final report

January 26, 2015 Revised April 7, 2015

Traffic Impact Study

Ashton Park Phase II Beulah Church Road Louisville, KY

Prepared for

Metro Public Works



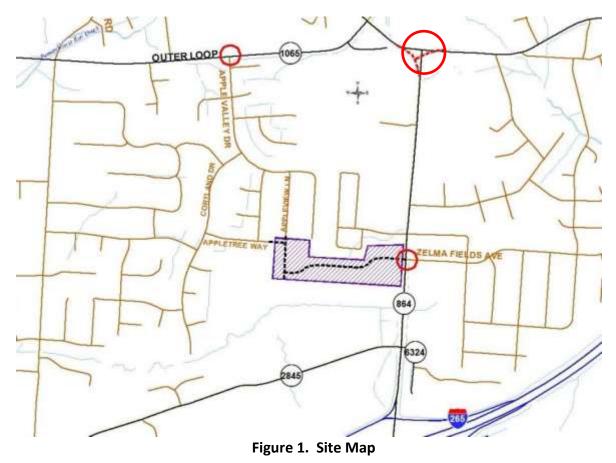
11940 US 42 Goshen, KY 40026 502-228-0393

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INTRODUCTION

The development plan for Ashton Park Phase II on Beulah Church Road shows 28 single family lots and 106 apartment units. **Figure 1** displays a map of the site. Access to the development will be from Beulah Church Road, Appleview Lane, and Appletree Way. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study the impact area was defined to be the Beulah Church Road intersection with Zelma Fields Avenue at the proposed entrance, Apple Valley Drive at Outerloop and Fegenbush Lane at Beulah Church Road..



EXISTING CONDITIONS

Beulah Church Road, KY 864, is a state maintained road with an estimated 2015 ADT of 15,000 vehicles per day between I 265 and the Outer Loop (KY 1065), as provided by the Kentucky Transportation Cabinet at station 296. The road is a three-lane highway with twelve-foot lanes, eight foot paved shoulders (provided by the Kentucky Transportation Cabinet). The speed limit is 45 mph. There is a sidewalk on the east side of Beulah Church Road. The intersection with Zelma Fields Road is controlled with a stop sign. There is a two-way left turn lane. TARC does not provide service along Beulah Church Road.

Jacobs Engineering Group collected a.m. and p.m. peak hour turning movement counts for the intersection of Beulah Church Road and Zelma Field Avenue, on January 13 and 14, 2015. The a.m. peak occurred between 7:00 and



8:00 and the p.m. peak hour occurred between 4:30 and 5:30 p.m. For the Outerloop intersection with Apple Valley Drive a 5/28/09 count was used. The thru volumes on Outerloop were increased by two percent per year. Metro Public Works provided a count made on 5/5/10 for the intersection of Beulah Church Road and Fegenbush Lane. All volumes at the intersection were increased by two percent per year. **Figure 2** illustrates the 2015 peak hour traffic volumes.

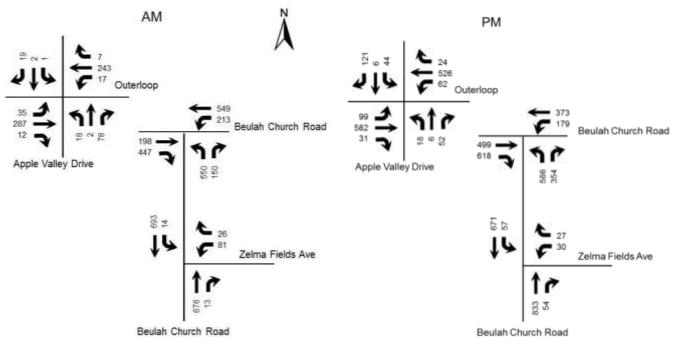


Figure 2. 2015 Peak Hour Volumes

FUTURE CONDITIONS

The projected completion year for this project is 2018, so the analysis year for this study is 2018. To predict traffic conditions in 2018, two and one third percent annual growth in traffic was added to the 2015 volumes on Beulah Church Road, Outerloop and Fegenbush Lane. This growth is Metro Louisville's standard rate. **Figure 3** displays the 2018 No build volumes.



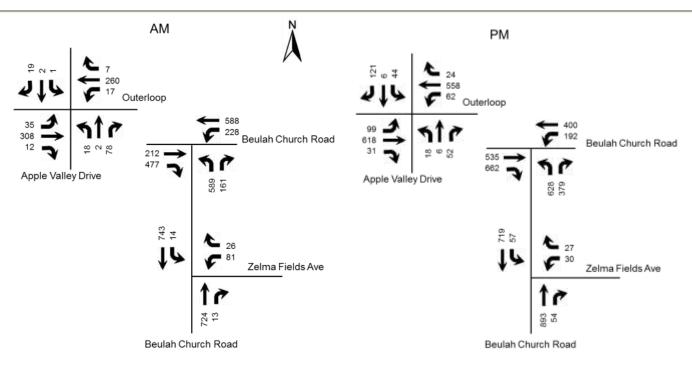


Figure 3. 2018 Peak Hour No Build

TRIP GENERATION

The Institute of Transportation Engineers <u>Trip Generation Manual</u>, 9th Edition contains trip generation rates for a wide range of developments. The land uses of "Apartments" and "Single-Family Detached Housing" were reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The results of the trip generation analysis are that this development will generate 85 a.m. peak hour trips and 109 p.m. peak hour trips. The trips were assigned to the highway network with the percentages shown in **Figure 4**. Additionally, forty percent of the traffic to/from Apple Valley and Outerloop east was assumed to be diverted thru Ashton Park. **Figure 5** shows the trips generated by this development and distributed throughout the road network for the year 2018 during the peak hours. **Figure 6** displays the individual turning movements for the year 2018 for the peak hours when the development is completed.

		A.M	. Peak Ho	our			P.M.	Peak Ho	ur	
Land Use	Trips	% In	% OUT	IN	OUT	Trips	% In	% OUT	IN	OUT
Apartments	56	20	80	11	45	76	65	35	49	27
Single Family	29	25	75	7	22	33	63	37	21	12
TOTAL	85			18	67	109			70	39

Table 1. Peak Hour Trips Generated by Site



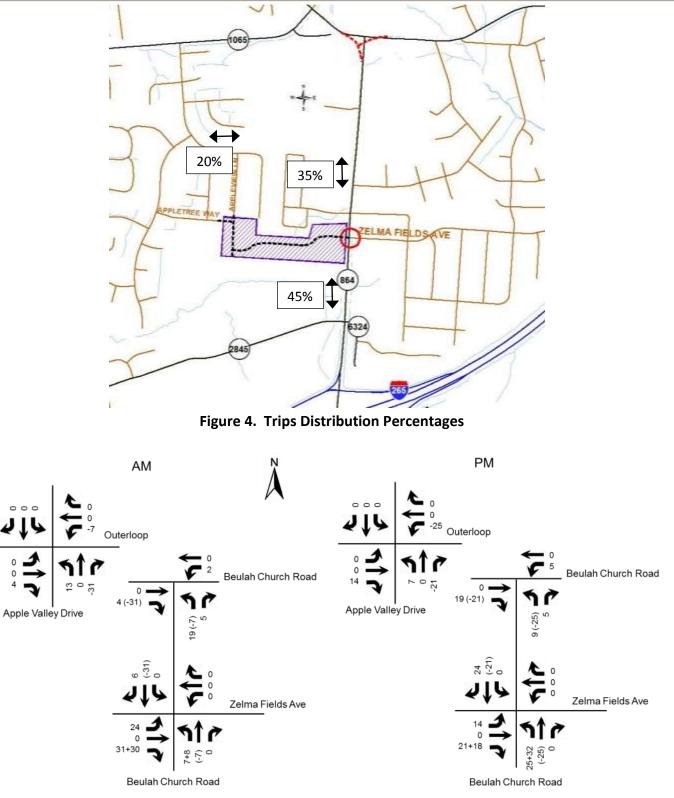


Figure 5. Peak Hour Trips Generated by Site



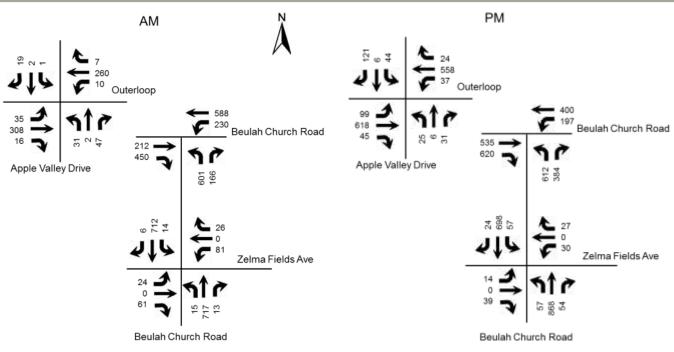


Figure 6. 2018 Peak Hour Build

ANALYSIS

The qualitative measure of traffic operations for a roadway facility or intersection is evaluated by assigning a "Level of Service" or LOS. Level of Service is a ranking scale from A through F, "A" is the best operating condition and "F" is the worst. LOS results depend upon the facility that is analyzed. In this case, the LOS is based upon the total delay experienced at an intersection.

To evaluate the impact of the proposed development, the average vehicle delays at the intersection were determined using procedures detailed in the <u>Highway Capacity Manual</u>, 2010 edition. Future delay and LOS were determined for the intersections using the Highway Capacity Software HCS 2010 Streets (version 6.65) and HCS+ (version 5.6).



		A.M.			P.M.	
Approach	2014	2018	2018	2014	2018	2018
	Existing	No Build	Build	Existing	No Build	Build
Beulah Church Road at Zelma Fields Ave						
Beulah Church Road Northbound	NA	NA	A 9.4	NA	NA	A 9.5
Beulah Church Road Southbound	A	A	A	В	B	В
	9.3	9.5	9.4	10.3	10.6	10.4
Zelma Fields Ave Westbound	D	D	E	C	C	D
	25.6	28.4	46.9	22.2	24.1	34.2
Entrance Eastbound			C 22.3			C 23.0
Beulah Church Road at Fegenbush Lane	В	C	C	C	C	C
	19.0	22.6	22.2	26.5	32.2	29.3
Beulah Church Road Eastbound	C	C	C	C	C	C
	24.5	27.4	27.4	27.6	31.6	30.1
Fegenbush Lane Westbound	B	В	В	В	В	В
	14.8	17.2	17.7	15.5	17.6	17.1
Beulah Church Road Northbound	C	C	C	C	D	D
	20.5	25.7	24.3	32.1	41.2	36.1
Outerloop at Apple Valley Drive	В	В	В	В	В	В
	15.3	18.0	18.3	17.2	18.9	19.6
Outerloop Eastbound	A	A	A	В	B	В
	7.6	7.8	7.2	13.1	13.8	13.5
Outerloop Westbound	В	В	C	В	B	C
	15.5	19.1	20.2	16.7	18.8	20.5
Apple Valley Northbound	D	D	D	C	C	C
	35.3	39.7	40.3	28.4	31.6	33.1
Outerloop Plaza Southbound	C	D	D	C	D	D
	31.4	35.2	36.8	32.0	35.6	36.9

Key: Level of Service, Delay in seconds per vehicle

The Kentucky Transportation Cabinet (KYTC) evaluates the need for turn lanes using <u>Highway Design Memorandum</u> <u>No. 03-09</u> dated July 28, 2009. The volumes for the 2018 Build condition does not meet the warrants for a southbound right turn on Beulah Church Road at the entrance.

KYTC has the intersection of Beulah Church Road and Fegenbush Lane scheduled for construction beginning in 2016. The completed project should fully operational in 2017. The project will relocate the intersection to the west and make the Fegenbush Lane to Beulah Church Road south the through movement. Beulah Church Road east will become the side road. Fegenbush Lane will be widened to four lanes through the Outerloop/Watterson Trail intersection.



CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2018, there will be manageable impact to the existing highway network. The delays experienced will increase, but will continue to operate at an acceptable Level of Service. Zelma Fields Avenue will experience Level of Service E during the a.m. peak. However, a review of the volume to capacity ratio indicates in both scenarios the ratio is less than 0.6, indicating an additional lane is not needed on the approach.



APPENDIX



Traffic Counts

JACOBS 11940 Highway 42, Suite 1 Goshen, KY 40026

Counted by: Andy Wolak

File Name : Beulah ChurchAM Site Code : 00011415 Start Date : 1/14/2015 Page No : 1

1	Be		nurch R	load	Zel		Ids Ave	s Printed- nue		ulah C	hurch R South	load		- Training	i West		Ĩ
Start Time	Left	Thru	North		Left	Thru	n East		Left	Thru	Right	0.00	Left	Thru	Right	1000200	Int. Tota
07.00 AM	Len	171	Right	App. Total 174	28	and the second sec	Right	App Total		127		App Total 127		and the second se	Rogra	App Total	341
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07:30 AM	4	183	0	187	23	ŏ	2	25	ő	196	1	200	ő	0	0	ő	41
07:45 AM	6	173	ŏ	179	17	ŏ	3	20	ő	176	5	181	ŏ	ö	ő	ő	39
Total	14	693	Ő	707	81	Ő	28	107	Ő	676	13	689	Ő	0	Ū.	Ő	150
06:00 AM	1	149	0	150	20	0	12	32	0	133	4	137	0	0	0	0	315
08:15 AM	1	111	0	112	12	0	5	17	0	105	3	108	0	0	0	0	23
08:30 AM	3	120	0	123	17	0	11	28	0	98	3	101	0	0	0	0	25
08:45 AM	2	108	0	110	9 58	0	4	13	0	114	2	116	0	0	0	0	23
Total	7	488	0	495	58	0	32	90	0	450	12	462	0	0	0	0	104
Grand Total	21	1181	0	1202	139	0	58	197	0	1126	25	1151	0	0	0	0	255
Apprch %	1.7	96.3	0	0.000	70.6	0	29.4		0	97.8	2.2		0	0	0		
Total %	0.8	48.3	0	47.1	5.5	0	23	7.7	0	44.2	्र	45.1	0	0	0	0	
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07:15 AM	- 32	166	0	167	13	0	9	22	0	177	- 18	181	0	0	0	0	37
07.30 AM	- 4	183	0	187	23	0	2	25	D	196	4	200	0	0	0	0	41
07:45 AM	6	173	0	179	17	0	3	20	0	176	5	181	0	0	0		38
Total Volume	14	693	0	707	81	0	26	107	0	676	13	689	0	0	0	0	150
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11940 Highway 42, Suite 1 Goshen, KY 40026

Counted by: Andy Wolak

File Name : Beulah Church PM Site Code : 00011315 Start Date : 1/13/2015 Page No : 1

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18 19 4 8	160 176 185 160	0000	178 194 189 168	3 12 10	0000	2754	5 19 15	0000	215 214 188 213	8 9 14 13	223 223 202 225	0000	0000	0000	0 0 0	40 43 40 40
48	681	Ď	729	35	0	18	53	0	830	44	874	Ó	0	0	Ö	165
85 6.1	1326 93.9	0	1412	63 53.4	0	55 46.6	118	0	1604 93.6	110 6.4	1714	0	000	0	0	324
6.1 2.7	93.9 40.9		43.5	53,4 1,9	0	46.6 1.7	3.6	0	49.4	3.4	52.6	0	0	0	0	
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04:45 PM	11	170	0	181	6	0	7	13	0	203	18	221	0	0	0	0	415
05:00 PM	18	160	0	178	3	0	2	5	0	215	8	223	0	0	0	0	406
05:15 PM	18	176	0	194	12	0	7	19	0	214	9	223	0	0	0	0	436
Total Volume	57	671	0	728	30	0	27	57	0	833	54	887	0	0	0	0	1672
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Louisville Metro Traffic Engineering 601 W Jefferson St Louisville, 40202

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Start Date	: 5/5/2010
Page No	:6

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07:45 AM	0	0	0	0	0	0	159	41	- 11	200	39	0	93	0	132	101	43	0	0	172	504
08.00 AM	0	0	0	0	0	0	43	24	0	117	20	0	122	0	151	101	42	0	0	143	- 40
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01.45 PM	- 0	0	0	0	0	41	- 70	28	- 0	98	22	0	69	0	91	74	56	0	- 0	130	3.8
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Louisville Metro Traffic Engineering 601 W Jefferson St Louisville, 40202

> File Name : Beulah Church Rd & Fegenbush Ln (2) Site Code : 05050234 Start Date : 5/5/2010 Page No : 7

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Traffic Counts 5/28/09

Interval		Loop I			ter Lc	-		leVa			ter Lo			
Start Time		om Nor			rom Eas			om Sou			om We	-	T ()	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Hour
7:00	0	1	3	3	44	0	6	2	15	4	28	2	108	
7:15	0	2	2	3	48	0	3	0	23	6	64	3	154	
7:30	0	0	8	6	66	1	4	0	27	9	74	2	197	
7:45	0	0	4	2	57	0	6	1	13	13	60	3	159	618
8:00	1	0	5	6	45	6	5	1	15	7	57	4	152	662
8:15	2	0	9	1	46	4	9	0	11	16	39	3	140	648
8:30	3	0	9	0	44	6	7	0	13	9	55	0	146	597
8:45	3	2	15	3	55	4	6	0	7	14	49	1	159	597
16:00	12	3	32	22	120	8	6	0	6	28	134	12	383	
16:15	11	3	37	20	107	2	5	5	13	20	87	8	318	
16:30	5	2	29	15	116	5	4	2	12	27	112	5	334	
16:45	6	1	33	14	120	5	3	0	17	24	110	7	340	1375
17:00	11	2	39	20	108	7	3	2	7	14	105	8	326	1318
17:15	8	0	23	15	142	9	7	1	12	34	139	5	395	1395
17:30	20	1	23	11	109	3	4	1	18	27	143	10	370	1431
17:45	5	3	36	16	108	5	4	2	15	24	130	8	356	1447
AM PEAK														
7:15	0	2	2	3	48	0	3	0	23	6	64	3	154	
7:30	0	0	8	6	66	1	4	0	27	9	74	2	197	
7:45	0	0	4	2	57	0	6	1	13	13	60	3	159	
8:00	1	0	5	6	45	6	5	1	15	7	57	4	152	
	1	2	19	17	216	7	18	2	78	35	255	12	662	
PM PEAK	44	0	20	00	400	7	0	0	7	4.4	405	0	000	
17:00	11	2	39	20	108	7	3	2	7	14	105	8	326	
17:15	8	0	23	15	142	9	7	1	12	34	139	5	395	
17:30	20	1	23	11	109	3	4	1	18	27	143	10	370	
17:45	5	3	36	16	108	5	4	2	15	24	130	8	356	
	44	6	121	62	467	24	18	6	52	99	517	31	1447	

HCS Reports

	тwo	-WAY STOP	CONTR	OL SU	MMARY			
General Information	on		Site I	nforma	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	DBZ Jacobs 1/26/201 AM Peak		Interse Jurisd Analys			2015		
	Ashton Park							
East/West Street: Zel					reet: Beula	ah Church	Road	
Intersection Orientatior			Study	Period (h	nrs): 0.25			
Vehicle Volumes a	and Adjustn							
Major Street		Northbound				Southbo	und	
Movement	1	2 T	3 R		4	5 T		6 R
Volume (veh/h)	L	676	13		 14	693		ĸ
Peak-Hour Factor, PH	= 1.00	0.91	0.91		0.91	0.91		1.00
Hourly Flow Rate, HFR (veh/h)		742	14		15	761		0
Percent Heavy Vehicle	s 0				1			
Median Type			Two V					
RT Channelized			0					0
Lanes	0	1	0		1	1		0
Configuration			TR		L	T		
Upstream Signal		0				0		
Minor Street		Eastbound				Westbo	und	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)					81			26
Peak-Hour Factor, PH		1.00	1.00)	0.91	1.00		0.91
Hourly Flow Rate, HFF (veh/h)	0	0	0		89	0		28
Percent Heavy Vehicle	s 0	0	0		1	0		1
Percent Grade (%)		0						
Flared Approach		N				N		
Storage		0	-			0		
RT Channelized			0					0
Lanes	0	0	0		0	0		0
Configuration						LR		
Delay, Queue Length						1 .		
Approach	Northbound	Southbound		Nestbour			Eastboun	
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR		-	-	-
v (veh/h)		15		117		-		
C (m) (veh/h)		859		290	_		ļ	_
v/c		0.02		0.40			ļ	
95% queue length		0.05		1.87				_
Control Delay (s/veh)		9.3		25.6				
LOS		А		D				
Approach Delay (s/veh)				25.6	-			
Approach LOS				D				
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	TWC	-WAY STOP	CONTR		MARY			
General Informati	on		Site	nforma	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	DBZ Jacobs 1/26/201 AM Peak	-	Jurisc	ection liction sis Year		2018 No	Build	
Project Description								
East/West Street: Zel						ah Church I	Road	
Intersection Orientation	n: North-Sout	h	Study	Period (h	rs): 0.25			
Vehicle Volumes a	and Adjustn							
Major Street		Northbound				Southbou	und	
Movement	1	2	3		4	5		6
) (L	T 704	R			T 742		R
Volume (veh/h) Peak-Hour Factor, PHI	= 1.00	0.91	13 0.91	1	14 0.91	743		.00
Hourly Flow Rate, HFF (veh/h)		795	14		15	816		0
Percent Heavy Vehicle	s 0				1			
Median Type			Two V	Vay Left T	urn Lane			
RT Channelized			0					0
Lanes	0	1	0		1	1		0
Configuration			TR		L	Т		
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	ind	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)					81			26
Peak-Hour Factor, PH		1.00	1.00)	0.91	1.00	0).91
Hourly Flow Rate, HFF (veh/h)	0	0	0		89	0		28
Percent Heavy Vehicle	s O	0	0		1	0		1
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0					0
Lanes	0	0	0		0	0		0
Configuration						LR		
Delay, Queue Length								
Approach	Northbound	Southbound		Westboun		E	astbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		15		117				
C (m) (veh/h)		821		268				
v/c		0.02		0.44				
95% queue length		0.06		2.09				
Control Delay (s/veh)		9.5		28.4	1			
LOS		A		D				
Approach Delay (s/veh)				28.4			L	
Approach LOS				D				
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-		-WAY STOP		-				
General Information	on		Site I	nform	ation			
Analyst	DBZ		Inters	ection				
Agency/Co.	Jacobs		Jurisd					
Date Performed	4/2/2015		Analy	sis Year		2018 Bu	ild	
Analysis Time Period	AM Peak	1						
	shton Park							
East/West Street: Zeli			North/	South St	treet: Be	ulah Church I	Road	
Intersection Orientation	: North-Sout	h	Study	Period (hrs): 0.2	5		
Vehicle Volumes a	nd Adjustn	nents						
Major Street		Northbound				Southbo	und	
Movement	1	2	3		4	5		6
	L	Т	R		L	Т		R
Volume (veh/h)	15	717	13		14	712		6
Peak-Hour Factor, PHF		0.91	0.91		0.91	0.91		0.91
Hourly Flow Rate, HFR (veh/h)	16	787	14		15	782		6
Percent Heavy Vehicles	5 1				1			
Median Type			Two V	Vay Left	Turn Lane	9	,	
RT Channelized			0					0
Lanes	1	1	0		1	1		0
Configuration	L		TR		L			TR
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	und	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)	24	0	61		81	0		26
Peak-Hour Factor, PHF	0.91	0.91	0.91		0.91	0.91		0.91
Hourly Flow Rate, HFR (veh/h)		0	67		89	0		28
Percent Heavy Vehicles	s 1	0	1		1	0		1
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				1		
RT Channelized	_		0			/		0
		4	-					-
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length,			-					
Approach	Northbound	Southbound		Nestbou			Eastbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR			LTR	
v (veh/h)	16	15		117			93	
C (m) (veh/h)	836	827		197			300	
//c	0.02	0.02		0.59			0.31	
95% queue length	0.06	0.06		3.30			1.28	1
Control Delay (s/veh)	9.4	9.4		46.9			22.3	1
					_			
LOS	A	A		E			С	1
Approach Delay (s/veh)				46.9			22.3	
Approach LOS				E			С	



		-WAY STOP						
General Information	n		Site I	nforma	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	DBZ Jacobs 1/26/201 PM Peak		Interse Jurisd Analys			2015		
Project Description A	shton Park							
East/West Street: Zelr	na Fields Ave		North/	South Str	eet: Beula	ah Church I	Road	
Intersection Orientation	: North-Sout	h	Study	Period (h	rs): 0.25			
Vehicle Volumes a	nd Adjustn	nents						
Major Street		Northbound				Southbou	und	
Movement	1	2	3		4	5		6
	L	Т	R		L	Т		R
Volume (veh/h)		833	54		57	671		
Peak-Hour Factor, PHF		0.96	0.96	;	0.96	0.96		1.00
Hourly Flow Rate, HFR (veh/h)	0	867	56		59	698		0
Percent Heavy Vehicles	s 0				1			
Median Type			Two V	Vay Left T	urn Lane			
RT Channelized			0					0
Lanes	0	1	0		1	1		0
Configuration			TR		L	Т		
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	Ind	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)					30			27
Peak-Hour Factor, PHF		1.00	1.00		0.96	1.00		0.96
Hourly Flow Rate, HFR (veh/h)	0	0	0		31	0		28
Percent Heavy Vehicles	s 0	0	0		1	0		1
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0					0
Lanes	0	0	0		0	0		0
Configuration						LR		
Delay, Queue Length,	and Level of	Service		1				
Approach	Northbound	Southbound	١	Vestboun	d	F	Eastbound	d
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR	+ <u> </u>	1.0		+ .2
v (veh/h)		59		59			-	1
		744		268				1
C (m) (veh/h)								
//c		0.08		0.22				
95% queue length		0.26		0.82				
Control Delay (s/veh)		10.3		22.2				
LOS		В		С				
Approach Delay (s/veh)				22.2				
Approach LOS				С				



	тwo	-WAY STOP	CONTR		MMARY			
General Information	on		Site	nforma	ation			
Analyst Agency/Co. Date Performed Analysis Time Period	DBZ Jacobs 1/26/2015 PM Peak	-	Jurisc	ection liction sis Year		2018 No	Build	
Project Description A								
East/West Street: Zel						ah Church F	Road	
Intersection Orientation	: North-South	1	Study	Period (h	nrs): 0.25			
Vehicle Volumes a	and Adjustm	nents						
Major Street		Northbound				Southbou	ind	
Movement	1	2	3		4	5		6
	L	Т	R		L	Т		R
Volume (veh/h)		893	54		57	719		
Peak-Hour Factor, PHF Hourly Flow Rate, HFR		0.96	0.96	<u>;</u>	0.96 59	0.96 748		1.00 0
(veh/h)								_
Percent Heavy Vehicle	s 0		<u> </u>		1			
Median Type			1	vay Left	Turn Lane			
RT Channelized			0			-		0
Lanes	0	1	0		1	1		0
Configuration			TR		L	T		
Upstream Signal		0				0		
Minor Street		Eastbound				Westbou	nd	
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume (veh/h)					30			27
Peak-Hour Factor, PHF		1.00	1.00)	0.96	1.00	().96
Hourly Flow Rate, HFR (veh/h)	0	0	0		31	0		28
Percent Heavy Vehicle	s 0	0	0		1	0		1
Percent Grade (%)		0	1			0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0					0
Lanes	0	0	0		0	0		0
Configuration						LR		
Delay, Queue Length,	and Level of	Service						
Approach	Northbound	Southbound		Westbou	nd	E	astbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		59		59				
C (m) (veh/h)		705		247				
v/c		0.08		0.24				
95% queue length		0.27		0.91				
Control Delay (s/veh)		10.6		24.1				
LOS		B		C				
Approach Delay (s/veh)				24.1				L
Approach LOS				С				
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Conorol Information			0:4-		(i.e. m.			
General Information				nformat	lion			
Analyst	DBZ		Inters					
Agency/Co.	Jacobs		Jurisd					
Date Performed	4/2/2015		Analy	sis Year		2018 Bul	ild	
Analysis Time Period	PM Peak							
Project Description A								
East/West Street: Zeli						ah Church I	Road	
Intersection Orientation			Study	Period (hr	rs): 0.25			
Vehicle Volumes a	and Adjustm							
Major Street		Northbound				Southbou	und	
Movement	1	2	3		4	5		6
	L	Т	R		L	Т		R
Volume (veh/h)	57	868	54		57	698		24
Peak-Hour Factor, PHF		0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR (veh/h)	59	904	56		59	727		25
Percent Heavy Vehicles	s 0				1			
Median Type		I	Two V	Vay Left T	urn Lane			
RT Channelized			0					0
Lanes	1	1	0		1	1		0
Configuration	L		TR		L			TR
Upstream Signal	<u>L</u>	0				0		
Minor Street		Eastbound				Westbou	ind	
Movement	7	8	9		10	11		12
	L	T	R		L	Т		R
Volume (veh/h)	14	0	39		30	0		27
Peak-Hour Factor, PHF		0.96	0.96		0.96	0.96		0.96
Hourly Flow Rate, HFR		0	40		31	0		28
(veh/h)		0						
Percent Heavy Vehicles	s 1	-	1		1	0		1
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		1				0		
RT Channelized			0					0
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length,	and Level of	Service						
Approach	Northbound	Southbound	١	Vestboun	d	E	Eastbound	
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L		LTR		-	LTR	
v (veh/h)	59	59		59	1		54	1
. ,	867	721		181			253	
C (m) (veh/h)								-
v/c	0.07	0.08		0.33			0.21	
95% queue length	0.22	0.27		1.33			0.79	
Control Delay (s/veh)	9.5	10.4		34.2			23.0	
LOS	A	В		D			С	
Approach Delay (s/veh)				34.2			23.0	
Approach LOS				D			С	
Approach LOO				D			0	



General Inform	nation								Interse	tion Info	ormati	on	2.5	****	Ja la
Agency		Jacobs							Duratior	ı, h	0.25				
Analyst		DBZ		Analys	is Date	e Apr 2,	2015		Area Ty	ре	Othe	r	.≾. →		
Jurisdiction				Time F	Period	AM P	eak		PHF		0.92		*		
Intersection		Beulah Church Road		Analys	is Year	2015			Analysis	Period	1> 7:	00	1 4 4		
File Name		15 AM.xus											17	50	ſ
Project Descrip	tion	Ashton Park II											h)	4 T 40 Y	141
Demand Inforn	nation				EB			W	3		NB			SB	
Approach Move			_	L	T	R	L	T	_	L	T	R	L	T	
Demand (v), ve				<u> </u>	198	447	213	54		550	<u> </u>	150		<u> </u>	+
Signal Informa					l s	= 5									
Cycle, s	66.0	Reference Phase	2			¦≓ "	5	2				` ┌ ┥──	₹ 2	3	
Offset, s	0		End	Green	8.3	17.9	24.3	0.0	0.0	0.0		-			
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.5	3.6	3.5	0.0	0.0	0.0			7		Ę
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	1.5	1.5	0.0	0.0	0.0		5	6	7	
Timer Results				EBL	-	EBT	WB	L	WBT	NBL		NBT	SBL	-	SBT
Assigned Phase	e					2	1		6			8			
Case Number						7.3	1.0		4.0			9.0		+	
Phase Duration	s		_			23.0	13.8	_	36.8	_		29.3			
Change Period,	/	s				5.6	5.5	_	5.6			5.0		+	
Max Allow Head			_			6.2	4.5	_	5.9			3.1			
Queue Clearan						13.3	7.6	_	18.0			22.7		+	
Green Extensio		10 77				4.0	0.7	_	5.9			1.5			_
Phase Call Prot		(90), 0				1.00	0.99	_	1.00	<u> </u>		1.00		+	
Max Out Probal			_		_	0.00	0.01	_	0.02			0.00			
Maura and Car					50						ND			CD	
Movement Gro Approach Move		suits		L	EB	R	L	WB T	R	L	NB T	R	L	SB	F
				L .	2	12	1	6	ĸ	3	1				+-'
Assigned Move		vob/b						-				18			+
Adjusted Flow F					134	302	232	597		598		163	\vdash		+
		ow Rate (s), veh/h/ln			1900	1610	1810	1900		1810		1610	\vdash		-
Queue Service					3.7	11.3	5.6	16.0		20.7		3.8	\vdash		-
Cycle Queue Cl		e Time (g₀), s			3.7	11.3	5.6	16.0	_	20.7		3.8			-
Green Ratio (g/	,				0.26	0.26	0.42	0.47		0.37		0.49	\vdash		-
Capacity (c), ve					500	424	603	897		666		795			
Volume-to-Capa					0.267		0.384			0.898		0.205			+
Available Capa		,			1434	1215	922	1434	•	1092		1175			1
		h/In (95th percentile)			2.7	7.5	3.5	9.7		12.5		1.9			-
-		RQ) (95th percentile)			0.11	0.62	0.25	0.49		0.62		0.09			
Uniform Delay (19.3	22.1	13.1	13.5		19.8		9.5			
Incremental Del	lay (d2),	, s/veh			0.6	4.4	0.5	1.8		3.7		0.0			
Initial Queue De	elay (da), s/veh			0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s/vel	h			19.9	26.5	13.6	15.3		23.5		9.5			
Level of Service	e (LOS)				В	С	В	В		С		A			
Approach Delay	y, s/veh	/ LOS		24.5	;	С	14.8	3	В	20.5		С	0.0		
Intersection Del	lay, s/ve	eh / LOS				19	9.0						В		
Multimodal Re	sulte				EB			WB			NB			SB	
Pedestrian LOS		/1.05		2.2	_	В	0.7	_		2.2		В	2.3		В
reuesinan LOS	score	/ LU3		2.3		D	U./		A	2.3		D	2.3		в



	HCS 2010 S	-											
General Information							Intersec	tion Info	ormatio	on	2	4.14.1	ЪЦ
Agency	Jacobs						Duration.	h	0.25				
Analyst	DBZ	Analys	is Date	Apr 3,	2015		Area Typ		Other				
Jurisdiction		Time F		AM Pe			PHF		0.92		*		;
Intersection	Beulah Church Road		is Year		No Build		Analysis	Period	1> 7:0	0			
File Name	18 AM NB.xus	[Analys	13 TCal	20101	NO Duit	-	Analysis	r chou	1- 1.		- P		-
Project Description	Ashton Park II										-	<u>][</u>	11
r toject Description	Ashton Fark II												
Demand Information			EB			W	В		NB			SB	
Approach Movement		L	T	R	L	T		L	T	R	L	T	F
Demand (v), veh/h		<u> </u>	212	477	228			589	<u> </u>	161	<u> </u>		+
Bonnana (F), Fonshi			212		220	00		000		101			
Signal Information													
Cycle, s 74.0	Reference Phase 2	1	2	=L, ĕ		7			×	<u> </u>	_		
Offset, s 0	Reference Point End	 	7	- N		ŰL.				1	Y 2	3	
Uncoordinated Yes	Simult. Gap E/W On	Green	-	20.3	28.6	0.0		0.0					-
Force Mode Fixed	Simult. Gap N/S Off	Yellow Red	2.0	3.6	3.5	0.0		0.0		5	6	7	
			2.0			0.0	0.0	0.0			-		
Timer Results		EBL		EBT	WB		WBT	NBL		NBT	SBL		SBT
Assigned Phase				2	1	-	6			8			001
Case Number				7.3	1.0		4.0			9.0			
Phase Duration, s				25.4	15.0	_	40.4			33.6		+-	
,			-	20.4 5.6	5.5		40.4 5.6	<u> </u>	-	5.0		+	
Change Period, (Y+Rc)	.,					_			_			+	
Max Allow Headway (A	,,	<u> </u>	_	6.2	4.5	_	5.9			3.1		\rightarrow	
Queue Clearance Time				15.4	8.8	_	21.9			26.9		\rightarrow	
Green Extension Time	(ge), S			4.3	0.8	_	6.2			1.5		\rightarrow	
Phase Call Probability			_	1.00	0.99		1.00		_	1.00			
Max Out Probability				0.00	0.03	3	0.04			0.02			
Mayamant Crayin Day			EB			WD			ND	_		CD.	
Movement Group Res	suits		T	R		WB	_		NB	в		SB	F
Approach Movement		L			L	T	R	L	1	R	L		
Assigned Movement			2	12	1	6		3		18			+
Adjusted Flow Rate (v)			142	319	248	639		640		175			-
Adjusted Saturation Flo	× 77		1900	1610	1810	1900		1810		1610			
Queue Service Time (g	•		4.4	13.4	6.8	19.9		24.9		4.4			
Cycle Queue Clearanc	e Time (g₀), s		4.4	13.4	6.8	19.9		24.9		4.4			
Green Ratio (g/C)			0.27	0.27	0.42	0.47		0.39		0.52			
Capacity (<i>c</i>), veh/h			508	431	596	894		700		830			
Volume-to-Capacity Ra	atio (X)		0.279	0.741	0.416	0.71	5	0.915		0.211			
Available Capacity (<i>c</i> ₌)	, veh/h		1280	1084	850	1280)	975		1075			
Back of Queue (Q), vel	h/In (95th percentile)		3.3	8.8	4.5	12.2		16.0		2.3			
Queue Storage Ratio (0.14	0.73	0.32	0.61		0.80		0.11			
Uniform Delay (d1), s/v	eh		21.5	24.8	14.6	15.7		21.6		9.8			1
Incremental Delay (d2)			0.6	4.9	0.6	2.3		8.4		0.0			1
Initial Queue Delay (d3			0.0	0.0	0.0	0.0		0.0		0.0			1
Control Delay (d), s/vel	,,		22.1	29.7	15.2	18.0		30.0		9.8			1
			C	20.1 C	B	B		C		A			1
		27.4		c	17.2		B	25.7		C	0.0		-
Level of Service (LOS)	/1.05	Z1.4		_		-	0	25.7		_	C 0.0		
Level of Service (LOS) Approach Delay, s/veh										(
Level of Service (LOS) Approach Delay, s/veh				22	2.6								
Level of Service (LOS) Approach Delay, s/veh Intersection Delay, s/ve			ED	22	2.6				ND		_	SD.	
Level of Service (LOS) Approach Delay, s/veh	eh / LOS	2.3	EB	22 B	0.7	WB	A	2.3	NB	В	2.3	SB	В





General Information	1						Intersec			on	- 1	al da ala da da	14
Agency	Jacobs						Duration,		0.25		2		
Analyst	DBZ	· · ·		Apr 3,	2015		Area Typ	e	Other		Å →		
Jurisdiction		Time F	Period	AM Pe	eak		PHF		0.92		* ~	w∄∈	
Intersection	Beulah Church Road	Analys	sis Year	2018	Build		Analysis	Period	1> 7:(00	*		
File Name	18 AM B.xus											10	ſ
Project Description	Ashton Park II										n	4 † 4° Y	14
Demand Informatior			EB			W	2		NB		1	SB	
			T	R	L	T	-	L	T	R	L	 	F
Approach Movement		<u> </u>									<u> </u>	<u> </u>	+-'
Demand (v), veh/h			212	450	230	58	8	601		166			
Signal Information													
Cycle, s 71.7	Reference Phase 2	1	1 2	ة ہے⊧		2			×		→		
Offset, s 0	Reference Point End	1	7	10.0				0.0		1	Y 2	3	
Uncoordinated Yes	Simult. Gap E/W On	Green Yellow		18.2 3.6	28.3 3.5	0.0		0.0					-
Force Mode Fixed	· · · ·	Red	2.0	1.5	1.5	0.0		0.0		5	6	7	
Timer Results		EBI	-	EBT	WB	L	WBT	NBL		NBT	SBL		SBT
Assigned Phase				2	1		6			8		\rightarrow	
Case Number				7.3	1.0		4.0			9.0			
Phase Duration, s		<u> </u>		23.3	15.1		38.4			33.3		\rightarrow	
Change Period, (Y+R				5.6	5.5	_	5.6			5.0		\rightarrow	
Max Allow Headway		<u> </u>		6.2	4.5	_	5.9			3.1		\rightarrow	
Queue Clearance Tin	10 7.			13.8	8.8	_	21.8			26.6			
Green Extension Tim	10 //			3.9	0.8	_	6.2			1.6		\rightarrow	
Phase Call Probability	/		_	1.00	0.99	_	1.00		_	1.00			
Max Out Probability				0.00	0.03	3	0.04			0.02			
Movement Group Re	esults		EB			WB			NB			SB	
Approach Movement		L	T	R	L	T	R	L	Т	R	L	T	F
Assigned Movement			2	12	1	6		3		18			+
Adjusted Flow Rate (v) veh/h		136	288	250	639		653		180			+
	low Rate (s), veh/h/ln		1900	1610	1810	1900		1810		1610			+
Queue Service Time	C //		4.2	11.8	6.8	19.8		24.6		4.3			-
Cycle Queue Clearan			4.2	11.8	6.8	19.8		24.6		4.3			+
Green Ratio (g/C)	ce nine (ge), s		4.Z	0.25		0.46				4.3 0.53			+
			471	399	0.41	870		0.39		851			+
Capacity (c), veh/h	Patio (V)			_	0.427	_							+
Volume-to-Capacity F				0.722		0.73		0.914		0.212			+
Available Capacity (c			1321	1119	846	1321		1006		1110			
	eh/In (95th percentile)		3.2	8.0	4.5	12.2		15.6		2.1			+
	(RQ) (95th percentile)		0.13	0.67	0.32	0.61		0.78		0.11			-
Uniform Delay (d1), si			21.9	24.8	14.9	15.9		20.6		9.0			-
Incremental Delay (da			0.7	4.9	0.6	2.6		7.9		0.0			-
Initial Queue Delay (d			0.0	0.0	0.0	0.0		0.0		0.0			-
			22.6	29.7	15.5	18.5		28.5		9.1			+
			С	С	В	B		С		Α			
Level of Service (LOS		27.4	+	С	17.7	7	В	24.3		С	0.0		
Level of Service (LOS Approach Delay, s/ve				20	2.2					(С		
Level of Service (LOS Approach Delay, s/ve				22									
Control Delay (d), s/v Level of Service (LOS Approach Delay, s/ve Intersection Delay, s/v Multimodal Results			FB	22		WR			NB			SB	
Level of Service (LOS Approach Delay, s/ve	veh / LOS	2.3	EB	B	0.7	WB	A	2.3	NB	В	2.3	SB	В





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General Inform	nation								Intersect			n	- 1	4 J. 4 J.	de la
Agency		Jacobs						\rightarrow	Duration,		0.25		- 20		
Analyst		DBZ				e Apr 3,			Area Typ	e	Other		÷*		•
Jurisdiction				Time F	Period	PM P	eak		PHF		0.84		* -		:
Intersection		Apple Valley Drive		Analys	sis Year	2015			Analysis	Period	1> 7:0	00	14		
File Name		15 PM.xus												*	ſ
Project Descrip	tion	Ashton Park II											h	4 † 4 Y	14
Demand Inforr	nation				EB			W	3		NB			SB	
Approach Move	ement			L	T	R	L	Т	R	L	T	R	L	T	F
Demand (v), ve				99	582	31	62	52		18	6	52	44	6	12
											<u> </u>	<u> </u>			
Signal Informa					a .		3	77	5			_	_		\mathbf{x}
Cycle, s	76.3	Reference Phase	2		F' "	R			17		Ľ	1	€₂	3	
Offset, s	0	Reference Point	End	Green	3.7	0.3	41.9	13.		0.0			5		
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow	3.5	0.0	4.3	3.6		0.0		~	7		- 5
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0	2.0	2.0	0.0	0.0		5	6	7	
Timer Results				EBI		EBT	WB		WBT	NBL		NBT	SBI		SBT
Assigned Phase	e			5		2	1	-	6	1100		8			4
Case Number	-			1.1		3.0	1.1		3.0			8.0			6.0
Phase Duration				9.5		48.5	9.2		48.2		_	18.6			18.6
Change Period,	/	1 6		5.5		6.3	5.5		6.3		-	5.6			5.6
				4.0		3.9	4.0	_	3.9			5.2			5.2
	Allow Headway (<i>MAH</i>), s ue Clearance Time (g₂), s			4.1		22.2	3.9	_	33.9			8.6			11.6
Green Extensio				0.2		8.7	0.2	_	8.1			1.4			1.3
Phase Call Prol		(ge), 3		0.92	,	1.00	0.2	_	1.00		-	1.00			1.00
Max Out Proba	,			0.02	_	0.05	0.00	_	0.14		_	0.01			0.04
	, i				1						1				
Movement Gro		sults			EB	-		WB	_		NB	-		SB	-
Approach Move				L	T	R	L	T	R	L	T	R	L	T	F
Assigned Move				5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow F		,		118	693	37	106	896	41		90		52	151	
		ow Rate (s), veh/h/ln		1810	1863	1610	1810	1863			1456		1353	1622	
Queue Service				2.1	20.2	0.8	1.9	31.9			0.1		2.8	6.5	-
Cycle Queue C		e ſime (g₀), s		2.1	20.2	0.8	1.9	31.9			6.6		9.6	6.5	
Green Ratio (g/				0.60	0.55	0.55	0.60	0.55			0.17		0.17	0.17	L
Capacity (c), ve				271	1030	890	380	1022			308		206	278	
Volume-to-Capa	-					0.041					0.294		0.255	0.544	\vdash
Available Capa		,		532	1465	1267	649	1465			547		417	532	
		h/In (95th percentile)		1.5	11.0	0.4	1.0	15.5			2.5		1.7	4.5	
		RQ) (95th percentile)	0.08	0.28	0.07	0.21	0.39			0.63		0.52	0.57	
Uniform Delay (<u> </u>			14.7	12.1	7.8	10.3	15.0			27.7		33.4	28.9	
Incremental De				1.1	0.8	0.0	0.2	2.8	0.0		0.7		0.9	2.4	
Initial Queue De		,,		0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (15.8	12.9	7.8	10.5	17.8			28.4		34.3	31.2	
Level of Service	<u>, ,</u>			В	В	A	В	В	Α		С		С	С	
Approach Delay	y, s/veh	/LOS		13.1		В	16.7	7	В	28.4		С	32.0)	С
Intersection De	lay, s/ve	eh / LOS				17	7.2						В		
Multimodal Da	culte				EB			WB			NB			SB	
Multimodal Re Pedestrian LOS		/1.05		2.1	_	В	2.2	_	В	2.4	-	В	2.4	_	В
				4.1			= <u> </u>		0	4		0	■ ∠.4		U



tion							_	Intersect	ion Inf	ormatic	20	1.1	4.8.41	10.50
and and a rest of the local division of the	nobe							a new property of the second	and an international states of	and a local division in the same			46	
	No. of Concession, Name	-	Anaba	ie Date	Ant 7	2015		the second se	_	-		- 2		
-	DL									-		- 10 C		
-	ende Melleri Debre		and the second second						Teste d	and the second second	00	-1-		
	And the statistical statistics are the present thread to all the state	-	Analys	sis rea	12018	NO BUIK	3	Analysis	enod	12 13	00	- 5		
												- 4	+	
n A	shion Park II									_		1		
tion		-		EB		1	W	B	1	NB	5	1	SB	-
ent			L	T	R	L		the second se	1.1	111 2012	R	L		T
h					_	-					_			1
					-	1.14			-		10.00		1000	1
on			-	1			니ル		1	1				1
34.1 F	Reference Phase	2	1	P* *	t i i i i i i i i i i i i i i i i i i i	14	100	2.5.1			\neg	4		
0 F	Reference Point	End	Green	12.0	0.2	40.5		Et la la constanta	0.0	-		-	10	
Yes S	Simult. Gap E/W	On			0.0	48.0		and the second se	the second se		1	+		
ixed S	Simult Gap N/S	On	Red	2.0	0.0	2.0			0.0				19	
avarentee	and the second second		100000		1000	1.791 A	102.4	a. 1002/2010			in a	115		
		1	EB		EBT	WB	L	WBT	NB		NBT	SBI		SB
		-	5		2	1		6			8			4
			1.1	8	3.0	1.1		3.0			8.0			6.0
		-	9.6	8	55.1	9.3	1	54.8			19.6			19.6
Y+Rc), 5		-	5.5		6.3	5.5		6.3			5.6			5.6
(Allow Headway (MAH), s			4.0		3.9	4.0		3.9			52			5.2
ax Allow Headway (MAH), s leue Clearance Time (g), s			4.2		25.1	4.0		40.5			9.4			12
in the second se		-		_	9.8	0.2		8.1			1.4	-		1.2
bility		-	0.94	+	1.00	0.92	2	1.00	5		1.00	1		1.0
ity			0.00)	0.10	0.00	3	0.31		10	0.02	<u> </u>		0.0
- Chicago - Chic				e de		-	-	00-2		112 12	2005			100
p Resul	Its			EB			WB	6 - L		NB			SB	
ent			L	T	R	L	T	R	L	T	R	L	T	
ent			5	2	12	1	6	16	3	8	18	7	4	
te (v), v	/eh/h		118	736	37	108	968	42	1	90		52	151	
on Flow	Rate (s), veh/h/in		1810	1863	1610	1810	1863	8 1610		1400		1353	1622	
me (g ₁),	5	1	2.2	23.1	0.8	2.0	38.5	0.9		0.1		3.1	7.2	
arance	Time (g:), s	-	2.2	23.1	0.8	2.0	38.5	0.9	1	7.4		10.7	7.2	
)			0.62	0.58	0.58	0.62	0.58	0.58		0.17		0.17	0.17	
h .			244	1079	933	374	1073	928		288		190	272	
ity Ratio	(X)		0.483	0.682	0.040	0.288	0.902	2 0.045		0.314		0.275	0.556	
y (ca), v	eh/h		479	1331	1150	614	1331	1150	(j	486		366	483	
)), veh/h	n (95th percentile)		21	12.6	0.4	11	18.7	0.5		2.9		1.9	5.1	
atio (RC	2) (95th percentile)	0.10	0.32	0.07	0.22	0.47			0.71		0.58	0.64	
), s/veh	E.		17.3	12.3	7.6	10.7	15.7	7.7		30.8		37.2	32.1	
(dz), s	/veh	1	1.5	1.1	0.0	0.2	4.4	0.0	1	0.9		1.1	2.5	
ıy (ds), s	s/veh		0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
s/veh			18.8	13.3	7.6	10.9	20.2	7.8		31.6		38.3	34.6	
LOS)			В	В	A	В	C	A		C		D	C	
s/veh / l	LOS		13.8	3	В	18.8	3	В	31.0	3	C	35.6	3	D
, s/veh	/LOS				18	3.9					-	в		
			2		510	1.1		-	-		-	141 a.1		
01126557.00		ultimodal Results												
ults				EB			WB			NB			SB	
	A A A A A A A A A A A A A A A A A A A	tion ent 1 1 1 1 1 1 1 1 1 1 1 1 1	DBZ Apple Valley Drive 18 PM NB xus Ashton Park II tion ent 1 M Ashton Park II tion ent 1 M Ashton Park II tion ent 1 M Astron Park II tion ent 1 M Astron Park II tion ent (es Simult Gap E/W On xed Simult Gap N/S On xed Simult Gap N/S Time (g_e), s Time (g_e), s Time (g_e), s strance Time (g_b), s rance Time (g_b), s rance Time (g_b), s trance Time (g_b), s to (RQ) (95th percentile) atio (RQ) (95th percentile) atio (RQ) (95th percentile) y (d_b), s/veh s/veh .OS)	DBZ Analys Apple Valley Drive Analys 18 PM NB xus Analys n Ashton Park II tion L ent L n Ashton Park II tion L ent L n Reference Phase 2 0 Reference Point End (es Simult. Gap N/S On xed Simult. Gap N/S On Xes 55 1.1 96 5 5 xed Simult. Gap N/S On Xes 5.5 4.0 Time (g_e), s 4.2 5 20 Itly 0.94 0.00 Results 0.2 0.11 ent L 5 ent L 5 in Flow Rate (s), veh/h/in 1810 ne (g_e), s 2.2 rance Time (g_e), s 2.2 irance Time (g_e), s 2.2 <t< td=""><td>DBZ Analysis Dati Apple Valley Drive Analysis Yea 18 PM NB xus Analysis Yea 18 PM NB xus Imalysis Yea 18 PM NB xus Imalysis Yea Ashton Park II Imalysis Yea tion EB ent L T 1 P9 618 Imalysis Cap E/W On Green 3.8 Yellow Simult. Gap N/S On Red 2.0 Reference Point End Green 3.8 Yellow 3.5 Red 2.0 Xes Simult. Gap N/S On Simult. Gap N/S On Yea Simult. Gap N/S On Simult. Gap N/S On Yea <td< td=""><td>DBZ Analysis Date Apr 7, Ime Period PM Pi PM Pi Apple Valley Drive Analysis Year 2018 18 PM NB xus Ashton Park II Ime EB ent Ashton Park II Ime T R 99 618 31 m Ashton Park II Ime T R 99 618 31 m Afference Phase 2 Green 3.8 0.3 Vellow 3.5 0.0 Red 2.0 0.0 Keel Simult Gap E/W On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Ime (ge), s 5.5 6.3 3.9 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0</td><td>DBZ Analysis Date Time Period Apr 7, 2015 Apple Vailey Drive Analysis Year 2018 No Built 18 PM NB xus n Ashton Park II tion EB ent L T A R 4.1 Reference Phase 2 0 Reference Point End (es Simult Gap N/S On Ked Simult Gap N/S On EBL EBT WB 5 2 1 1.1 3.0 1.1 9.6 655.1 9.3 4.4.0 3.9 4.0 74 Re), s 5.5 6.3 655 6.3 55 ay (MAH), s 4.0 3.9 4.0 Time (ga), s 0.2 9.8 0.2 90 0.13 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 1 1 3.0 1.1 3.0</td><td>DBZ Analysis Date Apr 7, 2015 Time Period PM Peak Apple Valley Drive Analysis Year 2018 No Build 18 PM NB xus Ashton Park II V tion L T R L T dashton Park II L T R L T dashton Park II L T R L T dashton Park II Simut Green 3.8 0.3 48.5 1.4 fer -</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Apple Valley Drive Analysis Year 2018 No Build Analysis 1 18 PM NB xus Analysis Year 2018 No Build Analysis 1 18 PM NB xus Ashton Park II Image: State State</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Time Period PM Peak PHF Apple Valley Drive Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II L T R L T R L and L T R L T R L and Simult Green 18.8 0.3 48.5 14.0 0.0 0.0 At 1 Reference Point End Green 18.8 0.3 48.5 14.0 0.0 0.0 Xxed Simult Gap N/S On Red 2.0 0.0 2.0 0.0 0.0 Xxed Simult Gap N/S On Red 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1>7 18 PM NB xus Ashton Park II Ite PM NB xus NB NB NB Ite PH 0.84 a Ashton Park II L T R L T R L T a Ashton Park II L T R L T R L T 6 Simut Gap E/W On Yellow 3.5 0.0 4.8.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End Green 3.8 0.3 48.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End 11 3.0 1.1 3.0 1 3.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II I T R L T R</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Imme Period PMP Peak PHF 0.84 Analysis Period 1>7.00 18 PM NB xus Ashton Park II I T R L T R<</td><td>Jacobs Duration, h 0.25 Analysis Date Apr 7. 2015 Area type Other DBZ Analysis Date Apr 7. 2015 Area type Other 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II L T R<!--</td--></td></td<></td></t<>	DBZ Analysis Dati Apple Valley Drive Analysis Yea 18 PM NB xus Analysis Yea 18 PM NB xus Imalysis Yea 18 PM NB xus Imalysis Yea Ashton Park II Imalysis Yea tion EB ent L T 1 P9 618 Imalysis Cap E/W On Green 3.8 Yellow Simult. Gap N/S On Red 2.0 Reference Point End Green 3.8 Yellow 3.5 Red 2.0 Xes Simult. Gap N/S On Simult. Gap N/S On Yea Simult. Gap N/S On Simult. Gap N/S On Yea <td< td=""><td>DBZ Analysis Date Apr 7, Ime Period PM Pi PM Pi Apple Valley Drive Analysis Year 2018 18 PM NB xus Ashton Park II Ime EB ent Ashton Park II Ime T R 99 618 31 m Ashton Park II Ime T R 99 618 31 m Afference Phase 2 Green 3.8 0.3 Vellow 3.5 0.0 Red 2.0 0.0 Keel Simult Gap E/W On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Ime (ge), s 5.5 6.3 3.9 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0</td><td>DBZ Analysis Date Time Period Apr 7, 2015 Apple Vailey Drive Analysis Year 2018 No Built 18 PM NB xus n Ashton Park II tion EB ent L T A R 4.1 Reference Phase 2 0 Reference Point End (es Simult Gap N/S On Ked Simult Gap N/S On EBL EBT WB 5 2 1 1.1 3.0 1.1 9.6 655.1 9.3 4.4.0 3.9 4.0 74 Re), s 5.5 6.3 655 6.3 55 ay (MAH), s 4.0 3.9 4.0 Time (ga), s 0.2 9.8 0.2 90 0.13 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 1 1 3.0 1.1 3.0</td><td>DBZ Analysis Date Apr 7, 2015 Time Period PM Peak Apple Valley Drive Analysis Year 2018 No Build 18 PM NB xus Ashton Park II V tion L T R L T dashton Park II L T R L T dashton Park II L T R L T dashton Park II Simut Green 3.8 0.3 48.5 1.4 fer -</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Apple Valley Drive Analysis Year 2018 No Build Analysis 1 18 PM NB xus Analysis Year 2018 No Build Analysis 1 18 PM NB xus Ashton Park II Image: State State</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Time Period PM Peak PHF Apple Valley Drive Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II L T R L T R L and L T R L T R L and Simult Green 18.8 0.3 48.5 14.0 0.0 0.0 At 1 Reference Point End Green 18.8 0.3 48.5 14.0 0.0 0.0 Xxed Simult Gap N/S On Red 2.0 0.0 2.0 0.0 0.0 Xxed Simult Gap N/S On Red 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1>7 18 PM NB xus Ashton Park II Ite PM NB xus NB NB NB Ite PH 0.84 a Ashton Park II L T R L T R L T a Ashton Park II L T R L T R L T 6 Simut Gap E/W On Yellow 3.5 0.0 4.8.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End Green 3.8 0.3 48.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End 11 3.0 1.1 3.0 1 3.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II I T R L T R</td><td>DBZ Analysis Date Apr 7, 2015 Area Type Other Imme Period PMP Peak PHF 0.84 Analysis Period 1>7.00 18 PM NB xus Ashton Park II I T R L T R<</td><td>Jacobs Duration, h 0.25 Analysis Date Apr 7. 2015 Area type Other DBZ Analysis Date Apr 7. 2015 Area type Other 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II L T R<!--</td--></td></td<>	DBZ Analysis Date Apr 7, Ime Period PM Pi PM Pi Apple Valley Drive Analysis Year 2018 18 PM NB xus Ashton Park II Ime EB ent Ashton Park II Ime T R 99 618 31 m Ashton Park II Ime T R 99 618 31 m Afference Phase 2 Green 3.8 0.3 Vellow 3.5 0.0 Red 2.0 0.0 Keel Simult Gap E/W On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Keel Simult Gap N/S On Red 2.0 0.0 Ime (ge), s 5.5 6.3 3.9 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0 3.9 Time (ge), s 0.2 9.8 5.5 1.1 3.0	DBZ Analysis Date Time Period Apr 7, 2015 Apple Vailey Drive Analysis Year 2018 No Built 18 PM NB xus n Ashton Park II tion EB ent L T A R 4.1 Reference Phase 2 0 Reference Point End (es Simult Gap N/S On Ked Simult Gap N/S On EBL EBT WB 5 2 1 1.1 3.0 1.1 9.6 655.1 9.3 4.4.0 3.9 4.0 74 Re), s 5.5 6.3 655 6.3 55 ay (MAH), s 4.0 3.9 4.0 Time (ga), s 0.2 9.8 0.2 90 0.13 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 1 1 3.0 1.1 3.0	DBZ Analysis Date Apr 7, 2015 Time Period PM Peak Apple Valley Drive Analysis Year 2018 No Build 18 PM NB xus Ashton Park II V tion L T R L T dashton Park II L T R L T dashton Park II L T R L T dashton Park II Simut Green 3.8 0.3 48.5 1.4 fer -	DBZ Analysis Date Apr 7, 2015 Area Type Apple Valley Drive Analysis Year 2018 No Build Analysis 1 18 PM NB xus Analysis Year 2018 No Build Analysis 1 18 PM NB xus Ashton Park II Image: State	DBZ Analysis Date Apr 7, 2015 Area Type Time Period PM Peak PHF Apple Valley Drive Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II Analysis Year 2018 No Build Analysis Period 18 PM NB xus n Ashton Park II L T R L T R L and L T R L T R L and Simult Green 18.8 0.3 48.5 14.0 0.0 0.0 At 1 Reference Point End Green 18.8 0.3 48.5 14.0 0.0 0.0 Xxed Simult Gap N/S On Red 2.0 0.0 2.0 0.0 0.0 Xxed Simult Gap N/S On Red 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5 6.3 5.5	DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1>7 18 PM NB xus Ashton Park II Ite PM NB xus NB NB NB Ite PH 0.84 a Ashton Park II L T R L T R L T a Ashton Park II L T R L T R L T 6 Simut Gap E/W On Yellow 3.5 0.0 4.8.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End Green 3.8 0.3 48.5 14.0 0.0 0.0 ces Simut Gap N/S On Reference Point End 11 3.0 1.1 3.0 1 3.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 2.0	DBZ Analysis Date Apr 7, 2015 Area Type Other Time Period PM Peak PHF 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II I T R L T R	DBZ Analysis Date Apr 7, 2015 Area Type Other Imme Period PMP Peak PHF 0.84 Analysis Period 1>7.00 18 PM NB xus Ashton Park II I T R L T R<	Jacobs Duration, h 0.25 Analysis Date Apr 7. 2015 Area type Other DBZ Analysis Date Apr 7. 2015 Area type Other 0.84 Apple Valley Drive Analysis Year 2018 No Build Analysis Period 1> 7.00 18 PM NB xus Ashton Park II L T R </td

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HCS 2010TM Streets Version 6.65

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General Inform	hation								Intersec		_	on	- 1		
Agency		Jacobs				1. 0	0045		Duration		0.25		- 8		
Analyst		DBZ		· · ·		Apr 3,			Area Typ	e	Other				
Jurisdiction				Time F		PM Pe			PHF		0.92		* ~		
Intersection		Beulah Church Roa	ıd	Analys	sis Year	2018	Build		Analysis	Period	1> 7:(00	2		
File Name		18 PM B.xus												11	
Project Descrip	tion	Ashton Park II											h	114Y	14
					50			1.0.0	-		ND			0.0	
Demand Inform					EB		.	W			NB			SB	
Approach Move				L	T	R	L	T		L	T	R	L	T	-
Demand (v), ve	h/h				535	620	197	40	0	612		384			
Signal Informa	tion				1			1							
-		Deference Dhase	2		l 🗧	= . :									
Cycle, s	96.3	Reference Phase	2 End		2	F"	- Si	2					Y 2	3	
Offset, s	0	Reference Point	End	Green		33.7	37.4	0.0		0.0					
Uncoordinated	Yes	Simult. Gap E/W	On	Yellow		3.6	3.5	0.0		0.0			Y		ĸ
Force Mode	Fixed	Simult. Gap N/S	Off	Red	2.0	1.5	1.5	0.0	0.0	0.0		5	6	7	
Times Desult				EDI		EDT	MD		MDT	ND		NDT	C DI		CD7
Timer Results				EBI	-	EBT	WB		WBT	NBL		NBT	SBI	-	SB1
Assigned Phase	e				_	2	1		6		_	8			
Case Number						7.3	1.0	_	4.0			9.0			
Phase Duration	/				_	38.8	15.0	_	53.8			42.4			
Change Period,		,				5.6	5.5	_	5.6			5.0			
Max Allow Head						6.1	4.5		5.9			3.1			
Queue Clearan	ce Time	(g₅), s				25.7	8.9		16.3			36.2			
Green Extensio	n Time	(ge), s				7.5	0.6		3.9			1.1			
Phase Call Prol	bability					1.00	1.00)	1.00			1.00			
Max Out Proba	bility					0.15	0.02	2	0.00			0.82			
Movement Gro		ults			EB			WB	-		NB			SB	
Approach Move				L	T	R	L	Т	R	L	Т	R	L	Т	F
Assigned Move	ment				2	12	1	6		3		18			
Adjusted Flow F	Rate (v)	, veh/h			379	439	214	435		665		417			
Adjusted Satura	ation Flo	w Rate (s), veh/h/ln			1900	1610	1810	1900)	1810		1610			
Queue Service	Time (g	s), S			15.7	23.7	6.9	14.3		34.2		17.3			
	learanc	e Time (g₀), s			15.7	23.7	6.9	14.3		34.2		17.3			
Cycle Queue C	(C)				0.34	0.34	0.47	0.50		0.39		0.49			
					655	555	439	952		704		786			
Cycle Queue C	,							0.45	_	0.945		0.531			
Cycle Queue C Green Ratio (g/ Capacity (c), ve	eh/h	tio (X)			0.578	0.790	0.487	0.45							
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Cap	eh/h acity Ra				0.578 985	0.790 835	0.487 636	985		751		828			1
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa	eh/h acity Ra city (c₌),							_		751 24.1		828 9.7			1
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue	eh/h acity Ra city (<i>c</i> ₌), (Q), veł	veh/h n/ln (95th percentile)			985	835	636	985							┢
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage	h/h acity Ra city (c₌), (Q), vel Ratio (a	veh/h n/ln (95th percentile) RQ) (95th percentile			985 10.5	835 13.4	636 4.9	985 9.6		24.1		9.7			+
Cycle Queue C Green Ratio (<i>g</i> / Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (eh/h acity Ra city (c₅), (Q), veł Ratio (/ (d₁), s/ve	veh/h n/In (95th percentile) RQ) (95th percentile eh			985 10.5 0.44 25.8	835 13.4 1.11 28.4	636 4.9 0.35	985 9.6 0.48		24.1 1.20		9.7 0.48			
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De	eh/h acity Ra city (c₌), (Q), vel Ratio (i (d₁), s/ve lay (d₂),	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh			985 10.5 0.44 25.8 1.3	835 13.4 1.11 28.4 4.3	636 4.9 0.35 17.7 1.0	985 9.6 0.48 15.6 0.7		24.1 1.20 28.5 19.5		9.7 0.48 17.1 0.2			
Cycle Queue C Green Ratio (<i>g</i> / Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De	eh/h acity (c₅), (Q), vel Ratio (<i>i</i> (d₁), s/ve lay (d₂), elay (d₂)	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh h, s/veh			985 10.5 0.44 25.8 1.3 0.0	835 13.4 1.11 28.4 4.3 0.0	636 4.9 0.35 17.7 1.0 0.0	985 9.6 0.48 15.6 0.7 0.0		24.1 1.20 28.5 19.5 0.0		9.7 0.48 17.1 0.2 0.0			
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (h/h acity Ra city (ca), (Q), vel Ratio (i (d1), s/vel lay (d2), elay (d3)	veh/h n/ln (95th percentile) RQ) (95th percentile eh s/veh n, s/veh			985 10.5 0.44 25.8 1.3 0.0 27.1	835 13.4 1.11 28.4 4.3 0.0 32.7	636 4.9 0.35 17.7 1.0 0.0 18.7	985 9.6 0.48 15.6 0.7 0.0 16.3		24.1 1.20 28.5 19.5 0.0 47.9		9.7 0.48 17.1 0.2 0.0 17.3			
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (Level of Service	sh/h acity Ra city (c_s), (Q), vel Ratio (a_1), s/vel lay (d_2), elay (d_2), s/vel d), s/vel e (LOS)	veh/h n/ln (95th percentile) RQ) (95th percentile eh s/veh n, s/veh			985 10.5 0.44 25.8 1.3 0.0 27.1 C	835 13.4 1.11 28.4 4.3 0.0 32.7 C	636 4.9 0.35 17.7 1.0 0.0 18.7 B	985 9.6 0.48 15.6 0.7 0.0 16.3 B		24.1 1.20 28.5 19.5 0.0 47.9 D		9.7 0.48 17.1 0.2 0.0 17.3 B			
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (Level of Service Approach Delay	h/h acity (ca), (Q), vel Ratio (r (d1), s/vel lay (d2), elay (d3) d), s/vel e (LOS) y, s/veh	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh h, s/veh h		30.1	985 10.5 0.44 25.8 1.3 0.0 27.1 C	835 13.4 1.11 28.4 4.3 0.0 32.7 C C	636 4.9 0.35 17.7 1.0 0.0 18.7 B 17.1	985 9.6 0.48 15.6 0.7 0.0 16.3 B		24.1 1.20 28.5 19.5 0.0 47.9		9.7 0.48 17.1 0.2 0.0 17.3 B D	0.0		
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (Level of Service Approach Delay	h/h acity (ca), (Q), vel Ratio (r (d1), s/vel lay (d2), elay (d3) d), s/vel e (LOS) y, s/veh	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh h, s/veh h		30.1	985 10.5 0.44 25.8 1.3 0.0 27.1 C	835 13.4 1.11 28.4 4.3 0.0 32.7 C C	636 4.9 0.35 17.7 1.0 0.0 18.7 B	985 9.6 0.48 15.6 0.7 0.0 16.3 B		24.1 1.20 28.5 19.5 0.0 47.9 D		9.7 0.48 17.1 0.2 0.0 17.3 B D	0.0 C		
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (Level of Service Approach Delay Intersection De	Acity Ra acity (c₃), (Q), vel Ratio (n (d₁), s/vel lay (d₂), elay (d₂), elay (d₃), d), s/vel e (LOS) y, s/veh lay, s/vel	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh h, s/veh h		30.1	985 10.5 0.44 25.8 1.3 0.0 27.1 C	835 13.4 1.11 28.4 4.3 0.0 32.7 C C	636 4.9 0.35 17.7 1.0 0.0 18.7 B 17.1	985 9.6 0.48 15.6 0.7 0.0 16.3 B	B	24.1 1.20 28.5 19.5 0.0 47.9 D		9.7 0.48 17.1 0.2 0.0 17.3 B D			
Cycle Queue C Green Ratio (g/ Capacity (c), ve Volume-to-Capa Available Capa Back of Queue Queue Storage Uniform Delay (Incremental De Initial Queue De Control Delay (Level of Service Approach Delay	h/h acity Ra city (c₃), (Q), vel Ratio (r (d₁), s/vel lay (d₂), elay (d₂), elay (d₃), s/vel e (LOS) y, s/veh lay, s/ve sults	veh/h h/ln (95th percentile) RQ) (95th percentile eh s/veh h, s/veh h / LOS h / LOS		30.1	985 10.5 0.44 25.8 1.3 0.0 27.1 C	835 13.4 1.11 28.4 4.3 0.0 32.7 C C	636 4.9 0.35 17.7 1.0 0.0 18.7 B 17.1	985 9.6 0.48 15.6 0.7 0.0 16.3 B WB	B	24.1 1.20 28.5 19.5 0.0 47.9 D	NB	9.7 0.48 17.1 0.2 0.0 17.3 B D		SB	B



General Inform	nation								Intersect	ion Infe	ormatio	on		4.4.4.1	Ja Li
Agency		Jacobs							Duration,	h	0.25			46	
Analyst		DBZ		Analys	is Date	Apr 2	2015		Area Typ		Other				
Jurisdiction				Time F		AM P			PHF		0.84		$\stackrel{\rightarrow}{\ast} \stackrel{\rightarrow}{\rightarrow}$		
Intersection		Apple Valley Drive			is Year		oun	\rightarrow	Analysis	Period	1> 7:0	10	4 4		
File Name		15 AM.xus		[Analys	no rear	2010			Analysis	Chioa	1- 1.0		- 12		6
Project Descrip	tion	Ashton Park II												* * 1 * *	2.1
Floject Descrip	lion	ASHION Fark II													
Demand Inform	nation				EB			W	В		NB			SB	
Approach Move				L	T	R	L	T	_	L	T	R	L	T	F
Demand (v), ve				35	287	12	17	24		18	2	78	1	2	
				00	201	12		21	,	10	-	10		-	
Signal Informa	tion		_			5	5	12							T
Cycle, s	74.4	Reference Phase	2	1	12 0	- 2	= <u>⊷</u> 3 8	200			1	\frown	a		$\mathbf{\Phi}$
Offset, s	0	Reference Point	End	<u> </u>		0.0	F					1	Y 2	3	
Uncoordinated	Yes	Simult. Gap E/W	On	Green Yellow	-	0.9	46.3	7.5		0.0			\rightarrow		-
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0	2.0	2.0		0.0		5	6	7	
	1 1/100	Linda: Sup 185	011			12.0		2.0		5.5					
Timer Results				EBI		EBT	WB	L	WBT	NBL		NBT	SBI		SBT
Assigned Phase	e			5		2	1		6			8			4
Case Number	-			1.1		3.0	1.1		3.0			8.0			6.0
Phase Duration	c		_	7.8		52.6	8.7	_	53.5			13.1			13.1
	1 -	1 6		5.5		6.3	5.5	_	6.3			5.6			5.6
	nge Period, (Y+R₀), s Allow Headway (<i>MAH</i>), s			4.0		3.9	4.0	_	3.9			5.2			5.2
	cAllow Headway (<i>MAH</i>), s eue Clearance Time (g₀), s			2.6		8.3	3.1	_	40.1			7.2			7.3
		10 //		0.1		8.3	0.1	_	40.1 7.0			0.6			0.6
Green Extensio		(ye), 5			,			_	1.00						
Phase Call Prol				0.58	_	1.00	0.79	_			_	0.95		_	0.95
Max Out Probal	onity			0.00	'	0.01	0.00	,	0.20			0.00			0.00
Movement Gro	up Res	sults			EB			WB			NB			SB	
Approach Move			_	L	T	R	L	T	R	L	T	R	L	T	F
Assigned Move				5	2	12	1	6	16	3	8	18	7	4	1
Adjusted Flow F		veh/h	_	42	342	14	76	1087		-	117		1	25	<u> </u>
		ow Rate (s), veh/h/ln		1810	1863	1610	1810	1863			1603		1321	1634	-
Queue Service		(7)		0.6	6.3	0.3	1.1	38.1			2.7		0.1	1.0	-
Cycle Queue C				0.6	6.3	0.3	1.1	38.1			5.2		5.3	1.0	-
Green Ratio (g/		e nine (ge), s		0.65	0.62	0.62	0.67	0.63			0.10		0.10	0.10	-
				204	1161	1003		1182			218		137	164	-
Capacity (c), ve		atio (X)					744		0.031				0.009		-
Volume-to-Capa				0.205							0.534		448	0.152	-
Available Capa		,		512	1501	1297	1032	1501			588			549	-
	x	h/In (95th percentile)		0.6	3.3	0.1	0.5	16.1			3.7		0.0	0.7	-
-		RQ) (95th percentile)	0.03	0.08	0.02	0.10	0.41			0.93		0.01	0.09	
Uniform Delay (15.8	6.5	5.3	4.6	11.9			32.4		35.0	30.6	-
Incremental De				0.5	0.1	0.0	0.0	4.7	0.0		2.9		0.0	0.6	-
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (16.3	6.6	5.3	4.6	16.6			35.3		35.0	31.2	
Level of Service				В	A	A	Α	В	Α		D		D	С	
Approach Delay				7.6		А	15.5	5	В	35.3	3	D	31.4	1	С
Intersection Del	ay, s/ve	eh / LOS				15	5.3						В		
Multimodal Re	sults				EB			WB			NB			SB	
Pedestrian LOS	Score	/ LOS		2.1		В	2.2		В	2.4		В	2.4		В
Bicycle LOS Sc	(1)	20		1.1		Α	1.0		Α	0.7		A	0.5		А



General Information							ntersect	ion Infe	ormatio	n	1 2	14441	li li
Agency	Jacobs						Duration,	h	0.25			44	
Analyst	DBZ	Analy	sis Date	Apr 3	2015		Area Type	e	Other		4		
Jurisdiction			Period	AM P			PHF		0.84		\rightarrow \rightarrow		
Intersection	Apple Valley Drive	+	sis Year	+	No Build		Analysis I	Period	1> 7:0	0	4 14		
File Name	18 AM NB.xus	T Analy.	515 1041	2010	NO Duit	· · ·	-inaly 313 i	chou	18 7.4				-
Project Description	Ashton Park II											1	10
r toject Description	Ashton raik ii												
Demand Information			EB			WE	}		NB			SB	
Approach Movement		L	T	R	L	T	R	L	T	R	L	T	F
Demand (v), veh/h		35	308	12	17	260		18	2	78	1	2	1
Beinana (V), Veinn		00	000	12		200	, ,	10	-	10		2	
Signal Information				5	5								Т
Cycle, s 83.3	Reference Phase 2	1	120	- 2	7						<u>a</u>		$\mathbf{\Phi}$
Offset, s 0	Reference Point End	1	0.5	0.0	Ň					1	Y 2	3	
Uncoordinated Yes	Simult. Gap E/W On	Green		0.8	54.3 4.3	8.2	0.0	0.0			Ð-		-
Force Mode Fixed	· · · · · · · · · · · · · · · · · · ·	Red	2.0	0.0	2.0	2.0	0.0	0.0		5	e e	7	
				3.5	12.0	2.0	0.0	0.0					
Timer Results		EB		EBT	WB		WBT	NBL		NBT	SB		SBT
Assigned Phase		5	-	2	1		6			8			4
Case Number		1,1		3.0	1,1		3.0			8.0			6.0
Phase Duration, s		8.0	_	5.0 60.6	8.8		61.5			0.0 13.8			13.8
Change Period, (Y+Ra) c	5.5		6.3	5.5		6.3			5.6			5.6
		4.0		6.3 3.9						5.0			5.0 5.2
Max Allow Headway (A			_			4.0		3.9					
Queue Clearance Time		2.6	_	9.1	3.1		49.6			7.8			7.9
Green Extension Time		0.1	_	10.0	0.1		5.6			0.6			0.6
Phase Call Probability		0.62					1.00			0.96			0.96
Max Out Probability		0.00	J	0.02	0.00)	0.58			0.00			0.00
Movement Crown De	culto		ED			WD.			ND			en.	
Movement Group Res Approach Movement	suits		EB	-		WB	R		NB	D		SB	
			I T									Τ	
		L	T	R	L	T		L	T	R		T	
Assigned Movement	× 1.4	5	2	12	1	6	16	2 3	8	18	7	4	
Assigned Movement Adjusted Flow Rate (v)		5 42	2 367	12 14	1 77	6 1171	16 32		8 117		7 1	4 25	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fl	ow Rate (<i>s</i>), veh/h/ln	5 42 1810	2 367 1863	12 14 1610	1 77 1810	6 1171 1863	16 32 1610		8 117 1603		7 1 1321	4 25 1634	1.
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fl Queue Service Time (g	ow Rate (<i>s</i>), veh/h/ln g₅), s	5 42 1810 0.6	2 367 1863 7.1	12 14 1610 0.3	1 77 1810 1.1	6 1171 1863 47.6	16 32 1610 0.6		8 117 1603 3.1		7 1 1321 0.1	4 25 1634 1.2	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fl Queue Service Time (Cycle Queue Clearanc	ow Rate (<i>s</i>), veh/h/ln g₅), s	5 42 1810 0.6 0.6	2 367 1863 7.1 7.1	12 14 1610 0.3 0.3	1 77 1810 1.1 1.1	6 1171 1863 47.6 47.6	16 32 1610 0.6 0.6		8 117 1603 3.1 5.8		7 1 1321 0.1 5.9	4 25 1634 1.2 1.2	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (Cycle Queue Clearanc Green Ratio (g/C)	ow Rate (<i>s</i>), veh/h/ln g₅), s	5 42 1810 0.6 0.6 0.68	2 367 1863 7.1 7.1 0.65	12 14 1610 0.3 0.3 0.65	1 77 1810 1.1 1.1 0.69	6 1171 1863 47.6 47.6 0.66	16 32 1610 0.6 0.6 0.66		8 117 1603 3.1 5.8 0.10		7 1 1321 0.1 5.9 0.10	4 25 1634 1.2 1.2 0.10	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (<u>c</u> Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h	ow Rate (s), veh/h/ln g₅), s ;e Time (g₀), s	5 42 1810 0.6 0.6	2 367 1863 7.1 7.1	12 14 1610 0.3 0.3	1 77 1810 1.1 1.1	6 1171 1863 47.6 47.6	16 32 1610 0.6 0.6 0.66		8 117 1603 3.1 5.8		7 1 1321 0.1 5.9	4 25 1634 1.2 1.2	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Flo Queue Service Time (<u>c</u> Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra	ow Rate (s), veh/h/ln g₅), s :e Time (g₀), s atio (X)	5 42 1810 0.6 0.6 0.68	2 367 1863 7.1 7.1 0.65 1216	12 14 1610 0.3 0.3 0.65 1051 0.014	1 77 1810 1.1 1.1 0.69	6 1171 1863 47.6 47.6 0.66 1234 0.949	16 32 1610 0.6 0.6 0.66 1067 0.030		8 117 1603 3.1 5.8 0.10		7 1 1321 0.1 5.9 0.10	4 25 1634 1.2 1.2 0.10	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Flo Queue Service Time (<u>c</u> Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra	ow Rate (s), veh/h/ln g₅), s :e Time (g₀), s atio (X)	5 42 1810 0.6 0.68 173	2 367 1863 7.1 7.1 0.65 1216	12 14 1610 0.3 0.3 0.65 1051	1 77 1810 1.1 1.1 0.69 745	6 1171 1863 47.6 47.6 0.66 1234	16 32 1610 0.6 0.6 0.66 1067 0.030		8 117 1603 3.1 5.8 0.10 209		7 1321 0.1 5.9 0.10 124	4 25 1634 1.2 1.2 0.10 161	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (Cycle Queue Clearanc Green Ratio (g/C)	ow Rate (<i>s</i>), veh/h/ln g₅), s :e Time (g₀), s atio (X)), veh/h	5 42 1810 0.6 0.68 173 0.240	2 367 1863 7.1 7.1 0.65 1216 0.302	12 14 1610 0.3 0.3 0.65 1051 0.014	1 77 1810 1.1 1.1 0.69 745 0.103	6 1171 1863 47.6 47.6 0.66 1234 0.949	16 32 1610 0.6 0.6 0.66 1067 0.030		8 117 1603 3.1 5.8 0.10 209 0.558		7 1321 0.1 5.9 0.10 124 0.010	4 25 1634 1.2 1.2 0.10 161 0.155	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Flo Queue Service Time (<u>c</u> Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (c _a)	ow Rate (<i>s</i>), veh/h/ln g₂), s :e Time (gc), s atio (X)), veh/h .h/ln (95th percentile)	5 42 1810 0.6 0.68 173 0.240 445	2 367 1863 7.1 7.1 0.65 1216 0.302 1342	12 14 1610 0.3 0.65 1051 0.014 1160	1 77 1810 1.1 1.1 0.69 745 0.103 999	6 1171 1863 47.6 0.66 1234 0.949 1342	16 32 1610 0.6 0.6 1067 0.030 1160		8 117 1603 3.1 5.8 0.10 209 0.558 526		7 1 1321 0.1 5.9 0.10 124 0.010 390	4 25 1634 1.2 1.2 0.10 161 0.155 490	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (ow Rate (<i>s</i>), veh/h/ln g∈), s :e Time (gc), s atio (X)), veh/h .h/ln (95th percentile) (<i>RQ</i>) (95th percentile)	5 42 1810 0.6 0.68 173 0.240 445 0.9	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8	12 14 1610 0.3 0.65 1051 0.014 1160 0.1	1 77 1810 1.1 0.69 745 0.103 999 0.5	6 1171 1863 47.6 47.6 0.66 1234 0.949 1342 20.6	16 32 1610 0.6 0.66 1067 0.030 1160 0.2		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3		7 1321 0.1 5.9 0.10 124 0.010 390 0.0	4 25 1634 1.2 0.10 161 0.155 490 0.8	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v	ow Rate (<i>s</i>), veh/h/ln <i>g</i> e), s :e Time (<i>g</i> e), s atio (<i>X</i>)), veh/h :h/ln (95th percentile) (<i>RQ</i>) (95th percentile) <i>v</i> eh	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8 0.10	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 1.06		7 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.0	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2)	ow Rate (<i>s</i>), veh/h/ln <i>g</i> ₅), s :e Time (<i>g</i> ₀), s atio (<i>X</i>)), veh/h :h/ln (95th percentile) (<i>RQ</i>) (95th percentile) <i>r</i> eh i, s/veh	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1	1 77 1810 1.1 1.1 0.69 745 0.103 999 0.5 0.10 4.4	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 1.06 36.4		7 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4	4 25 1634 1.2 1.2 0.10 161 0.155 490 0.8 0.11 34.4	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearance Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d3)	ow Rate (s), veh/h/ln g=), s :e Time (g_c), s atio (X)), veh/h :h/ln (95th percentile) (RQ) (95th percentile) (reh 1, s/veh), s/veh	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0	1 77 1810 1.1 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0	6 1171 1863 47.6 47.6 1234 0.949 1342 20.6 0.52 12.8 7.7	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 1.06 36.4 3.3		7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4 0.0	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearance Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d3) Control Delay (d), s/ve	ow Rate (<i>s</i>), veh/h/ln <i>g</i> e), s ce Time (<i>g</i> e), s atio (<i>X</i>)), veh/h ch/ln (95th percentile) (<i>RQ</i>) (95th percentile) veh 1, s/veh s), s/veh ch	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6	2 367 1863 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5	6 1171 1863 47.6 47.6 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 4.8 0.0 4.8		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 526 4.3 1.06 36.4 3.3 0.0 39.7		7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4 0.0 0.0 39.4	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d2) Control Delay (d), s/ve Level of Service (LOS)	ow Rate (<i>s</i>), veh/h/ln <i>g</i> _s), s :e Time (<i>g</i> _c), s atio (<i>X</i>)), veh/h th/ln (95th percentile) (<i>RQ</i>) (95th percentile) <i>(RQ</i>) (95th percentile) <i>y</i> eh a, s/veh b) s), s/veh	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6 C	2 367 1863 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4 A	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1 A	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5 A	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0 20.4 C	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 0.0 4.8 0.0 0.0 4.8 A	3	8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 526 4.3 1.06 36.4 3.3 0.0 39.7 D		7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.0 0.0 39.4 0.0 39.4 D	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0 C	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d2) Control Delay (d), s/ve Level of Service (LOS) Approach Delay, s/veh	ow Rate (<i>s</i>), veh/h/ln <i>g</i> ₈), s :e Time (<i>g</i> ₆), s atio (<i>X</i>)), veh/h th/ln (95th percentile) (<i>RQ</i>) (95th percentile) (<i>RQ</i>) (95th percentile) veh b, s/veh b) , s/veh th) 1 LOS	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6	2 367 1863 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4 A	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1 A A	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5 A 19.1	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0 20.4 C	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 4.8 0.0 4.8		8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 526 4.3 1.06 36.4 3.3 0.0 39.7 D	18	7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4 0.0 0.0 39.4 D 35.2	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0 C	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d2) Control Delay (d), s/ve Level of Service (LOS) Approach Delay, s/veh	ow Rate (<i>s</i>), veh/h/ln <i>g</i> ₈), s :e Time (<i>g</i> ₆), s atio (<i>X</i>)), veh/h th/ln (95th percentile) (<i>RQ</i>) (95th percentile) (<i>RQ</i>) (95th percentile) veh b, s/veh b) , s/veh th) 1 LOS	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6 C	2 367 1863 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4 A	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1 A A	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5 A	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0 20.4 C	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 0.0 4.8 0.0 0.0 4.8 A	3	8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 526 4.3 1.06 36.4 3.3 0.0 39.7 D	18	7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.0 0.0 39.4 0.0 39.4 D	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0 C	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearance Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity Ra Available Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (dr), s/v Incremental Delay (dr) Control Delay (dr), s/ve Level of Service (LOS) Approach Delay, s/veh	ow Rate (<i>s</i>), veh/h/ln <i>g</i> ₈), s :e Time (<i>g</i> ₆), s atio (<i>X</i>)), veh/h th/ln (95th percentile) (<i>RQ</i>) (95th percentile) (<i>RQ</i>) (95th percentile) veh b, s/veh b) , s/veh th) 1 LOS	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6 C	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4 A	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1 A A	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5 A 19.1	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0 20.4 C	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 0.0 4.8 0.0 0.0 4.8 A	3	8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 36.4 3.3 0.0 39.7 D 7	18	7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4 0.0 0.0 39.4 D 35.2	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0 C 2	
Assigned Movement Adjusted Flow Rate (v) Adjusted Saturation Fli Queue Service Time (g Cycle Queue Clearanc Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity (ca) Back of Queue (Q), ve Queue Storage Ratio (Uniform Delay (d1), s/v Incremental Delay (d2) Initial Queue Delay (d2) Control Delay (d), s/ve Level of Service (LOS) Approach Delay, s/veh	ow Rate (<i>s</i>), veh/h/ln <i>g</i> _e), s :e Time (<i>g</i> _c), s atio (<i>X</i>)), veh/h :h/ln (95th percentile) (<i>RQ</i>) (95th percentile) (<i>RQ</i>) (95th percentile) veh , s/veh :), s/veh :h) 1 / LOS eh / LOS	5 42 1810 0.6 0.68 173 0.240 445 0.9 0.04 19.9 0.7 0.0 20.6 C	2 367 1863 7.1 7.1 0.65 1216 0.302 1342 3.8 0.10 6.3 0.1 0.0 6.4 A A EB	12 14 1610 0.3 0.65 1051 0.014 1160 0.1 0.02 5.1 0.0 0.0 5.1 A A	1 77 1810 1.1 0.69 745 0.103 999 0.5 0.10 4.4 0.0 0.0 4.5 A 19.1	6 1171 1863 47.6 0.66 1234 0.949 1342 20.6 0.52 12.8 7.7 0.0 20.4 C	16 32 1610 0.6 0.66 1067 0.030 1160 0.2 0.02 4.8 0.0 0.0 4.8 0.0 0.0 4.8 A	3	8 117 1603 3.1 5.8 0.10 209 0.558 526 4.3 36.4 3.3 0.0 39.7 D 7 N	18	7 1 1321 0.1 5.9 0.10 124 0.010 390 0.0 0.01 39.4 0.0 0.0 39.4 D 35.2	4 25 1634 1.2 0.10 161 0.155 490 0.8 0.11 34.4 0.6 0.0 35.0 C 2 SB	



General Inform	nation								Intersect	tion Infe	ormatic	n		*****	R U
Agency		Jacobs							Duration,		0.25			46	
Analyst		DBZ		Analys	sis Date	Apr 3	2015		Area Typ	2 4					
Jurisdiction				Time F		AM P			PHF	-	Other 0.84		$\stackrel{\rightarrow}{\Rightarrow}$		
Intersection		Apple Valley Drive			sis Year				Analysis	Period	1> 7:0	10	4 H		*
File Name		18 AM B.xus		/ mary	no real	2010	Dalla		7 (10) 915	renou	1. 1.4		- 12		-
Project Descrip	tion	Ashton Park II												41491	1 1
r toject Descrip	uon	Ashton Fark II													
Demand Inform	nation				EB			W	В		NB			SB	
Approach Move	ement			L	T	R	L	T	R	L	Т	R	L	Т	F
Demand (v), ve				35	308	16	10	26		31	2	47	1	2	1
				00	000	10	10	20	.	01	-			-	
Signal Informa	tion					5	5	니지							T
Cycle, s	84.0	Reference Phase	2	1	12	- 2	≓≞ 8		47		1	\frown _	a	•	$\mathbf{\Phi}$
Offset, s	0	Reference Point	End		0.5	0.0	3	_				1	Y 2	3	
Uncoordinated	Yes	Simult. Gap E/W	On	Green Yellow	-	0.2	56.8 4.3	7.1		0.0			\rightarrow		-
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0	2.0	2.0		0.0		5	6	7	
				r											
Timer Results				EBI		EBT	WB	L	WBT	NBL		NBT	SBI		SBT
Assigned Phas	е			5		2	1		6			8			4
Case Number				1.1		3.0	1.1		3.0			8.0			6.0
Phase Duration	1.5		_	8.0		63.1		8.2 63.3				12.7			12.7
Change Period	,	15		5.5	_	6.3			6.3			5.6			5.6
Max Allow Hea				4.0	_	3.9		4.0 3.9				5.2			5.2
Queue Clearan	2 1			2.6	_	8.6		2.6 52.3				6.9	<u> </u>		7.0
Green Extensio				0.1		10.9		0.1 4.7		0.9					0.5
		(ge), S		0.62		1.00					0.94				0.94
Phase Call Pro					_	0.03		0.00		1.00 0.75		0.94		_	0.94
Max Out Proba	Dinty			0.00	,	0.03	0.00	,	0.75			0.00			0.00
Movement Gro	oup Res	sults			EB			WB			NB			SB	
Approach Move			_	L	T	R	L	T	R	L	T	R	L	T	F
Assigned Move				5	2	12	1	6	16	3	8	18	7	4	1
Adjusted Flow I		veh/h		42	367	19	47	1213			95	10	1	25	<u> </u>
	. /	ow Rate (s), veh/h/ln		1810	1863	1610	1810	1863			1563		1366	1634	-
Queue Service			_	0.6	6.6	0.3	0.6	50.3			3.7	_	0.1	1.2	-
Cycle Queue C				0.6	6.6	0.3	0.6	50.3			4.9		5.0	1.2	-
Green Ratio (q/		e nine (ge), s		0.71	0.68	0.68	0.71	0.68			0.08		0.08	0.08	-
.0	,			166	1261	1090	760	1265			191		120	137	-
Capacity (c), ve		atio (X)						0.95							-
Volume-to-Cap				0.251 435	0.291	0.017	0.061	133			0.499		0.010	0.182 486	-
Available Capa		,				1150	1026				518		412		-
		h/ln (95th percentile)		1.0	3.4	0.1	0.3	21.3	_		3.5		0.0	0.9	-
<u> </u>	,	RQ) (95th percentile)	0.05	0.09	0.02	0.06	0.54			0.88		0.01	0.11	-
Uniform Delay	`			21.5	5.5	4.4	3.9	12.4			37.4		39.9	35.8	-
Incremental De				0.8	0.1	0.0	0.0	8.8	0.0		2.9		0.0	0.9	-
Initial Queue De				0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	-
Control Delay (22.2	5.6	4.4	3.9	21.2			40.3		40.0	36.7	
Level of Service	. ,			С	A	A	A	С	Α		D		D	D	
Approach Delay				7.2		А	20.2	2	С	40.3	3	D	36.8	3	D
Intersection De	lay, s/ve	eh / LOS				18	3.4						В		
Multimodal Re					EB			WB			NB			SB	
Pedestrian LOS	S Score	/ LOS		2.0		В	2.2		В	2.5		В	2.5		В
	ore / LO			1.2		Α	1.0		Α	0.6		A	0.5		Α



									-						
General Inform	nation							\rightarrow	Intersect			n	- 1	14741 1	de la
Agency		Jacobs							Duration,		0.25		- 2		
Analyst		DBZ		Analys	sis Date	e Apr 3,	2015		Area Typ	e		<u>م_</u>			
Jurisdiction				Time F	Period	PM P	eak		PHF		0.84		* -		:
Intersection		Apple Valley Drive		Analys	sis Yea	r 2015			Analysis	Period	1> 7:0	00	1		
File Name		15 PM.xus												*	ſ
Project Descrip	tion	Ashton Park II												14144	11
B 11 6					50			10/	2		ND			0.0	
Demand Inform					EB			W	-	.	NB		<u> </u>	SB	
Approach Move				L	T	R	L	T		L	T	R		T	F
Demand (v), ve	h/h			99	582	31	62	52	6 24	18	6	52	44	6	12
Signal Informa	tion					1	5	-21						-	Т
Cycle, s	76.3	Reference Phase	2	1	12 1	-12							Z		$\mathbf{\Phi}$
Offset, s	0	Reference Point	End	L		Ń		_	17			1	Y 2	3	
Uncoordinated	Yes	Simult. Gap E/W	On	Green		0.3	41.9	13.		0.0	_		Ð		
Force Mode	Fixed	Simult, Gap N/S	On	Yellow Red	2.0	0.0	4.3	3.6		0.0		5	6	7	
- Sice Mode	T IXEU	onnuit. Oap 14/5	UII	1.00	2.0	10.0	2.0	12.0	0.0	10.0					
Timer Results				EBI		EBT	WB	L	WBT	NBI	-	NBT	SBI	L	SBT
Assigned Phase	e			5		2	1		6			8			4
Case Number				1.1		3.0	1.1		3.0			8.0			6.0
Phase Duration	, S			9.5		48.5	9.2		48.2			18.6			18.6
Change Period.	(Y+Rc)	, S		5.5		6.3	5.5		6.3	5.6		5.6			5.6
Max Allow Head	· · · /	,		4.0	_	3.9			3.9	5.2					5.2
Queue Clearan				4.1	_	22.2	3.9	_	33.9			8.6			11.6
Green Extensio		10 77		0.2	_	8.7	0.2	_	8.1			1.4			1.3
Phase Call Prol				0.92	_	1.00	0.89	_	1.00			1.00		-	1.00
Max Out Proba	,			0.00	_	0.05	0.00	_	0.14		_	0.01			0.04
	ŕ												in a second	a de la compañía de	
Movement Gro	oup Res	sults			EB			WB			NB			SB	
Approach Move				L	Т	R	L	Т	R	L	Т	R	L	T	F
Assigned Move	ment			5	2	12	1	6	16	3	8	18	7	4	1-
Adjusted Flow F	Rate (v)	, veh/h		118	693	37	106	896	41		90		52	151	
Adjusted Satura	ation Flo	w Rate (s), veh/h/ln		1810	1863	1610	1810	1863	3 1610		1456		1353	1622	
Queue Service	Time (g	(s), S		2.1	20.2	0.8	1.9	31.9	0.9		0.1		2.8	6.5	
Cycle Queue C	learanc	e Time (g₀), s		2.1	20.2	0.8	1.9	31.9	0.9		6.6		9.6	6.5	
Green Ratio (g/	(C)			0.60	0.55	0.55	0.60	0.55	0.55		0.17		0.17	0.17	
Capacity (c), ve	h/h			271	1030	890	380	1022	883		308		206	278	
Volume-to-Cap		itio (X)		0.435	0.673	0.041	0.278	0.877	7 0.046		0.294		0.255	0.544	
Available Capa				532	1465	1267	649	1465	5 1267		547		417	532	
		n/In (95th percentile)		1.5	11.0	0.4	1.0	15.5	0.5		2.5		1.7	4.5	
	v 71	RQ) (95th percentile		0.08	0.28	0.07	0.21	0.39			0.63		0.52	0.57	
Uniform Delay (14.7	12.1	7.8	10.3	15.0			27.7		33.4	28.9	
Incremental De				1.1	0.8	0.0	0.2	2.8	0.0		0.7		0.9	2.4	
Initial Queue De	2 3 71			0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	
Control Delay (15.8	12.9	7.8	10.5	17.8			28.4		34.3	31.2	
Level of Service				В	В	A	В	В	A		С		С	С	
Approach Delay				13.1		В	16.7		В	28.4		С	32.0		С
Intersection Del							7.2		_	20.			B		-
	7, 7														
Multimodal Re	sults				EB			WB			NB			SB	
D I I I O	Caara	(1.08		2.1		В	2.2		В	2.4		В	2.4		В
Pedestrian LOS	score	/105		Z. 1		D	Z.Z		D	Z.4		Б	2.4	·	





General Inform	nation								Inters	secti	on Infe	ormatio	n		4441	Ja la
Agency		Jacobs							Durat	tion, I	h	0.25			44	
Analyst		DBZ	Ana	lys	is Date	Apr 7,	2015		Area Type Other					A		
Jurisdiction			Tim	e F	Period	PM P	eak		PHF			0.84		*		
Intersection		Apple Valley Drive	Ana	lys	sis Year	2018	No Build	t	Analy	sis F	eriod	1> 7:0	00	1		
File Name		18 PM NB.xus		Ź											*	ſ
Project Descript	tion	Ashton Park II												1 7	1144	11
		,									1					
Demand Inforn					EB			W				NB			SB	
Approach Move			L		T	R	L	Т		R	L	T	R	L	T	F
Demand (v), vel	h/h		99	9	618	31	62	55	8	24	18	6	52	44	6	12
Signal Informa	tion				1		5	-11			1					Т
Cycle, s	84.1	Reference Phase 2				-1-2								x		ሗ
Offset, s	04.1	Reference Point Er	d			E3			11				1	Y 2	3	
	_		Gre		3.8	0.3	48.5	14		0.0	0.0		_	A_		
Uncoordinated	Yes	Simult. Gap E/W O	101		3.5	0.0	4.3	3.6		0.0 0.0	0.0					5
Force Mode	Fixed	Simult. Gap N/S 0	Red	1	2.0	0.0	2.0	12.0	, [J.U	0.0		5	6	- /	
Timer Results			E	BL		EBT	WB		WB	г	NBL		NBT	SBI		SBT
Assigned Phase	e			5		2	1		6				8			4
Case Number			1	1.1		3.0	1.1		3.0				8.0			6.0
Phase Duration	. S			9.6		55.1	9.3	_	54.8				19.6			19.6
Change Period,	/	. s		5.5		6.3	5.5		6.3	+			5.6			5.6
Max Allow Head				4.0		3.9	4.0	_	3.9	-			5.2			5.2
Queue Clearan	2 1			1.2		25.1				40.5		9.4				12.7
Green Extensio).2		9.8	0.2	_	8.1	-			1.4			1.2
Phase Call Prob		13-77 0		.94		1.00	0.92	_	1.00				1.00			1.00
Max Out Probat				0.00		0.10	0.02	_	0.31	_		0.02				0.06
							0.00									
Movement Gro	up Res	sults			EB			WB	_			NB			SB	_
Approach Move	ement		L		Т	R	L	T	F	२	L	Т	R	L	Т	F
Assigned Move	ment		5		2	12	1	6	1	6	3	8	18	7	4	1
Adjusted Flow F	Rate (v)	, veh/h	118	3	736	37	108	968	4	2		90		52	151	
Adjusted Satura	ation Flo	ow Rate (s), veh/h/ln	181	0	1863	1610	1810	1863	3 16	10		1400		1353	1622	
Queue Service	Time (g	(s), S	2.2	2	23.1	0.8	2.0	38.5	5 0.	9		0.1		3.1	7.2	
Cycle Queue Cl	learanc	e Time (g₀), s	2.2	2	23.1	0.8	2.0	38.5	5 0.	9		7.4		10.7	7.2	
Green Ratio (g/	(C)		0.6	2	0.58	0.58	0.62	0.58	3 0.8	58		0.17		0.17	0.17	
Capacity (c), ve	h/h		244	4	1079	933	374	1073	3 92	28		288		190	272	
Volume-to-Capa		itio (X)	0.48	33	0.682	0.040	0.288	0.90	2 0.0	45		0.314		0.275	0.556	
Available Capad			47	_	1331	1150	614	133		_		486		366	483	
		h/In (95th percentile)	2.1	_	12.6	0.4	1.1	18.7		_		2.9		1.9	5.1	
		RQ) (95th percentile)	0.1	_	0.32	0.07	0.22	0.47	_	_		0.71		0.58	0.64	
Uniform Delay (,, , ,	17.	_	12.3	7.6	10.7	15.7		_		30.8		37.2	32.1	
Incremental Del			1.5	_	1.1	0.0	0.2	4.4	_	_		0.9		1.1	2.5	
Initial Queue De			0.0	_	0.0	0.0	0.0	0.0	_	_		0.0		0.0	0.0	
Control Delay (d			18.	_	13.3	7.6	10.9	20.2	_	_		31.6		38.3	34.6	
	•••		B	_	B	A	B	C	4	_		C		D	C	
Level of Service				3.8		В	18.8		B		31.6		С	35.6		D
Level of Service Approach Delay			-	5.0			3.9		0	-	01.0			B		
Approach Delay							-									
Approach Delay																
Level of Service Approach Delay Intersection Del Multimodal Res	sults				EB			WB	}			NB			SB	
Approach Delay Intersection Del		/LOS	2	2.1	EB	В	2.2		B B		2.4	NB	В	2.4	_	В



General Information								Intersect	ion Inf	ormatio	on		14441	de la
Agency	Jacobs							Duration,	h	0.25			46	
Analyst	DBZ		Analys	sis Date	e Apr 7,	2015		Area Typ	e	r	4			
Jurisdiction			Time F		PM P			PHF		0.84		$\Rightarrow \rightarrow$		
Intersection	Apple Valley Drive		Analysis Year 2018 Build Analysis Period 1> 7:0								00	4 F		
File Name	18 PM B.xus													ſ
Project Description	Ashton Park II											1 7	1 1 4 1 4 1	11 11
· ·	1		_			1			1					
Demand Information	1			EB			W			NB			SB	
Approach Movement			L	T	R	<u> </u>	Т		L	T	R	L	Т	
Demand (v), veh/h			99	618	45	37	55	8 24	25	6	31	44	6	1:
Signal Information				T		5	-21	:					1	Т
Cycle, s 87.3	Reference Phase	2			-1-2	- SP						Z		$\mathbf{\Phi}$
Offset, s 0	Reference Point	End			R						1	Y 2	3	
Uncoordinated Yes	Simult. Gap E/W	On	Green		1.0	51.1	14.		0.0			Ð.		
Force Mode Fixed	· · · · · · · · · · · · · · · · · · ·	On	Yellow Red	2.0	0.0	4.3	3.6		0.0		5	×	7	K
	Simult. Gap IV/S	On	Red	[Z.U	0.0	2.0	12.0	, 0.0	10.0		3	6	1	
Timer Results			EBI		EBT	WB	L	WBT	NBI		NBT	SB	L	SBT
Assigned Phase			5		2	1		6			8			4
Case Number			1.1		3.0	1.1		3.0			8.0			6.0
Phase Duration, s			9.7		58.4			57.4			20.2			20.2
Change Period, (Y+R	c), S		5.5	_	6.3	5.5	_	6.3			5.6			5.6
Max Allow Headway (4.0	_	3.9		_	3.9			5.2			5.2
Queue Clearance Tim			4.2		25.1		4.0 3.2		13.4		10.1			13.5
Green Extension Time			0.2	_	10.2	0.1	_	7.8			1.3			1.1
Phase Call Probability			0.94	_	1.00	0.80	_	1.00			1.00			1.00
Max Out Probability			0.00		0.11)	0.41		0.02				0.07
,														
Movement Group Re	sults			EB			WB	_		NB			SB	_
Approach Movement			L	Т	R	L	Т	R	L	Т	R	L	T	F
Assigned Movement			5	2	12	1	6	16	3	8	18	7	4	1
Adjusted Flow Rate (v	/), veh/h		118	736	54	66	992	43		74		52	151	
Adjusted Saturation F	low Rate (s), veh/h/lr	1	1810	1863	1610	1810	1863	3 1610		1065		1384	1622	
Adjusted Saturation Flow Rate (s), veh/h/ln				23.1	1.2	1.2	41.4	1.0		0.6		3.2	7.5	
,	Queue Service Time (g_{s}), s									8.1		11.5	7.5	
,			2.2 2.2	23.1	1.2	1.2	41.4	1.0		0.1				
Queue Service Time (Cycle Queue Clearan Green Ratio (<i>g/C</i>)			2.2 0.63	0.60	0.60	1.2 0.62	0.58	0.58		0.17		0.17	0.17	
Queue Service Time (Cycle Queue Clearan			2.2			1.2		0.58				0.17 185	0.17 274	
Queue Service Time (Cycle Queue Clearan Green Ratio (<i>g/C</i>)	ce Time (g₀), s		2.2 0.63	0.60	0.60 959	1.2 0.62	0.58 1088	8 0.58 8 940		0.17			_	
Queue Service Time (Cycle Queue Clearan Green Ratio (<i>g/C</i>) Capacity (<i>c</i>), veh/h	ce Time (g_o), s atio (X)		2.2 0.63 233	0.60 1109	0.60 959	1.2 0.62 373	0.58 1088	3 0.58 3 940 2 0.045		0.17 238		185	274	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R	ce Time (g₀), s atio (X)), veh/h)	2.2 0.63 233 0.507	0.60 1109 0.663	0.60 959 0.056	1.2 0.62 373 0.176	0.58 1088 0.912	0.58 940 0.045 1106		0.17 238 0.311		185 0.283	274 0.552	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca	ce Time (go), s latio (X)), veh/h eh/ln (95th percentile		2.2 0.63 233 0.507 457	0.60 1109 0.663 1280	0.60 959 0.056 1106	1.2 0.62 373 0.176 618	0.58 1088 0.912 1280	 0.58 940 0.045 1106 0.5 		0.17 238 0.311 410		185 0.283 347	274 0.552 464	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca Back of Queue (Q), ve	ce Time (g₀), s atio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile		2.2 0.63 233 0.507 457 2.3	0.60 1109 0.663 1280 12.5	0.60 959 0.056 1106 0.6	1.2 0.62 373 0.176 618 0.7	0.58 1088 0.912 1280 20.4	0.58 940 100 1106 100 0.045		0.17 238 0.311 410 2.4		185 0.283 347 2.0	274 0.552 464 5.3	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (cs Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d1), s/	ce Time (g₀), s atio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile veh		2.2 0.63 233 0.507 457 2.3 0.12	0.60 1109 0.663 1280 12.5 0.32	0.60 959 0.056 1106 0.6 0.11	1.2 0.62 373 0.176 618 0.7 0.14	0.58 1088 0.912 1280 20.4 0.52	0.58 940 100 1106 100 0.045		0.17 238 0.311 410 2.4 0.61		185 0.283 347 2.0 0.61	274 0.552 464 5.3 0.66	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (c Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d ₁), s/ Incremental Delay (d Initial Queue Delay (d	ce Time (g _o), s atio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile veh), s/veh 3), s/veh		2.2 0.63 233 0.507 457 2.3 0.12 18.6	0.60 1109 0.663 1280 12.5 0.32 11.8	0.60 959 0.056 1106 0.6 0.11 7.4	1.2 0.62 373 0.176 618 0.7 0.14 10.2	0.58 1088 0.912 1280 20.4 0.52 16.2	0.58 940 1106 1106 0.044 0.5 1106 10.04 10.04 10.04 0.04 0.04 0.04		0.17 238 0.311 410 2.4 0.61 32.0		185 0.283 347 2.0 0.61 38.9	274 0.552 464 5.3 0.66 33.3	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (c Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d ₁), s/ Incremental Delay (d Initial Queue Delay (d	ce Time (g _o), s atio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile veh), s/veh 3), s/veh		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1	0.60 959 0.056 1106 0.6 0.11 7.4 0.0	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6	0.58 940 1004 1106 0.045 0.045 0.045 0.045 0.040 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100		0.17 238 0.311 410 2.4 0.61 32.0 1.0		185 0.283 347 2.0 0.61 38.9 1.2	274 0.552 464 5.3 0.66 33.3 2.5	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d1), s/v Incremental Delay (d2 Initial Queue Delay (d) Control Delay (d), s/ve	ce Time (<i>g</i> ₀), s atio (<i>X</i>)), veh/h eh/ln (95th percentile (<i>RQ</i>) (95th percentile (<i>RQ</i>) (95th percentile veh), s/veh s), s/veh		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7 0.0	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1 0.0	0.60 959 0.056 1106 0.6 0.11 7.4 0.0 0.0	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1 0.0	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6 0.0	0.58 940 1004 1106 0.045 0.045 0.045 0.045 0.040 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100		0.17 238 0.311 410 2.4 0.61 32.0 1.0 0.0		185 0.283 347 2.0 0.61 38.9 1.2 0.0	274 0.552 464 5.3 0.66 33.3 2.5 0.0	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (dr), s/r Incremental Delay (d Control Delay (d), s/re Level of Service (LOS	ce Time (g_o), s atio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile (RQ) (95th percentile veh), s/veh s), s/veh sh)		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7 0.0 20.3	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1 0.0 12.9 B	0.60 959 0.056 1106 0.6 0.11 7.4 0.0 0.0 7.4	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1 0.0 10.3	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6 0.0 21.7 C	0.58 940 1106 0.58 0.045 0.045 0.04 0.5 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.05 0.06 0.07	33.1	0.17 238 0.311 410 2.4 0.61 32.0 1.0 0.0 33.1 C	C	185 0.283 347 2.0 0.61 38.9 1.2 0.0 40.1	274 0.552 464 5.3 0.66 33.3 2.5 0.0 35.7 D	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d), s/v Incremental Delay (dz Initial Queue Delay (d Control Delay (d), s/ve Level of Service (LOS Approach Delay, s/vel	ce Time (<i>g</i> ₀), s atio (X)), veh/h eh/ln (95th percentile (<i>RQ</i>) (95th percentile veh), s/veh s), s/veh eh))		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7 0.0 20.3 C	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1 0.0 12.9 B	0.60 959 0.056 1106 0.6 0.11 7.4 0.0 7.4 0.0 7.4 A B	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1 0.0 10.3 B	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6 0.0 21.7 C	0.58 940 1106 0.58 0.045 0.045 0.04 0.5 0.04 0.04 0.04 0.04 0.04 0.04 0.04 0.0 0.0 0.0 7.8 A	33.1	0.17 238 0.311 410 2.4 0.61 32.0 1.0 0.0 33.1 C	-	185 0.283 347 2.0 0.61 38.9 1.2 0.0 40.1 D	274 0.552 464 5.3 0.66 33.3 2.5 0.0 35.7 D	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (ca Back of Queue (Q), ve Queue Storage Ratio Uniform Delay (d ₁), s/v Incremental Delay (d ₂ Initial Queue Delay (d Control Delay (d), s/ve Level of Service (LOS Approach Delay, s/vel Intersection Delay, s/ve	ce Time (<i>g</i> ₀), s atio (X)), veh/h eh/ln (95th percentile (<i>RQ</i>) (95th percentile veh), s/veh s), s/veh eh))		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7 0.0 20.3 C	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1 0.0 12.9 B 5	0.60 959 0.056 1106 0.6 0.11 7.4 0.0 7.4 0.0 7.4 A B	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1 0.0 10.3 B 20.5	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6 0.0 21.7 C	3 0.58 3 940 2 0.045 0 1106 4 0.5 2 0.04 2 7.8 0.0 7.8 A C	33.1	0.17 238 0.311 410 2.4 0.61 32.0 1.0 0.0 33.1 C	-	185 0.283 347 2.0 0.61 38.9 1.2 0.0 40.1 D 36.9	274 0.552 464 5.3 0.66 33.3 2.5 0.0 35.7 D	
Queue Service Time (Cycle Queue Clearan Green Ratio (g/C) Capacity (c), veh/h Volume-to-Capacity R Available Capacity (c Back of Queue (Q), ve Queue Storage Ratio	ce Time (go), s latio (X)), veh/h eh/ln (95th percentile (RQ) (95th percentile veh), s/veh s), s/veh s), s/veh eh) n / LOS reh / LOS		2.2 0.63 233 0.507 457 2.3 0.12 18.6 1.7 0.0 20.3 C	0.60 1109 0.663 1280 12.5 0.32 11.8 1.1 0.0 12.9 B 5 EB	0.60 959 0.056 1106 0.6 0.11 7.4 0.0 7.4 0.0 7.4 A B	1.2 0.62 373 0.176 618 0.7 0.14 10.2 0.1 0.0 10.3 B 20.5	0.58 1088 0.912 1280 20.4 0.52 16.2 5.6 0.0 21.7 C	3 0.58 3 940 2 0.045 0 1106 4 0.5 2 0.04 2 7.8 0.0 7.8 A C	33.1	0.17 238 0.311 410 2.4 0.61 32.0 1.0 0.0 33.1 C 33.1 C	-	185 0.283 347 2.0 0.61 38.9 1.2 0.0 40.1 D 36.9	274 0.552 464 5.3 0.66 33.3 2.5 0.0 35.7 D 9	B

