48	90	0.80	1	0	0	1	0.25	94	4	98
8:00 AM - 9:00 AM	0	4	0	4	0.33	2	8	2	12	0.33	0	45	58	103	0.86	1	0	0	1	0.25	107	13	120
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	0	0	0	0		2	5	3	10		0	14	12	26		0	0	0	0		26	10	36
4:15 PM - 4:30 PM	0	0	0	0		3	7	4	14		0	15	14	29		0	0	0	0		29	14	43
4:30 PM - 4:45 PM	0	0	0	0		2	6	5	13		0	10	11	21		0	0	0	0		21	13	34
4:45 PM - 5:00 PM	0	0	0	0		2	3	3	8		0	12	10	22		0	0	0	0		22	8	30
5:00 PM - 5:15 PM	0	0	0	0		1	5	1	7		0	11	8	19		0	0	0	0		19	7	26
5:15 PM - 5:30 PM	0	3	0	3		2	6	5	13		0	7	6	13		0	0	1	1		16	14	30
5:30 PM - 5:45 PM	0	1	0	1		3	7	2	12		0	6	5	11		0	0	0	0		12	12	24
5:45 PM - 6:00 PM	0	2	0	2		2	5	2	9		0	6	6	12		0	0	0	0		14	9	23
6:00 PM - 6:15 PM	0	3	0	3		0	1	0	1		0	4	11	15		0	0	0	0		18	1	19
6:15 PM - 6:30 PM	0	1	0	1		0	1	1	2		0	1	8	9		0	0	0	0		10	2	12
6:30 PM - 6:45 PM	0	0	0	0		0	0	0	0		0	1	8	9		0	0	0	0		9	0	9
6:45 PM - 7:00 PM	0	1	0	1		0	0	0	0		0	0	6	6		0	0	0	0		7	0	7
Total	0	11	0	11		17	46	26	89		0	87	105	192		0	0	1	1		203	90	293
PM One Hour Volumes																							
4:00 PM - 5:00 PM	0	0	0	0	0.00	9	21	15	45	0.80	0	51	47	98	0.84	0	0	0	0	0.00	98	45	143
4:15 PM - 5:15 PM	0	0	0	0	0.00	8	21	13	42	0.75	0	48	43	91	0.78	0	0	0	0	0.00	91	42	133
4:30 PM - 5:30 PM	0	3	0	3	0.25	7	20	14	41	0.79	0	40	35	75	0.85	0	0	1	1	0.25	78	42	120
4:45 PM - 5:45 PM	0	4	0	4	0.33	8	21	11	40	0.77	0	36	29	65	0.74	0	0	1	1	0.25	69	41	110
5:00 PM - 6:00 PM	0	6	0	6	0.50	8	23	10	41	0.79	0	30	25	55	0.72	0	0	1	1	0.25	61	42	103
5:15 PM - 6:15 PM	0	9	0	9	0.75	7	19	9	35	0.67	0	23	28	51	0.85	0	0	1	1	0.25	60	36	96
5:30 PM - 6:30 PM	**0**	**7**	**0**	**7**	**0.58**	**5**	**14**	**5**	**24**	**0.50**	**0**	**17**	**30**	**47**	**0.78**	**0**	**0**	**0**	**0**	**0.00**	**54**	**24**	**78**
5:45 PM - 6:45 PM	0	6	0	6	0.50	2	7	3	12	0.33	0	12	33	45	0.75	0	0	0	0	0.00	51	12	63
6:00 PM - 7:00 PM	0	5	0	5	0.42	0	2	1	3	0.38	0	6	33	39	0.65	0	0	0	0	0.00	44	3	47

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Total Vehicles

PROJECT: Chik-fil-A Car Wash
W+A JOB NO: 6268
INTERSECTION: Service Dr. & Site Driveway - South
LOCATION: Fairfax County,VA

DATE: 1/31/2015
DAY: Saturday
WEATHER: clear
COUNTED BY: Amina
INPUTED BY: agan

SOUTHBOUND ROAD: Service Drive
NORTHBOUND ROAD: Service Drive
WESTBOUND ROAD: 0
EASTBOUND ROAD: Site Driveway - South

Time Period	Southbound Service Drive					Westbound 0					Northbound Service Drive					Eastbound Site Driveway - South					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			
15 Minute Volumes																							
10:00 AM - 10:15 AM		2		2		2	9	3	14			13	7	20							22	14	36
10:15 AM - 10:30 AM						3	9	2	14			14	14	28							28	14	42
10:30 AM - 10:45 AM						6	14	1	21			15	20	35		1			1		35	22	57
10:45 AM - 11:00 AM						3	10	2	15			13	11	24				1	1		24	16	40
11:00 AM - 11:15 AM						3	9	4	16			17	11	28							28	16	44
11:15 AM - 11:30 AM		1		1		2	12	4	18			19	10	29				1	1		30	19	49
11:30 AM - 11:45 AM						4	10	2	16			20	12	32							32	16	48
11:45 AM - 12:00 PM						10	9	4	23			25	10	35							35	23	58
12:00 PM - 12:15 PM						7	12	5	24			21	15	36							36	24	60
12:15 PM - 12:30 PM						5	15	4	24			30	19	49				2	2		49	26	75
12:30 PM - 12:45 PM						7	13	6	26			16	10	26							26	26	52
12:45 PM - 1:00 PM						6	8	9	23			27	15	42				3	3		42	26	68
1:00 PM - 1:15 PM		1		1		5	14	2	21			23	7	30							31	21	52
1:15 PM - 1:30 PM		1		1		13	8	8	29			21	15	36							37	29	66
1:30 PM - 1:45 PM						4	12	4	20			22	12	34							34	20	54
1:45 PM - 2:00 PM						10	10	2	22			21	15	36				2	2		36	24	60
2:00 PM - 2:15 PM						7	14	3	24			22	7	29							29	24	53
2:15 PM - 2:30 PM						7	8	7	22			20	16	36				2	2		36	24	60
2:30 PM - 2:45 PM		1		1		9	12	5	26			31	10	41							42	26	68
2:45 PM - 3:00 PM						10	17	5	32			28	5	33							33	32	65
-																							
-																							
-																							
-																							
Total	0	6	0	6		123	225	82	430		0	418	241	659		1	0	11	12		665	442	1107
One Hour Volumes																							
10:00 AM - 11:00 AM		2		2	0.25	14	42	8	64	0.7619		55	52	107	0.7643	1		1	2	0.5	109	66	175
10:15 AM - 11:15 AM						15	42	9	66	0.7857		59	56	115	0.8214	1		1	2	0.5	115	68	183
10:30 AM - 11:30 AM		1		1	0.25	14	45	11	70	0.8333		64	52	116	0.8286	1		2	3	0.75	117	73	190
10:45 AM - 11:45 AM		1		1	0.25	12	41	12	65	0.9028		69	44	113	0.8828			2	2	0.5	114	67	181
11:00 AM - 12:00 PM		1		1	0.25	19	40	14	73	0.7935		81	43	124	0.8857			1	1	0.25	125	74	199
11:15 AM - 12:15 PM		1		1	0.25	23	43	15	81	0.8438		85	47	132	0.9167			1	1	0.25	133	82	215
11:30 AM - 12:30 PM						**26**	**46**	**15**	**87**	**0.906**		**96**	**56**	**152**	**0.776**			**2**	**2**	**0.25**	**152**	**89**	**241**
11:45 AM - 12:45 PM						29	49	19	97	0.9327		92	54	146	0.7449			2	2	0.25	146	99	245
12:00 PM - 1:00 PM						25	48	24	97	0.9327		94	59	153	0.7806			5	5	0.4167	153	102	255
12:15 PM - 1:15 PM		1		1	0.25	23	50	21	94	0.9038		96	51	147	0.75			5	5	0.4167	148	99	247
12:30 PM - 1:30 PM		2		2	0.5	31	43	25	99	0.8534		87	47	134	0.7976			3	3	0.25	136	102	238
12:45 PM - 1:45 PM		2		2	0.5	28	42	23	93	0.8017		93	49	142	0.8452			3	3	0.25	144	96	240
1:00 PM - 2:00 PM		2		2	0.5	32	44	16	92	0.7931		87	49	136	0.9444			2	2	0.25	138	94	232
1:15 PM - 2:15 PM		1		1	0.25	34	44	17	95	0.819		86	49	135	0.9375			2	2	0.25	136	97	233
1:30 PM - 2:30 PM						28	44	16	88	0.9167		85	50	135	0.9375			4	4	0.5	135	92	227
1:45 PM - 2:45 PM		1		1	0.25	33	44	17	94	0.9038		94	48	142	0.8659			4	4	0.5	143	98	241
2:00 PM - 3:00 PM		1		1	0.25	33	51	20	104	0.8125		101	38	139	0.8476			2	2	0.25	140	106	246
-		1		1	0.25	26	37	17	80	0.625		79	31	110	0.6707			2	2	0.25	111	82	193
-		1		1	0.25	19	29	10	58	0.4531		59	15	74	0.4512						75	58	133
-						10	17	5	32	0.25		28	5	33	0.25						33	32	65
-																							

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: Nutley St. & Windower Ave.
LOCATION: Town of Vienna, VA

DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Damir
INPUTED BY: agan

SOUTHBOUND ROAD: Windower Avenue
NORTHBOUND ROAD: Windower Avenue
WESTBOUND ROAD: Nutley Street
EASTBOUND ROAD: Nutley Street

Time Period	Southbound Windower Avenue					Westbound Nutley Street					Northbound Windower Avenue					Eastbound Nutley 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	0	0	0		0	2	0	2		3	2	3	8		1	7	0	8		8	10	18
6:15 AM - 6:30 AM	0	0	1	1		2	8	0	10		1	2	2	5		2	8	0	10		6	20	26
6:30 AM - 6:45 AM	0	0	1	1		0	9	3	12		2	5	4	11		1	24	1	26		12	38	50
6:45 AM - 7:00 AM	0	3	4	7		1	10	0	11		3	10	2	15		3	23	1	27		22	38	60
7:00 AM - 7:15 AM	0	0	1	1		0	12	2	14		8	11	6	25		6	45	1	52		26	66	92
7:15 AM - 7:30 AM	2	12	3	17		0	32	3	35		8	6	5	19		9	34	3	46		36	81	117
7:30 AM - 7:45 AM	5	25	11	41		5	32	8	45		30	14	10	54		12	50	7	69		95	114	209
7:45 AM - 8:00 AM	17	38	13	68		4	48	8	60		40	21	8	69		12	59	9	80		137	140	277
8:00 AM - 8:15 AM	23	22	16	61		7	56	4	67		37	28	23	88		4	66	18	88		149	155	304
8:15 AM - 8:30 AM	3	13	19	35		6	45	2	53		8	19	19	46		6	56	0	62		81	115	196
8:30 AM - 8:45 AM	4	8	6	18		5	39	1	45		12	7	6	25		2	59	2	63		43	108	151
8:45 AM - 9:00 AM	6	14	13	33		10	33	2	45		12	18	12	42		10	38	4	52		75	97	172
Total	60	135	88	283		40	326	33	399		164	143	100	407		68	469	46	583		690	982	1672
AM One Hour Volumes																							
6:00 AM - 7:00 AM	0	3	6	9	0.32	3	29	3	35	0.73	9	19	11	39	0.65	7	62	2	71	0.66	48	106	154
6:15 AM - 7:15 AM	0	3	7	10	0.36	3	39	5	47	0.84	14	28	14	56	0.56	12	100	3	115	0.55	66	162	228
6:30 AM - 7:30 AM	2	15	9	26	0.38	1	63	8	72	0.51	21	32	17	70	0.70	19	126	6	151	0.73	96	223	319
6:45 AM - 7:45 AM	7	40	19	66	0.40	6	86	13	105	0.58	49	41	23	113	0.52	30	152	12	194	0.70	179	299	478
7:00 AM - 8:00 AM	**24**	**75**	**28**	**127**	**0.47**	**9**	**124**	**21**	**154**	**0.64**	**86**	**52**	**29**	**167**	**0.61**	**39**	**188**	**20**	**247**	**0.77**	**294**	**401**	**695**
7:15 AM - 8:15 AM	47	97	43	187	0.69	16	168	23	207	0.77	115	69	46	230	0.65	37	209	37	283	0.80	417	490	907
7:30 AM - 8:30 AM	48	98	59	205	0.75	22	181	22	225	0.84	115	82	60	257	0.73	34	231	34	299	0.85	462	524	986
7:45 AM - 8:45 AM	47	81	54	182	0.67	22	188	15	225	0.84	97	75	56	228	0.65	24	240	29	293	0.83	410	518	928
8:00 AM - 9:00 AM	36	57	54	147	0.60	28	173	9	210	0.78	69	72	60	201	0.57	22	219	24	265	0.75	348	475	823
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	2	31	19	52		5	34	5	44		26	26	12	64		11	59	4	74		116	118	234
4:15 PM - 4:30 PM	6	24	18	48		7	41	7	55		22	20	13	55		12	47	3	62		103	117	220
4:30 PM - 4:45 PM	3	27	12	42		9	47	5	61		21	10	10	41		4	47	3	54		83	115	198
4:45 PM - 5:00 PM	4	21	8	33		5	58	3	66		10	12	12	34		5	46	0	51		67	117	184
5:00 PM - 5:15 PM	9	22	15	46		4	39	3	46		11	14	3	28		13	45	1	59		74	105	179
5:15 PM - 5:30 PM	7	16	11	34		9	62	2	73		10	9	12	31		6	59	3	68		65	141	206
5:30 PM - 5:45 PM	4	26	12	42		4	69	2	75		19	11	15	45		9	60	1	70		87	145	232
5:45 PM - 6:00 PM	5	27	9	41		7	69	6	82		8	5	7	20		9	52	2	63		61	145	206
6:00 PM - 6:15 PM	13	28	19	60		6	52	5	63		8	5	12	25		6	54	2	62		85	125	210
6:15 PM - 6:30 PM	9	27	12	48		7	57	3	67		5	8	6	19		17	41	0	58		67	125	192
6:30 PM - 6:45 PM	5	18	7	30		2	44	9	55		6	7	10	23		3	39	3	45		53	100	153
6:45 PM - 7:00 PM	3	19	4	26		5	47	3	55		4	10	7	21		7	33	1	41		47	96	143
Total	70	286	146	502		70	619	53	742		150	137	119	406		102	582	23	707		908	1449	2357
PM One Hour Volumes																							
4:00 PM - 5:00 PM	15	103	57	175	0.84	26	180	20	226	0.86	79	68	47	194	0.76	32	199	10	241	0.81	369	467	836
4:15 PM - 5:15 PM	22	94	53	169	0.88	25	185	18	228	0.86	64	56	38	158	0.72	34	185	7	226	0.91	327	454	781
4:30 PM - 5:30 PM	23	86	46	155	0.84	27	206	13	246	0.84	52	45	37	134	0.82	28	197	7	232	0.85	289	478	767
4:45 PM - 5:45 PM	24	85	46	155	0.84	22	228	10	260	0.87	50	46	42	138	0.77	33	210	5	248	0.89	293	508	801
5:00 PM - 6:00 PM	25	91	47	163	0.89	24	239	13	276	0.84	48	39	37	124	0.69	37	216	7	260	0.93	287	536	823
5:15 PM - 6:15 PM	29	97	51	177	0.74	26	252	15	293	0.89	45	30	46	121	0.67	30	225	8	263	0.94	298	556	854
5:30 PM - 6:30 PM	**31**	**108**	**52**	**191**	**0.80**	**24**	**247**	**16**	**287**	**0.88**	**40**	**29**	**40**	**109**	**0.61**	**41**	**207**	**5**	**253**	**0.90**	**300**	**540**	**840**
5:45 PM - 6:45 PM	32	100	47	179	0.75	22	222	23	267	0.81	27	25	35	87	0.87	35	186	7	228	0.90	266	495	761
6:00 PM - 7:00 PM	30	92	42	164	0.68	20	200	20	240	0.90	23	30	35	88	0.88	33	167	6	206	0.83	252	446	698

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: Nutley St. & Windower Ave.
LOCATION: Town of Vienna, VA

DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Damir
INPUTED BY: agan

SOUTHBOUND ROAD: Windower Avenue
NORTHBOUND ROAD: Windower Avenue
WESTBOUND ROAD: Nutley Street
EASTBOUND ROAD: Nutley Street

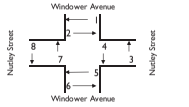
Time Period	Southbound Windower Avenue				Westbound Nutley Street				Northbound Windower Avenue				Eastbound Nutley Street				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
6:00 AM - 6:15 AM				0				0				0				0	0	0	0
6:15 AM - 6:30 AM				0				0				0				0	0	0	0
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0			1	1		1		1				0	1	1	2
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM	1			1			1	1		1		1				0	2	1	3
7:30 AM - 7:45 AM				0				0				0				0	0	0	0
7:45 AM - 8:00 AM				0				0				0				0	0	0	0
8:00 AM - 8:15 AM				0				0				0				0	0	0	0
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0		2		2	0	2	2
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
Total	1	0	0	1	0	0	2	2	0	2	0	2	0	2	0	2	3	4	7
AM One Hour Volumes																			
6:00 AM - 7:00 AM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	1	1	2
6:15 AM - 7:15 AM	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	1	1	2
6:30 AM - 7:30 AM	1	0	0	1	0	0	2	2	0	2	0	2	0	0	0	0	3	2	5
6:45 AM - 7:45 AM	1	0	0	1	0	0	2	2	0	2	0	2	0	0	0	0	3	2	5
7:00 AM - 8:00 AM	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**1**	**3**
7:15 AM - 8:15 AM	1	0	0	1	0	0	1	1	0	1	0	1	0	0	0	0	2	1	3
7:30 AM - 8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM - 8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2
8:00 AM - 9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	2
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0				0				0				0	0	0	0
4:15 PM - 4:30 PM				0				0				0				0	0	0	0
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0				0				0				0	0	0	0
5:00 PM - 5:15 PM				0				0		1		1				0	1	0	1
5:15 PM - 5:30 PM	1			1				0				0		2		2	1	2	3
5:30 PM - 5:45 PM				0		2		2				0				0	0	2	2
5:45 PM - 6:00 PM				0		1	1	2				0				0	0	2	2
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM		1		1				0				0				0	0	1	1
6:30 PM - 6:45 PM				0				0				0				0	0	0	0
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	1	1	0	2	0	3	1	4	0	1	0	1	0	2	0	2	3	6	9
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM - 5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	1
4:30 PM - 5:30 PM	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	2	2	2	4
4:45 PM - 5:45 PM	1	0	0	1	0	2	0	2	0	1	0	1	0	2	0	2	2	4	6
5:00 PM - 6:00 PM	1	0	0	1	0	3	1	4	0	1	0	1	0	2	0	2	2	6	8
5:15 PM - 6:15 PM	1	0	0	1	0	3	1	4	0	0	0	0	0	2	0	2	1	6	7
5:30 PM - 6:30 PM	**0**	**1**	**0**	**1**	**0**	**3**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**5**
5:45 PM - 6:45 PM	0	1	0	1	0	1	1	2	0	0	0	0	0	0	0	0	1	2	3
6:00 PM - 7:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: Nutley St. & Windower Ave.
LOCATION: Town of Vienna,VA
DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Damir
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1+2	3+4	5+6	7+8	Total
AM 15 Minute Volumes													
6:00 AM - 6:15 AM					1			1					
6:15 AM - 6:30 AM													
6:30 AM - 6:45 AM													
6:45 AM - 7:00 AM													
7:00 AM - 7:15 AM													
7:15 AM - 7:30 AM	1					1							
7:30 AM - 7:45 AM					1			2					
7:45 AM - 8:00 AM	11							4					
8:00 AM - 8:15 AM	4							3					
8:15 AM - 8:30 AM					3		4						
8:30 AM - 8:45 AM			1		1		2						
8:45 AM - 9:00 AM		3					1	1					
Total	16	3	1	0	6	1	8	10					
AM One Hour Volumes													
6:00 AM - 7:00 AM	0	0	0	0	1	0	1	0	0	0	1	1	2
6:15 AM - 7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM - 7:30 AM	1	0	0	0	0	1	0	0	1	0	1	0	2
6:45 AM - 7:45 AM	1	0	0	0	1	1	0	2	1	0	2	2	5
7:00 AM - 8:00 AM	**12**	**0**	**0**	**0**	**1**	**1**	**0**	**6**	**12**	**0**	**2**	**6**	**20**
7:15 AM - 8:15 AM	16	0	0	0	1	1	0	9	16	0	2	9	27
7:30 AM - 8:30 AM	15	0	0	0	4	0	4	9	15	0	4	13	32
7:45 AM - 8:45 AM	15	0	1	0	4	0	6	7	15	1	4	13	33
8:00 AM - 9:00 AM	4	3	1	0	4	0	7	4	7	1	4	11	23
PM 15 Minute Volumes													
4:00 PM - 4:15 PM					3	2	1	2					
4:15 PM - 4:30 PM					1								
4:30 PM - 4:45 PM		1											
4:45 PM - 5:00 PM	2		2										
5:00 PM - 5:15 PM													
5:15 PM - 5:30 PM	1												
5:30 PM - 5:45 PM	1				2								
5:45 PM - 6:00 PM					1								
6:00 PM - 6:15 PM	1					2							
6:15 PM - 6:30 PM					1	1							
6:30 PM - 6:45 PM		7					1						
6:45 PM - 7:00 PM					3								
Total	5	8	2	0	11	5	2	2					
PM One Hour Volumes													
4:00 PM - 5:00 PM	2	1	2	0	4	2	1	2	3	2	6	3	14
4:15 PM - 5:15 PM	2	1	2	0	1	0	0	0	3	2	1	0	6
4:30 PM - 5:30 PM	3	1	2	0	0	0	0	0	4	2	0	0	6
4:45 PM - 5:45 PM	4	0	2	0	2	0	0	0	4	2	2	0	8
5:00 PM - 6:00 PM	2	0	0	0	3	0	0	0	2	0	3	0	5
5:15 PM - 6:15 PM	3	0	0	0	3	2	0	0	3	0	5	0	8
5:30 PM - 6:30 PM	**2**	**0**	**0**	**0**	**4**	**3**	**0**	**0**	**2**	**0**	**7**	**0**	**9**
5:45 PM - 6:45 PM	1	7	0	0	2	3	1	0	8	0	5	1	14
6:00 PM - 7:00 PM	1	7	0	0	4	3	1	0	8	0	7	1	16

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - All Vehicles

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: James Madison Dr. & Windower Ave.
LOCATION: Town of Vienna,VA
DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan
SOUTHBOUND ROAD: Windower Avenue
NORTHBOUND ROAD: 0
WESTBOUND ROAD: James Madison Drive
EASTBOUND ROAD: James Madison Drive

Time Period	Southbound Windower Avenue Right	Thru	Left	Total	PHF	Westbound James Madison Drive Right	Thru	Left	Total	PHF	Northbound 0 Right	Thru	Left	Total	PHF	Eastbound James Madison Drive Right	Thru	Left	Total	PHF	North & South	East & West	Total
AM 15 Minute Volumes																							
6:00 AM - 6:15 AM	0	0	1	1		6	3	0	9		0	0	0	0		0	1	0	1		1	10	11
6:15 AM - 6:30 AM	1	0	3	4		3	4	0	7		0	0	0	0		0	0	1	1		4	8	12
6:30 AM - 6:45 AM	3	0	4	7		8	7	0	15		0	0	0	0		0	2	1	3		7	18	25
6:45 AM - 7:00 AM	1	0	7	8		13	13	0	26		0	0	0	0		0	2	0	2		8	28	36
7:00 AM - 7:15 AM	1	0	7	8		22	13	0	35		0	0	0	0		0	0	0	0		8	35	43
7:15 AM - 7:30 AM	15	0	7	22		11	44	0	55		0	0	0	0		0	2	10	12		22	67	89
7:30 AM - 7:45 AM	35	0	12	47		25	92	0	117		0	0	0	0		0	14	35	49		47	166	213
7:45 AM - 8:00 AM	51	0	9	60		21	85	0	106		0	0	0	0		0	22	68	90		60	196	256
8:00 AM - 8:15 AM	25	0	9	34		27	45	0	72		0	0	0	0		0	27	52	79		34	151	185
8:15 AM - 8:30 AM	11	0	10	21		34	8	0	42		0	0	0	0		0	7	7	14		21	56	77
8:30 AM - 8:45 AM	1	0	10	11		18	9	0	27		0	0	0	0		0	3	3	6		11	33	44
8:45 AM - 9:00 AM	3	0	22	25		28	5	0	33		0	0	0	0		0	1	9	10		25	43	68
Total	147	0	101	248		216	328	0	544		0	0	0	0		0	81	186	267		248	811	1059
AM One Hour Volumes																							
6:00 AM - 7:00 AM	5	0	15	20	0.63	30	27	0	57	0.55	0	0	0	0	0.00	0	5	2	7	0.58	20	64	84
6:15 AM - 7:15 AM	6	0	21	27	0.84	46	37	0	83	0.59	0	0	0	0	0.00	0	4	2	6	0.50	27	89	116
6:30 AM - 7:30 AM	20	0	25	45	0.51	54	77	0	131	0.60	0	0	0	0	0.00	0	6	11	17	0.35	45	148	193
6:45 AM - 7:45 AM	52	0	33	85	0.45	71	162	0	233	0.50	0	0	0	0	0.00	0	18	45	63	0.32	85	296	381
7:00 AM - 8:00 AM	**102**	**0**	**35**	**137**	**0.57**	**79**	**234**	**0**	**313**	**0.67**	**0**	**0**	**0**	**0**	**0.00**	**0**	**38**	**113**	**151**	**0.42**	**137**	**464**	**601**
7:15 AM - 8:15 AM	126	0	37	163	0.68	84	266	0	350	0.75	0	0	0	0	0.00	0	65	165	230	0.64	163	580	743
7:30 AM - 8:30 AM	122	0	40	162	0.68	107	230	0	337	0.72	0	0	0	0	0.00	0	70	162	232	0.64	162	569	731
7:45 AM - 8:45 AM	88	0	38	126	0.53	100	147	0	247	0.58	0	0	0	0	0.00	0	59	130	189	0.53	126	436	562
8:00 AM - 9:00 AM	40	0	51	91	0.67	107	67	0	174	0.60	0	0	0	0	0.00	0	38	71	109	0.34	91	283	374
PM 15 Minute Volumes																							
4:00 PM - 4:15 PM	25	0	26	51		15	23	0	38		0	0	0	0		0	11	49	60		51	98	149
4:15 PM - 4:30 PM	22	0	24	46		18	23	0	41		0	0	0	0		0	6	38	44		46	85	131
4:30 PM - 4:45 PM	10	0	24	34		15	7	0	22		0	0	0	0		0	11	27	38		34	60	94
4:45 PM - 5:00 PM	13	0	24	37		22	12	0	34		0	0	0	0		0	11	16	27		37	61	98
5:00 PM - 5:15 PM	12	0	26	38		17	2	0	19		0	0	0	0		0	7	12	19		38	38	76
5:15 PM - 5:30 PM	7	0	16	23		20	16	0	36		0	0	0	0		0	7	13	20		23	56	79
5:30 PM - 5:45 PM	11	0	27	38		26	11	0	37		0	0	0	0		0	7	16	23		38	60	98
5:45 PM - 6:00 PM	21	0	19	40		13	17	0	30		0	0	0	0		0	4	10	14		40	44	84
6:00 PM - 6:15 PM	14	0	27	41		14	16	0	30		0	0	0	0		0	5	10	15		41	45	86
6:15 PM - 6:30 PM	16	0	29	45		9	17	0	26		0	0	0	0		0	3	10	13		45	39	84
6:30 PM - 6:45 PM	10	0	17	27		15	21	0	36		0	0	0	0		0	8	7	15		27	51	78
6:45 PM - 7:00 PM	14	0	14	28		16	16	0	32		0	0	0	0		0	2	8	10		28	42	70
Total	175	0	273	448		200	181	0	381		0	0	0	0		0	82	216	298		448	679	1127
PM One Hour Volumes																							
4:00 PM - 5:00 PM	70	0	98	168	0.82	70	65	0	135	0.82	0	0	0	0	0.00	0	39	130	169	0.70	168	304	472
4:15 PM - 5:15 PM	57	0	98	155	0.84	72	44	0	116	0.71	0	0	0	0	0.00	0	35	93	128	0.73	155	244	399
4:30 PM - 5:30 PM	42	0	90	132	0.87	74	37	0	111	0.77	0	0	0	0	0.00	0	36	68	104	0.68	132	215	347
4:45 PM - 5:45 PM	43	0	93	136	0.89	85	41	0	126	0.85	0	0	0	0	0.00	0	32	57	89	0.82	136	215	351
5:00 PM - 6:00 PM	51	0	88	139	0.87	76	46	0	122	0.82	0	0	0	0	0.00	0	25	51	76	0.83	139	198	337
5:15 PM - 6:15 PM	53	0	89	142	0.87	73	60	0	133	0.90	0	0	0	0	0.00	0	23	49	72	0.78	142	205	347
5:30 PM - 6:30 PM	**62**	**0**	**102**	**164**	**0.91**	**62**	**61**	**0**	**123**	**0.83**	**0**	**0**	**0**	**0**	**0.00**	**0**	**19**	**46**	**65**	**0.71**	**164**	**188**	**352**
5:45 PM - 6:45 PM	61	0	92	153	0.85	51	71	0	122	0.85	0	0	0	0	0.00	0	20	37	57	0.95	153	179	332
6:00 PM - 7:00 PM	54	0	87	141	0.78	54	70	0	124	0.86	0	0	0	0	0.00	0	18	35	53	0.88	141	177	318

Wells + Associates, Inc.

McLean, Virginia

Turning Movement Count - Bicycles

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: James Madison Dr. & Windower Ave.
LOCATION: Town of Vienna,VA

DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan

SOUTHBOUND ROAD: Windower Avenue
NORTHBOUND ROAD: 0
WESTBOUND ROAD: James Madison Drive
EASTBOUND ROAD: James Madison Drive

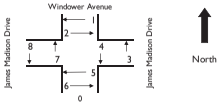
Time Period	Southbound Windower Avenue				Westbound James Madison Drive				Northbound 0				Eastbound James Madison Drive				North & South	East & West	Total
	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total	Right	Thru	Left	Total			
AM 15 Minute Volumes																			
6:00 AM - 6:15 AM				0				0				0				0	0	0	0
6:15 AM - 6:30 AM				0				0				0				0	0	0	0
6:30 AM - 6:45 AM				0				0				0				0	0	0	0
6:45 AM - 7:00 AM				0	1			1	1			1				0	1	1	2
7:00 AM - 7:15 AM				0				0				0				0	0	0	0
7:15 AM - 7:30 AM	1			1				0				0				0	1	0	1
7:30 AM - 7:45 AM				0		1		1				0				0	0	1	1
7:45 AM - 8:00 AM	3			3		1		1				0				0	3	1	4
8:00 AM - 8:15 AM				0		1		1				0				0	0	1	1
8:15 AM - 8:30 AM				0				0				0				0	0	0	0
8:30 AM - 8:45 AM				0				0				0				0	0	0	0
8:45 AM - 9:00 AM				0				0				0				0	0	0	0
Total	4	0	0	4	1	3	0	4	1	0	0	1	0	0	0	0	5	4	9
AM One Hour Volumes																			
6:00 AM - 7:00 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	1	1	2
6:15 AM - 7:15 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	1	1	2
6:30 AM - 7:30 AM	1	0	0	1	1	0	0	1	1	0	0	1	0	0	0	0	2	1	3
6:45 AM - 7:45 AM	1	0	0	1	1	1	0	2	1	0	0	1	0	0	0	0	2	2	4
7:00 AM - 8:00 AM	**4**	**0**	**0**	**4**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**6**
7:15 AM - 8:15 AM	4	0	0	4	0	3	0	3	0	0	0	0	0	0	0	0	4	3	7
7:30 AM - 8:30 AM	3	0	0	3	0	3	0	3	0	0	0	0	0	0	0	0	3	3	6
7:45 AM - 8:45 AM	3	0	0	3	0	2	0	2	0	0	0	0	0	0	0	0	3	2	5
8:00 AM - 9:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	1
PM 15 Minute Volumes																			
4:00 PM - 4:15 PM				0		1		1				0				0	0	1	1
4:15 PM - 4:30 PM				0				0				0		1		1	0	1	1
4:30 PM - 4:45 PM				0				0				0				0	0	0	0
4:45 PM - 5:00 PM				0	1			1				0				0	0	1	1
5:00 PM - 5:15 PM				0				0				0				0	0	0	0
5:15 PM - 5:30 PM				0				0				0				0	0	0	0
5:30 PM - 5:45 PM	1			1				0				0				0	1	0	1
5:45 PM - 6:00 PM				0				0				0				0	0	0	0
6:00 PM - 6:15 PM				0				0				0				0	0	0	0
6:15 PM - 6:30 PM				0				0				0				0	0	0	0
6:30 PM - 6:45 PM			1	1				0				0				0	1	0	1
6:45 PM - 7:00 PM				0				0				0				0	0	0	0
Total	1	0	1	2	1	1	0	2	0	0	0	0	0	1	0	1	2	3	5
PM One Hour Volumes																			
4:00 PM - 5:00 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	1	0	1	0	3	3
4:15 PM - 5:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	0	2	2
4:30 PM - 5:30 PM	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1
4:45 PM - 5:45 PM	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	1	1	2
5:00 PM - 6:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM - 6:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM - 6:30 PM	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
5:45 PM - 6:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
6:00 PM - 7:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1

Wells + Associates, Inc.

McLean, Virginia

Pedestrian Volume Survey

PROJECT: CFA Flagship Carwash
W+A JOB NO: 6268
INTERSECTION: James Madison Dr. & Windower Ave.
LOCATION: Town of Vienna,VA
DATE: 3/31/2016
DAY: Thursday
WEATHER: clear
COUNTED BY: Luz
INPUTED BY: agan



Time Period	Movement 1	2	3	4	5	6	7	8	1 + 2	3 + 4	5 + 6	7+ 8	Total
AM 15 Minute Volumes													
6:00 AM - 6:15 AM													
6:15 AM - 6:30 AM						1							
6:30 AM - 6:45 AM													
6:45 AM - 7:00 AM													
7:00 AM - 7:15 AM	4												
7:15 AM - 7:30 AM	4												
7:30 AM - 7:45 AM	12	9											
7:45 AM - 8:00 AM	41	9			4								
8:00 AM - 8:15 AM	20	4											
8:15 AM - 8:30 AM	4												
8:30 AM - 8:45 AM	5												
8:45 AM - 9:00 AM	1												
Total	91	22	0	0	4	1	0	0					
AM One Hour Volumes													
6:00 AM - 7:00 AM	0	0	0	0	0	1	0	0	0	0	1	0	1
6:15 AM - 7:15 AM	4	0	0	0	0	1	0	0	4	0	1	0	5
6:30 AM - 7:30 AM	8	0	0	0	0	0	0	0	8	0	0	0	8
6:45 AM - 7:45 AM	20	9	0	0	0	0	0	0	29	0	0	0	29
7:00 AM - 8:00 AM	**61**	**18**	**0**	**0**	**4**	**0**	**0**	**0**	**79**	**0**	**4**	**0**	**83**
7:15 AM - 8:15 AM	77	22	0	0	4	0	0	0	99	0	4	0	103
7:30 AM - 8:30 AM	77	22	0	0	4	0	0	0	99	0	4	0	103
7:45 AM - 8:45 AM	70	13	0	0	4	0	0	0	83	0	4	0	87
8:00 AM - 9:00 AM	30	4	0	0	0	0	0	0	34	0	0	0	34
PM 15 Minute Volumes													
4:00 PM - 4:15 PM	19	5											
4:15 PM - 4:30 PM	2	2											
4:30 PM - 4:45 PM	1	2											
4:45 PM - 5:00 PM	10	1											
5:00 PM - 5:15 PM	5	10			2								
5:15 PM - 5:30 PM		7											
5:30 PM - 5:45 PM													
5:45 PM - 6:00 PM													
6:00 PM - 6:15 PM	1												
6:15 PM - 6:30 PM		1											
6:30 PM - 6:45 PM	1	1	2										
6:45 PM - 7:00 PM	1			1									
Total	40	29	2	1	2	0	0	0					
PM One Hour Volumes													
4:00 PM - 5:00 PM	32	10	0	0	0	0	0	0	42	0	0	0	42
4:15 PM - 5:15 PM	18	15	0	0	2	0	0	0	33	0	2	0	35
4:30 PM - 5:30 PM	16	20	0	0	2	0	0	0	36	0	2	0	38
4:45 PM - 5:45 PM	15	18	0	0	2	0	0	0	33	0	2	0	35
5:00 PM - 6:00 PM	5	17	0	0	2	0	0	0	22	0	2	0	24
5:15 PM - 6:15 PM	1	7	0	0	0	0	0	0	8	0	0	0	8
5:30 PM - 6:30 PM	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**
5:45 PM - 6:45 PM	2	2	2	0	0	0	0	0	4	2	0	0	6
6:00 PM - 7:00 PM	3	2	2	1	0	0	0	0	5	3	0	0	8

APPENDIX C

Appendix C - Existing Capacity Analyses

Transportation Consultants
INNOVATION + SOLUTIONS

Queues
1: Maple Avenue & Nutley Street

4/3/2016

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	78	326	177	183	319	14	1374	191	553
v/c Ratio	0.22	0.89	0.73	0.73	0.56	0.03	0.88	0.87	0.30
Control Delay	64.8	99.0	94.5	93.6	16.8	21.1	55.3	90.3	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.8	99.0	94.5	93.6	16.8	21.1	55.3	90.3	26.9
Queue Length 50th (ft)	82	395	226	234	72	8	836	188	212
Queue Length 95th (ft)	137	#556	289	297	138	21	#972	#346	287
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)	250		215			60		285	
Base Capacity (vph)	372	389	327	340	574	556	1568	225	1868
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.84	0.54	0.54	0.56	0.03	0.88	0.85	0.30

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street

4/3/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	283	17	188	118	271	12	1059	109	176	472	37
Future Volume (vph)	72	283	17	188	118	271	12	1059	109	176	472	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1846		1681	1749	1565	1762	3477		1770	3489	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.45	1.00		0.04	1.00	
Satd. Flow (perm)	1770	1846		1681	1749	1565	825	3477		82	3489	
Peak-hour factor, PHF	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	78	308	18	221	139	319	14	1246	128	191	513	40
RTOR Reduction (vph)	0	1	0	0	0	185	0	4	0	0	2	0
Lane Group Flow (vph)	78	325	0	177	183	134	14	1370	0	191	551	0
Confl. Peds. (#/hr)	2		1	1		2	6		3	3		6
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	35.7	35.7		25.4	25.4	42.8	87.5	83.5		107.9	96.9	
Effective Green, g (s)	37.7	37.7		27.4	27.4	46.8	91.5	85.5		109.9	98.9	
Actuated g/C Ratio	0.20	0.20		0.14	0.14	0.25	0.48	0.45		0.58	0.52	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	351	366		242	252	426	426	1564		219	1816	
v/s Ratio Prot	0.04	c0.18		c0.11	0.10	0.03	0.00	0.39		c0.09	0.16	
v/s Ratio Perm						0.05	0.01			c0.41		
v/c Ratio	0.22	0.89		0.73	0.73	0.32	0.03	0.88		0.87	0.30	
Uniform Delay, d1	63.9	74.1		77.8	77.7	58.5	25.7	47.4		63.6	25.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	22.0		10.8	10.0	0.4	0.0	7.2		29.4	0.4	
Delay (s)	64.2	96.1		88.6	87.7	58.9	25.8	54.6		92.9	26.4	
Level of Service	E	F		F	F	E	C	D		F	C	
Approach Delay (s)		90.0			74.4			54.4			43.5	
Approach LOS		F			E			D			D	

Intersection Summary

HCM 2000 Control Delay	60.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive

4/3/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	16	1142	0	0	677
Future Volume (Veh/h)	0	16	1142	0	0	677
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	19	1241	0	0	736
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.92					
vC, conflicting volume	1612	624			1244	
vC1, stage 1 conf vol	1244					
vC2, stage 2 conf vol	368					
vCu, unblocked vol	1484	624			1244	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	196	428			554	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	19	827	414	368	368
Volume Left	0	0	0	0	0
Volume Right	19	0	0	0	0
cSH	428	1700	1700	1700	1700
Volume to Capacity	0.04	0.49	0.24	0.22	0.22
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	13.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.8	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

4/3/2016

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	45	1096	0	0	677
Future Volume (Veh/h)	0	45	1096	0	0	677
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	53	1191	0	0	736
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.92					
vC, conflicting volume	1562	598			1194	
vC1, stage 1 conf vol	1194					
vC2, stage 2 conf vol	368					
vCu, unblocked vol	1431	598			1194	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	88			100	
cM capacity (veh/h)	208	444			579	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	53	794	397	368	368
Volume Left	0	0	0	0	0
Volume Right	53	0	0	0	0
cSH	444	1700	1700	1700	1700
Volume to Capacity	0.12	0.47	0.23	0.22	0.22
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	14.2	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.2	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.4		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive 4/3/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1	47	6	5	6	99	1059	28	44	465	107
Future Volume (Veh/h)	37	1	47	6	5	6	99	1059	28	44	465	107
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	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	44	1	55	7	6	7	108	1151	30	52	547	126
Pedestrians		23			3			3			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			0			0			1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1542	2137	362	1794	2185	604	696			1184		
vC1, stage 1 conf vol	737	737		1385	1385							
vC2, stage 2 conf vol	804	1400		408	800							
vCu, unblocked vol	1425	2068	152	1697	2120	604	512			1184		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	73	99	93	94	95	98	89			91		
cM capacity (veh/h)	164	103	786	108	118	437	953			584		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	100	20	108	767	414	52	365	308
Volume Left	44	7	108	0	0	52	0	0
Volume Right	55	7	0	0	30	0	0	126
cSH	360	173	953	1700	1700	584	1700	1700
Volume to Capacity	0.28	0.12	0.11	0.45	0.24	0.09	0.21	0.18
Queue Length 95th (ft)	28	10	10	0	0	7	0	0
Control Delay (s)	21.4	31.4	9.3	0.0	0.0	11.8	0.0	0.0
Lane LOS	C	D	A			B		
Approach Delay (s)	21.4	31.4	0.8			0.8		
Approach LOS	C	D						

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	52.7%	ICU Level of Service		A
Analysis Period (min)	15			

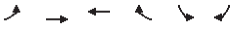
HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street 4/3/2016

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	225	39	21	124	9	29	52	106	38	75	24
Future Volume (vph)	20	225	39	21	124	9	29	52	106	38	75	24
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	265	46	25	146	11	34	61	125	45	88	28

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	335	182	220	161
Volume Left (vph)	24	25	34	45
Volume Right (vph)	46	11	125	28
Hadj (s)	0.00	0.04	-0.18	-0.01
Departure Headway (s)	5.3	5.6	5.5	5.7
Degree Utilization, x	0.49	0.28	0.33	0.26
Capacity (veh/h)	639	587	596	561
Control Delay (s)	13.4	10.8	11.2	10.7
Approach Delay (s)	13.4	10.8	11.2	10.7
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.8			
Level of Service	B			
Intersection Capacity Utilization	37.4%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue 4/3/2016



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	113	38	234	79	35	102
Future Volume (Veh/h)	113	38	234	79	35	102
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	133	45	275	93	41	120
Pedestrians					79	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					7	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	447				712	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	447				712	400
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	87				87	80
cM capacity (veh/h)	992				323	603

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	178	368	161
Volume Left	133	0	41
Volume Right	0	93	120
cSH	992	1700	494
Volume to Capacity	0.13	0.22	0.33
Queue Length 95th (ft)	12	0	35
Control Delay (s)	7.2	0.0	15.8
Lane LOS	A		C
Approach Delay (s)	7.2	0.0	15.8
Approach LOS			C

Intersection Summary				
Average Delay	5.4			
Intersection Capacity Utilization	44.9%	ICU Level of Service		A
Analysis Period (min)	15			

HCM 2010 AWSC
5: Windover Avenue & Nutley Street 4/4/2016

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	20	225	39	0	21	124	9	0	29	52	106
Future Vol, veh/h	0	20	225	39	0	21	124	9	0	29	52	106
Peak Hour Factor	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	3	10	2	2	3	2	2	7	4	10
Mvmt Flow	0	24	265	46	0	25	146	11	0	34	61	125
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.2	10.7	11.1
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	7%	14%	28%
Vol Thru, %	28%	79%	81%	55%
Vol Right, %	57%	14%	6%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	187	284	154	137
LT Vol	29	20	21	38
Through Vol	52	225	124	75
RT Vol	106	39	9	24
Lane Flow Rate	220	334	181	161
Geometry Grp	1	1	1	1
Degree of Util (X)	0.329	0.486	0.278	0.253
Departure Headway (Hd)	5.39	5.232	5.528	5.662
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	664	688	649	632
Service Time	3.439	3.273	3.577	3.715
HCM Lane V/C Ratio	0.331	0.485	0.279	0.255
HCM Control Delay	11.1	13.2	10.7	10.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.4	2.7	1.1	1

HCM 2010 AWSC
5: Windover Avenue & Nutley Street 4/4/2016

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	38	75	24
Future Vol, veh/h	0	38	75	24
Peak Hour Factor	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	45	88	28
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.6
HCM LOS	B

Lane

Queues
1: Maple Avenue & Nutley Street Existing pm Conditions

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	75	329	299	313	423	44	822	278	1260
v/c Ratio	0.21	0.90	0.93	0.94	0.62	0.28	0.61	0.83	0.77
Control Delay	64.5	100.0	109.6	110.1	17.2	27.8	46.7	47.7	47.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.5	100.0	109.6	110.1	17.2	27.8	46.7	47.7	47.8
Queue Length 50th (ft)	78	398	390	409	108	27	428	197	723
Queue Length 95th (ft)	132	#566	#545	#565	197	51	503	#281	806
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)			215			60		285	
Base Capacity (vph)	372	385	327	340	683	255	1358	336	1635
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.85	0.91	0.92	0.62	0.17	0.61	0.83	0.77

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

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street Existing pm Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	266	37	326	200	364	40	581	167	245	1070	39
Future Volume (vph)	69	266	37	326	200	364	40	581	167	245	1070	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98	1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1821		1681	1747	1558	1770	3364		1770	3510	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.09	1.00		0.19	1.00	
Satd. Flow (perm)	1770	1821		1681	1747	1558	174	3364		353	3510	
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	75	289	40	379	233	423	44	638	184	278	1216	44
RTOR Reduction (vph)	0	2	0	0	0	221	0	14	0	0	1	0
Lane Group Flow (vph)	75	327	0	299	313	202	44	808	0	278	1259	0
Confl. Peds. (#/hr)	4		8	8		4	17		11	11		17
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	36.0	36.0		34.3	34.3	52.0	80.6	74.0		98.7	85.1	
Effective Green, g (s)	38.0	38.0		36.3	36.3	56.0	84.6	76.0		100.7	87.1	
Actuated g/C Ratio	0.20	0.20		0.19	0.19	0.29	0.45	0.40		0.53	0.46	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	354	364		321	333	500	149	1345		334	1609	
v/s Ratio Prot	0.04	c0.18		0.18	c0.18	0.04	0.01	0.24		c0.09	0.36	
v/s Ratio Perm						0.09	0.12			c0.35		
v/c Ratio	0.21	0.90		0.93	0.94	0.40	0.30	0.60		0.83	0.78	
Uniform Delay, d1	63.5	74.1		75.6	75.8	53.6	35.7	45.0		31.0	43.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	23.6		32.8	33.5	0.5	1.1	2.0		16.1	3.9	
Delay (s)	63.8	97.7		108.4	109.3	54.2	36.8	47.0		47.0	47.3	
Level of Service	E	F		F	F	D	D	D		D	D	
Approach Delay (s)		91.4			86.5			46.5			47.3	
Approach LOS		F			F			D			D	

Intersection Summary				
HCM 2000 Control Delay	62.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	190.0	Sum of lost time (s)	20.0	
Intersection Capacity Utilization	84.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive Existing pm Conditions

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	20	780	8	0	1433
Future Volume (Veh/h)	0	20	780	8	0	1433
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	24	848	9	0	1558
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.70					
vC, conflicting volume	1642	440			868	
vC1, stage 1 conf vol	864					
vC2, stage 2 conf vol	779					
vCu, unblocked vol	1054	440			868	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	282	560			765	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	24	565	292	779	779
Volume Left	0	0	0	0	0
Volume Right	24	0	9	0	0
cSH	560	1700	1700	1700	1700
Volume to Capacity	0.04	0.33	0.17	0.46	0.46
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	11.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.7	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	42.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Existing pm Conditions

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	44	788	0	0	1433
Future Volume (Veh/h)	0	44	788	0	0	1433
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	52	857	0	0	1558
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.70					
vC, conflicting volume	1647	440			868	
vC1, stage 1 conf vol	868					
vC2, stage 2 conf vol	779					
vCu, unblocked vol	1061	440			868	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	281	560			765	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	52	571	286	779	779
Volume Left	0	0	0	0	0
Volume Right	52	0	0	0	0
cSH	560	1700	1700	1700	1700
Volume to Capacity	0.09	0.34	0.17	0.46	0.46
Queue Length 95th (ft)	8	0	0	0	0
Control Delay (s)	12.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.1	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	42.9%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Existing pm Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1	90	8	7	9	90	710	38	41	1153	112
Future Volume (Veh/h)	22	1	90	8	7	9	90	710	38	41	1153	112
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	0.92	0.92	0.92
Hourly flow rate (vph)	26	1	106	9	8	11	106	835	45	45	1253	122
Pedestrians		30			2			1			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			0			0			1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.71	0.71	0.71	0.71	0.71		0.71					
vC, conflicting volume	2076	2528	718	1842	2566	451	1405			882		
vC1, stage 1 conf vol	1434	1434		1072	1072							
vC2, stage 2 conf vol	642	1094		771	1495							
vCu, unblocked vol	1699	2335	0	1369	2389	451	753			882		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	99	86	94	91	98	82			94		
cM capacity (veh/h)	129	109	750	144	85	551	590			761		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	133	28	106	557	323	45	835	540
Volume Left	26	9	106	0	0	45	0	0
Volume Right	106	11	0	0	45	0	0	122
cSH	631	191	590	1700	1700	761	1700	1700
Volume to Capacity	0.21	0.15	0.18	0.33	0.19	0.06	0.49	0.32
Queue Length 95th (ft)	20	13	16	0	0	5	0	0
Control Delay (s)	16.6	29.6	12.4	0.0	0.0	10.0	0.0	0.0
Lane LOS	C	D	B			B		
Approach Delay (s)	16.6	29.6	1.3			0.3		
Approach LOS	C	D						

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	59.7%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Existing pm Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	240	41	16	247	24	40	29	48	61	108	31
Future Volume (vph)	5	240	41	16	247	24	40	29	48	61	108	31
Peak Hour Factor	0.90	0.90	0.90	0.88	0.88	0.88	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	267	46	18	281	27	47	34	56	72	127	36

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	319	326	137	235
Volume Left (vph)	6	18	47	72
Volume Right (vph)	46	27	56	36
Hadj (s)	-0.05	0.00	-0.14	0.00
Departure Headway (s)	5.6	5.6	6.1	6.0
Degree Utilization, x	0.49	0.51	0.23	0.39
Capacity (veh/h)	602	601	501	539
Control Delay (s)	13.9	14.3	10.9	12.8
Approach Delay (s)	13.9	14.3	10.9	12.8
Approach LOS	B	B	B	B

Intersection Summary				
Delay	13.4			
Level of Service	B			
Intersection Capacity Utilization	43.8%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue

Existing pm Conditions

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	19	101	102	102	62
Future Volume (Veh/h)	46	19	101	102	102	62
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.91	0.91
Hourly flow rate (vph)	54	22	119	120	112	68
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	241				311	181
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	241				311	181
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				83	92
cM capacity (veh/h)	1323				653	860

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	76	239	180
Volume Left	54	0	112
Volume Right	0	120	68
cSH	1323	1700	718
Volume to Capacity	0.04	0.14	0.25
Queue Length 95th (ft)	3	0	25
Control Delay (s)	5.7	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	5.7	0.0	11.7
Approach LOS			B

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	34.8%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	5	251	41	0	16	255	24	0	40	29	48
Future Vol, veh/h	0	5	251	41	0	16	255	24	0	40	29	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	5	273	45	0	17	277	26	0	43	32	52
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.5	13.6	10.6
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	2%	5%	30%
Vol Thru, %	25%	85%	86%	54%
Vol Right, %	41%	14%	8%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	297	295	200
LT Vol	40	5	16	61
Through Vol	29	251	255	108
RT Vol	48	41	24	31
Lane Flow Rate	127	323	321	217
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.485	0.485	0.355
Departure Headway (Hd)	5.94	5.409	5.45	5.884
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	600	662	657	609
Service Time	4.018	3.468	3.51	3.952
HCM Lane V/C Ratio	0.212	0.488	0.489	0.356
HCM Control Delay	10.6	13.5	13.6	12.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	2.7	2.7	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	61	108	31
Future Vol, veh/h	0	61	108	31
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	66	117	34
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.2
HCM LOS	B

Lane

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	92	230	206	214	422	58	1127	285	1011
v/c Ratio	0.31	0.75	0.92	0.92	0.71	0.20	0.76	0.88	0.56
Control Delay	56.5	72.4	105.8	105.4	27.0	16.0	40.0	59.4	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	72.4	105.8	105.4	27.0	16.0	40.0	59.4	27.4
Queue Length 50th (ft)	80	209	212	221	159	23	481	185	358
Queue Length 95th (ft)	132	297	#365	#374	270	47	601	#364	468
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)			215			60		285	
Base Capacity (vph)	354	366	224	232	591	461	1488	323	1805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.63	0.92	0.92	0.71	0.13	0.76	0.88	0.56

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	169	42	235	135	371	53	846	190	262	858	72
Future Volume (vph)	85	169	42	235	135	371	53	846	190	262	858	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1798		1681	1745	1564	1766	3413		1770	3476	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.22	1.00		0.10	1.00	
Satd. Flow (perm)	1770	1798		1681	1745	1564	410	3413		189	3476	
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	184	46	267	153	422	58	920	207	285	933	78
RTOR Reduction (vph)	0	7	0	0	0	175	0	12	0	0	3	0
Lane Group Flow (vph)	92	223	0	206	214	247	58	1115	0	285	1008	0
Confl. Peds. (#/hr)	5		5	5		5	20		6	6		20
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	23.1	23.1		18.0	18.0	36.0	69.4	62.9		87.9	74.4	
Effective Green, g (s)	25.1	25.1		20.0	20.0	40.0	73.4	64.9		89.9	76.4	
Actuated g/C Ratio	0.17	0.17		0.13	0.13	0.27	0.49	0.43		0.60	0.51	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	296	300		224	232	469	277	1476		324	1770	
v/s Ratio Prot	0.05	c0.12		0.12	c0.12	0.07	0.01	0.33		c0.12	0.29	
v/s Ratio Perm						0.09	0.09			c0.41		
v/c Ratio	0.31	0.74		0.92	0.92	0.53	0.21	0.76		0.88	0.57	
Uniform Delay, d1	54.9	59.4		64.2	64.2	46.9	21.0	35.9		37.9	25.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	9.6		38.3	38.3	1.1	0.4	3.6		22.7	1.3	
Delay (s)	55.5	69.0		102.5	102.6	48.0	21.4	39.5		60.6	26.8	
Level of Service	E	E		F	F	D	C	D		E	C	
Approach Delay (s)		65.1			75.2			38.6			34.2	
Approach LOS		E			E			D			C	

Intersection Summary			
HCM 2000 Control Delay	47.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive — Existing Saturday Conditions

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	43	982	11	0	1135
Future Volume (Veh/h)	0	43	982	11	0	1135
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	47	1067	12	0	1234
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.80					
vC, conflicting volume	1696	546			1085	
vC1, stage 1 conf vol	1079					
vC2, stage 2 conf vol	617					
vCu, unblocked vol	1376	546			1085	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			100	
cM capacity (veh/h)	228	480			635	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	47	711	368	617	617
Volume Left	0	0	0	0	0
Volume Right	47	0	12	0	0
cSH	480	1700	1700	1700	1700
Volume to Capacity	0.10	0.42	0.22	0.36	0.36
Queue Length 95th (ft)	8	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.3	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	37.5%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive — Existing Saturday Conditions

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	102	982	2	0	1135
Future Volume (Veh/h)	0	102	982	2	0	1135
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	111	1067	2	0	1234
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.80					
vC, conflicting volume	1691	540			1075	
vC1, stage 1 conf vol	1074					
vC2, stage 2 conf vol	617					
vCu, unblocked vol	1372	540			1075	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	77			100	
cM capacity (veh/h)	229	483			641	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	111	711	358	617	617
Volume Left	0	0	0	0	0
Volume Right	111	0	2	0	0
cSH	483	1700	1700	1700	1700
Volume to Capacity	0.23	0.42	0.21	0.36	0.36
Queue Length 95th (ft)	22	0	0	0	0
Control Delay (s)	14.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.7	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	40.2%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive — Existing Saturday Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1	43	18	1	12	73	982	23	138	876	21
Future Volume (Veh/h)	22	1	43	18	1	12	73	982	23	138	876	21
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	0.92	0.92	0.92	0.89	0.89	0.89
Hourly flow rate (vph)	26	1	51	21	1	14	79	1067	25	155	984	24
Pedestrians		13			5						9	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		1			0						1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	2020	2574	517	2070	2574	560	1021			1097		
vC1, stage 1 conf vol	1319	1319		1242	1242							
vC2, stage 2 conf vol	701	1255		828	1331							
vCu, unblocked vol	1818	2486	6	1879	2486	560	614			1097		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	98	94	80	99	97	90			75		
cM capacity (veh/h)	93	48	882	106	78	466	789			629		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	78	36	79	711	381	155	656	352
Volume Left	26	21	79	0	0	155	0	0
Volume Right	51	14	0	0	25	0	0	24
cSH	265	171	789	1700	1700	629	1700	1700
Volume to Capacity	0.29	0.21	0.10	0.42	0.22	0.25	0.39	0.21
Queue Length 95th (ft)	30	19	8	0	0	24	0	0
Control Delay (s)	26.9	34.7	10.1	0.0	0.0	12.6	0.0	0.0
Lane LOS	D	D	B			B		
Approach Delay (s)	26.9	34.7	0.7			1.7		
Approach LOS	D	D						

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	54.7%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX D

Appendix D - Background Capacity Analyses

Transportation Consultants
INNOVATION + SOLUTIONS

Queues
1: Maple Avenue & Nutley Street

Future AM Conditions without Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	337	169	175	303	13	1308	197	569
v/c Ratio	0.26	1.04	0.74	0.74	0.59	0.03	0.96	0.88	0.32
Control Delay	52.8	115.4	77.3	76.4	19.2	16.9	57.0	70.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	115.4	77.3	76.4	19.2	16.9	57.0	70.5	22.5
Queue Length 50th (ft)	64	~335	154	161	75	6	608	129	146
Queue Length 95th (ft)	116	#535	238	246	168	17	#770	#294	230
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)	250		215			60		285	
Base Capacity (vph)	310	324	264	274	539	393	1369	224	1755
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	1.04	0.64	0.64	0.56	0.03	0.96	0.88	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street

Future AM Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	292	18	194	122	279	12	1091	112	181	486	38
Future Volume (vph)	74	292	18	194	122	279	12	1091	112	181	486	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1844		1681	1749	1566	1764	3478		1770	3490	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.44	1.00		0.06	1.00	
Satd. Flow (perm)	1770	1844		1681	1749	1566	814	3478		120	3490	
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)	80	317	20	211	133	303	13	1186	122	197	528	41
RTOR Reduction (vph)	0	2	0	0	0	150	0	5	0	0	4	0
Lane Group Flow (vph)	80	335	0	169	175	153	13	1303	0	197	565	0
Confl. Peds. (#/hr)	2		1	1		2	6		3	3		6
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	24.5	24.5		19.0	19.0	32.6	57.3	54.9		75.5	66.1	
Effective Green, g (s)	24.5	24.5		19.0	19.0	32.6	57.3	54.9		75.5	66.1	
Actuated g/C Ratio	0.18	0.18		0.14	0.14	0.23	0.41	0.39		0.54	0.47	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	309	322		228	237	442	349	1363		225	1647	
v/s Ratio Prot	0.05	c0.18		c0.10	0.10	0.03	0.00	c0.37		c0.09	0.16	
v/s Ratio Perm						0.06	0.01			0.39		
v/c Ratio	0.26	1.04		0.74	0.74	0.35	0.04	0.96		0.88	0.34	
Uniform Delay, d1	49.9	57.8		58.1	58.1	44.8	24.6	41.4		41.9	23.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	61.4		12.2	11.4	0.5	0.0	15.9		29.3	0.6	
Delay (s)	50.4	119.1		70.3	69.5	45.3	24.7	57.2		71.2	23.8	
Level of Service	D	F		E	E	D	C	E		E	C	
Approach Delay (s)		105.9			58.4			56.9			36.0	
Approach LOS		F			E			E			D	

Intersection Summary

HCM 2000 Control Delay	58.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive

Future AM Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	16	1177	0	0	698
Future Volume (Veh/h)	0	16	1177	0	0	698
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	17	1279	0	0	759
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.90					
vC, conflicting volume	1662	642			1282	
vC1, stage 1 conf vol	1282					
vC2, stage 2 conf vol	380					
vCu, unblocked vol	1519	642			1282	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	187	415			536	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	17	853	426	380	380
Volume Left	0	0	0	0	0
Volume Right	17	0	0	0	0
cSH	415	1700	1700	1700	1700
Volume to Capacity	0.04	0.50	0.25	0.22	0.22
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	14.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.0	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.1		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Future AM Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	45	1131	0	0	698
Future Volume (Veh/h)	0	45	1131	0	0	698
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	49	1229	0	0	759
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.91					
vC, conflicting volume	1612	618			1232	
vC1, stage 1 conf vol	1232					
vC2, stage 2 conf vol	380					
vCu, unblocked vol	1466	618			1232	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	89			100	
cM capacity (veh/h)	199	431			560	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	49	819	410	380	380
Volume Left	0	0	0	0	0
Volume Right	49	0	0	0	0
cSH	431	1700	1700	1700	1700
Volume to Capacity	0.11	0.48	0.24	0.22	0.22
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	14.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.4	0.0		0.0	
Approach LOS	B				

Intersection Summary

Average Delay	0.3		
Intersection Capacity Utilization	41.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Future AM Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	1	47	6	5	6	149	1091	28	44	479	159
Future Volume (Veh/h)	37	1	47	6	5	6	149	1091	28	44	479	159
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)	40	1	51	7	5	7	162	1186	30	48	521	173
Pedestrians		23			3			3			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			0			0			1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1656	2270	373	1914	2341	621	717			1219		
vC1, stage 1 conf vol	726	726		1528	1528							
vC2, stage 2 conf vol	930	1543		386	813							
vCu, unblocked vol	1535	2204	137	1816	2282	621	512			1219		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	70	99	94	92	95	98	83			92		
cM capacity (veh/h)	133	79	796	84	94	426	945			566		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	92	19	162	791	425	48	347	347
Volume Left	40	7	162	0	0	48	0	0
Volume Right	51	7	0	0	30	0	0	173
cSH	269	140	945	1700	1700	566	1700	1700
Volume to Capacity	0.34	0.14	0.17	0.47	0.25	0.08	0.20	0.20
Queue Length 95th (ft)	37	11	15	0	0	7	0	0
Control Delay (s)	25.2	37.9	9.6	0.0	0.0	11.9	0.0	0.0
Lane LOS	D	E	A			B		
Approach Delay (s)	25.2	37.9	1.1			0.8		
Approach LOS	D	E						

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	53.6%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Future AM Conditions without Development

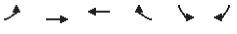
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	20	237	39	21	129	9	29	52	106	38	75	24
Future Volume (vph)	20	237	39	21	129	9	29	52	106	38	75	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	22	258	42	23	140	10	32	57	115	41	82	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	322	173	204	149
Volume Left (vph)	22	23	32	41
Volume Right (vph)	42	10	115	26
Hadj (s)	0.00	0.04	-0.17	-0.02
Departure Headway (s)	5.2	5.4	5.3	5.6
Degree Utilization, x	0.46	0.26	0.30	0.23
Capacity (veh/h)	654	605	609	577
Control Delay (s)	12.6	10.4	10.6	10.2
Approach Delay (s)	12.6	10.4	10.6	10.2
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.2			
Level of Service	B			
Intersection Capacity Utilization	38.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue

Future AM Conditions without Development



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	113	38	234	79	35	102
Future Volume (Veh/h)	113	38	234	79	35	102
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)	123	41	254	86	38	111
Pedestrians					79	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					7	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	419				663	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419				663	376
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	88				89	82
cM capacity (veh/h)	1017				350	622

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	164	340	149
Volume Left	123	0	38
Volume Right	0	86	111
cSH	1017	1700	519
Volume to Capacity	0.12	0.20	0.29
Queue Length 95th (ft)	10	0	29
Control Delay (s)	7.1	0.0	14.7
Lane LOS	A		B
Approach Delay (s)	7.1	0.0	14.7
Approach LOS			B

Intersection Summary				
Average Delay	5.1			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM 2010 AWSC
5: Windover Avenue & Nutley Street

Future AM Conditions without Development

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	20	237	39	0	21	129	9	0	29	52	106
Future Vol, veh/h	0	20	237	39	0	21	129	9	0	29	52	106
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	3	10	2	2	3	2	2	7	4	10
Mvmt Flow	0	22	258	42	0	23	140	10	0	32	57	115
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.4	10.3	10.6
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	7%	13%	28%
Vol Thru, %	28%	80%	81%	55%
Vol Right, %	57%	13%	6%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	187	296	159	137
LT Vol	29	20	21	38
Through Vol	52	237	129	75
RT Vol	106	39	9	24
Lane Flow Rate	203	322	173	149
Geometry Grp	1	1	1	1
Degree of Util (X)	0.298	0.457	0.259	0.229
Departure Headway (Hd)	5.277	5.113	5.39	5.539
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	681	705	665	648
Service Time	3.317	3.146	3.428	3.581
HCM Lane V/C Ratio	0.298	0.457	0.26	0.23
HCM Control Delay	10.6	12.4	10.3	10.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.2	2.4	1	0.9

HCM 2010 AWSC
5: Windover Avenue & Nutley Street — Future AM Conditions without Development

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	38	75	24
Future Vol, veh/h	0	38	75	24
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	41	82	26
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.2
HCM LOS	B

Lane

Queues
1: Maple Avenue & Nutley Street — Future PM Conditions without Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	77	339	288	301	408	45	838	274	1241
v/c Ratio	0.22	0.95	0.91	0.91	0.54	0.39	0.78	0.89	0.84
Control Delay	56.3	98.5	94.9	94.8	13.7	34.4	54.6	62.1	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	98.5	94.9	94.8	13.7	34.4	54.6	62.1	48.6
Queue Length 50th (ft)	69	352	312	327	90	25	414	190	630
Queue Length 95th (ft)	121	#555	#490	#508	196	49	500	#354	732
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)			215			60		285	
Base Capacity (vph)	346	360	325	338	755	116	1086	316	1487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.94	0.89	0.89	0.54	0.39	0.77	0.87	0.83

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

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street — Future PM Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	274	38	336	206	375	41	599	172	252	1102	40
Future Volume (vph)	71	274	38	336	206	375	41	599	172	252	1102	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1822		1681	1747	1583	1770	3369		1770	3511	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.09	1.00		0.13	1.00	
Satd. Flow (perm)	1770	1822		1681	1747	1583	161	3369		238	3511	
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)	77	298	41	365	224	408	45	651	187	274	1198	43
RTOR Reduction (vph)	0	3	0	0	0	185	0	16	0	0	2	0
Lane Group Flow (vph)	77	336	0	288	301	223	45	822	0	274	1239	0
Confl. Peds. (#/hr)	4		8	8		4	17		11	11		17
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	8 1	5	2		1	6	
Permitted Phases							2			6		
Actuated Green, G (s)	31.1	31.1		30.2	30.2	57.5	55.2	50.4		77.7	65.9	
Effective Green, g (s)	31.1	31.1		30.2	30.2	57.5	55.2	50.4		77.7	65.9	
Actuated g/C Ratio	0.19	0.19		0.19	0.19	0.36	0.35	0.31		0.49	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	344	354		317	329	568	103	1061		309	1446	
v/s Ratio Prot	0.04	c0.18		0.17	c0.17	0.14	0.01	0.24		c0.11	c0.35	
v/s Ratio Perm							0.14			c0.32		
v/c Ratio	0.22	0.95		0.91	0.91	0.39	0.44	0.77		0.89	0.86	
Uniform Delay, d1	54.3	63.7		63.5	63.6	38.2	38.6	49.6		36.5	42.8	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	34.2		28.1	28.8	0.4	2.9	5.5		24.8	6.8	
Delay (s)	54.6	97.9		91.7	92.4	38.7	41.6	55.2		61.3	49.5	
Level of Service	D	F		F	F	D	D	E		E	D	
Approach Delay (s)		89.9			70.2			54.5			51.6	
Approach LOS		F			E			D			D	

Intersection Summary				
HCM 2000 Control Delay	61.3	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0	
Intersection Capacity Utilization	92.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive — Future PM Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	20	804	8	0	1476
Future Volume (Veh/h)	0	20	804	8	0	1476
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	22	874	9	0	1604
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.68					
vC, conflicting volume	1692	452			894	
vC1, stage 1 conf vol	890					
vC2, stage 2 conf vol	802					
vCu, unblocked vol	1067	452			894	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	273	549			748	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	22	583	300	802	802
Volume Left	0	0	0	0	0
Volume Right	22	0	9	0	0
cSH	549	1700	1700	1700	1700
Volume to Capacity	0.04	0.34	0.18	0.47	0.47
Queue Length 95th (ft)	3	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.8	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	44.1%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Future PM Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	44	812	0	0	1476
Future Volume (Veh/h)	0	44	812	0	0	1476
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	48	883	0	0	1604
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.68					
vC, conflicting volume	1696	452			894	
vC1, stage 1 conf vol	894					
vC2, stage 2 conf vol	802					
vCu, unblocked vol	1072	452			894	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	91			100	
cM capacity (veh/h)	271	549			748	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	589	294	802	802
Volume Left	0	0	0	0	0
Volume Right	48	0	0	0	0
cSH	549	1700	1700	1700	1700
Volume to Capacity	0.09	0.35	0.17	0.47	0.47
Queue Length 95th (ft)	7	0	0	0	0
Control Delay (s)	12.2	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.2	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	44.1%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Future PM Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1	90	8	7	9	90	732	38	41	1188	112
Future Volume (Veh/h)	22	1	90	8	7	9	90	732	38	41	1188	112
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)	24	1	98	9	8	10	98	796	41	45	1291	122
Pedestrians		30			2			1			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			0			0			1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.69	0.69	0.69	0.69	0.69		0.69					
vC, conflicting volume	2079	2507	738	1800	2548	430	1443			839		
vC1, stage 1 conf vol	1472	1472		1014	1014							
vC2, stage 2 conf vol	607	1035		786	1533							
vCu, unblocked vol	1663	2284	0	1259	2343	430	740			839		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	82	99	87	94	91	98	83			94		
cM capacity (veh/h)	132	114	728	157	88	569	579			790		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	123	27	98	531	306	45	861	552
Volume Left	24	9	98	0	0	45	0	0
Volume Right	98	10	0	0	41	0	0	122
cSH	648	198	579	1700	1700	790	1700	1700
Volume to Capacity	0.19	0.14	0.17	0.31	0.18	0.06	0.51	0.32
Queue Length 95th (ft)	17	12	15	0	0	5	0	0
Control Delay (s)	16.4	28.4	12.5	0.0	0.0	9.8	0.0	0.0
Lane LOS	C	D	B			A		
Approach Delay (s)	16.4	28.4	1.3			0.3		
Approach LOS	C	D						

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	60.6%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Future PM Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	251	41	16	255	24	40	29	48	61	108	31
Future Volume (vph)	5	251	41	16	255	24	40	29	48	61	108	31
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)	5	273	45	17	277	26	43	32	52	66	117	34

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	323	320	127	217
Volume Left (vph)	5	17	43	66
Volume Right (vph)	45	26	52	34
Hadj (s)	-0.05	0.00	-0.14	0.00
Departure Headway (s)	5.5	5.5	6.0	5.9
Degree Utilization, x	0.49	0.49	0.21	0.36
Capacity (veh/h)	619	615	510	544
Control Delay (s)	13.6	13.6	10.6	12.2
Approach Delay (s)	13.6	13.6	10.6	12.2
Approach LOS	B	B	B	B

Intersection Summary				
Delay	12.9			
Level of Service	B			
Intersection Capacity Utilization	44.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue

Future PM Conditions without Development

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	46	19	101	102	102	62
Future Volume (Veh/h)	46	19	101	102	102	62
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)	50	21	110	111	111	67
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	223				288	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	223				288	168
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				84	92
cM capacity (veh/h)	1344				675	875

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	71	221	178
Volume Left	50	0	111
Volume Right	0	111	67
cSH	1344	1700	738
Volume to Capacity	0.04	0.13	0.24
Queue Length 95th (ft)	3	0	24
Control Delay (s)	5.6	0.0	11.4
Lane LOS	A		B
Approach Delay (s)	5.6	0.0	11.4
Approach LOS			B

Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	34.8%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	5	251	41	0	16	255	24	0	40	29	48
Future Vol, veh/h	0	5	251	41	0	16	255	24	0	40	29	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	5	273	45	0	17	277	26	0	43	32	52
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.5	13.6	10.6
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	34%	2%	5%	30%
Vol Thru, %	25%	85%	86%	54%
Vol Right, %	41%	14%	8%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	117	297	295	200
LT Vol	40	5	16	61
Through Vol	29	251	255	108
RT Vol	48	41	24	31
Lane Flow Rate	127	323	321	217
Geometry Grp	1	1	1	1
Degree of Util (X)	0.21	0.485	0.485	0.355
Departure Headway (Hd)	5.94	5.409	5.45	5.884
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	600	662	657	609
Service Time	4.018	3.468	3.51	3.952
HCM Lane V/C Ratio	0.212	0.488	0.489	0.356
HCM Control Delay	10.6	13.5	13.6	12.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.8	2.7	2.7	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	61	108	31
Future Vol, veh/h	0	61	108	31
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	66	117	34
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.2
HCM LOS	B

Lane

Queues
1: Maple Avenue & Nutley Street
Future Saturday Conditions without Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	96	236	203	211	415	60	1161	293	1041
v/c Ratio	0.32	0.76	0.91	0.91	0.71	0.21	0.78	0.94	0.58
Control Delay	56.4	73.1	103.4	103.0	27.4	16.4	41.5	72.6	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.4	73.1	103.4	103.0	27.4	16.4	41.5	72.6	28.1
Queue Length 50th (ft)	83	215	209	217	160	24	506	206	377
Queue Length 95th (ft)	137	306	#371	#381	284	48	627	#400	485
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)			215			60		285	
Base Capacity (vph)	354	365	224	232	585	449	1479	313	1796
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.65	0.91	0.91	0.71	0.13	0.78	0.94	0.58

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

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street
Future Saturday Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	88	174	43	242	139	382	55	872	196	270	884	74
Future Volume (vph)	88	174	43	242	139	382	55	872	196	270	884	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1798		1681	1745	1564	1767	3413		1770	3476	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.21	1.00		0.09	1.00	
Satd. Flow (perm)	1770	1798		1681	1745	1564	386	3413		167	3476	
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)	96	189	47	263	151	415	60	948	213	293	961	80
RTOR Reduction (vph)	0	6	0	0	0	169	0	12	0	0	3	0
Lane Group Flow (vph)	96	230	0	203	211	246	60	1149	0	293	1038	0
Confl. Peds. (#/hr)	5		5	5		5	20		6	6		20
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	23.5	23.5		18.0	18.0	36.0	69.0	62.5		87.5	74.0	
Effective Green, g (s)	25.5	25.5		20.0	20.0	40.0	73.0	64.5		89.5	76.0	
Actuated g/C Ratio	0.17	0.17		0.13	0.13	0.27	0.49	0.43		0.60	0.51	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	305		224	232	469	266	1467		313	1761	
v/s Ratio Prot	0.05	c0.13		0.12	c0.12	0.07	0.01	0.34		c0.12	0.30	
v/s Ratio Perm						0.09	0.10			c0.43		
v/c Ratio	0.32	0.75		0.91	0.91	0.53	0.23	0.78		0.94	0.59	
Uniform Delay, d1	54.6	59.3		64.1	64.1	46.9	21.4	36.7		42.4	26.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	10.1		35.5	35.2	1.1	0.4	4.2		34.2	1.5	
Delay (s)	55.3	69.4		99.5	99.3	48.0	21.8	41.0		76.5	27.5	
Level of Service	E	E		F	F	D	C	D		E	C	
Approach Delay (s)		65.3			73.6			40.1			38.3	
Approach LOS		E			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	49.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive — Future Saturday Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	43	1012	11	0	1169
Future Volume (Veh/h)	0	43	1012	11	0	1169
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	47	1100	12	0	1271
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.79					
vC, conflicting volume	1748	562			1118	
vC1, stage 1 conf vol	1112					
vC2, stage 2 conf vol	636					
vCu, unblocked vol	1419	562			1118	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	90			100	
cM capacity (veh/h)	219	468			617	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	47	733	379	636	636
Volume Left	0	0	0	0	0
Volume Right	47	0	12	0	0
cSH	468	1700	1700	1700	1700
Volume to Capacity	0.10	0.43	0.22	0.37	0.37
Queue Length 95th (ft)	8	0	0	0	0
Control Delay (s)	13.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	13.6	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	38.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive — Future Saturday Conditions without Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	102	1012	2	0	1169
Future Volume (Veh/h)	0	102	1012	2	0	1169
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	111	1100	2	0	1271
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.79					
vC, conflicting volume	1742	557			1108	
vC1, stage 1 conf vol	1107					
vC2, stage 2 conf vol	636					
vCu, unblocked vol	1415	557			1108	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	76			100	
cM capacity (veh/h)	220	471			623	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	111	733	369	636	636
Volume Left	0	0	0	0	0
Volume Right	111	0	2	0	0
cSH	471	1700	1700	1700	1700
Volume to Capacity	0.24	0.43	0.22	0.37	0.37
Queue Length 95th (ft)	23	0	0	0	0
Control Delay (s)	15.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	15.0	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	41.0%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive — Future Saturday Conditions without Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1	43	18	1	12	73	1012	23	138	903	21
Future Volume (Veh/h)	22	1	43	18	1	12	73	1012	23	138	903	21
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)	24	1	47	20	1	13	79	1100	25	150	982	23
Pedestrians		13			5						9	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		1			0						1	
Right turn flare (veh)			1			1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.82	0.82	0.82	0.82	0.82		0.82					
vC, conflicting volume	2024	2594	516	2090	2594	576	1018			1130		
vC1, stage 1 conf vol	1306	1306		1276	1276							
vC2, stage 2 conf vol	718	1288		815	1318							
vCu, unblocked vol	1814	2507	0	1895	2506	576	591			1130		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	75	98	95	81	99	97	90			75		
cM capacity (veh/h)	95	46	882	104	79	455	798			611		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	72	34	79	733	392	150	655	350
Volume Left	24	20	79	0	0	150	0	0
Volume Right	47	13	0	0	25	0	0	23
cSH	267	167	798	1700	1700	611	1700	1700
Volume to Capacity	0.27	0.20	0.10	0.43	0.23	0.25	0.39	0.21
Queue Length 95th (ft)	27	18	8	0	0	24	0	0
Control Delay (s)	26.1	35.1	10.0	0.0	0.0	12.8	0.0	0.0
Lane LOS	D	E	B			B		
Approach Delay (s)	26.1	35.1	0.7			1.7		
Approach LOS	D	E						

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	55.5%	ICU Level of Service		B
Analysis Period (min)	15			

APPENDIX E

Appendix E - Total Future Capacity Analyses

Transportation Consultants
INNOVATION + SOLUTIONS

Queues
1: Maple Avenue & Nutley Street

Future AM Conditions with Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	105	345	178	183	292	21	1324	188	587
v/c Ratio	0.35	1.09	0.77	0.76	0.60	0.05	0.95	0.88	0.35
Control Delay	54.8	129.8	79.2	78.0	23.2	17.1	55.9	71.3	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	129.8	79.2	78.0	23.2	17.1	55.9	71.3	24.3
Queue Length 50th (ft)	85	~351	163	167	93	9	621	122	188
Queue Length 95th (ft)	145	#552	251	256	187	23	#786	#275	238
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)	250		215			60		285	
Base Capacity (vph)	303	316	264	273	508	394	1391	214	1696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	1.09	0.67	0.67	0.57	0.05	0.95	0.88	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street

Future AM Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	97	288	29	215	117	269	19	1089	129	173	502	38
Future Volume (vph)	97	288	29	215	117	269	19	1089	129	173	502	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1834		1681	1743	1566	1764	3470		1770	3492	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.43	1.00		0.06	1.00	
Satd. Flow (perm)	1770	1834		1681	1743	1566	800	3470		118	3492	
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)	105	313	32	234	127	292	21	1184	140	188	546	41
RTOR Reduction (vph)	0	2	0	0	0	126	0	7	0	0	4	0
Lane Group Flow (vph)	105	343	0	178	183	166	21	1317	0	188	583	0
Confl. Peds. (#/hr)	2		1	1		2	6		3	3		6
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	24.0	24.0		19.3	19.3	32.1	59.5	55.9		75.7	65.1	
Effective Green, g (s)	24.0	24.0		19.3	19.3	32.1	59.5	55.9		75.7	65.1	
Actuated g/C Ratio	0.17	0.17		0.14	0.14	0.23	0.42	0.40		0.54	0.46	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	303	314		231	240	437	364	1385		214	1623	
v/s Ratio Prot	0.06	c0.19		c0.11	0.10	0.03	0.00	c0.38		c0.08	0.17	
v/s Ratio Perm						0.07	0.02			0.39		
v/c Ratio	0.35	1.09		0.77	0.76	0.38	0.06	0.95		0.88	0.36	
Uniform Delay, d1	51.1	58.0		58.2	58.1	45.5	23.4	40.7		41.5	24.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	77.3		14.6	13.4	0.6	0.1	15.0		30.8	0.6	
Delay (s)	51.8	135.3		72.8	71.5	46.1	23.5	55.8		72.3	24.7	
Level of Service	D	F		E	E	D	C	E		E	C	
Approach Delay (s)		115.8			60.5			55.3			36.2	
Approach LOS		F			E			E			D	

Intersection Summary

HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	28.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive

Future AM Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	60	1162	0	0	746
Future Volume (Veh/h)	0	60	1162	0	0	746
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	65	1263	0	0	811
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.90					
vC, conflicting volume	1672	634			1266	
vC1, stage 1 conf vol	1266					
vC2, stage 2 conf vol	406					
vCu, unblocked vol	1521	634			1266	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	85			100	
cM capacity (veh/h)	190	420			543	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	65	842	421	406	406
Volume Left	0	0	0	0	0
Volume Right	65	0	0	0	0
cSH	420	1700	1700	1700	1700
Volume to Capacity	0.15	0.50	0.25	0.24	0.24
Queue Length 95th (ft)	14	0	0	0	0
Control Delay (s)	15.1	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	15.1	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.5		
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Future AM Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	94	1137	42	0	746
Future Volume (Veh/h)	0	94	1137	42	0	746
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	102	1236	46	0	811
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.90					
vC, conflicting volume	1668	644			1285	
vC1, stage 1 conf vol	1262					
vC2, stage 2 conf vol	406					
vCu, unblocked vol	1519	644			1285	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	75			100	
cM capacity (veh/h)	191	414			534	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	102	824	458	406	406
Volume Left	0	0	0	0	0
Volume Right	102	0	46	0	0
cSH	414	1700	1700	1700	1700
Volume to Capacity	0.25	0.48	0.27	0.24	0.24
Queue Length 95th (ft)	24	0	0	0	0
Control Delay (s)	16.5	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	16.5	0.0		0.0	
Approach LOS	C				

Intersection Summary

Average Delay	0.8		
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Future AM Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	59	35	5	6	149	1106	41	106	456	159
Future Volume (Veh/h)	0	0	59	35	5	6	149	1106	41	106	456	159
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)	0	0	64	38	5	7	162	1202	45	115	496	173
Pedestrians		23			3			3			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			0			0			1	
Right turn flare (veh)						1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.92	0.92	0.92	0.92	0.92		0.92					
vC, conflicting volume	1773	2410	360	2096	2474	636	692			1250		
vC1, stage 1 conf vol	836	836		1552	1552							
vC2, stage 2 conf vol	938	1574		545	922							
vCu, unblocked vol	1672	2361	142	2022	2430	636	501			1250		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	92	48	93	98	83			79		
cM capacity (veh/h)	85	23	795	73	72	416	960			551		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	64	50	162	801	446	115	331	338
Volume Left	0	38	162	0	0	115	0	0
Volume Right	64	7	0	0	45	0	0	173
cSH	795	84	960	1700	1700	551	1700	1700
Volume to Capacity	0.08	0.60	0.17	0.47	0.26	0.21	0.19	0.20
Queue Length 95th (ft)	7	68	15	0	0	19	0	0
Control Delay (s)	9.9	98.1	9.5	0.0	0.0	13.2	0.0	0.0
Lane LOS	A	F	A			B		
Approach Delay (s)	9.9	98.1	1.1			1.9		
Approach LOS	A	F						

Intersection Summary				
Average Delay	3.7			
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Future AM Conditions with Development

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	239	39	21	131	9	29	52	134	38	75	24
Future Volume (vph)	20	239	39	21	131	9	29	52	134	38	75	24
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)	22	260	42	23	142	10	32	57	146	41	82	26

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	324	175	235	149
Volume Left (vph)	22	23	32	41
Volume Right (vph)	42	10	146	26
Hadj (s)	0.00	0.04	-0.21	-0.02
Departure Headway (s)	5.3	5.6	5.3	5.7
Degree Utilization, x	0.48	0.27	0.35	0.23
Capacity (veh/h)	640	590	611	564
Control Delay (s)	13.0	10.6	11.2	10.4
Approach Delay (s)	13.0	10.6	11.2	10.4
Approach LOS	B	B	B	B

Intersection Summary				
Delay	11.6			
Level of Service	B			
Intersection Capacity Utilization	39.4%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue

Future AM Conditions with Development

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	41	10	234	79	35	102
Future Volume (Veh/h)	41	10	234	79	35	102
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)	45	11	254	86	38	111
Pedestrians					79	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					7	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	419				477	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	419				477	376
tC, single (s)	4.2				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.3				3.5	3.3
p0 queue free %	96				92	82
cM capacity (veh/h)	1017				488	622

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	56	340	149
Volume Left	45	0	38
Volume Right	0	86	111
cSH	1017	1700	582
Volume to Capacity	0.04	0.20	0.26
Queue Length 95th (ft)	3	0	25
Control Delay (s)	7.1	0.0	13.3
Lane LOS	A		B
Approach Delay (s)	7.1	0.0	13.3
Approach LOS			B

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	40.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM 2010 AWSC
5: Windover Avenue & Nutley Street

Future AM Conditions with Development

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	20	239	39	0	21	131	9	0	29	52	134
Future Vol, veh/h	0	20	239	39	0	21	131	9	0	29	52	134
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	3	10	2	2	3	2	2	7	4	10
Mvmt Flow	0	22	260	42	0	23	142	10	0	32	57	146
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.8	10.6	11.1
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	7%	13%	28%
Vol Thru, %	24%	80%	81%	55%
Vol Right, %	62%	13%	6%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	298	161	137
LT Vol	29	20	21	38
Through Vol	52	239	131	75
RT Vol	134	39	9	24
Lane Flow Rate	234	324	175	149
Geometry Grp	1	1	1	1
Degree of Util (X)	0.343	0.469	0.267	0.233
Departure Headway (Hd)	5.277	5.211	5.496	5.627
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	680	690	651	636
Service Time	3.321	3.252	3.545	3.677
HCM Lane V/C Ratio	0.344	0.47	0.269	0.234
HCM Control Delay	11.1	12.8	10.6	10.4
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.5	2.5	1.1	0.9

HCM 2010 AWSC
5: Windover Avenue & Nutley Street — Future AM Conditions with Development

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	38	75	24
Future Vol, veh/h	0	38	75	24
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	41	82	26
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.4
HCM LOS	B

Lane

Queues
1: Maple Avenue & Nutley Street — Future PM Conditions with Development

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	89	346	298	305	401	50	843	268	1256
v/c Ratio	0.26	0.96	0.93	0.92	0.54	0.44	0.79	0.88	0.86
Control Delay	56.9	100.3	98.5	95.1	14.9	37.5	55.0	62.5	50.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	100.3	98.5	95.1	14.9	37.5	55.0	62.5	50.0
Queue Length 50th (ft)	80	360	325	332	100	28	417	185	642
Queue Length 95th (ft)	137	#571	#517	#520	206	54	503	#342	746
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)	160		215			60		285	
Base Capacity (vph)	347	360	325	338	743	113	1072	313	1470
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.96	0.92	0.90	0.54	0.44	0.79	0.86	0.85

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

HCM Signalized Intersection Capacity Analysis
1: Maple Avenue & Nutley Street — Future PM Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	272	46	351	203	369	46	593	182	247	1116	40
Future Volume (vph)	82	272	46	351	203	369	46	593	182	247	1116	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1814		1681	1746	1583	1770	3360		1770	3511	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.08	1.00		0.12	1.00	
Satd. Flow (perm)	1770	1814		1681	1746	1583	148	3360		232	3511	
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)	89	296	50	382	221	401	50	645	198	268	1213	43
RTOR Reduction (vph)	0	4	0	0	0	174	0	18	0	0	2	0
Lane Group Flow (vph)	89	342	0	298	305	227	50	825	0	268	1254	0
Confl. Peds. (#/hr)	4		8	8		4	17		11	11		17
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pt+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	8 1	5	2		1	6	
Permitted Phases							2			6		
Actuated Green, G (s)	31.4	31.4		30.5	30.5	57.4	55.0	50.2		77.1	65.3	
Effective Green, g (s)	31.4	31.4		30.5	30.5	57.4	55.0	50.2		77.1	65.3	
Actuated g/C Ratio	0.20	0.20		0.19	0.19	0.36	0.34	0.31		0.48	0.41	
Clearance Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	355		320	332	567	99	1054		303	1432	
v/s Ratio Prot	0.05	c0.19		c0.18	0.17	0.14	0.02	0.25		c0.11	c0.36	
v/s Ratio Perm							0.16			c0.32		
v/c Ratio	0.26	0.96		0.93	0.92	0.40	0.51	0.78		0.88	0.88	
Uniform Delay, d1	54.4	63.7		63.7	63.5	38.4	39.3	49.9		37.0	43.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	37.9		32.8	29.2	0.5	4.0	5.8		24.9	7.8	
Delay (s)	54.8	101.6		96.5	92.7	38.9	43.3	55.8		61.8	51.4	
Level of Service	D	F		F	F	D	D	E		E	D	
Approach Delay (s)		92.0			72.3			55.1			53.2	
Approach LOS		F			E			E			D	

Intersection Summary				
HCM 2000 Control Delay	63.0	HCM 2000 Level of Service	E	
HCM 2000 Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	160.0	Sum of lost time (s)	28.0	
Intersection Capacity Utilization	93.7%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive — Future PM Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	30	812	0	0	1513
Future Volume (Veh/h)	0	30	812	0	0	1513
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	33	883	0	0	1645
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.67					
vC, conflicting volume	1716	452			894	
vC1, stage 1 conf vol	894					
vC2, stage 2 conf vol	822					
vCu, unblocked vol	1080	452			894	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	94			100	
cM capacity (veh/h)	269	549			748	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	33	589	294	822	822
Volume Left	0	0	0	0	
Volume Right	33	0	0	0	
cSH	549	1700	1700	1700	1700
Volume to Capacity	0.06	0.35	0.17	0.48	0.48
Queue Length 95th (ft)	5	0	0	0	
Control Delay (s)	12.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.0	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		45.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Future PM Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	83	780	29	0	1513
Future Volume (Veh/h)	0	83	780	29	0	1513
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	90	848	32	0	1645
Pedestrians	11					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.67					
vC, conflicting volume	1698	451			891	
vC1, stage 1 conf vol	875					
vC2, stage 2 conf vol	822					
vCu, unblocked vol	1050	451			891	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	84			100	
cM capacity (veh/h)	276	551			750	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	90	565	315	822	822
Volume Left	0	0	0	0	0
Volume Right	90	0	32	0	0
cSH	551	1700	1700	1700	1700
Volume to Capacity	0.16	0.33	0.19	0.48	0.48
Queue Length 95th (ft)	15	0	0	0	0
Control Delay (s)	12.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	12.8	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	45.2%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Future PM Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	99	38	7	9	90	744	49	103	1163	112
Future Volume (Veh/h)	0	0	99	38	7	9	90	744	49	103	1163	112
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)	0	0	108	41	8	10	98	809	53	112	1264	122
Pedestrians		30			2			1			9	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			0			0			1	
Right turn flare (veh)						1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.69	0.69	0.69	0.69	0.69		0.69					
vC, conflicting volume	2192	2639	724	1998	2674	442	1416			864		
vC1, stage 1 conf vol	1579	1579		1034	1034							
vC2, stage 2 conf vol	614	1060		965	1640							
vCu, unblocked vol	1822	2474	0	1539	2524	442	690			864		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	85	70	87	98	84			86		
cM capacity (veh/h)	99	80	724	138	61	558	602			773		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	108	59	98	539	323	112	843	543
Volume Left	0	41	98	0	0	112	0	0
Volume Right	108	10	0	0	53	0	0	122
cSH	724	142	602	1700	1700	773	1700	1700
Volume to Capacity	0.15	0.42	0.16	0.32	0.19	0.14	0.50	0.32
Queue Length 95th (ft)	13	46	14	0	0	13	0	0
Control Delay (s)	10.8	47.5	12.1	0.0	0.0	10.4	0.0	0.0
Lane LOS	B	E	B			B		
Approach Delay (s)	10.8	47.5	1.2			0.8		
Approach LOS	B	E						

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	61.2%	ICU Level of Service		B
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Future PM Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	5	253	41	16	257	24	40	29	64	61	108	31
Future Volume (vph)	5	253	41	16	257	24	40	29	64	61	108	31
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)	5	275	45	17	279	26	43	32	70	66	117	34

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	325	322	145	217
Volume Left (vph)	5	17	43	66
Volume Right (vph)	45	26	70	34
Hadj (s)	-0.05	0.00	-0.20	0.00
Departure Headway (s)	5.5	5.6	6.0	6.0
Degree Utilization, x	0.50	0.50	0.24	0.36
Capacity (veh/h)	608	605	512	535
Control Delay (s)	13.9	14.0	10.9	12.4
Approach Delay (s)	13.9	14.0	10.9	12.4
Approach LOS	B	B	B	B

Intersection Summary				
Delay	13.2			
Level of Service	B			
Intersection Capacity Utilization	45.2%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
6: James Madison Drive & Windover Avenue

Future PM Conditions with Development

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	62	3	101	102	102	62
Future Volume (Veh/h)	62	3	101	102	102	62
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)	67	3	110	111	111	67
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	223				304	168
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	223				304	168
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				83	92
cM capacity (veh/h)	1344				652	875

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	70	221	178
Volume Left	67	0	111
Volume Right	0	111	67
cSH	1344	1700	721
Volume to Capacity	0.05	0.13	0.25
Queue Length 95th (ft)	4	0	24
Control Delay (s)	7.5	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	7.5	0.0	11.6
Approach LOS			B

Intersection Summary				
Average Delay	5.5			
Intersection Capacity Utilization	34.8%	ICU Level of Service		A
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Traffic Vol, veh/h	0	5	253	41	0	16	257	24	0	40	29	64
Future Vol, veh/h	0	5	253	41	0	16	257	24	0	40	29	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	5	275	45	0	17	279	26	0	43	32	70
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.9	13.9	10.9
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	2%	5%	30%
Vol Thru, %	22%	85%	87%	54%
Vol Right, %	48%	14%	8%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	299	297	200
LT Vol	40	5	16	61
Through Vol	29	253	257	108
RT Vol	64	41	24	31
Lane Flow Rate	145	325	323	217
Geometry Grp	1	1	1	1
Degree of Util (X)	0.238	0.495	0.495	0.359
Departure Headway (Hd)	5.926	5.479	5.521	5.953
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	601	653	649	600
Service Time	4.011	3.547	3.589	4.03
HCM Lane V/C Ratio	0.241	0.498	0.498	0.362
HCM Control Delay	10.9	13.9	13.9	12.4
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	0.9	2.8	2.8	1.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Traffic Vol, veh/h	0	61	108	31
Future Vol, veh/h	0	61	108	31
Peak Hour Factor	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	66	117	34
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.4
HCM LOS	B

Lane

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	108	246	216	222	427	70	1209	284	1067
v/c Ratio	0.35	0.78	0.96	0.96	0.75	0.26	0.82	0.95	0.60
Control Delay	56.9	73.5	115.1	112.5	32.1	17.1	43.7	80.9	29.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	73.5	115.1	112.5	32.1	17.1	43.7	80.9	29.2
Queue Length 50th (ft)	93	222	224	230	190	28	544	214	397
Queue Length 95th (ft)	152	316	#403	#410	322	54	666	#407	507
Internal Link Dist (ft)		441		449			276		280
Turn Bay Length (ft)			215			60		285	
Base Capacity (vph)	354	364	224	232	572	437	1466	299	1777
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.68	0.96	0.96	0.75	0.16	0.82	0.95	0.60

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	169	57	269	134	393	64	893	219	261	908	74
Future Volume (vph)	99	169	57	269	134	393	64	893	219	261	908	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.99	1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1781		1681	1740	1564	1767	3404		1770	3477	
Flt Permitted	0.95	1.00		0.95	0.98	1.00	0.19	1.00		0.07	1.00	
Satd. Flow (perm)	1770	1781		1681	1740	1564	360	3404		138	3477	
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)	108	184	62	292	146	427	70	971	238	284	987	80
RTOR Reduction (vph)	0	8	0	0	0	155	0	14	0	0	3	0
Lane Group Flow (vph)	108	238	0	216	222	272	70	1195	0	284	1064	0
Confl. Peds. (#/hr)	5		5	5		5	20		6	6		20
Confl. Bikes (#/hr)			2			3			6			7
Turn Type	Split	NA		Split	NA	pm+ov	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4		8	8	1	5	2		1	6	
Permitted Phases						8	2			6		
Actuated Green, G (s)	24.0	24.0		18.0	18.0	36.0	68.9	62.0		87.0	73.1	
Effective Green, g (s)	26.0	26.0		20.0	20.0	40.0	72.9	64.0		89.0	75.1	
Actuated g/C Ratio	0.17	0.17		0.13	0.13	0.27	0.49	0.43		0.59	0.50	
Clearance Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	306	308		224	232	469	258	1452		299	1740	
v/s Ratio Prot	0.06	c0.13		c0.13	0.13	0.08	0.02	0.35		c0.13	0.31	
v/s Ratio Perm						0.10	0.12			c0.44		
v/c Ratio	0.35	0.77		0.96	0.96	0.58	0.27	0.82		0.95	0.61	
Uniform Delay, d1	54.6	59.2		64.6	64.6	47.7	21.9	38.0		46.2	27.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	11.4		49.7	46.6	1.7	0.6	5.4		38.2	1.6	
Delay (s)	55.3	70.5		114.3	111.2	49.4	22.4	43.4		84.4	28.6	
Level of Service	E	E		F	F	D	C	D		F	C	
Approach Delay (s)		65.9			81.5			42.3			40.3	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	52.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Maple Avenue & Service Drive

Future Saturday Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	59	1047	0	0	1234
Future Volume (Veh/h)	0	59	1047	0	0	1234
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	64	1138	0	0	1341
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						356
pX, platoon unblocked	0.78					
vC, conflicting volume	1814	575			1144	
vC1, stage 1 conf vol	1144					
vC2, stage 2 conf vol	670					
vCu, unblocked vol	1484	575			1144	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	86			100	
cM capacity (veh/h)	209	459			603	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	64	759	379	670	670
Volume Left	0	0	0	0	0
Volume Right	64	0	0	0	0
cSH	459	1700	1700	1700	1700
Volume to Capacity	0.14	0.45	0.22	0.39	0.39
Queue Length 95th (ft)	12	0	0	0	0
Control Delay (s)	14.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	14.1	0.0		0.0	
Approach LOS	B				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	39.3%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
3: Maple Avenue & Service Drive

Future Saturday Conditions with Development

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	190	951	60	0	1234
Future Volume (Veh/h)	0	190	951	60	0	1234
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	207	1034	65	0	1341
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type			Raised			Raised
Median storage veh)			1			1
Upstream signal (ft)						447
pX, platoon unblocked	0.78					
vC, conflicting volume	1743	556			1105	
vC1, stage 1 conf vol	1072					
vC2, stage 2 conf vol	670					
vCu, unblocked vol	1394	556			1105	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	56			100	
cM capacity (veh/h)	227	473			624	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	207	689	410	670	670
Volume Left	0	0	0	0	0
Volume Right	207	0	65	0	0
cSH	473	1700	1700	1700	1700
Volume to Capacity	0.44	0.41	0.24	0.39	0.39
Queue Length 95th (ft)	55	0	0	0	0
Control Delay (s)	18.4	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	18.4	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	1.4			
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
4: Maple Avenue & James Madison Drive/Service Drive

Future Saturday Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	52	64	1	12	73	1028	36	220	869	21
Future Volume (Veh/h)	0	0	52	64	1	12	73	1028	36	220	869	21
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)	0	0	57	70	1	13	79	1117	39	239	945	23
Pedestrians		13			5						9	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		1			0						1	
Right turn flare (veh)						1						
Median type								Raised			Raised	
Median storage veh)								1			1	
Upstream signal (ft)											634	
pX, platoon unblocked	0.83	0.83	0.83	0.83	0.83		0.83					
vC, conflicting volume	2174	2766	497	2307	2758	592	981			1161		
vC1, stage 1 conf vol	1448	1448		1300	1300							
vC2, stage 2 conf vol	726	1319		1008	1459							
vCu, unblocked vol	2002	2718	0	2164	2709	592	563			1161		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	1	98	97	90			60		
cM capacity (veh/h)	53	9	889	71	43	444	823			595		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	57	84	79	745	411	239	630	338
Volume Left	0	70	79	0	0	239	0	0
Volume Right	57	13	0	0	39	0	0	23
cSH	889	81	823	1700	1700	595	1700	1700
Volume to Capacity	0.06	1.03	0.10	0.44	0.24	0.40	0.37	0.20
Queue Length 95th (ft)	5	144	8	0	0	48	0	0
Control Delay (s)	9.3	200.0	9.8	0.0	0.0	15.1	0.0	0.0
Lane LOS	A	F	A			C		
Approach Delay (s)	9.3	200.0	0.6			3.0		
Approach LOS	A	F						

Intersection Summary				
Average Delay	8.4			
Intersection Capacity Utilization	57.9%	ICU Level of Service		B
Analysis Period (min)	15			

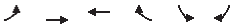
HCM Unsignalized Intersection Capacity Analysis
5: Windover Avenue & Nutley Street

Future Saturday Conditions with Development

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	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)	0	0	0	0	0	0	0	0	0	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	0	0
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	3.9	3.9	3.9	3.9
Degree Utilization, x	0.00	0.00	0.00	0.00
Capacity (veh/h)	917	917	917	917
Control Delay (s)	6.9	6.9	6.9	6.9
Approach Delay (s)	0.0	0.0	0.0	0.0
Approach LOS	A	A	A	A

Intersection Summary				
Delay	0.0			
Level of Service	A			
Intersection Capacity Utilization	8.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	0	0
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)	0	0	0	0	0	0
Pedestrians					2	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2				2	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2				2	2
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1618				1019	1080

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	0	0	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		7.3%	ICU Level of Service A
Analysis Period (min)		15	

APPENDIX F

Appendix F - Comment Response Memarandum

Transportation Consultants
INNOVATION + SOLUTIONS

WELLS + ASSOCIATES

MEMORANDUM

1420 Spring Hill Road
Suite 610
Tysons, Virginia 22102
703-917-6620
703-917-0739 FAX

www.mjwells.com

To: Patrick Mulhern
Director, Planning and Zoning
Town of Vienna

From: Michael Pinkoske, PTP
Michael Workosky, PTP, TOPS, TSOS
John A. Schick

Re: Flagship Carwash

Subject: Flagship Carwash Traffic Impact Analysis (May 4, 2015)
Response to Planning Commission Comments received March 30, 2016

Date: April 6, 2016

INTRODUCTION

This memorandum provides a response to comments received from the Town of Vienna Planning Commission on March 30, 2016 regarding the traffic impact analysis (TIA) submitted on May 4, 2015 in support of the proposed rezoning and site plan application for the existing Flagship Carwash. The proposed development would include a fast-food restaurant with a drive-thru window and a new carwash facility on the second level. The site is generally located on the east side of Maple Avenue (VA 123) just to the south of the Maple Avenue (VA 123)/Nutley Street (VA 243) intersection in the Town of Vienna, Virginia.

Each of the issues/comments identified, as well as our responses, are provided below and have been incorporated into the updated TIA.

Comment #1 - Signal Timing

- ***Base year signal timing should be what is existing in the controllers.***
- ***All future year conditions should use Gorove/Slade new timing from the study (with any post study revisions). Any background proposed alternate timing or new signalization should use this cycle length or multiple thereof.***

Response: At the time the TIA was submitted to the Town of Vienna the planned traffic signal timing improvements for the Maple Avenue corridor were not available. The TIA update includes the existing traffic signal timings, consistent with the May 2015 traffic study, for existing (base year) conditions and the planned timings recommended by G/SA for future conditions without and with development.

Comment #2 - Traffic Distributions

- ***With the alternative HAWK signal installation comments from VDOT meeting indicate that the James Madison Drive at Maple Avenue would become right turn only. Traffic would be diverted to Windover Avenue. The intersections of Windover Avenue and James Madison Drive, and Windover Avenue and Nutley Street would potentially impacted with this alternative and should be analyzed to provide context. I believe this is necessary to address potential comments from the community.***
- ***There is no indication of direction of approach/departure for James Madison Drive, even though there is exiting traffic at the service road exit opposite. Only north/south on Nutley Street and east/west on Maple Avenue are shown.***
- ***Analysis for the HAWK alternative should show the redistribution of traffic with the removal of the left turn movement from James Madison Drive to Maple Avenue.***
- ***An observation that the HAWK alternative creates a more roundabout path for students/ teachers/ parents vehicles that would potentially exit James Madison Drive to reach the site.***

Response:

- The additional intersections of Windover Avenue/James Madison Drive and Windover Avenue/Nutley Street have been included in the updated TIA.
- As noted on page 20 of the TIA a portion of the site generated traffic using the drive through was assumed to utilize the surrounding street grid to travel south on Maple Avenue resulting in site trips shown on James Madison Drive.
- The future condition with development as presented in the updated TIA assumes the HAWK signal is constructed with the development. The updated TIA includes the redistribution of the southbound left turns on James Madison Drive at Maple Avenue and analyzes the impacts of these redistributed trips.
- Acknowledged. It should be noted however that James Madison High School also connection to the public road network via Flint Hill Road. The Flint Hill Road/Route 123 intersection west of the site operates under signal control. Since teachers, students, and parents would be familiar with the surrounding street network, each will learn the shortest, most convenient route if the turning restrictions are implemented at the James Madison Drive/Maple Avenue intersection.

Comment #3 - Analysis of Future Conditions

- ***There is no indication of anything other than new vehicle trips generated by proposed development. The site is within two blocks of a high school that the applicant is proposing to provide a HAWK pedestrian signal a the nearest arterial intersection. Some information on non-vehicular development-related person trip generation is needed.***

Response: The proposed pedestrian improvements which would include a HAWK signal at the intersection of James Madison Drive/Maple Avenue would mitigate an existing safety concern raised by Town staff and the Planning Commission. The proposed uses (fast-food restaurant with drive-thru and car wash) are auto orientated uses, thus the non-auto mode split for the proposed uses would be minimal. However, it is recognized that the proximity to the local High School would likely result in an increase in pedestrian traffic. Therefore, in order to mitigate existing and future pedestrian safety concerns, pedestrian improvements were proposed. In addition to the HAWK signal at the intersection of James Madison Drive and Maple Avenue, a marked crosswalk would be installed on the service drive adjacent to McDonald's as well as marked crosswalks on site. When activated, the HAWK signal would be timed in order to provide adequate crossing time for pedestrians.

The pedestrian improvements as proposed would significantly improve pedestrian safety surrounding the site. The signalized pedestrian crossing on Maple Avenue and marked crosswalk on the service in front of the McDonald's as well as new ADA ramps would provide an improved crossing from the north side on Maple Avenue to the south side of the parallel service drive. This crossing would improve pedestrian safety not only of pedestrians walking to and from the proposed development, but also for uses along Maple Avenue in the vicinity of the intersection.

Comment #4 – Pedestrian Safety

- ***There is no discussion of pedestrian / bicycle safety in the relation to the unique "drive lane" in front of the building. Risk and exposure to collisions between vehicles and pedestrians/bicycles are problematic. Anecdotal statements and speed humps (?) are not sufficient to state demonstratively that it will be safe, especially during peak service times.***

Response: The proposed private one-way drive aisle in front of the site would provide patrons the option to travel south along the service drive towards the intersection of James Madison Drive to proceed south. It will also serve as an outlet for drive-thru patrons that may be impeded from exiting the site by peak hour queueing along Maple Avenue during peak periods. The proposed private drive aisle has been designed as a pedestrian friendly environment, with speeds intended to be five (5) to 10 miles per hour. The drive aisle will include special paving and raised pedestrian crossings which would further slow vehicle traffic giving the pedestrian the right of way. Based on the directions of approach and the percent of traffic forecasted to use the drive-thru, it is estimated that approximately 17 to 28 vehicles may use the drive aisle during the peak hour periods. It should be noted that while no statistical data is available to predict the likelihood of accidents occurring between pedestrians and vehicles, the proposed drive aisle has been designed with multiple visual and physical queues to drivers indicating that the drive aisle area is a

pedestrian first environment. Low speeds combined with traffic calming measures allow for additional reaction time for both drivers and pedestrians resulting in the reduced likelihood of conflicts and/or incidents.

Comment #5 – Concurrent Studies

- ***There needs to be acknowledgement of concurrent traffic studies with direction of approach/departure to/from Nutley Street/Maple Avenue and what the potential impact may be.***

Response: It is acknowledged that concurrent traffic studies have been submitted to the Town for review. Consistent with other traffic studies conducted in the neighboring jurisdiction (Fairfax County) and reviewed by the Virginia Department of Transportation only approved, but unbuilt developments (pipeline development) are typically included in TIAs. In order to account for the other proposed developments, a regional growth rate was applied. For purposes of this TIA a regional growth rate of 1.0 percent per year, compounded annually, was assumed on all public roadways. This growth rate was applied to the existing volumes to account for future development outside of the immediate study area. Further, as noted in the scope of work document, between 2010 and 2013 the average daily traffic volumes, as published by VDOT, on both Maple Avenue and Nutley Street have declined (from 30,000 to 26,000 vehicles per day and 26,000 to 19,000 vehicles per day, respectively). Thus, the 1.0 percent growth should be considered conservative and would account for adjacent developments not specifically assumed in the TIA.

We trust that the responses provided herein adequately address the comments raised in the Planning Commissions review of the traffic impact study. If you have any questions or require additional information, do not hesitate to contact Mike Pinkoske at mrpinkoske@wellsandassociates.com.

APPENDIX G

Appendix G - Correspondence

Transportation Consultants
INNOVATION + SOLUTIONS

Michael R. Pinkoske

From: Kraucunas, Paul J. (VDOT), P.E. <Paul.Kraucunas@VDOT.Virginia.gov>
Sent: Wednesday, April 06, 2016 8:12 AM
To: 'Gallagher, Michael'
Cc: Sarah Hall; Michael R. Pinkoske; Mulhern, Patrick; Garland, Hyojung
Subject: RE: James Madison Drive/Maple Avenue (Rte123)

Michael,
We have discussed this concern again but strongly feel that the left turns really do need to be curtailed at Madison Drive as the whole intent of this installation is to provide a safe crossing for pedestrians. Allowing left turns from Madison Drive would defeat this purpose.
Please contact me if you have any other questions.
Thank you,
Paul

From: Gallagher, Michael [mailto:Michael.Gallagher@viennava.gov]
Sent: Friday, April 01, 2016 2:48 PM
To: Kraucunas, Paul J. (VDOT), P.E.
Cc: Sarah Hall; Michael R. Pinkoske; Mulhern, Patrick; Garland, Hyojung
Subject: RE: James Madison Drive/Maple Avenue (Rte123)

Paul,

On March 23rd the first Public Hearing was held on the Rezoning case adjacent to the Maple Ave/James Madison Drive intersection. While no one from the public expressed concern yet (because most surrounding residents and users are not yet aware of the plan), the Vienna Planning Commission expressed concerns about the impact to the surrounding local roads by a no left turn from James Madison Drive. We communicated what was discussed in our meeting on February 12 with you and Randy – that VDOT would support a HAWK contingent upon the left turn restriction and that VDOT felt very strongly about this. They have asked that staff circle back with VDOT to see if there is any alternative or flexibility on this. Can you please provide me some feedback so that I can report back to the Commission? Thank you and I appreciate VDOT's input and coordination on this issue.

Sincerely,

Michael J. Gallagher, PE
Deputy Director of Public Works
Town of Vienna
127 Center St. S
Vienna, VA 22180
(703) 255-6389 (Office)
(703) 255-5722 (Fax)
Michael.Gallagher@viennava.gov
www.viennava.gov
We're on Facebook!
Follow us on Twitter!

From: Michael R. Pinkoske [mailto:mrpinkoske@wellsandassociates.com]
Sent: Friday, January 22, 2016 9:17 AM
To: Kraucunas, Paul J. (VDOT), P.E.
Cc: Gallagher, Michael; Sarah Hall
Subject: James Madison Drive/Maple Avenue (Rte123)

Good morning Paul,
I wanted to follow up with you regarding our conversation about the intersection on Maple Avenue (Rte 123) & James Madison Drive on Wednesday. After our discussion I met with the Town of Vienna including Mike Gallagher (cc'd) to discuss potential improvements at the intersection including full signalization and a HAWK signal. We (both the applicant and the Town of Vienna) would like to set up a meeting with VDOT to discuss the coordination of the potential improvement. As we discussed, the intersection is unique in that the eastern leg of the intersection in within the Town boundary while the remaining portion of the intersection is in FFX County. We would like to come to a consensus as to whether or not the improvements, whether a full signal or some variation of, would be a VDOT or Town signal. Either way, we believe some leave of coordination at this stage is required so everyone is on the same page. If you could provide a potential time/date to get together it would be appreciated.
Thanks and good luck with the coming snow!
Mike

MICHAEL R. PINKOSKE, PTP | SENIOR ASSOCIATE
WELLS + ASSOCIATES
1420 Spring Hill Road, Suite 610, Tysons, VA 22102
OFFICE: **(703) 917-6620**
DIRECT: **(703) 676-3609**
NEW EMAIL: **mrpinkoske@wellsandassociates.com**
CONNECT WITH US AT OUR NEW WEBSITE:
www.WellsandAssociates.com