

TRAFFIC IMPACT STUDY

For

**525 Northfield Ave., LLC
Proposed Mixed-Use Development**

Property Located at:

**525 Northfield Avenue (CR 508)
Block 159.04 – Lot 1.01
Township of West Orange, Essex County, NJ**

Prepared by:



**245 Main Street, Suite 110
Chester, NJ 07930
732-681-0760**

**Craig Peregoy, PE
NJ PE License #45880**

**Connor Hughes, PE
NJ PE License #57245**

**Revised: August 24, 2026
November 10, 2025**

DT# 2918 25-03616

www.dynamictraffic.com

Offices conveniently located throughout the United States:
New Jersey | Delaware | Florida | Maryland | Pennsylvania | Texas

INTRODUCTION

It is proposed to construct a mixed-use development on a parcel of land currently developed with a banquet hall, located at the northeast quadrant of the intersection of Northfield Avenue and Sheridan Avenue in the Township of West Orange, Essex County, New Jersey (see Figure 1 in Appendix A). The site is designated as Block 159.04 – Lot 1.01 on the Township of West Orange Tax Maps. The subject property is currently developed with the 10,250 SF Essex House banquet hall, restaurant, and lounge. It is proposed to raze the existing site and construct a mixed-use development consisting of 95 residential units and 1,250 SF of commercial space (“The Project”). The site is located within the B-2 – General Business District. Access to the site is currently provided via one (1) full-movement driveway along Northfield Avenue and one (1) full-movement driveway along Sheridan Avenue. It is proposed to close the existing access point along Sheridan Avenue and provide access to the site via one (1) full-movement driveway and one (1) right-in/right-out driveway along Northfield Avenue. Parking will be provided via 165 on-site parking spaces.

Dynamic Traffic LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via turning movement counts (TMC) during the weekday morning and weekday afternoon peak periods at the intersection of:
 - Northfield Avenue (CR 508) & Sheridan Avenue
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build, and Build conditions for the study intersections.
- The proposed points of ingress and egress were inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating large wheel base vehicles such as delivery trucks, refuse trucks, and emergency vehicles.
- The parking layout and supply was assessed based on accepted design standards, local requirements, and demand experienced at similar developments.

EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Northfield Avenue (CR 508) is an Urban Principal Arterial roadway under County jurisdiction with a general east/west orientation. In the vicinity of the site the posted speed limit is 40 MPH and the roadway provides two (2) travel lanes in each direction. Curb and sidewalk are provided along both sides of the roadway. Northfield Avenue provides a straight horizontal alignment along the site frontage and a slight downhill vertical alignment in the westbound direction. The land uses along Northfield Avenue in the vicinity of The Project are primarily commercial.

Sheridan Avenue is a local roadway under municipal jurisdiction with a general north/south orientation. In the vicinity of the site the posted speed limit is 25 MPH and the roadway provides one (1) travel lane in each direction. Curb and sidewalk are provided along both sides of the roadway. Sheridan Avenue provides a straight horizontal alignment along the site frontage and a relatively flat vertical alignment. The land uses along Sheridan Avenue in the vicinity of The Project are educational/residential, with the St. Cloud Elementary School just to the northwest.

Existing Traffic Volumes

Turning movement counts (TMC) were conducted on Thursday, September 25, 2025 from 7:00 AM to 9:00 AM and from 2:30 PM to 6:30 PM at the intersection of Northfield Avenue and Sheridan Avenue. Important to note is that these time periods account for the arrival and dismissal periods associated with the adjacent St. Cloud Elementary School.

The results of the TMC data show that the weekday morning peak hour occurs from 8:00 AM to 9:00 AM and the weekday evening peak hour occurs from 4:45 PM to 5:45 PM. Figure 2, located in Appendix A, shows the existing peak street hour (PSH) traffic volumes at the study intersections. All traffic counts are contained in Appendix B.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

At signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, signal “green time”, turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service “F” range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table 1 describes the level of service ranges for signalized intersections.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table 2 describes the level of service ranges for unsignalized (stop controlled) intersections.

Table 1
Level of Service Criteria
for Signalized Intersections

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

Table 2
Level of Service Criteria
for Unsignalized Intersections

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

Analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles, such as the signalized intersection of Northfield Avenue and St. Cloud Avenue as well as Northfield Avenue and Walker Road.

All capacity analyses were performed utilizing Synchro 12 software. It should be noted that the existing percentage of trucks and peak hour factors were used in the existing analysis. Table 3 summarizes the existing levels of service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

Table 3
Existing Levels of Service

Intersection	Direction/ Movement	AM PSH	PM PSH
Northfield Avenue & Sheridan Avenue	EB L	A (4)	A (3)
	EB T	A (3)	A (3)
	WB TR	A (4)	A (3)
	SB LR	C (29)	C (24)
	Overall	A (5)	A (4)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed.

Northfield Avenue and Sheridan Avenue

Sheridan Avenue intersects Northfield Avenue to form a T-intersection controlled by a traffic signal. The signal timing directive was obtained from Essex County which indicates that a two-phase 90-second background cycle is utilized (the traffic signal timing directive is included in Appendix B)

The eastbound approach of Northfield Avenue provides one (1) exclusive left-turn lane and two (2) exclusive through lanes. The westbound approach of Northfield Avenue provides one (1) exclusive through lane and one (1) shared through/right-turn lane. The southbound approach of Sheridan Avenue provides one (1) shared left-turn/right-turn lane.

A review of the existing analysis reveals that the intersection operates at overall level of service “A” and all movements operate at levels of service “C” or better during the analyzed peak periods. See Table 3 for the individual movement levels of service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the future No Build and Build conditions. The No Build conditions provide a baseline for assessing the impact of the site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 2.0% per year.

Future No Build traffic volumes were developed by applying the background growth rate of 2.0% for two (2) years to the study area roadways existing traffic volumes. Figure 3, in Appendix A, shows the No Build traffic volumes.

Traffic Generation

Trip generation projections for The Project were prepared utilizing the rates set forth within the Institute of Transportation Engineers' (ITE) publication, *Trip Generation Manual, 12th Edition*. This publication sets forth trip generation rates based on empirical traffic count data conducted at numerous research sites. The ITE Land Use Code (LUC) which most closely resembles the proposed use is LUC 230 – Low-Rise Residential with Ground-Floor Commercial. Table 4 below details the traffic volumes associated with the subject project.

Table 4
Trip Generation

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
95 Residential Units with Ground Floor Commercial	10	32	42	24	10	34

It is noted that the subject property was previously occupied by the Essex House banquet hall, which previously generated trips to the adjacent roadway network. However, in order to provide for a conservative analysis, no trip generation credit was applied to account for traffic previously generated by the Essex House.

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of new traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections and existing traffic patterns. Figures 4 and 5, located in Appendix A, illustrate the Percent Distribution and Site Generated Volumes, respectively. The Site Generated Volumes assigned to the study area network were added to the No Build traffic volumes to generate the Build traffic volumes, which are shown in Figure 6.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in the table below.

Table 5
Future Levels of Service

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Northfield Avenue & Sheridan Avenue	EB	L	A (4)	A (4)	A (3)	A (3)
		T	A (3)	A (3)	A (3)	A (3)
	WB	TR	A (4)	A (4)	A (3)	A (3)
	SB	LR	C (31)	C (32)	C (24)	C (24)
	Overall		A (5)	A (5)	A (4)	A (4)
Northfield Avenue & Easterly Site Driveway	SB	R	-	b (14)	-	b (11)
Northfield Avenue & Westerly Site Driveway	EB	L	-	b (12)	-	a (10)
	SB	LR	-	c (22)	-	c (16)

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)

Northfield Avenue and Sheridan Avenue

With the addition of site generated traffic, the intersection is projected to continue operating at overall No Build level of service “A” during the analyzed peak hours and each movement is projected to continue operating at No Build levels of service “C” or better. See Table 5 for the individual movement levels of service and delays.

Northfield Avenue and Easterly Site Driveway

The eastern site driveway is proposed to intersect Northfield Avenue to form an unsignalized T-intersection with the southbound approach of the site driveway operating under stop control. The eastbound approach of Northfield Avenue is proposed to provide two (2) exclusive through lanes. The westbound approach of Northfield Avenue is proposed to provide an exclusive through lane and a shared through/right-turn lane. The southbound approach of the site driveway is proposed to provide an exclusive right-turn lane.

As designed, the driveway is projected to operate at level of service “B” during the studied peak hours. See Table 5 for the individual movement levels of service and delays.

Northfield Avenue and Westerly Site Driveway

The western site driveway is proposed to intersect Northfield Avenue to form an unsignalized T-intersection with the southbound approach of the site driveway operating under stop control. The eastbound approach of Northfield Avenue is proposed to provide an exclusive left-turn lane and two (2) exclusive through lanes. The westbound approach of Northfield Avenue is proposed to provide an exclusive through lane and a shared through/right-turn lane. The southbound approach of the site driveway is proposed to provide a shared left-turn/right-turn lane.

As designed, the driveway is projected to operate at levels of service “C” or better during the studied peak hours. See Table 5 for the individual movement levels of service and delays.

SITE PLAN

Site Access and Circulation

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via one (1) full-movement driveway and one (1) right-in/right-out driveway along Northfield Avenue.

The parking lot will be serviced by two-way parking aisles with widths of at least 24 feet that provide access to 90-degree parking, which meets the Ordinance requirement and is consistent with accepted engineering design standards. A review of the site plan design indicates that the site can sufficiently accommodate the anticipated vehicle mix.

Parking

The Township of West Orange Ordinance refers to the Residential Site Improvement Standards (RSIS) regarding residential parking requirements. The RSIS sets forth a maximum parking requirement of 1.8 parking spaces per one-bedroom unit, 2.0 parking spaces per two-bedroom unit, and 2.1 parking spaces per three-bedroom unit. The Ordinance also sets forth a minimum parking requirement of 1 parking space per 200 SF for the ground floor commercial space. This equates to a parking requirement of 183 parking spaces for the proposed 68 one-bedroom, 22 two-bedroom, and 5 three-bedroom units and 1,250 SF of commercial space.

Pursuant to New Jersey Senate Bill S3223, residential developments totaling more than 5 units require 15% of proposed parking spaces to be “make-ready” for electric vehicles and a parking space prepared as “make-ready” counts as 2 parking spaces for the purposes of complying with minimum parking space requirements, up to a 10% reduction in required spaces. This results in a requirement of 25 “make-ready” electric vehicle charging stations, whereas 27 electric vehicle spaces are proposed and 18 of which count towards the reduced requirement. As such, the Ordinance requirement of 183 spaces is reduced to 165 spaces, which is met as designed and no variance is required.

It should also be noted that national parking demand data has been collected by ITE within their publication *Parking Generation, 6th Edition*. This publication establishes peak parking demands for multiple land uses based upon different independent variables, such as GFA and employees. ITE identifies an average peak parking demand of 1.27 spaces per unit for the proposed residential use and 2.79 spaces per 1,000 SF for the ground floor commercial use. This equates to a total demand of 124 spaces for the 95 residential units and 1,250 SF of commercial space proposed, which is exceeded as designed. Therefore, it is anticipated that the proposed 165 parking spaces will adequately support the projected parking demands.

It is proposed to provide parking stalls with dimensions of 9'x18', which satisfy the Ordinance minimum requirement of 9'x18'. As such, the proposed dimensions will adequately accommodate the anticipated site traffic. There are six (6) sets of tandem parking spaces and five (5) stacker spaces. These space will be assigned to a single dwelling unit and function similar to a 2-car driveway or garage/driveway combination often found in single family homes.

FINDINGS & CONCLUSIONS

Findings

Based upon the detailed analyses as documented herein, the following findings are noted:

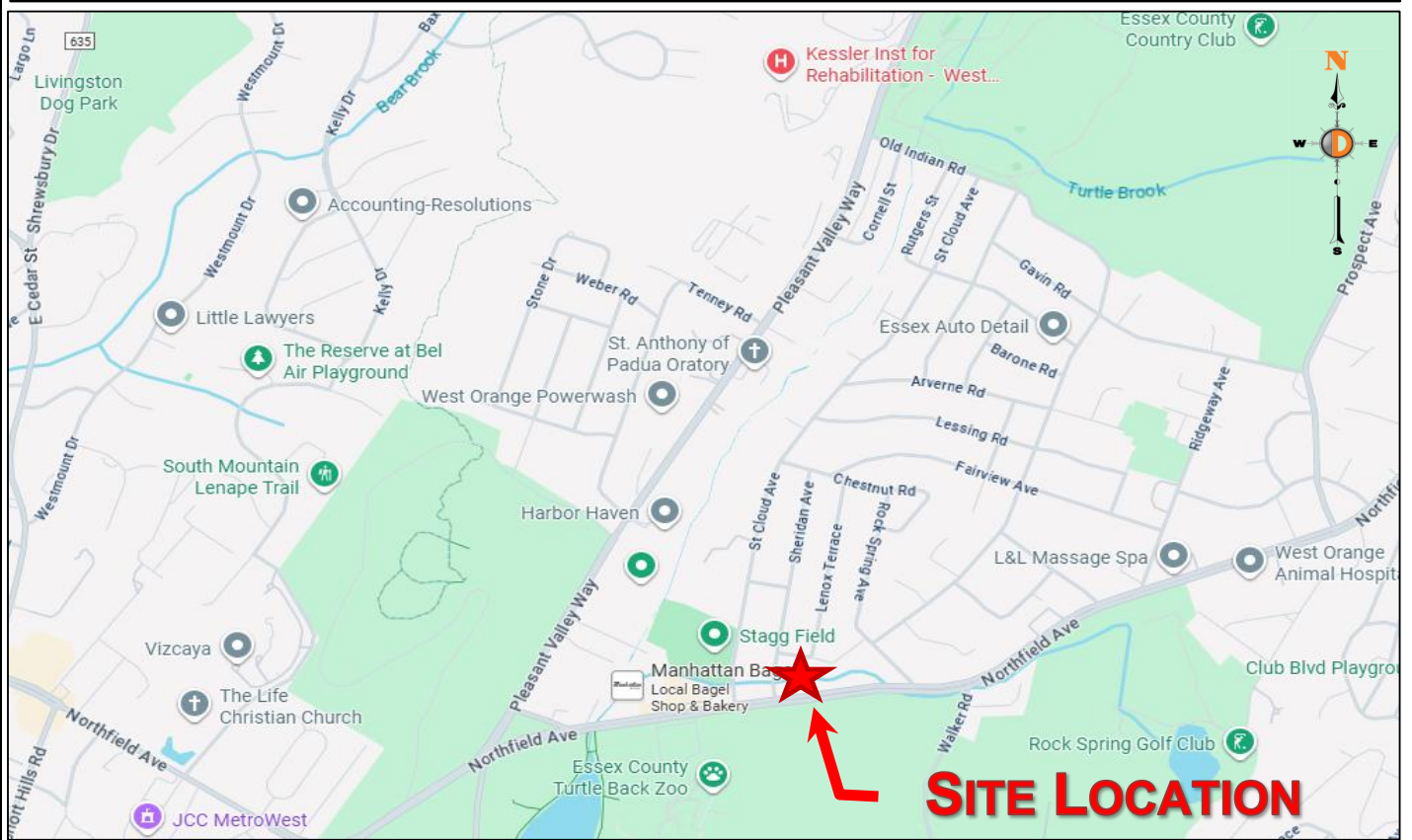
- The proposed mixed-use development consisting of 95 residential units and 1,250 SF of commercial space, is projected to generate 10 entering trips and 32 exiting trips during the weekday morning peak hour and 24 entering trips and 10 exiting trips during the weekday evening peak hour.
- Access to the site is proposed to be provided via one (1) full-movement driveway and one (1) right-in/right-out driveway along Northfield Avenue.
- With the addition of site generated traffic, the intersection of Northfield Avenue and Sheridan Avenue is anticipated to continue operating at overall No Build level of service “A” during the peak hours studied.
- As designed, the intersection of Northfield Avenue and the easterly site driveway is anticipated to operate at level of service “B” during the peak hours studied.
- As designed, the intersection of Northfield Avenue and the westerly site driveway is anticipated to operate at levels of service “C” or better during the peak hours studied.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of the anticipated vehicle mix.
- The proposed parking supply and design is sufficient to support the projected demand and meets the statutorily reduced Ordinance requirement.

Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the Township of West Orange and Essex County will not experience any significant degradation in operating conditions with the construction of The Project. The site driveways are located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for effective circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

Appendix A

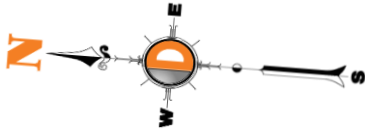
Traffic Volume Figures



Proposed Mixed-Use Development
 Traffic Impact Study
 2918 25-03616

Figure 1

Site Location Map



Site

Easterly Site Driveway

Westerly Site Driveway

Northfield Avenue (CR 508)

1252 (710)

821 (1084)

1252 (710)

821 (1084)

Sheridan Avenue

(25) 60
(32) 63

43 (33)
1209 (677)



23 (37)
761 (1059)

LEGEND

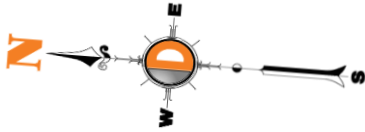
- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection



Proposed Mixed-Use Development
Traffic Impact Study
2918 25-03616

Figure 2

Existing Traffic Volumes



Site

Easterly Site Driveway

Westerly Site Driveway

Northfield Avenue (CR 508)

1303 (738)

1303 (738)

854
(1128)

854
(1128)

45 (34)
1258 (704)



(26) 62
(33) 66

24 792
(38) (1102)

LEGEND

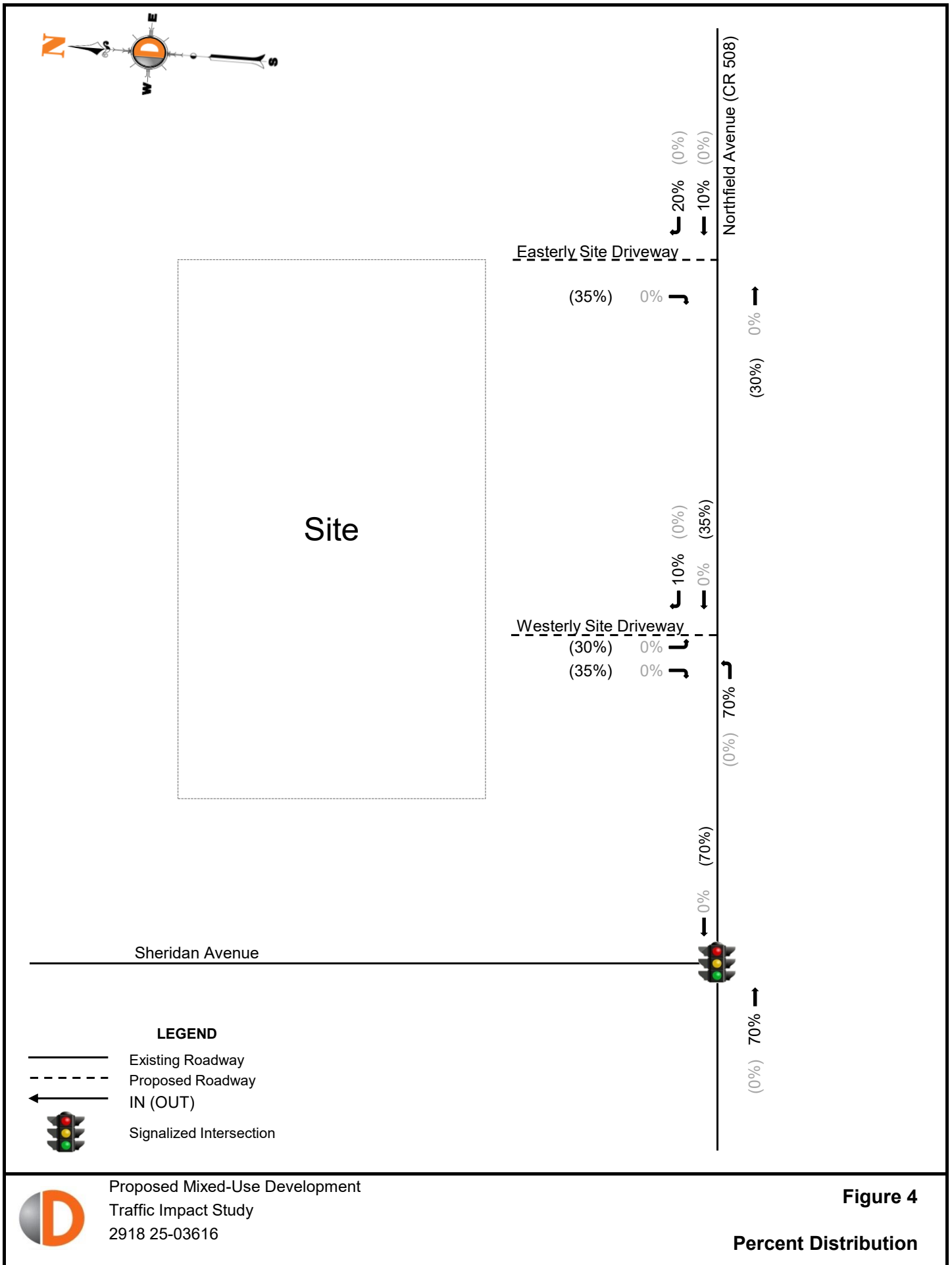
- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection

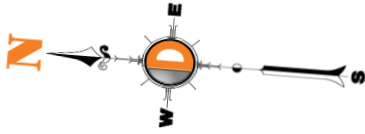


Proposed Mixed-Use Development
Traffic Impact Study
2918 25-03616

Figure 3

No Build Traffic Volumes





Site

Easterly Site Driveway

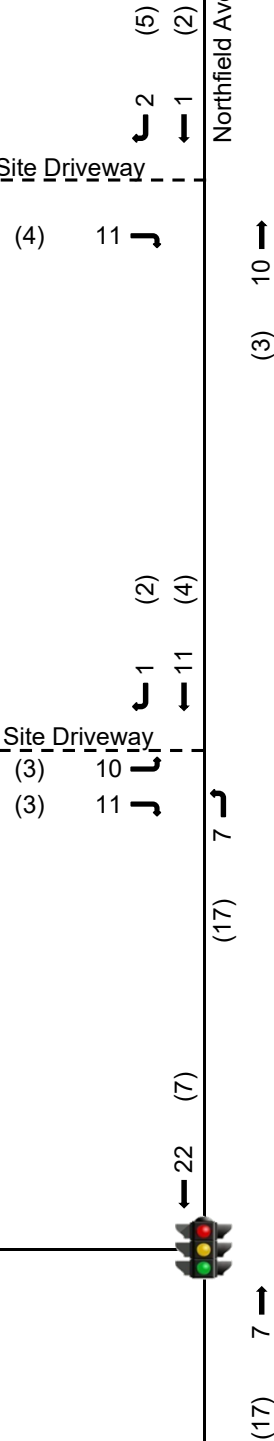
Westerly Site Driveway

Northfield Avenue (CR 508)

Sheridan Avenue

LEGEND

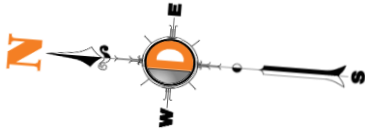
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)
-  Signalized Intersection



Proposed Mixed-Use Development
Traffic Impact Study
2918 25-03616

Figure 5

Site Generated Trips



Site

Easterly Site Driveway

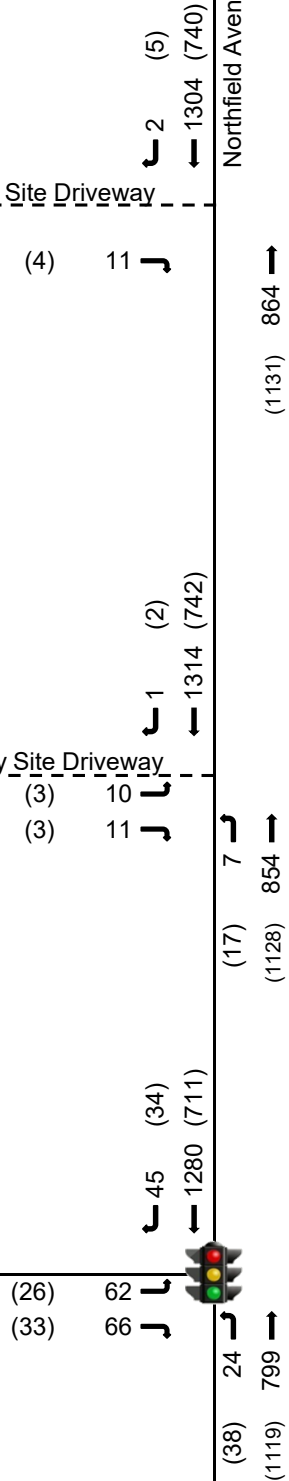
Westerly Site Driveway

Northfield Avenue (CR 508)

Sheridan Avenue

LEGEND

- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection



Proposed Mixed-Use Development
Traffic Impact Study
2918 25-03616

Figure 6

Build Traffic Volumes

Appendix B

Project Information

732-681-0760

File Name : Sheridan Ave & Northfield Ave (CR 508) - AMPM
Site Code : 00000000
Start Date : 9/25/2025
Page No : 1

	Northfield Avenue (CR 508) Eastbound				Northfield Avenue (CR 508) Westbound				Sheridan Avenue Southbound				
Start Time	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
07:00 AM	3	135	0	138	186	3	1	190	2	2	0	4	332
07:15 AM	3	145	0	148	209	3	0	212	5	3	0	8	368
07:30 AM	8	177	0	185	239	5	1	245	8	5	2	15	445
07:45 AM	9	214	0	223	271	4	1	276	9	5	0	14	513
Total	23	671	0	694	905	15	3	923	24	15	2	41	1658
08:00 AM	5	213	0	218	279	13	2	294	15	10	0	25	537
08:15 AM	5	179	0	184	313	12	0	325	9	15	1	25	534
08:30 AM	8	190	0	198	322	12	1	335	19	20	0	39	572
08:45 AM	5	179	0	184	295	6	0	301	17	18	0	35	520
Total	23	761	0	784	1209	43	3	1255	60	63	1	124	2163
*** BREAK ***													
02:30 PM	6	191	0	197	150	7	0	157	3	3	0	6	360
02:45 PM	4	189	0	193	190	8	0	198	6	8	0	14	405
Total	10	380	0	390	340	15	0	355	9	11	0	20	765
03:00 PM	9	257	0	266	206	8	1	215	5	5	0	10	491
03:15 PM	10	250	0	260	181	8	0	189	13	8	0	21	470
03:30 PM	7	197	0	204	180	7	0	187	19	19	0	38	429
03:45 PM	4	175	0	179	162	2	0	164	5	3	0	8	351
Total	30	879	0	909	729	25	1	755	42	35	0	77	1741
04:00 PM	10	195	0	205	131	4	0	135	6	10	0	16	356
04:15 PM	8	184	0	192	146	0	0	146	2	3	0	5	343
04:30 PM	7	225	0	232	159	3	1	163	6	0	0	6	401
04:45 PM	6	258	0	264	182	9	0	191	5	8	0	13	468
Total	31	862	0	893	618	16	1	635	19	21	0	40	1568
05:00 PM	11	292	1	304	151	9	1	161	5	4	0	9	474
05:15 PM	11	289	0	300	181	9	1	191	9	11	0	20	511
05:30 PM	9	220	0	229	163	6	1	170	6	9	0	15	414
05:45 PM	6	223	1	230	180	7	0	187	4	5	0	9	426
Total	37	1024	2	1063	675	31	3	709	24	29	0	53	1825
06:00 PM	7	223	0	230	171	6	1	178	7	6	0	13	421
06:15 PM	6	170	0	176	191	12	1	204	4	3	0	7	387
Grand Total	167	4970	2	5139	4838	163	13	5014	189	183	3	375	10528
Apprch %	3.2	96.7	0		96.5	3.3	0.3		50.4	48.8	0.8		
Total %	1.6	47.2	0	48.8	46	1.5	0.1	47.6	1.8	1.7	0	3.6	
Cars	166	4926	2	5094	4786	161	13	4960	179	177	3	359	10413
% Cars	99.4	99.1	100	99.1	98.9	98.8	100	98.9	94.7	96.7	100	95.7	98.9
Trucks (SU)	1	44	0	45	51	2	0	53	10	6	0	16	114
% Trucks (SU)	0.6	0.9	0	0.9	1.1	1.2	0	1.1	5.3	3.3	0	4.3	1.1
Trucks													

PHASING	TIMING (SECONDS)			SIGNAL INDICATIONS			
				1-7	8,9	10,11	12,13
VEHICLE ACTUATION	MIN	MAX	EXT				
1. NORTHFIELD AVE. ROW	28	39	-	G	R	W	DW
1. PEDESTRIAN CLEARANCE	11	11	-	G	R	FDW	DW
1. CHANGE	4	4	-	Y	R	DW	DW
1. ALL RED	2	2	-	R	R	DW	DW
2. SHERIDAN AVE. ROW	8	29	2	R	G	DW	DW
2. CHANGE	3	3	-	R	Y	DW	DW
2. ALL RED	2	2	-	R	R	DW	DW

PHASING	TIMING (SECONDS)			SIGNAL INDICATIONS			
				1-7	8,9	10,11	12,13
PEDESTRIAN ACTUATION	MIN	MAX	EXT				
1. NORTHFIELD AVE. ROW	11	29	-	G	R	W	DW
1. PEDESTRIAN CLEARANCE	11	11	-	G	R	FDW	DW
1. CHANGE	4	4	-	Y	R	DW	DW
1. ALL RED	2	2	-	R	R	DW	DW
2. SHERIDAN AVE. ROW	8	8	-	R	G	DW	W
2. PEDESTRIAN CLEARANCE	19	19	-	R	G	DW	FDW
2. VEHICLE EXTENSION	0	12	2	R	G	DW	DW
2. CHANGE	3	3	-	R	Y	DW	DW
2. ALL RED	2	2	-	R	R	DW	DW
FLASHING OPERATION				Y	R	OUT	OUT

NOTES:

1. The detector memory mode is to be off.
2. Controller is to be semi-actuated.
3. 90 second background cycle.
4. The offset is 0 seconds as measured from the beginning of the yellow to Northfield Avenue at Pleasant Valley Way to the beginning of yellow to Northfield Avenue at this intersection.

ATT. A Mahmood

9-11-13

NORTHFIELD AVENUE AND SHERIDAN AVENUE,
WEST ORANGE

Revised 12/31/2013

Asif

369

Appendix C

Capacity Analysis

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	761	1209	43	60	63
Future Volume (vph)	23	761	1209	43	60	63
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995		0.931	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1955	4388	4542	0	2102	0
Flt Permitted	0.188				0.976	
Satd. Flow (perm)	387	4388	4542	0	2102	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6		50	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	1%	2%	8%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	801	1318	0	129	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effect Green (s)	69.4	69.4	69.4		9.6	
Actuated g/C Ratio	0.77	0.77	0.77		0.11	
v/c Ratio	0.08	0.24	0.38		0.48	
Control Delay (s/veh)	3.7	3.2	3.8		29.4	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	3.7	3.2	3.8		29.4	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.2	3.8		29.4	
Approach LOS		A	A		C	
Queue Length 50th (ft)	2	50	94		46	
Queue Length 95th (ft)	10	83	150		99	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	298	3382	3502		711	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.08	0.24	0.38		0.18	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay (s/veh): 5.1

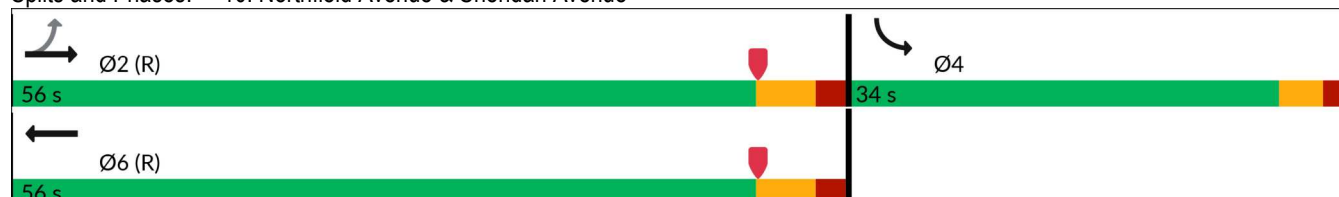
Intersection LOS: A

Intersection Capacity Utilization 48.3%

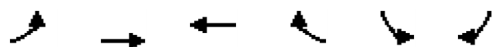
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue



						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	37	1059	677	33	25	32
Future Volume (vph)	37	1059	677	33	25	32
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993		0.924	
Flt Protected	0.950				0.979	
Satd. Flow (prot)	1955	4388	4537	0	2196	0
Flt Permitted	0.356				0.979	
Satd. Flow (perm)	733	4388	4537	0	2196	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			9		35	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	1164	780	0	62	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effect Green (s)	70.8	70.8	70.8		8.2	
Actuated g/C Ratio	0.79	0.79	0.79		0.09	
v/c Ratio	0.07	0.34	0.22		0.27	
Control Delay (s/veh)	2.6	3.1	2.6		23.7	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	2.6	3.1	2.6		23.7	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.1	2.6		23.7	
Approach LOS		A	A		C	
Queue Length 50th (ft)	4	76	44		14	
Queue Length 95th (ft)	11	104	63		52	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	576	3449	3569		731	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.07	0.34	0.22		0.08	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.34

Intersection Signal Delay (s/veh): 3.5

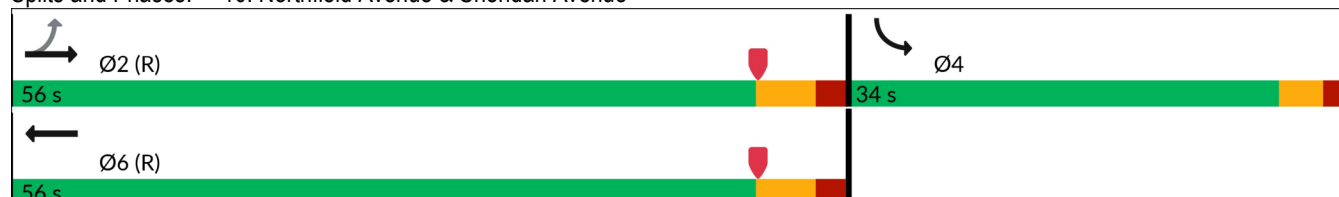
Intersection LOS: A

Intersection Capacity Utilization 48.3%

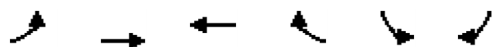
ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue



						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	792	1258	45	62	66
Future Volume (vph)	24	792	1258	45	62	66
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995		0.930	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1955	4388	4542	0	2100	0
Flt Permitted	0.175				0.976	
Satd. Flow (perm)	360	4388	4542	0	2100	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6		44	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	1%	2%	8%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	834	1371	0	134	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effect Green (s)	69.1	69.1	69.1		9.9	
Actuated g/C Ratio	0.77	0.77	0.77		0.11	
v/c Ratio	0.09	0.25	0.39		0.50	
Control Delay (s/veh)	4.0	3.4	4.0		31.3	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	4.0	3.4	4.0		31.3	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.4	4.0		31.3	
Approach LOS		A	A		C	
Queue Length 50th (ft)	3	54	103		52	
Queue Length 95th (ft)	11	90	163		106	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	276	3368	3487		706	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.09	0.25	0.39		0.19	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay (s/veh): 5.3

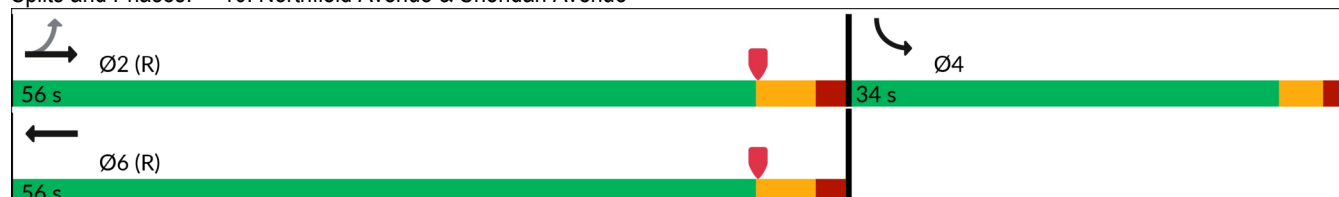
Intersection LOS: A

Intersection Capacity Utilization 48.7%

ICU Level of Service A

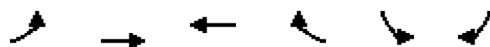
Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue



10: Northfield Avenue & Sheridan Avenue

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	38	1102	704	34	26	33
Future Volume (vph)	38	1102	704	34	26	33
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993		0.925	
Flt Protected	0.950				0.978	
Satd. Flow (prot)	1955	4388	4537	0	2196	0
Flt Permitted	0.346				0.978	
Satd. Flow (perm)	712	4388	4537	0	2196	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			9		36	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	1211	811	0	65	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effct Green (s)	70.7	70.7	70.7		8.3	
Actuated g/C Ratio	0.79	0.79	0.79		0.09	
v/c Ratio	0.08	0.35	0.23		0.28	
Control Delay (s/veh)	2.6	3.2	2.7		24.1	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	2.6	3.2	2.7		24.1	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.2	2.7		24.1	
Approach LOS		A	A		C	
Queue Length 50th (ft)	4	80	46		16	
Queue Length 95th (ft)	11	110	66		53	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	559	3448	3568		732	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.08	0.35	0.23		0.09	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.35

Intersection Signal Delay (s/veh): 3.6

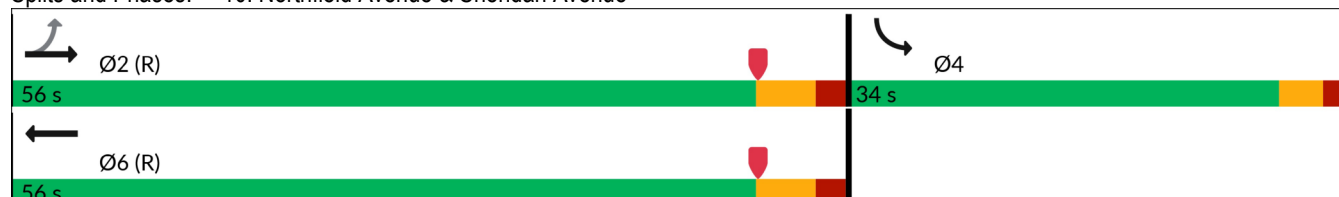
Intersection LOS: A

Intersection Capacity Utilization 48.3%

ICU Level of Service A

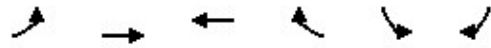
Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue



						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	799	1280	45	62	66
Future Volume (vph)	24	799	1280	45	62	66
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.995		0.930	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1955	4388	4542	0	2100	0
Flt Permitted	0.169				0.976	
Satd. Flow (perm)	348	4388	4542	0	2100	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6		42	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	1%	2%	8%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	841	1394	0	134	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		2	6		4	
Permitted Phases	2					
Detector Phase	2	2	6		4	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	C-Max	C-Max	C-Max		Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effect Green (s)	69.0	69.0	69.0		10.0	
Actuated g/C Ratio	0.77	0.77	0.77		0.11	
v/c Ratio	0.09	0.25	0.40		0.50	
Control Delay (s/veh)	4.1	3.4	4.1		31.8	

10: Northfield Avenue & Sheridan Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	4.1	3.4	4.1		31.8	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.4	4.1		31.8	
Approach LOS		A	A		C	
Queue Length 50th (ft)	3	55	106		53	
Queue Length 95th (ft)	11	92	168		107	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	266	3365	3484		705	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.09	0.25	0.40		0.19	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 55 (61%), Referenced to phase 2:EBTL and 6:WBT, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay (s/veh): 5.4

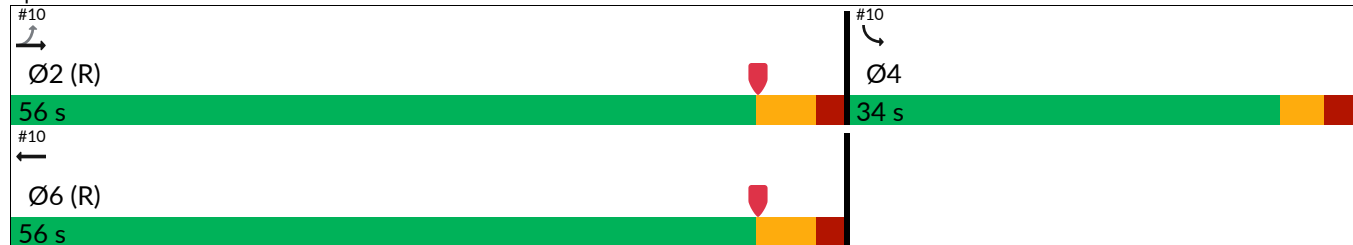
Intersection LOS: A

Intersection Capacity Utilization 49.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue

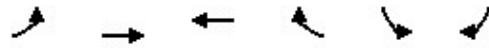


Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	0	864	1304	2	0	11
Future Vol, veh/h	0	864	1304	2	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	4	-4	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	909	1373	2	0	12
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	1828	687
Stage 1	-	-	-	-	1374	-
Stage 2	-	-	-	-	455	-
Critical Hdwy	-	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	70	394
Stage 1	0	-	-	-	204	-
Stage 2	0	-	-	-	612	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	70	394
Mov Cap-2 Maneuver	-	-	-	-	70	-
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	612	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		14.42		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	394		
HCM Lane V/C Ratio	-	-	-	0.029		
HCM Ctrl Dly (s/v)	-	-	-	14.4		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0.1		

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	7	854	1314	1	10	11
Future Vol, veh/h	7	854	1314	1	10	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	7	899	1383	1	11	12
Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1384	0	-	0	1848	692
Stage 1	-	-	-	-	1384	-
Stage 2	-	-	-	-	464	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	501	-	-	-	68	391
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	605	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	501	-	-	-	67	391
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	605	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.1	0		22.41		
HCM LOS				C		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	501	-	-	-	-	229
HCM Lane V/C Ratio	0.015	-	-	-	-	0.097
HCM Ctrl Dly (s/v)	12.3	-	-	-	-	22.4
HCM Lane LOS	B	-	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	-	0.3

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	38	1119	711	34	26	33
Future Volume (vph)	38	1119	711	34	26	33
Ideal Flow (vphpl)	2100	2100	2100	2100	2100	2100
Lane Width (ft)	12	16	16	12	16	12
Grade (%)		4%	-4%		-4%	
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.993		0.925	
Flt Protected	0.950				0.978	
Satd. Flow (prot)	1955	4388	4537	0	2196	0
Flt Permitted	0.343				0.978	
Satd. Flow (perm)	706	4388	4537	0	2196	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			8		36	
Link Speed (mph)		40	40		25	
Link Distance (ft)		657	201		402	
Travel Time (s)		11.2	3.4		11.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	42	1230	818	0	65	0
Turn Type	Perm	NA	NA		Prot	
Protected Phases		4	8		6	
Permitted Phases	4					
Detector Phase	4	4	8		6	
Switch Phase						
Minimum Initial (s)	39.0	39.0	39.0		8.0	
Minimum Split (s)	45.0	45.0	45.0		23.0	
Total Split (s)	56.0	56.0	56.0		34.0	
Total Split (%)	62.2%	62.2%	62.2%		37.8%	
Maximum Green (s)	50.0	50.0	50.0		29.0	
Yellow Time (s)	4.0	4.0	4.0		3.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		5.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	Max	Max	Max		C-Min	
Walk Time (s)	7.0	7.0	7.0		7.0	
Flash Don't Walk (s)	11.0	11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	
Act Effect Green (s)	70.7	70.7	70.7		8.3	
Actuated g/C Ratio	0.79	0.79	0.79		0.09	
v/c Ratio	0.08	0.36	0.23		0.28	
Control Delay (s/veh)	2.6	3.2	2.7		24.1	

10: Northfield Avenue & Sheridan Avenue



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay (s/veh)	2.6	3.2	2.7		24.1	
LOS	A	A	A		C	
Approach Delay (s/veh)		3.2	2.7		24.1	
Approach LOS		A	A		C	
Queue Length 50th (ft)	4	82	47		16	
Queue Length 95th (ft)	11	112	67		53	
Internal Link Dist (ft)		577	121		322	
Turn Bay Length (ft)	50					
Base Capacity (vph)	554	3448	3567		732	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.08	0.36	0.23		0.09	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay (s/veh): 3.6

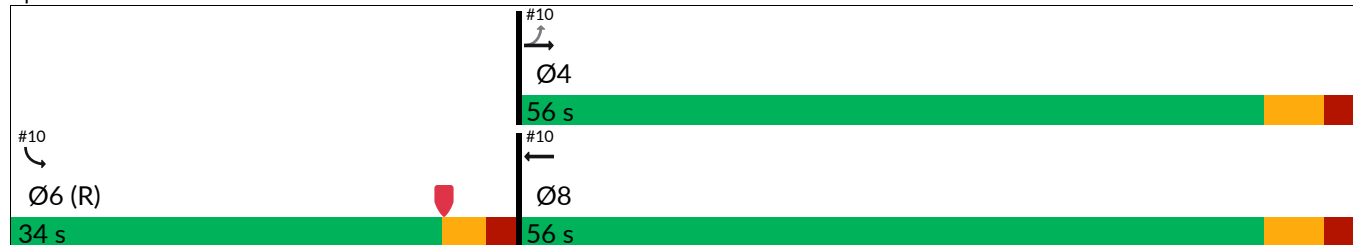
Intersection LOS: A

Intersection Capacity Utilization 48.3%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 10: Northfield Avenue & Sheridan Avenue



Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Vol, veh/h	0	1131	740	5	0	4
Future Vol, veh/h	0	1131	740	5	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	4	-4	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	0	1243	813	5	0	4
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	-	0	-	0	1437	409
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	621	-
Critical Hdwy	-	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	-	-	-	126	597
Stage 1	0	-	-	-	400	-
Stage 2	0	-	-	-	504	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	126	597
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	504	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0	0		11.07		
HCM LOS	B					
Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1		
Capacity (veh/h)	-	-	-	597		
HCM Lane V/C Ratio	-	-	-	0.007		
HCM Ctrl Dly (s/v)	-	-	-	11.1		
HCM Lane LOS	-	-	-	B		
HCM 95th %tile Q(veh)	-	-	-	0		

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	1128	742	2	3	3
Future Vol, veh/h	17	1128	742	2	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	4	-4	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	19	1240	815	2	3	3
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	818	0	-	0	1474	409
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	657	-
Critical Hdwy	4.1	-	-	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	819	-	-	-	120	598
Stage 1	-	-	-	-	400	-
Stage 2	-	-	-	-	483	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	819	-	-	-	117	598
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	391	-
Stage 2	-	-	-	-	483	-
Approach	EB	WB		SB		
HCM Ctrl Dly, s/v	0.14	0		15.51		
HCM LOS	C					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	819	-	-	-	349	
HCM Lane V/C Ratio	0.023	-	-	-	0.019	
HCM Ctrl Dly (s/v)	9.5	-	-	-	15.5	
HCM Lane LOS	A	-	-	-	C	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	