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Introduction:

Engineering Design & Construction has completed a traffic statement and impact analysis for the proposed Commercial Parcel, located on McNeil Rd a two-lane un-divided collector road, approximately 739 LF south of the intersection of Okeechobee Rd, a four-lane divided principle arterial road. See the attached Location Map in Appendix A.

The purpose of this study is to determine the proposed project's impact on the surrounding traffic and roadway level of service. This analysis follows the guidelines set forth in the Standard Traffic Impact Studies (TIS) Methodology and Procedures created by St. Lucie TPO, along with the City of Fort Pierce *code section 105-5(f)*.

Project Description

The project is located on 2 parcels 2419-241-0001-010-7 and 2419-244-0035-000-6 with a total area of 3.19 AC. The proposed project consists of a 2 flex space buildings one 9,500 SF and the second 8,500 S.F. With the buildings being proposed flex space the assumption of 20% office and 80% warehouse was assumed for building breakdown. Please see Appendix B for the proposed site plan. There is one proposed access point to this property on McNeil Rd which would allow left and right turn access into the site.

Existing Condition

McNeil Rd has a current posted speed of 30 mph and is a two-lane un-divided collector road. The intersection of Okeechobee Rd and McNeil does provide a median divided right turn lane to access McNeil Rd. All existing traffic was collected from the St. Lucie TPO Traffic Counts and Level of Service Report Fall(2023/2024).

Trip Generation:

To properly estimate the trip generation the Institute of Traffic Engineers' (ITE) Report, Trip Generation (11th edition) was used to produce Daily Average, A.M. Peak, and P.M. Peak. The proposed development is a combination of two uses, 14,400 S.F. – Warehouse (ITE Code: 150) and 3,600 S.F.-Office (ITE code:710)

THE DISTRICT - FLEX SPACE									
Institute of Transportation Engineers: Trip Generation, 11th Edition									
WEEKDAY: DAILY AVERAGE									
Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips		
					IN	OUT	IN	OUT	TOTAL
Warehouse	150	14400	S.F.	$T=1.58(X/1000)+38.29$	50%	50%	31	31	61
Office	710	3600	S.F.	$\ln(T)=0.87\ln(X)+3.05$	50%	50%	32	32	64
TOTAL:							63	63	125
WEEKDAY: A.M. PEAK HOUR TRIPS									
Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips		
					IN	OUT	IN	OUT	TOTAL
Warehouse	150	14400	S.F.	$T=0.11(X/1000)+28.55$	65%	35%	19	11	30
Office	710	3600	S.F.	$\ln(T)=0.86\ln(X/1000)+1.16$	88%	12%	8	2	10
TOTAL:							27	13	40
WEEKDAY: P.M. PEAK HOUR TRIPS									
Land Use	ITE Code	Intensity	Units	Trip Generation Rate	Directional Split		Gross Trips		
					IN	OUT	IN	OUT	TOTAL
Warehouse	150	14400	S.F.	$T=0.15(X/1000)+20.47$	24%	76%	5	17	23
Office	710	3600	S.F.	$\ln(T)=0.83\ln(X/1000)+1.29$	18%	82%	2	9	11
TOTAL:							7	26	33

Internal Capture

This project contains no internal capture

Pass-by Trip Capture

The pass-by trip capture rate is 0

Traffic Distribution

Traffic Distribution and assignment was determined using engineering judgement, trip lengths, surrounding uses and review of the roadway network. The general distribution can be seen below, a detailed distribution map is attached in Appendix C. The LOS analysis can also be found in Appendix D, the distribution of trips is added to the existing background traffic collected by St. Lucie TPO with an estimated 5yr future peak hour trip, using a growth rate to encompass all vested trips. Two roadways are exceeding their current LOS, but the proposed project does not occupy more than 1% capacity of the failing roadways and is not liable for any improvements.

North =94%

South =6%

Turn Warrant

Driveway volumes were analyzed to determine if a turn lane was warranted for the driveway into the site. Since McNeil is 30mph and there are less than 80 turns into the driveway it can be concluded that a turn lane is not warranted. Please find the traffic distribution map to see driveway volumes.

Table 27 – Recommended Guidelines for Exclusive Right-Turn Lanes to Unsignalized Driveway¹⁰

Roadway Posted Speed Limit	Number of Right Turns Per Hour
45 mph or less	80 – 125 ¹
Over 45 mph	35 – 55 ²

Note: A posted speed limit of 45 mph may be used with these thresholds if the operating speeds are known to be over 45 mph during the time of peak right turn demand.

Note on traffic projections: Projecting turning volumes is, at best, a knowledgeable estimate. Keep this in mind especially if the projections of right turns are close to meeting the guidelines. In that case, consider requiring the turn lane.

¹ The lower threshold of 80 right-turn vehicles per hour would be most used for higher volume (greater than 600 vehicles per hour, per lane in one direction on the major roadway) or two-lane roads where lateral movement is restricted. The 125 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with a large entry radius (50 feet or greater).

² The lower threshold of 35 right-turn vehicles per hour would be most appropriately used on higher volume two-lane roadways where lateral movement is restricted. The 55 right-turn vehicles per hour upper threshold would be most appropriate on lower volume roadways, multilane highways, or driveways with large entry radius (50 feet or greater).

Source: *NCHRP Report 420 (Impacts of Access Management Techniques)*

Intersection Analysis

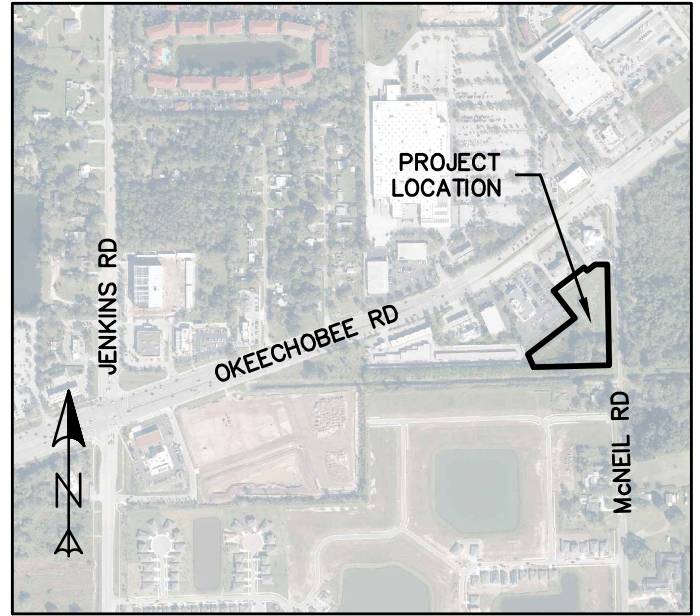
The intersection of Okeechobee Rd (SR70) and McNeil Rd are within the radius of impact. Due to this a Pre vs Post Intersection Analysis was conducted to show the impact of the proposed added trips. The current intersection’s LOS was not affected by the increase.

Conclusion

In conclusion the proposed development on the 3.19 AC commercial site located on McNeil Rd. will produce 125 daily trips with 40 AM Peak Hour Trips, and 33 PM Peak Hour Trips. Analysis of the distribution of trips, LOS analysis and access volumes is attached. The AM Peak Hr trips were utilized in those calculations for worst case scenario. EDC, believes this development will have no negative impacts on surrounding roads.

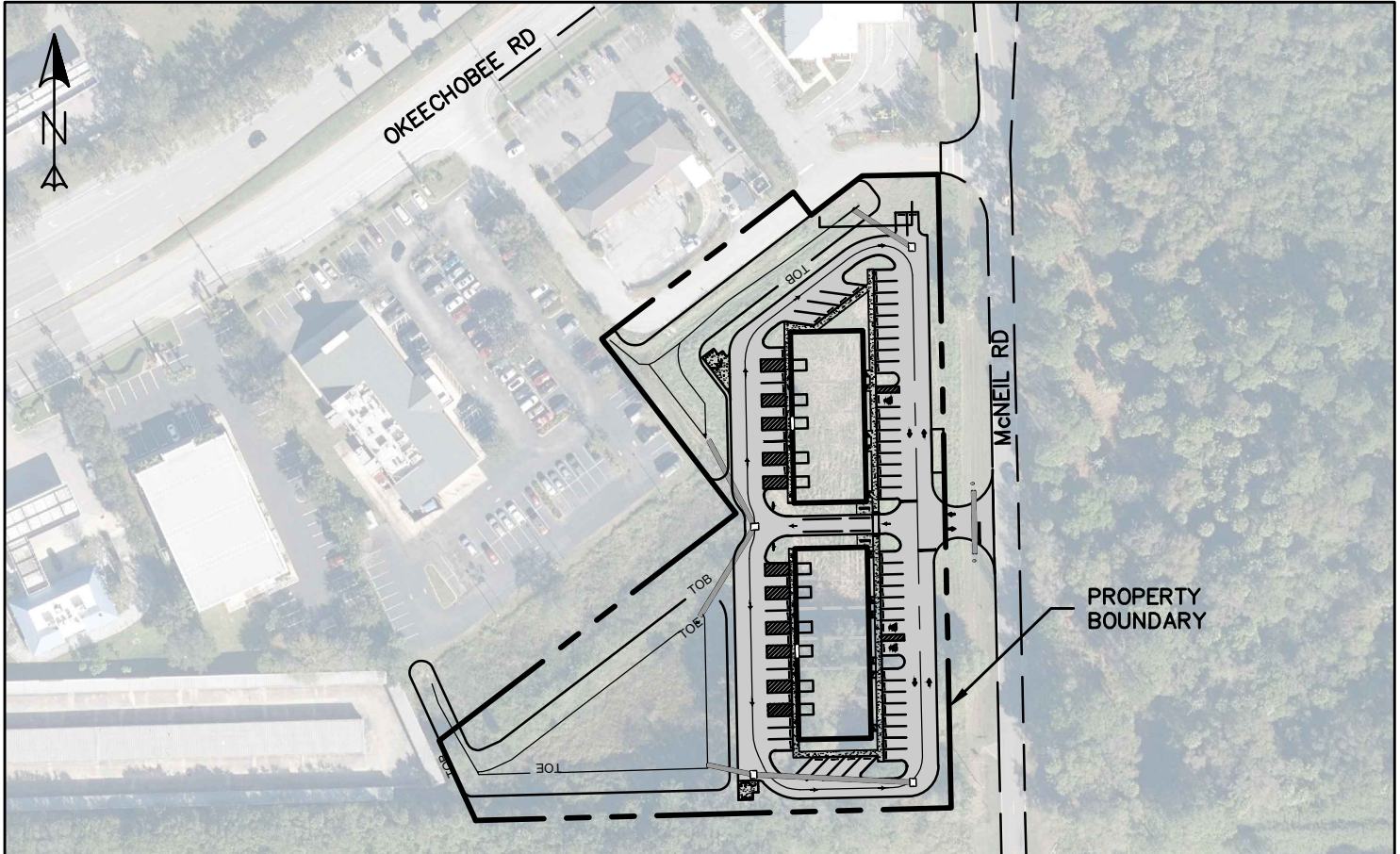
Appendix A – Location Map

LOCATION MAP



VICINITY MAP

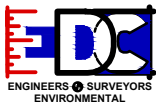
SCALE: 1"=1000'



SITE MAP

SCALE: 1"=100'

24-158

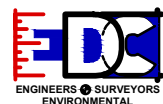


10250 SW VILLAGE PKWY - SUITE 201
PORT SAINT LUCIE, FL
772-462-2455

THE DISTRICT
LOCATION MAP
WITH AERIAL PHOTOGRAPH

FORT PIERCE

FLORIDA



PORT SAINT LUCIE OFFICE
10250 SW VILLAGE PARKWAY - SUITE 201
PORT SAINT LUCIE, FL 34987
772-462-2455
www.edc-inc.com

F.B.P.E. CERTIFICATE OF AUTHORIZATION 9935
L.B. CERTIFICATE OF AUTHORIZATION 8098

DATE REVISION COMMENTS

Appendix B – Site Plan

Appendix C - Trip Distribution

Appendix D – LOS Analysis

Trip Distribution & Level of Service (AM Peak Hour)

ROW Segment	From	To	LOS Service Capacity	Year Data Collected	Peak Hr Service Capacity	Exist Peak Hr Peak Direction	Growth Rate *	Syr (2029) Future Peak Hour	Adopted LOS Currently Exceeded?	Peak Hr Project Volumne	% project of LOS Capacity	Total Peak Hr Volumne	Adopted LOS to be Exceeded
Edwards Rd	McNeil Rd	Selvitz Rd	F	2024	700	742	2%	816	YES	1	0.1%	817	YES
I-95	Midway Rd	Okeechobee Rd	D	2018	5500	5004	2%	6105	YES	8	0.1%	6113	YES
I-95	Okeechobee Rd	Orange Ave	B	2020	7320	2804	2%	3309	NO	8	0.1%	3317	NO
McNeil Rd	Okeechobee Rd	Kirby Loop Rd	C	2023	790	345	2%	386	NO	26	3.3%	412	NO
McNeil Rd	Kirby Loop Rd	Edwards Rd	D	2023	540	345	2%	386	NO	2	0.4%	388	NO
Okeechobee Rd	I-95	Jenkins Rd	C	2020	4240	2082	2%	2457	NO	20	0.5%	2477	NO
Okeechobee Rd	Jenkins Rd	McNeil Rd	C	2020	4040	2082	2%	2457	NO	6	0.1%	2463	NO
Okeechobee Rd	McNeil Rd	Virginia Ave	C	2020	3170	1550	2%	1829	NO	3	0.1%	1832	NO
Okeechobee Rd	Virginia Ave	Hartman Rd	C	2023	2100	681	2%	763	NO	3	0.1%	766	NO
Okeechobee Rd	Hartman Rd	35th St	C	2023	1630	681	2%	763	NO	3	0.2%	766	NO
Selvitz Rd	Glades Cut-Off Rd	Edwards Rd	D	2024	790	765	2%	842	YES	1	0.1%	843	YES
Virginia Ave	Okeechobee Rd	Hartman Rd	C	2020	3020	1116	2%	1317	NO	3	0.1%	1320	NO
Virginia Ave	35th St	Hartman Rd	C	2020	3020	1116	2%	1317	NO	3	0.1%	1320	NO

*Growth rate was collected through St Lucie TPO traffic system. A minimum of 2% is used

Trip Distribution & Level of Service (PM Peak Hour)

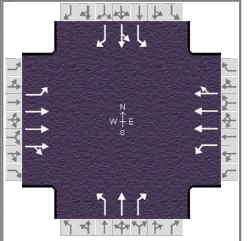
ROW Segment	From	To	LOS Service Capacity	Year Data Collected	Peak Hr Service Capacity	Exist Peak Hr Peak Direction	Growth Rate *	Syr (2029) Future Peak Hour	Adopted LOS Currently Exceeded?	Peak Hr Project Volumne	% project of LOS Capacity	Total Peak Hr Volumne	Adopted LOS to be Exceeded
Edwards Rd	McNeil Rd	Selvitz Rd	F	2024	700	718	2%	790	YES	1	0.1%	791	YES
I-95	Midway Rd	Okeechobee Rd	D	2018	5500	4063	2%	4469	NO	7	0.1%	4476	NO
I-95	Okeechobee Rd	Orange Ave	B	2020	7320	2804	2%	3084	NO	7	0.1%	3091	NO
McNeil Rd	Okeechobee Rd	Kirby Loop Rd	C	2023	790	345	2%	380	NO	25	3.2%	405	NO
McNeil Rd	Kirby Loop Rd	Edwards Rd	D	2023	540	345	2%	380	NO	1	0.2%	381	NO
Okeechobee Rd	I-95	Jenkins Rd	C	2020	4240	2082	2%	2290	NO	19	0.4%	2309	NO
Okeechobee Rd	Jenkins Rd	McNeil Rd	C	2020	4040	2082	2%	2290	NO	5	0.1%	2295	NO
Okeechobee Rd	McNeil Rd	Virginia Ave	C	2020	3170	1550	2%	1705	NO	2	0.1%	1707	NO
Okeechobee Rd	Virginia Ave	Hartman Rd	C	2023	2100	681	2%	749	NO	2	0.1%	751	NO
Okeechobee Rd	Hartman Rd	35th St	C	2023	1630	681	2%	749	NO	2	0.1%	751	NO
Selvitz Rd	Glades Cut-Off Rd	Edwards Rd	D	2024	790	765	2%	842	YES	1	0.1%	843	YES
Virginia Ave	Okeechobee Rd	Hartman Rd	C	2020	3020	1116	2%	1228	NO	2	0.1%	1230	NO
Virginia Ave	35th St	Hartman Rd	C	2020	3020	1116	2%	1228	NO	2	0.1%	1230	NO

*Growth rate was collected through St Lucie TPO traffic system. A minimum of 2% is used

Appendix E – Supporting Documents

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Engineering Design & Construction Inc			Duration, h	0.250		
Analyst	Deanna Foriere	Analysis Date	10/2/2024	Area Type	Other		
Jurisdiction	Fort Pierce	Time Period		PHF	1.00		
Urban Street	McNeil Rd	Analysis Year	2024	Analysis Period	1 > 7:00		
Intersection	SR70 & McNeil Rd	File Name	24-158 Pre-Development Intersection Analysis.xus				
Project Description	Pre-Development Intersection						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	60	1843	198	198	1843	60	173	50	173	50	20	50

Signal Information												
Cycle, s	207.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	20.0	10.2	60.0	35.0	60.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.8	3.7	4.8	4.0	4.8	0.0		
				Red	0.0	0.0	0.0	0.0	0.0	0.0		

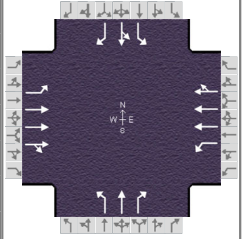
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		9.0		9.0
Phase Duration, s	24.8	64.8	38.7	78.7		64.8		39.0
Change Period, (Y+R _c), s	4.8	4.8	3.7	4.8		4.8		4.0
Max Allow Headway (MAH), s	3.0	2.9	3.0	2.9		3.3		3.3
Queue Clearance Time (g _s), s	6.4	62.0	18.7	69.5		19.7		7.5
Green Extension Time (g _e), s	0.1	0.0	0.3	0.0		0.8		0.2
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	1.00	0.00	1.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	60	1381	660	198	1275	628	173	50	173	50	20	50
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1803	1810	1900	1868	1810	1900	1610	1810	1900	1610
Queue Service Time (g _s), s	4.4	60.0	60.0	16.7	67.4	67.5	15.6	4.0	17.7	4.9	1.8	5.5
Cycle Queue Clearance Time (g _c), s	4.4	60.0	60.0	16.7	67.4	67.5	15.6	4.0	17.7	4.9	1.8	5.5
Green Ratio (g/C)	0.39	0.29	0.29	0.47	0.36	0.36	0.29	0.29	0.29	0.17	0.17	0.17
Capacity (c), veh/h	214	1100	522	340	1355	666	524	550	466	306	321	272
Volume-to-Capacity Ratio (X)	0.280	1.255	1.266	0.582	0.941	0.943	0.330	0.091	0.371	0.164	0.062	0.184
Back of Queue (Q), ft/ln (95 th percentile)	89.4	1686.6	1668.5	255.9	1105.4	1137.8	293	88.1	296.2	104.4	41	104.8
Back of Queue (Q), veh/ln (95 th percentile)	3.6	67.5	66.7	10.2	44.2	45.5	11.7	3.5	11.8	4.2	1.6	4.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	48.9	73.7	73.7	57.7	64.6	64.7	57.9	53.7	58.6	73.6	72.4	73.9
Incremental Delay (d ₂), s/veh	0.3	122.4	134.2	1.7	12.8	21.7	0.1	0.0	0.2	0.1	0.0	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	49.2	196.1	207.8	59.4	77.4	86.3	58.0	53.8	58.8	73.7	72.4	74.0
Level of Service (LOS)	D	F	F	E	E	F	E	D	E	E	E	E
Approach Delay, s/veh / LOS	195.6	F		78.4	E		57.8	E		73.6	E	
Intersection Delay, s/veh / LOS	128.7						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.14	B	2.64	C	2.61	C
Bicycle LOS Score / LOS	1.64	B	1.64	B	1.14	A	0.69	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	Engineering Design & Construction Inc			Duration, h	0.250		
Analyst	Deanna Foriere	Analysis Date	10/2/2024	Area Type	Other		
Jurisdiction	Fort Pierce	Time Period		PHF	1.00		
Urban Street	McNeil Rd	Analysis Year	2024	Analysis Period	1 > 7:00		
Intersection	SR70 & McNeil Rd	File Name	24-158 Post-Development Intersection Analysis.xus				
Project Description	Post-Development Intersection						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	60	1843	218	204	1843	60	175	50	173	50	20	50

Signal Information												
Cycle, s	207.3	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	20.0	10.2	60.0	35.0	60.0	0.0		
				Yellow	4.8	3.7	4.8	4.0	4.8	0.0		
				Red	0.0	0.0	0.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	4.0		9.0		9.0
Phase Duration, s	24.8	64.8	38.7	78.7		64.8		39.0
Change Period, ($Y+R_c$), s	4.8	4.8	3.7	4.8		4.8		4.0
Max Allow Headway (MAH), s	3.0	2.9	3.0	2.9		3.3		3.3
Queue Clearance Time (g_s), s	6.4	62.0	19.4	69.5		19.7		7.5
Green Extension Time (g_e), s	0.1	0.0	0.3	0.0		0.8		0.2
Phase Call Probability	1.00	1.00	1.00	1.00		1.00		1.00
Max Out Probability	0.00	1.00	0.00	1.00		0.00		0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	60	1396	665	204	1275	628	175	50	173	50	20	50
Adjusted Saturation Flow Rate (s), veh/h/ln	1810	1900	1794	1810	1900	1868	1810	1900	1610	1810	1900	1610
Queue Service Time (g_s), s	4.4	60.0	60.0	17.4	67.4	67.5	15.8	4.0	17.7	4.9	1.8	5.5
Cycle Queue Clearance Time (g_c), s	4.4	60.0	60.0	17.4	67.4	67.5	15.8	4.0	17.7	4.9	1.8	5.5
Green Ratio (g/C)	0.39	0.29	0.29	0.47	0.36	0.36	0.29	0.29	0.29	0.17	0.17	0.17
Capacity (c), veh/h	214	1100	519	340	1355	666	524	550	466	306	321	272
Volume-to-Capacity Ratio (X)	0.280	1.269	1.281	0.600	0.941	0.943	0.334	0.091	0.371	0.164	0.062	0.184
Back of Queue (Q), ft/ln (95 th percentile)	89.4	1724.6	1701.7	263.9	1105.4	1137.8	296	88.1	296.2	104.4	41	104.8
Back of Queue (Q), veh/ln (95 th percentile)	3.6	69.0	68.1	10.6	44.2	45.5	11.8	3.5	11.8	4.2	1.6	4.2
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	48.9	73.7	73.7	58.6	64.6	64.7	57.9	53.7	58.6	73.6	72.4	73.9
Incremental Delay (d_2), s/veh	0.3	128.3	140.7	2.1	12.8	21.7	0.1	0.0	0.2	0.1	0.0	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	49.2	202.0	214.4	60.6	77.4	86.3	58.1	53.8	58.8	73.7	72.4	74.0
Level of Service (LOS)	D	F	F	E	E	F	E	D	E	E	E	E
Approach Delay, s/veh / LOS	201.5	F		78.4	E		57.9	E		73.6	E	
Intersection Delay, s/veh / LOS	131.6						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.14	B	2.64	C	2.61	C
Bicycle LOS Score / LOS	1.65	B	1.65	B	1.14	A	0.69	A