LANGAN

Technical Excellence
Practical Experience
Client Responsiveness

5 October 2021

Mario Duron, AICP
Associate Planner
City of North Miami Beach
17011 NE 19th Avenue
North Miami Beach, FL

Re: Traffic Operations Analysis
NMB Medical Office
North Miami Beach, Florida
Langan Project No.: 330088701

Dear Mr. Duron:

Langan Engineering & Environmental Services, Inc. prepared this traffic-generation statement for the North Miami Beach Medical Office development at 11 NW 168th Street and determined that the proposed development will not generate more than 52 peak-hour trips. The expected site-ingress volumes do not warrant the need for exclusive turn-lanes on the abutting public road. We conducted intersection capacity analyses for the stop-sign controlled intersection of N. Miami Avenue and NW 168th Street and the signalized intersection of N. Miami Avenue and NE 167th Street. The analysis shows that all the study intersections are expected to operate at LOS D or better for the 2023 build conditions. The proposed valet operation will operate with a minimum of two attendants and will not cause vehicle queues to back onto NE 168th Street during the morning and afternoon peak hours. This letter report includes the data and analysis used for the trip-generation calculations and the intersection-capacity analysis. **Attachment A** includes the report figures and Figure 1 is an aerial photograph of the project's location that shows the one subject intersection.

Project Description

The proposed development comprises one four-story building with a total of 14,700 square feet of medical office uses and is expected to be built by 2023 or sooner. The 0.34-acre vacant site (Folio No.: 07-2113-007-0480) is at 11 NW 168th Street in North Miami Beach, Florida. Site access will be provided through one driveway connection to NW 168th Street. **Attachment B** contains the site plan showing the proposed buildings and proposed driveway connection.

Trip Generation & Driveway Analysis

The proposed development is expected to generate 477 daily, 41 morning peak-hour and 52 afternoon peak-hour trips. We prepared trip-generation estimates for the proposed development, summarized in **Table 1**, using equations from the 10th Edition of the ITE *Trip Generation Manual*. **Attachment C** contains excerpts from the ITE manual. The proposed development will have one driveway connection to NW 168th Street and will operate as a full access stop-sign controlled driveway. The expected peak-hour site-ingress volumes do not warrant the need for exclusive turn lanes.

Table 1.- Trip Generation Estimates

Daily

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Medical-Dental Office	720	14,700 SF	T = 38.42 (X) - 87.62	50%	50%	238	239	477

Morning Peak Hour

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Medical-Dental Office	720	14,700 SF	Ln (T) = 0.89 Ln(X) + 1.31	78%	22%	32	9	41

Afternoon Peak Hour

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Medical-Dental Office	720	14,700 SF	T = 3.39 (X) + 2.02	28%	72%	15	37	52

Intersection Capacity Analysis

The city of North Miami Beach requested an analysis of the intersections of N. Miami Avenue at NW 168th Street and NW 167th Street. We collected traffic-volume data on August 8, 2021, and on August 31, 2021, from 7 to 9 AM and 4 to 6 PM at the subject intersection and determined that the peak-hours of the intersection occur between 8:00 and 9:00 AM and between 4:30 PM and 5:30 PM. We compared the 2021 collected data to 2019 data along NW 167th Street and confirmed that traffic volumes have normalized to post-Covid conditions in the City of North Miami Beach. We applied a peak season conversion factor (PSCF) from FDOT to convert volumes to peak-season volumes to provide a conservative analysis. Figure 2 illustrates the existing and no build weekday morning and afternoon peak-hour traffic volumes. We developed 2023 no-build traffic volumes by applying a compounded growth rate to the 2021 volumes. We used a 0.5 percent annual growth-rate factor to develop future background volumes because the FDOT historical volumes yielded a declining trend. Figure 3 illustrates the 2023 no-build traffic volumes. **Attachment D** contains the traffic data, seasonal-adjustment factors and the cardinal distribution data.

We used cardinal distribution data, summarized in **Table 2**, based on TAZ 113 from the Miami-Dade County 2045 Transportation Model to estimate the proposed developments traffic distribution and assignment to the roadway network. Figure 4 shows the proposed project traffic distribution to the study intersections. Although the project has access to the intersection of NW 1st Avenue and NW 168th Street, we assigned all of the project traffic accessing the site through the intersection of N. Miami Avenue & NE 168th Street/NW 168th Street to provide a conservative analysis. Figure 5 illustrates the morning and afternoon peak hour development-traffic assignments to the study intersections. Site-generated trips were added to the 2023 no build traffic volumes to develop 2023 build traffic volumes. Figure 6 shows the 2023 morning and afternoon peak-hour build traffic volumes. **Attachment E** contains intersection-volume tables.

Table 2 - Cardinal Distribution

Year	NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW
2015	12.80%	13.60%	9.10%	13.40%	17.00%	10.40%	9.90%	13.90%
2045	13.90%	12.70%	9.40%	12.80%	18.30%	10.80%	10.70%	11.40%
2023	**13.09%**	**13.36%**	**9.18%**	**13.24%**	**17.35%**	**10.51%**	**10.11%**	**13.23%**

We conducted intersection capacity analyses for the study intersections and found that they are expected to operate at LOS D or better for build conditions. In addition, we determined that the expected vehicular-queue at the stop-sign controlled approaches will not exceed one vehicle and will not impact the project's driveway connection to NW 168th Street. We optimized the signal timing, without changing cycle length, of the intersection of N. Miami Avenue and NW 167th Street to mitigate the impacts to the northbound approach, which is operating beyond its adopted LOS for the morning and afternoon peak-hour without the proposed development. The evaluation criteria used to analyze the study-area intersections was the *Highway Capacity Manual 6th Edition* published by the Transportation Research Board, as applied by the latest version of Synchro software. **Table 3** summarizes the morning peak-hour results of the intersection capacity analyses for the existing, no-build and build conditions. **Table 4** summarizes the afternoon peak-hour results of the intersection capacity analyses for the existing, no-build and build conditions. The capacity-analyses reports are included in Attachment E. Figure 7 shows the site-driveway peak-hour turning volumes.

Table 3 – Morning Peak-Hour Intersection Capacity Analysis Summary

Scenario	Approach	N. Miami AV & NW 168 ST		N. Miami AV & NW 167 ST	
		LOS	**Delay** (sec/veh)	**LOS**	**Delay** (sec/veh)
2021 Existing Conditions	EB	B	10.9	C	32.8
	WB	C	15.8	C	30.4
	NB	-	-	F	94.8
	SB	-	-	E	73.2
	Overall	**-**	**-**	**D**	**38.2**
2023 No Build Conditions	EB	B	10.9	C	33.1
	WB	C	15.9	C	30.7
	NB	-	-	F	96.4
	SB	-	-	E	73.2
	Overall	**-**	**-**	**D**	**38.6**
2023 Build Conditions	EB	B	11.3	C	32.7
	WB	C	17.6	C	30.8
	NB	-	-	F	96.0
	SB	-	-	E	73.0
	Overall	**-**	**-**	**D**	**38.5**
2023 Build Conditions with timing optimization	EB			D	47.0
	WB			D	42.3
	NB			E	61.0
	SB			E	73.4
	Overall			**D**	**47.1**

Table 4 – Afternoon Peak-Hour Intersection Capacity Analysis Summary

Scenario	Approach	N. Miami AV & NW 168 ST		N. Miami AV & NW 167 ST	
		LOS	**Delay** (sec/veh)	**LOS**	**Delay** (sec/veh)
2021 Existing Conditions	EB	B	10.6	C	31.1
	WB	C	16.2	C	32.0
	NB	-	-	F	227.7
	SB	-	-	E	79.6
	Overall	**-**	**-**	**E**	**55.6**
2023 No Build Conditions	EB	B	10.6	C	31.4
	WB	C	16.4	C	32.3
	NB	-	-	F	232.4
	SB	-	-	E	79.7
	Overall	**-**	**-**	**E**	**56.4**
2023 Build Conditions	EB	B	11.4	C	31.3
	WB	C	17.8	C	32.3
	NB	-	-	F	232.0
	SB	-	-	F	80.9
	Overall	**-**	**-**	**E**	**56.6**
2023 Build Conditions with timing optimization	EB			D	47.3
	WB			D	49.8
	NB			E	76.4
	SB			E	77.8
	Overall			**D**	**53.1**

Valet Queuing Analysis

We prepared a queuing analysis for the valet operation of the proposed development and found that it will not cause entering traffic to back onto the adjacent public roadway (NE 1168th Street). The proposed development will have a valet-parking station at the proposed main entrance with a 135-foot vehicle-queuing area. The valet operation will serve visitors and employees. The site plan in Attachment B shows the location of the main entrance and the stacking/queuing area. We used the queuing-analysis methodology from the *Transportation and Land Development* published by the ITE. This methodology requires hourly rates of vehicle arrival and service times for the valet operation to determine vehicle-queue lengths. The queues resulting from this analysis are 95th percentile queues, which are those expected to be generated 95 percent of the time.

The development will provide 38 onsite parking spaces where 36 spaces will have mechanical vehicle lifts. Vehicle lifts allow two vehicles to occupy one parking space by lifting one vehicle above the ground and allowing a second vehicle to park underneath it. The vehicle-arrival rate was based on the project's peak-hour trip generation, summarized in Table 1. We evaluated the expected queues for the morning and afternoon peak-hours

We estimated the average service time for the valet operation as 1.50 minutes for the drop-off operation and 1.75 for the pick-up operation. The service time accounts for the times that takes the attendant to pick-up/drop-off the car, operate the lift and return to the valet station. The

analysis indicates that the valet operation will need a minimum of two attendants. We used 25 feet to convert the number of queued vehicles to linear feet.

Table 6 summarizes the results of the queuing analysis and indicates that queues for the proposed valet operation are not expected to exceed three vehicles. The analyses indicate that the expected 95th percentile queue lengths will not exceed the length of the queue-storage area. **Attachment F** contains excerpts from ITE and ULI, the queuing-analysis and service-time calculations.

Table 6 - Queuing Analysis Summary

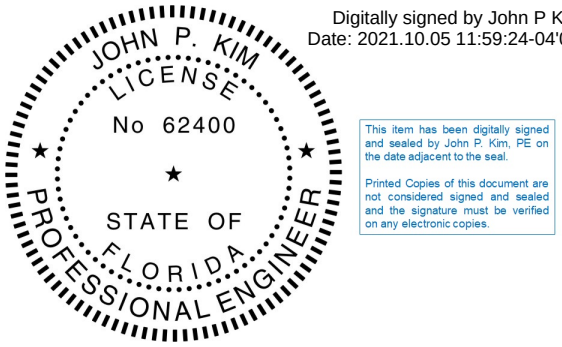
Entrance Type	Storage Capacity (feet)	95th Percentile Queue Length		Exceeds Capacity?
		Vehicles	Feet	
Valet	135	3	75	**NO**

Conclusion

We determined that the North Miami Beach Medical Office development is not expected to generate more than 52 peak-hour trips. The expected site-ingress volumes do not warrant the need for exclusive turn lanes on the abutting public road. The intersection capacity analyses shows that all the study intersections are expected to operate at LOS D or better for the 2023 build conditions. The proposed valet operation will operate with a minimum of two attendants and will not cause vehicle queues to back onto NE 168th Street during the morning and afternoon peak hours. Please contact me at (786) 264-7226 with any questions or comments.

Sincerely,

Langan Engineering and Environmental Services, Inc.



John P. Kim, P.E., PTOE
P.E. License No. 62400
Senior Project Manager

Eric Schwarz, P.E., LEED AP
Principal/Vice President

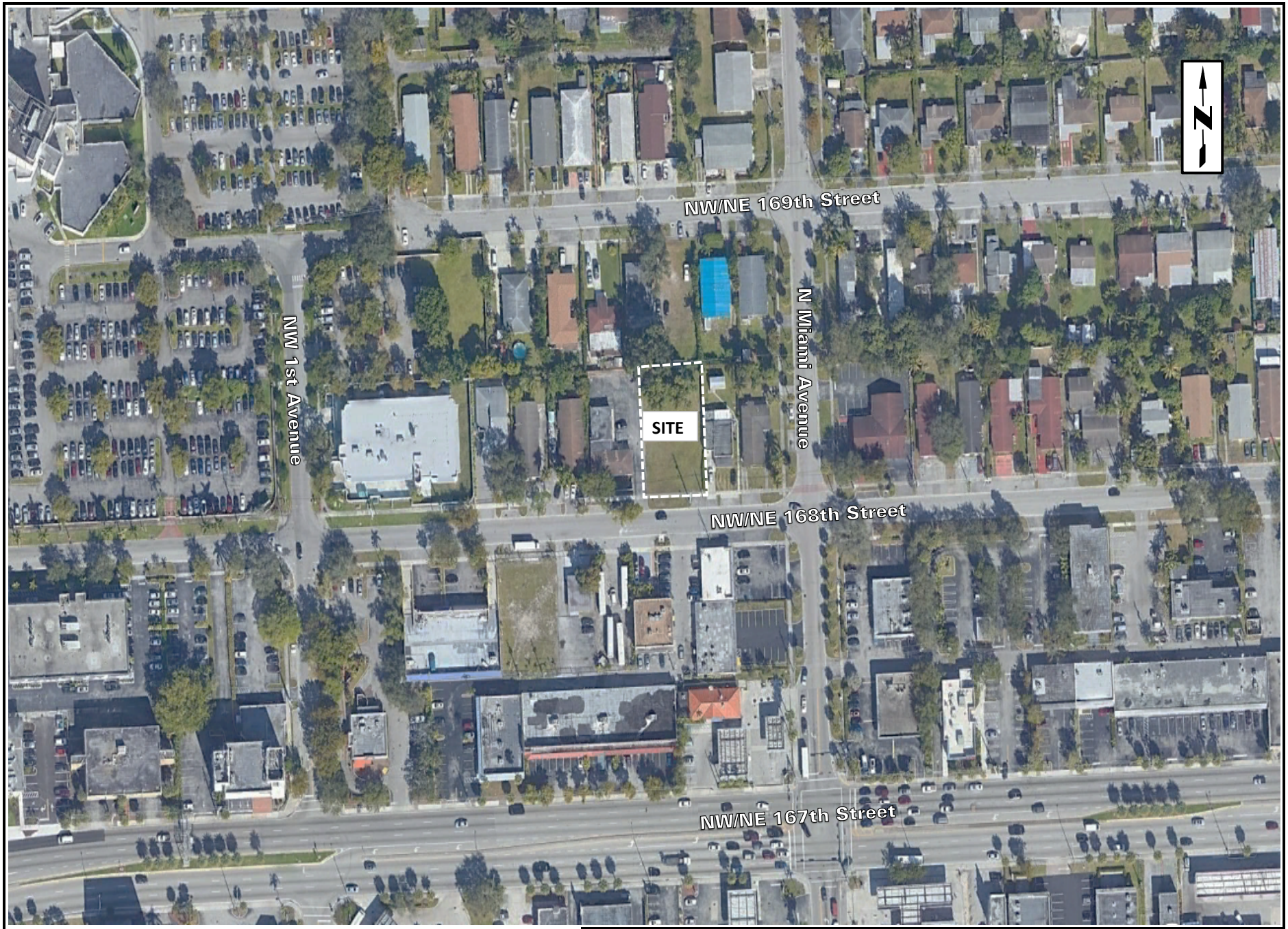
JPK:jpk

Attachments:

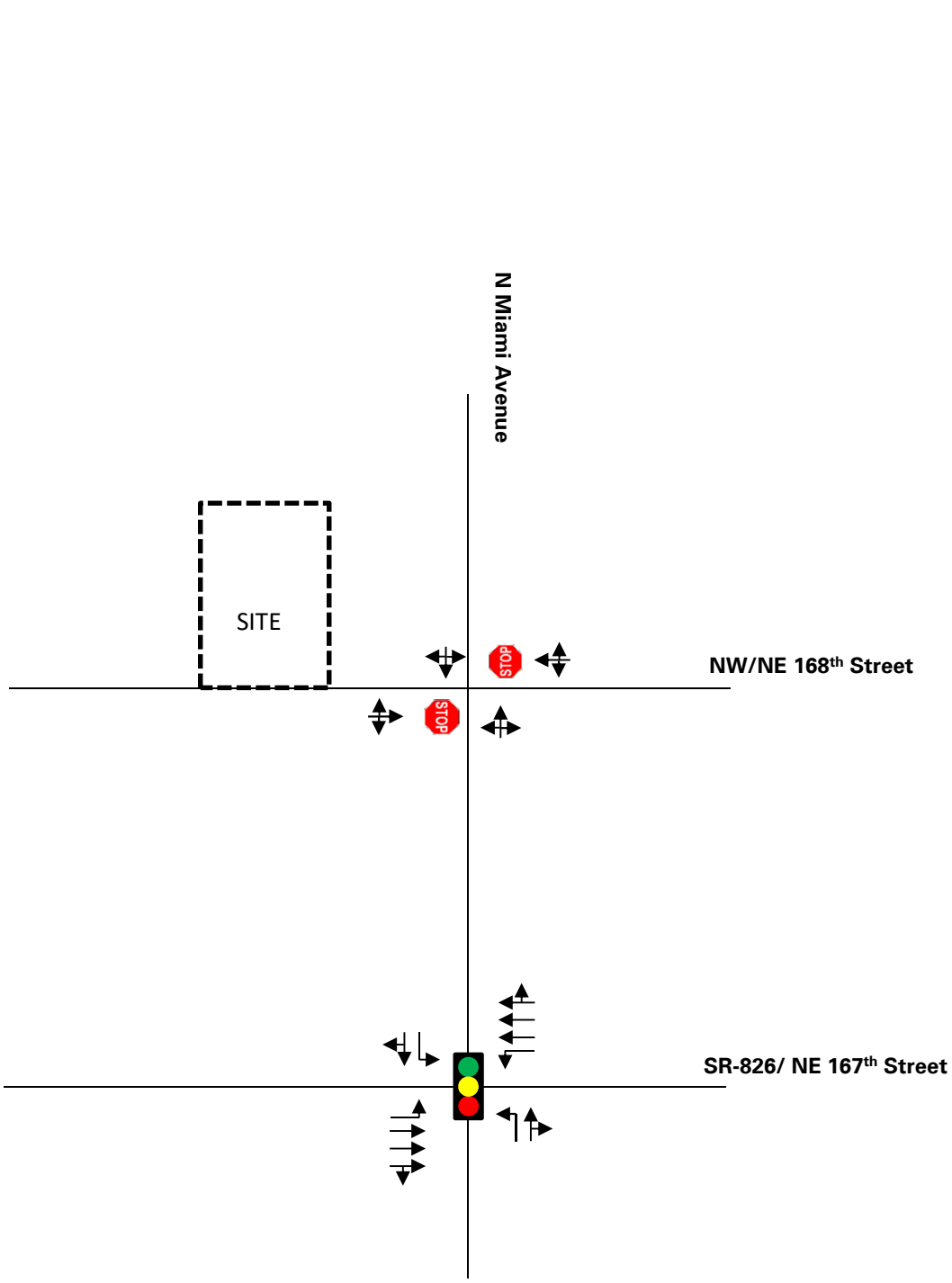
- Attachment A – Figures
- Attachment B – Site Plans
- Attachment C – ITE Excerpts
- Attachment D – Traffic, TAZ & FDOT Data
- Attachment E – Intersection Capacity Analysis
- Attachment F – ITE Excerpts & Queuing Analysis Calculations

Florida Certificate of Authorization No. 6601

ATTACHMENT A
FIGURES



LANGAN ENGINEERING & ENVIRONMENTAL SERVICES 15150 NW 79th Court, Suite 200, Miami Lakes, FL 33016 P: 786.264.7221 F: 786.264.7201 www.langan.com FL CERTIFICATE OF AUTHORIZATION No. 00006601	Project **NMB MEDICAL OFFICE** NORTH MIAMI BEACH MIAMI DADE / FLORIDA	Figure Title **SITE LOCATION MAP**	Project No. 330088701 Date 9/1/2021 Scale NTS	**FIGURE 1**



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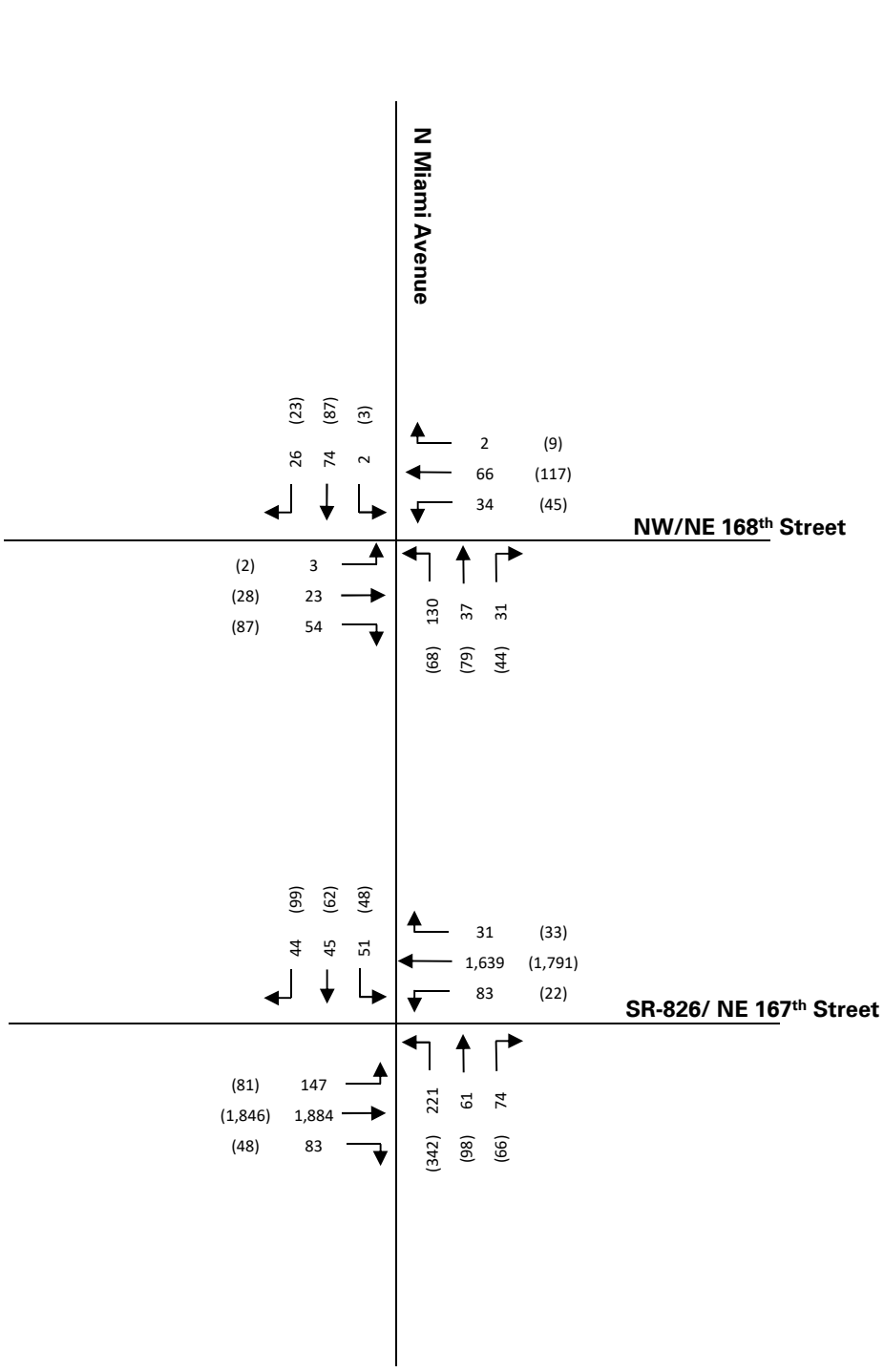

LEGEND
AM Peak Hour
(#) PM Peak Hour

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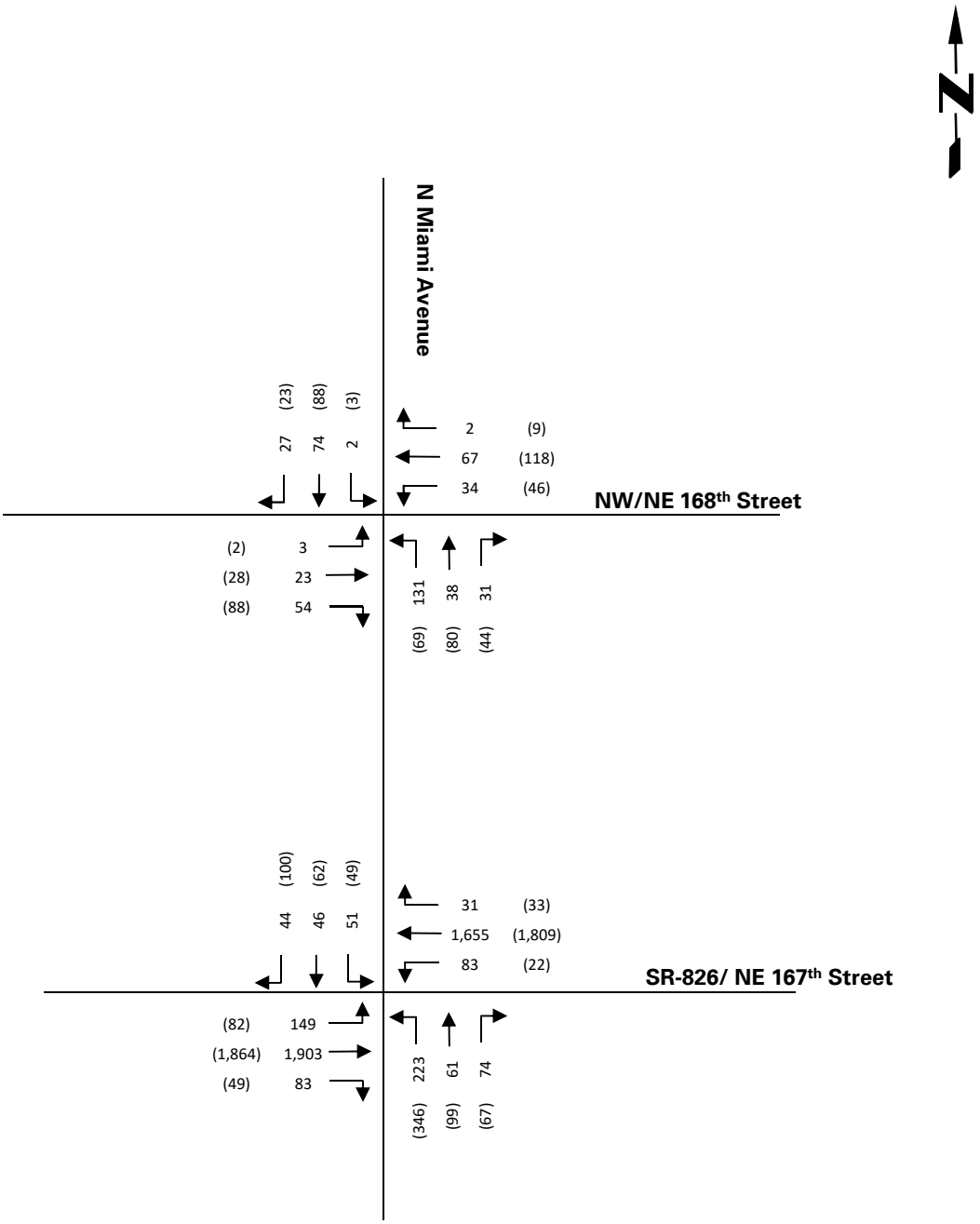
Project	Figure Title	Project No.	
NMB MEDICAL OFFICE NORTH MIAMI BEACH MIAMI DADE FLORIDA	**2021 EXISTING TRAFFIC VOLUMES**	330088701 Date 9/1/2021 Scale NTS	**FIGURE 3**



LEGEND
AM Peak Hour
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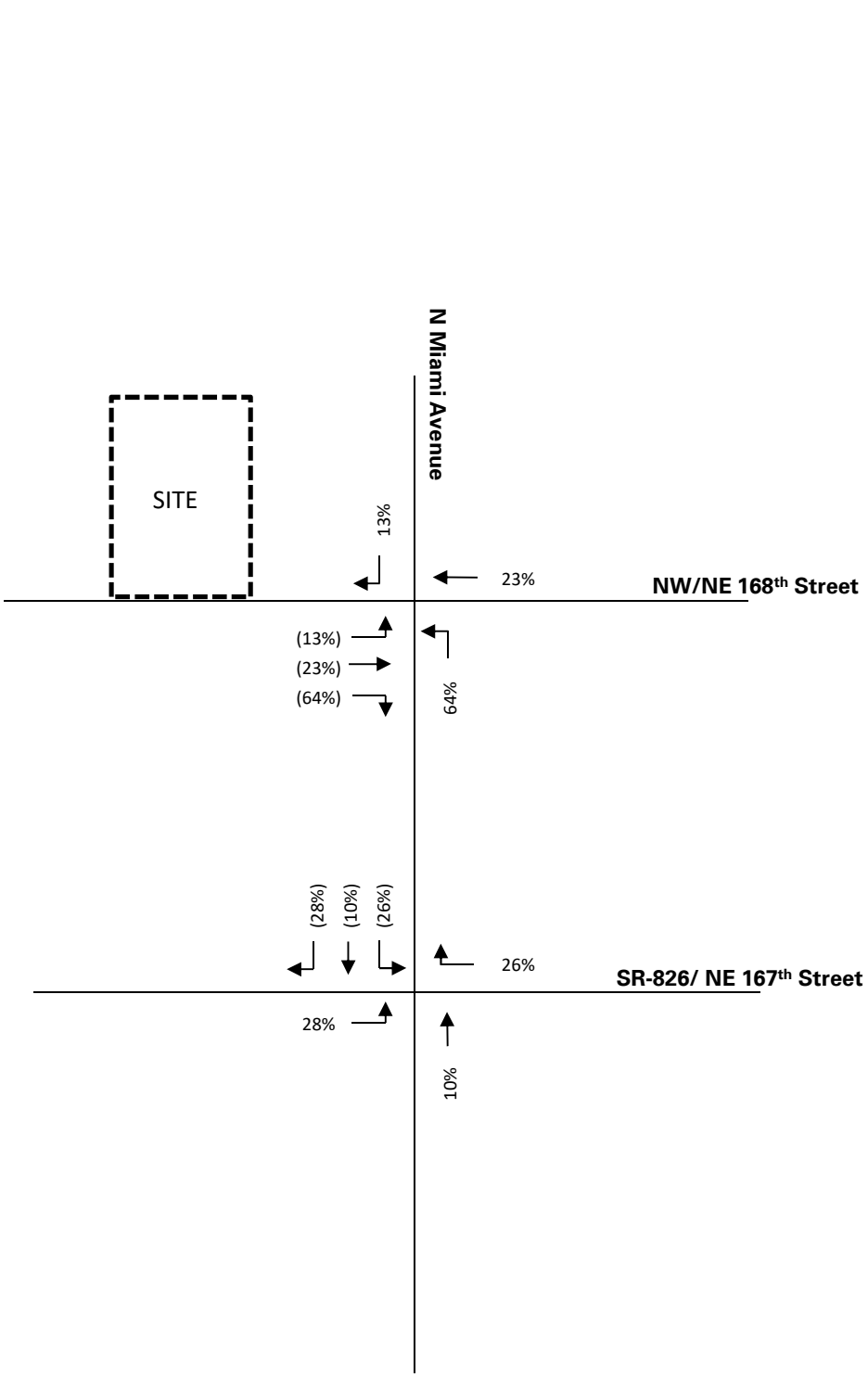
Project	Figure Title	Project No.	
NMB MEDICAL OFFICE NORTH MIAMI BEACH MIAMI DADE FLORIDA	2023 NO BUILD TRAFFIC VOLUMES	330088701	FIGURE 4
		Date 9/1/2021	
		Scale NTS	



LEGEND
Ingress
(#) Egress

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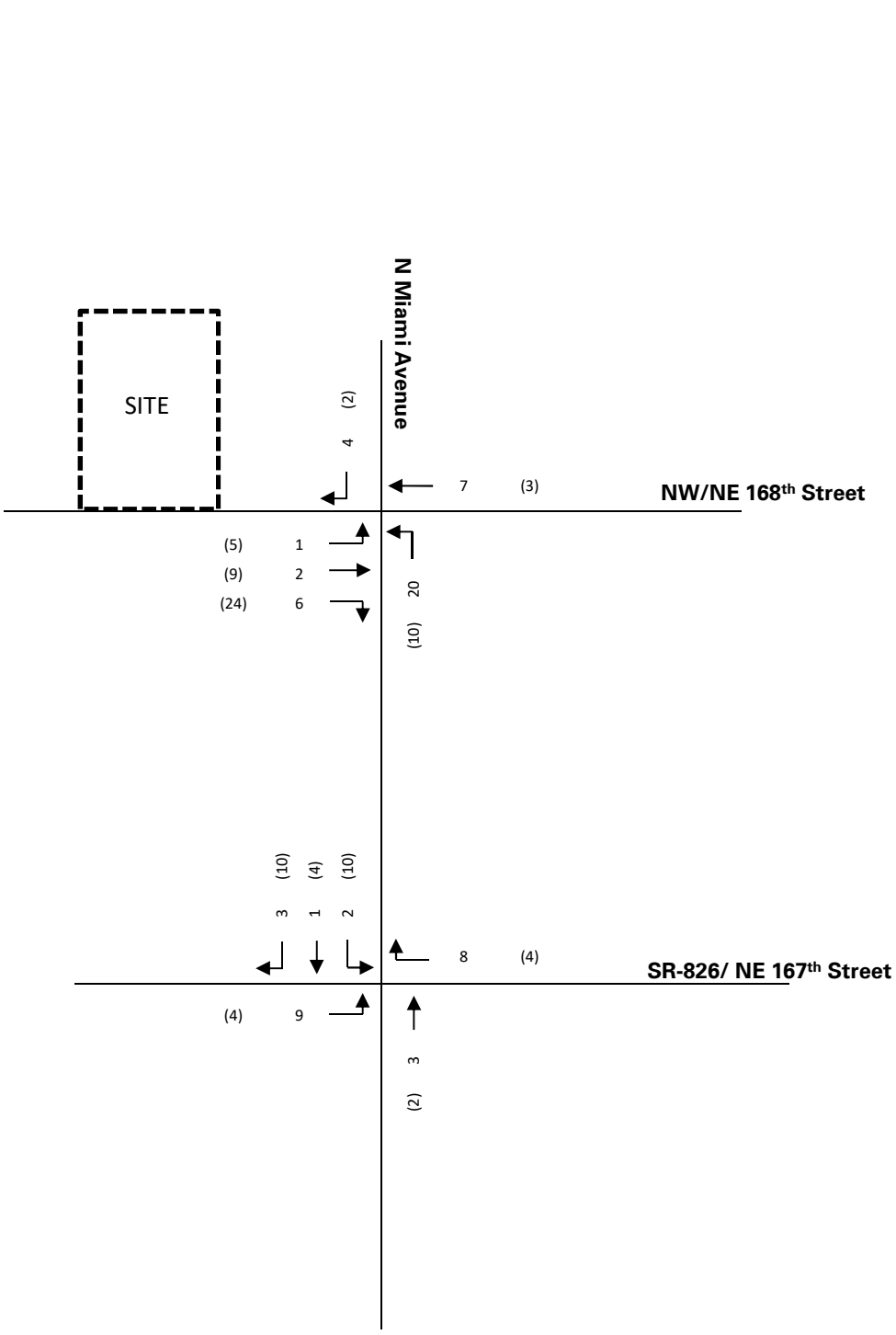
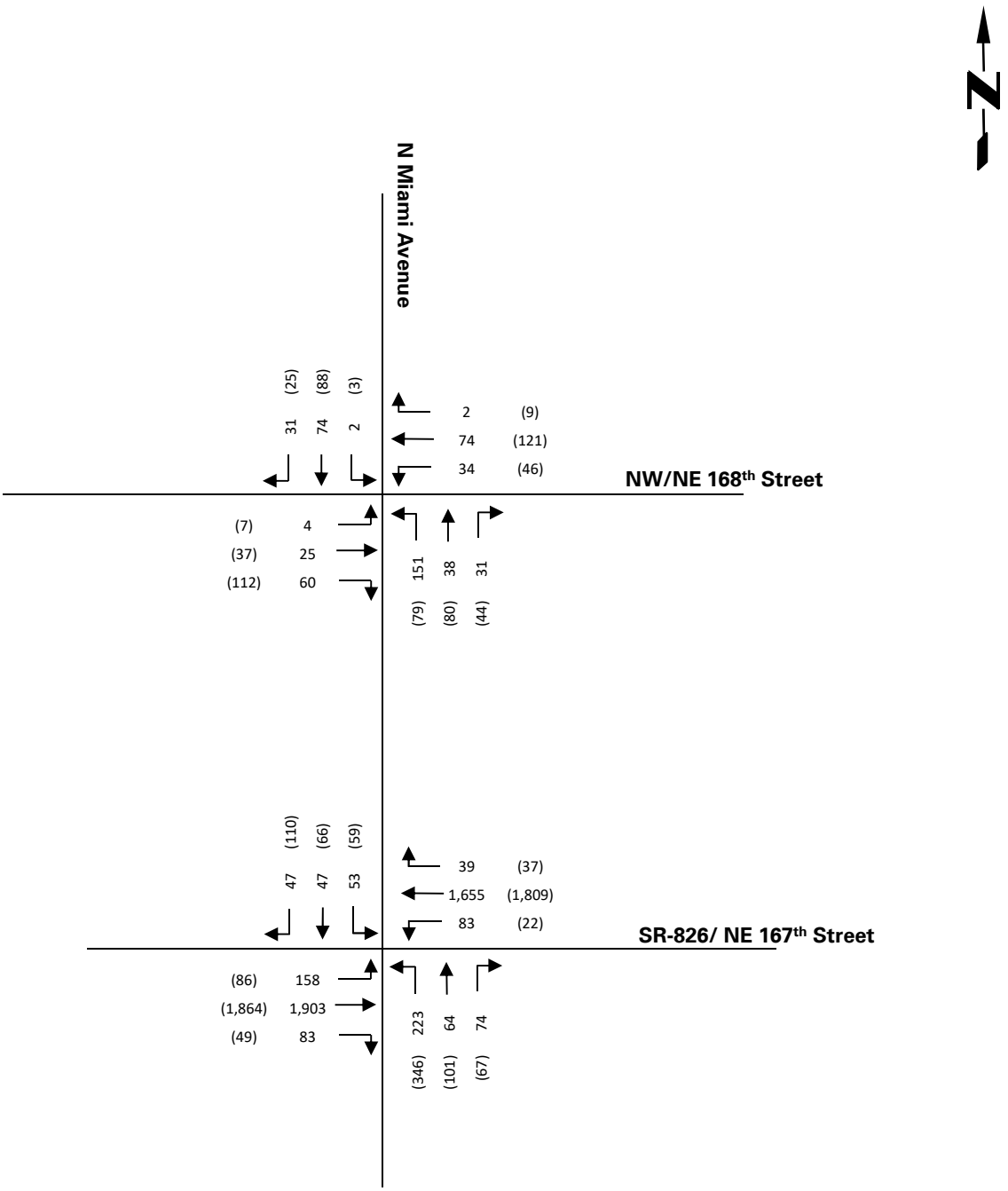
Project	Figure Title	Project No.	
NMB MEDICAL OFFICE NORTH MIAMI BEACH MIAMI DADE FLORIDA	**PROJECT TRAFFIC DISTRIBUTION**	330088701 Date 9/1/2021 Scale NTS	**FIGURE 5**



LEGEND
AM Peak Hour
(#) PM Peak Hour

LANGAN ENGINEERING & ENVIRONMENTAL SERVICES 15150 NW 79th Court, Suite 200, Miami Lakes, FL 33016 P: 786.264.7221 F: 786.264.7201 www.langan.com FL CERTIFICATE OF AUTHORIZATION No. 00006601	Project **NMB MEDICAL OFFICE** NORTH MIAMI BEACH MIAMI DADE FLORIDA	Figure Title **PROJECT TRAFFIC**	Project No. 330088701 Date 9/1/2021 Scale NTS	**FIGURE 6**



LEGEND
AM Peak Hour
(#) PM Peak Hour

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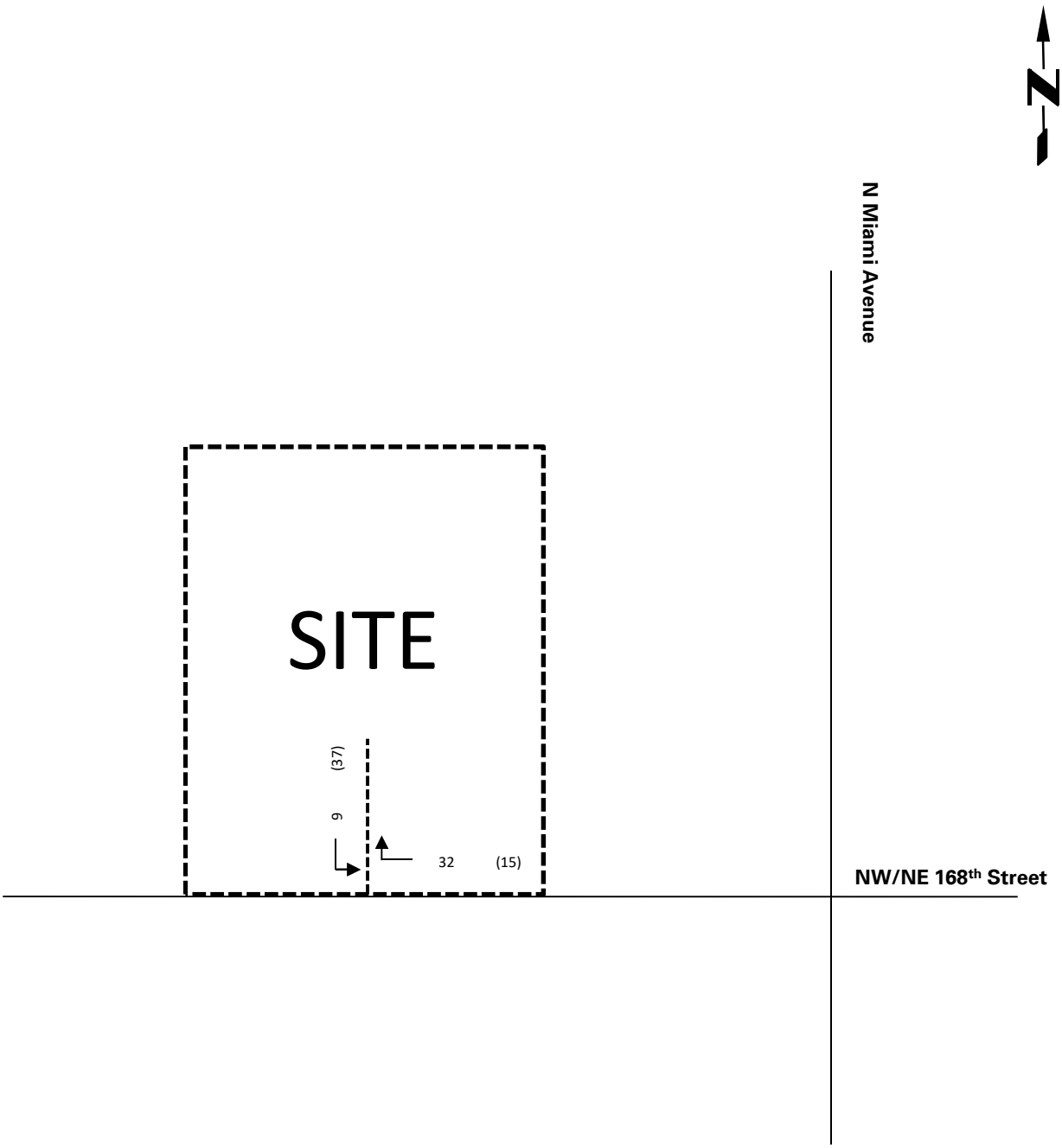
Project	Figure Title	Project No.	
NMB MEDICAL OFFICE NORTH MIAMI BEACH MIAMI DADE FLORIDA	**2023 BUILD TRAFFIC VOLUMES**	330088701 Date 9/1/2021 Scale NTS	**FIGURE 7**



LEGEND
AM Peak Hour
(#) PM Peak Hour
Driveway

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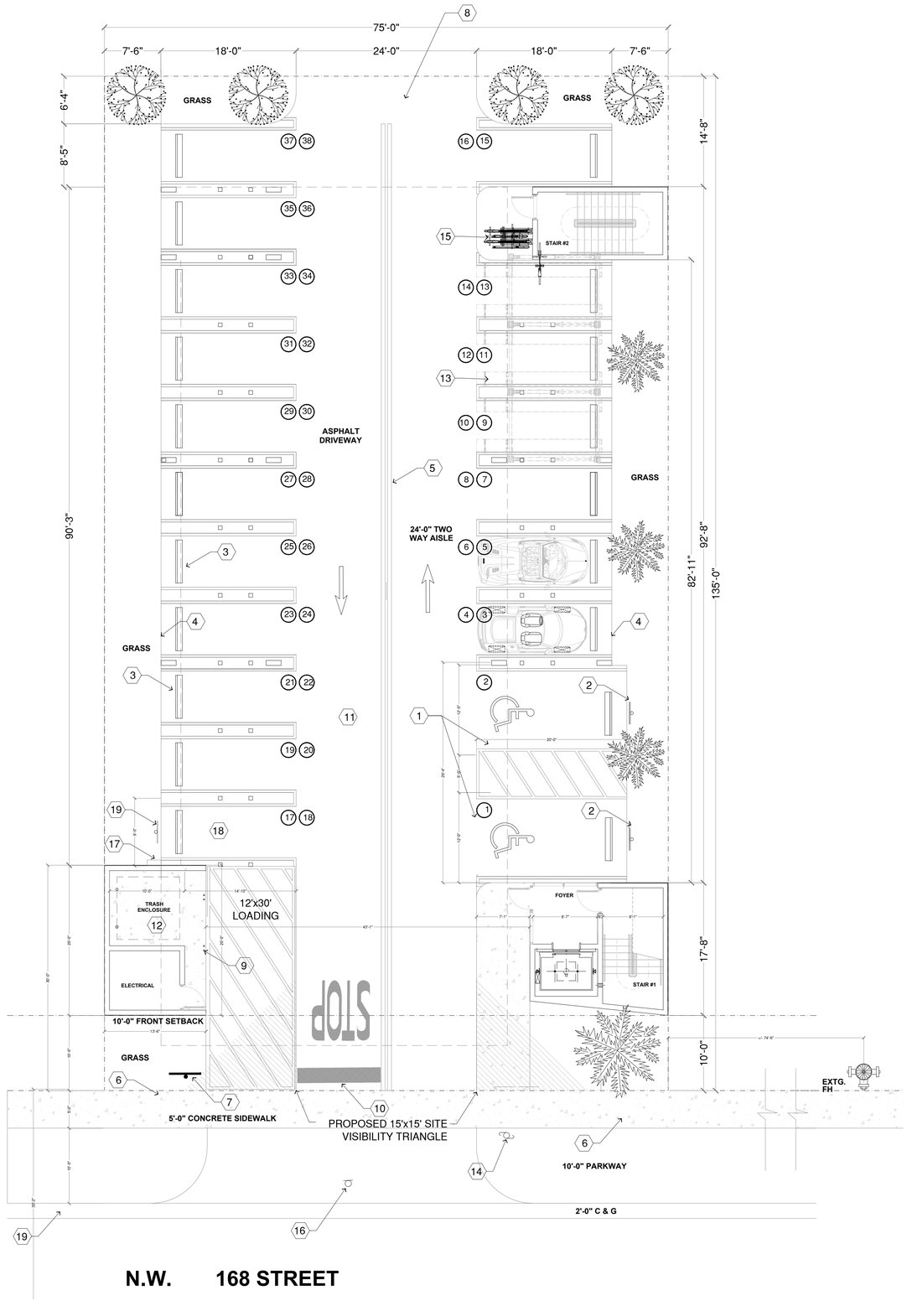
Project	Figure Title	Project No.	
NMB MEDICAL OFFICE NORTH MIAMI BEACH MIAMI DADE FLORIDA	DRIVEWAY VOLUMES	330088701	FIGURE 8
		Date 9/1/2021	
		Scale NTS	

ATTACHMENT B
SITE PLAN



NORTH

SITE PLAN
SCALE 1/8" - 1'-0"

SITE NOTES

1. HANDICAP PARKING AND STRIPING - SHEET A-1.1
2. HANDICAP SIGN - SHEET A-1.1
3. WHELL STOP - SHEET A-1.1
4. TYPE "D" CURB - SHEET A-1.1
5. 6" DOUBLE YELLOW
6. CONCRETE WALK (TYP.)
7. 30" "STOP" SIGN (R1-1), TYP. - SHEET A-1.1
8. BACKOUT SPACE AT "DEAD END" PARKING AISLE (5'-0" MINIMUM)
9. BOLLARD (TYP.)
10. 24" WHITE STOP BAR (PAINT)
11. NEW ASPHALT PAVEMENT - SHEET A-1.1
12. DUMPSTER ENCLOSURE - SHEET A-1.1
13. CAR LIFT
14. EXISTING WOOD POWER POLE TO REMAIN (TYP.)
15. BICYCLE RACK (3)
16. EXISTING SIGN TO BE RELOCATE
17. FUTURE ELECTRIC VEHICLE CHARGING STATTION
18. DEDICATED ELECTRIC VEHICLE SPACE
19. ELECTRIC VEHICLE SPACE SIGN

ZONING INFORMATION

11 NW 168th STREET, NORTH MIAMI BEACH, FLORIDA 33169
FOLIO # 07-2213-007-0480

ZONING DISTRICT — MU-IB MIX-USE INTERNATIONAL BOULEVARD DISTRICT EDGE SUB-DISTRICT

PORPOSED USE — PROFESSIONAL OFFICE BUILDING

TOTAL SQUARE FEET
LOTS AREA — 10,125 SQ. FT. - 0.23 ACRES

	REQUIRED	PROPOSED
LOT WIDTH	MINIMUM 75'-0" MAXIMUM 200'-0"	75'-0"
LOT DEPTH	MINIMUM 100'-0" MAXIMUM N/A	135'-0"
MINIMUM YARD SETBACKS		
FRONT - SECONDARY STREET	MINIMUM 10'-0" MAXIMUM 20'-0"	10'-0"
SIDE (INTERIOR)	MINIMUM 0'-0" MAXIMUM N/A	0'-0"
REAR	MINIMUM 0'-0" MAXIMUM N/A	14'-8"
MAXIMUM BUILDING HEIGHT	4 STORIES - 50'-0"	4 STORIES - 50'-0"
IMPERVIOUS AREA	N/A	
PERVIOUS AREA	MINIMUM 10% (1,012.50 SQ.FT.)	20.16% (2,041 SQ.FT.)
DENSITY	40 DU/AC	N/A
PARKING GROUND FLOOR PROFESSIONAL OFFICE AREA: 14,700 SQ.FT. (GROSS)	2.5 CAR SPACE / PER 1,000 SQ.FT. 38 CAR SPACES	
TOTAL PARKING REQUIRED	38 CAR SPACES	38 CAR SPACES (2 ADA SPACES INCLUDED)
TOTAL OFFICE AREA PER FLOOR (GROSS)	TYPICAL	4,900 SQ. FT.
TOTAL OFFICE BUILDING		14,700 SQ. FT.

PLANA INTERNATIONAL
JAIME PLANA
ARCHITECT
FLORIDA LICENSE AR 9769
1053 SW 12th STREET
BOCA RATON, FLORIDA 33486
PHONE: (561) 447-9344 e.FAX (561) 447-4162
E MAIL: archiplan@aol.com

CONSTRUKOMUSA
346 CONSERVATION DRIVE
WESTON, FLORIDA 33327
PHONE: (954) 999-6085 e.FAX (866) 610-4414
E MAIL: construkomusa@hotmail.com

Project Name and Address:
PROPOSED SITE PLAN FOR
MEDICAL OFFICE BUILDING
11 NW 168 STREET
NORTH MIAMI BEACH, FLORIDA 33169
Client Name
FV GOLDEN GROUP, LLC
FOLIO # 07-2113-007-0480

PROJECT No.
DRAWN BY:
FOLIO #: 07-2113-007-0480
CAD FILE: 12-10-2020

MARK	DATE	DESCRIPTION
A.B.		AS-BUILT
R.A.P.		REVISION AFTER PERMIT
B.D.C.		BUILDING DEPT. COMMENTS
C.C.		COORDINATION CHANGES
P.S.		PERMIT SET
D.D.		DESIGN DEVELOPMENT
P.H.		PUBLIC HEARING

Architect:

JAIME PLANA
SEAL

plot date: 12-10-2020

SHEET TITLE

SITE PLAN

A-1.0

MAP OF BOUNDARY SURVEY

GRAPHIC SCALE

−20' −10' 0 10' 20'

(IN FEET)
1 INCH = 20 FT.

LEGAL DESCRIPTION:

LOTS 29, 30 & 31, BLOCK 6, OF "OLETA TERRACE", ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 8, AT PAGE 117, OF THE PUBLIC RECORDS OF MIAMI−DADE COUNTY, FLORIDA.

PROPERTY ADDRESS:

FOLIO NO. 07−2113−007−0480

11 NW 168TH STREET,
NORTH MIAMI BEACH, FL 33169−6027

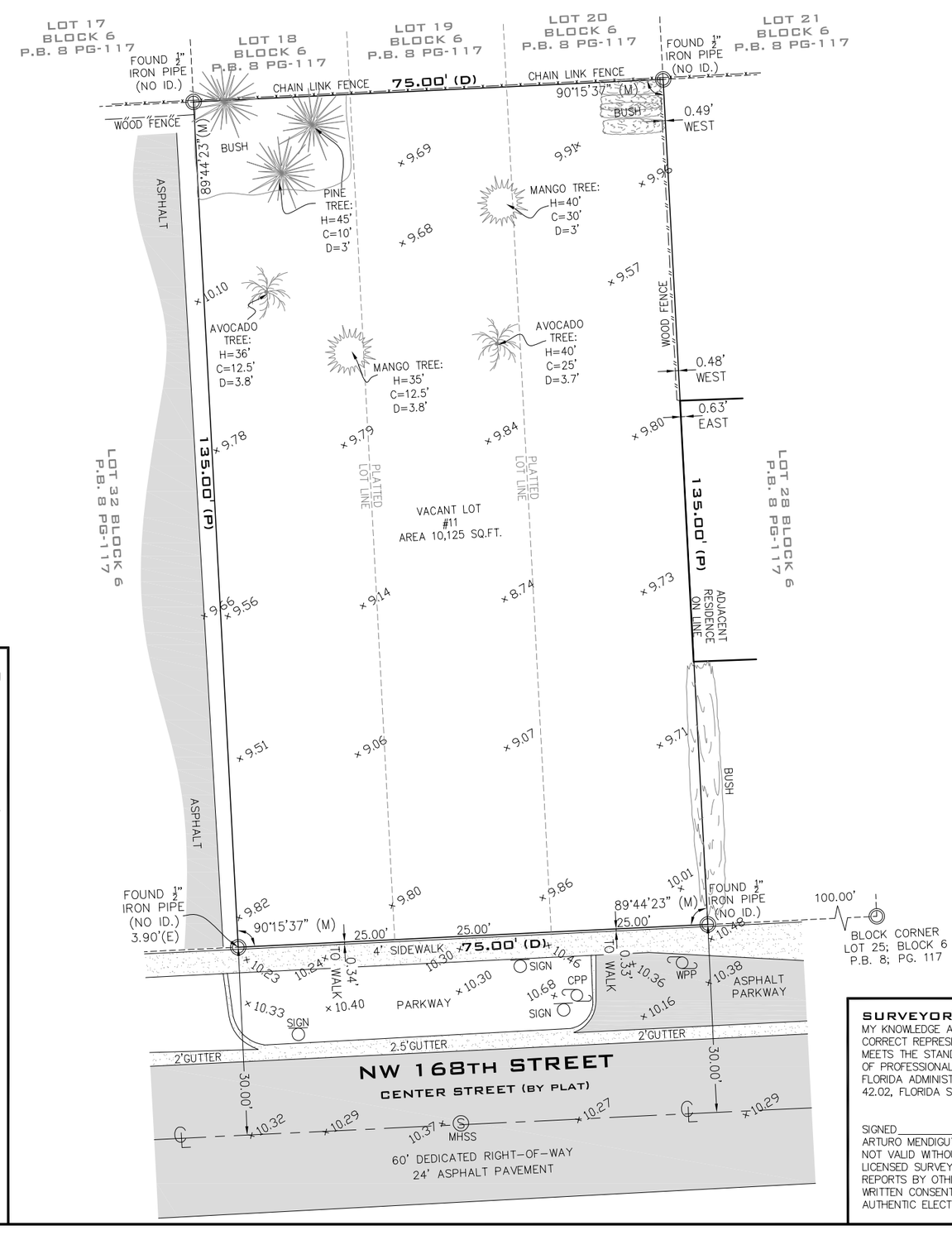
AREA OF PROPERTY: 10,125 SQUARE FEET AND/OR
0.232 ACRES MORE OR LESS.

CERTIFIED TO:

THIS BOUNDARY SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF THE ENTITIES NAME HEREON. THE CERTIFICATIONS DO NOT EXTEND TO ANY UNNAMED PARTIES.

−FV GOLDEN GROUP LLC.

NORTH

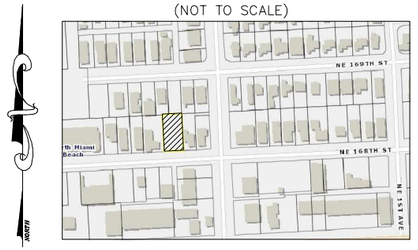


SURVEYOR'S NOTES:

1.) THE ABOVE CAPTIONED PROPERTY WAS SURVEYED AND DESCRIBED BASED ON THE ABOVE LEGAL DESCRIPTION: PROVIDED BY CLIENT.
2.) THIS CERTIFICATION IS ONLY FOR THE LANDS AS DESCRIBED. IT IS NOT A CERTIFICATION OF TITLE, ZONING, EASEMENTS, OR FREEDOM OF ENCUMBRANCES. ABSTRACT NOT REVIEWED.
3.) THERE MAY BE ADDITIONAL RESTRICTIONS NOT SHOWN ON THIS BOUNDARY SURVEY THAT MAY BE FOUND IN THE PUBLIC RECORDS OF HIS COUNTY, EXAMINATION OF ABSTRACT OF TITLE WILL HAVE TO BE MADE TO DETERMINE RECORDED INSTRUMENTS, IF ANY AFFECTING THIS PROPERTY.
4.) ACCURACY: THE EXPECTED USE OF THE LAND, AS CLASSIFIED IN FLORIDA MINIMUM TECHNICAL STANDARDS (5J−17.51FAC), IS "RESIDENTIAL".THE MINIMUM RELATIVE DISTANCE ACCURACY FOR THIS TYPE OF BOUNDARY SURVEY IS 1 FOOT IN 7,500 FEET. THE ACCURACY OBTAINED BY MEASUREMENT AND CALCULATION OF A CLOSED GEOMETRIC FIGURE WAS FOUND TO EXCEED THIS REQUIREMENT.
5.) FOUNDATIONS AND/OR FOOTINGS THAT MAY CROSS BEYOND THE BOUNDARY LINES OF THE PARCEL HEREIN DESCRIBED ARE NOT SHOWN.
6.) TYPE OF SURVEY: BOUNDARY SURVEY
7.) ELEVATIONS SHOWN HEREON ARE BASED ON TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (N.G.V.D.29)
8.) ALL MEASUREMENTS ARE IN ACCORDANCE WITH THE UNITED STATES STANDARD U.S. FOOT
9.) CONTACT THE APPROPRIATE AUTHORITY PRIOR TO ANY DESIGN WORK ON THE HEREIN DESCRIBED PARCEL FOR BUILDING AND ZONING INFORMATION.
10.) UNDERGROUND UTILITIES ARE NOT DEPICTED HEREON, CONTACT THE APPROPRIATE AUTHORITY PRIOR TO ANY DESIGN WORK OR CONSTRUCTION ON THE PROPERTY HEREIN DESCRIBED. SURVEYOR SHALL BE NOTIFIED AS TO ANY DEVIATION FROM UTILITIES SHOWN HEREON.
11.) ENCUMBRANCES NOT SHOWN ON THE PLAT.
12.) THE WRITTEN CONSENT OF LANDMARK SURVEYING & ASSOCIATES, INC. UNDERGROUND PORTIONS OF FOOTING, FOUNDATIONS OR OTHER IMPROVEMENTS WERE NOT LOCATED.
13.) ONLY VISIBLE AND ABOVE GROUND ENCROACHMENTS LOCATED.
14.) WALL TIES ARE TO THE FACE OF THE WALL.
15.) FENCE OWNERSHIP NOT DETERMINED.
16.) BASIS OF BEARINGS REFERENCED TO LINE NOTED AS B.B.
17.) BOUNDARY SURVEY MEANS A DRAWING AND/OR GRAPHIC REPRESENTATION OF THE SURVEY WORK PERFORMED IN THE FIELD.
18.) NO IDENTIFICATION FOUND ON PROPERTY CORNERS UNLESS NOTED.
19.) THE SOURCES OF DATA USED FOR THE PREPARATION OF THIS BOUNDARY SURVEY IS "OLETA TERRACE" RECORDED IN PLAT BOOK 8, AT PAGE 117.
20.) THIS MAP OF SURVEY IS INTENDED TO BE DISPLAYED AT A SCALE OF ONE INCH EQUALS 20 FEET OR SMALLER.

LOCATION MAP

SECTION 12, TOWNSHIP 52 SOUTH, RANGE 41 EAST
LYING AND BEING IN DADE COUNTY FLORIDA
(NOT TO SCALE)



LANDMARK SURVEYING & ASSOCIATES, INC.

LB No. 7633

PROFESSIONAL SURVEYORS AND MAPPERS
1435 S.W. 87th AVENUE, SUITE "20"
MIAMI, FL 33174
PHONE: (305) 556−4002 FAX: (305) 556−4003
WWW.LMSURVEYING.COM
EMAIL−REQUEST@LMSURVEYING.COM

ABBREVIATIONS AND LEGEND:

AC	=DENOTES AIR CONDITIONING UNIT
B.B.	=DENOTES BASIS OF BEARINGS
ASPH.	=DENOTES ASPHALT
℄	=DENOTES PROPERTY LINE
B.M.	=DENOTES BENCH MARK
C.B.S.	=DENOTES CONCRETE BLOCK STUCCO
CONC.	=DENOTES CONCRETE
L.P	=DENOTES LIGHT POLE
CB	=DENOTES CATCH BASIN
℄	=DENOTES CENTERLINE
ℳ	=DENOTES MONUMENT LINE
L.M.E.	=DENOTES LAKE & MAINTENANCE EASEMENT
D.E.	=DENOTES DRAINAGE EASEMENT
D.H.	=DENOTES DRILL HOLE
(M)	=DENOTES MEASURE
(R)	=DENOTES RECORD
WPP	=DENOTES WOOD POWER POLE
U.E.	=DENOTES UTILITY EASEMENT
P.B.	=DENOTES PLAT BOOK
PG.	=DENOTES PAGE
P.C.P.	=DENOTES PERMANENT CONTROL POINT
P.O.B.	=DENOTES POINT OF BEGINNING
TYP.	=DENOTES TYPICAL
M.H.W.	=DENOTES MEAN HIGH WATER LINE
−// −	=DENOTES WOOD FENCE
−x−	=DENOTES CHAIN LINK FENCE
−o−	=DENOTES IRON FENCE
O	=DENOTES FOUND IRON PIPE (NO ID.)
△	=DENOTES FOUND NAIL AND DISC
	=DENOTES ASPHALT PAVEMENT
	=DENOTES BRICK
	=DENOTES CONCRETE PAD
X.XX →	=DENOTES ELEVATIONS

ALL BEARINGS AND DISTANCES SHOWN HEREON ARE RECORD AND MEASURED UNLESS OTHERWISE NOTED.

MAP OF BOUNDARY SURVEY

FLOOD ZONE:	X
ELEVATION:	N/A
COMMUNITY:	120656
PANEL:	12086C0137
DATE OF FIRM:	09−11−2009
SUFFIX:	L
ORIGINAL FIELD WORK SURVEY DATE	02−02−2021
BENCH MARK:	N/A
ELEVATION:	N/A

DATE	DRAWN BY	SCALE
02−02−2021	J.FEE	1"=20'

REVISION / UPDATE OF SURVEY

DATE	DESCRIPTION
N/A	N/A

JOB No.

2102.0011

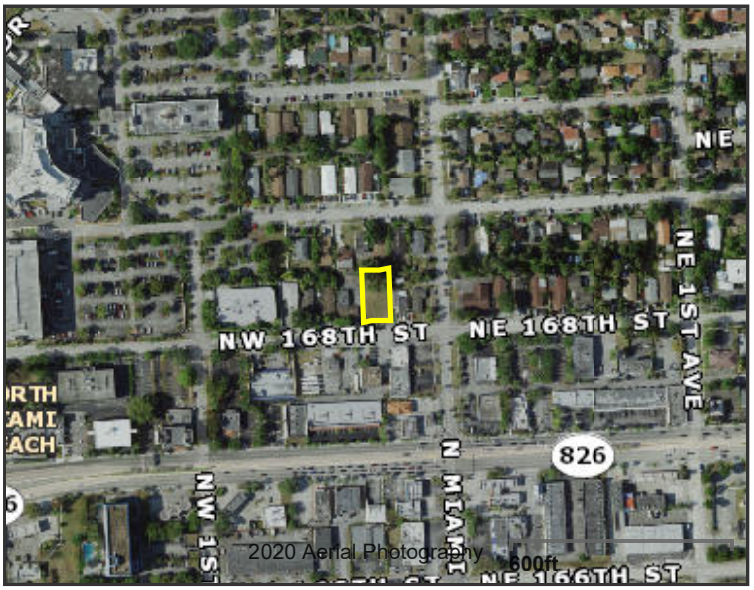
SURVEYOR'S CERTIFICATION: I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS "MAP OF BOUNDARY SURVEY" IS A TRUE AND CORRECT REPRESENTATION OF A SURVEY PREPARED UNDER MY DIRECTION. THAT IT MEETS THE STANDARDS OF PRACTICE AS SET FORTH BY THE STATE OF FLORIDA BOARD OF PROFESSIONAL LAND SURVEYORS IN CHAPTER 5J−17.050 THROUGH 5J−17.052 OF THE FLORIDA ADMINISTRATIVE CODE AND ITS IMPLEMENTING LAW, PURSUANT TO CHAPTER 42.02, FLORIDA STATUTE.

SIGNED _____ FOR THE FIRM
ARTURO MENDIGUTIA, P.S.M. P.S.M. No. 5844−STATE OF FLORIDA
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER. ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES AND/OR NOT VALID WITHOUT AN AUTHENTIC ELECTRONIC SIGNATURE AND AUTHENTICATED ELECTRONIC SEAL.

Summary Report

Generated On : 8/17/2021

Property Information	
Folio:	07-2113-007-0480
Property Address:	11 NW 168 ST North Miami Beach, FL 33169-6027
Owner	FV GOLDEN GROUP LLC
Mailing Address	3125 NE 163 ST NORTH MIAMI BEACH, FL 33160 USA
PA Primary Zone	4800 PLANNED RESIDENTIAL OFFIC
Primary Land Use	1081 VACANT LAND - COMMERCIAL : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0 Sq.Ft
Living Area	0 Sq.Ft
Adjusted Area	0 Sq.Ft
Lot Size	10,125 Sq.Ft
Year Built	0



Assessment Information			
Year	2021	2020	2019
Land Value	$182,250	$182,250	$182,250
Building Value	$0	$0	$0
XF Value	$0	$0	$0
Market Value	$182,250	$182,250	$182,250
Assessed Value	$182,250	$182,250	$121,286

Benefits Information				
Benefit	Type	2021	2020	2019
Non-Homestead Cap	Assessment Reduction			$60,964

Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).

Short Legal Description
12- 13 52 41 OLETA TERRACE - A SUB PB 8-117 LOTS 29 TO 31 INC BLK 6 LOT SIZE 75.000 X 135 OR 12572-1792 0785 1

Taxable Value Information			
	2021	2020	2019
County			
Exemption Value	$0	$0	$0
Taxable Value	$182,250	$182,250	$121,286
School Board			
Exemption Value	$0	$0	$0
Taxable Value	$182,250	$182,250	$182,250
City			
Exemption Value	$0	$0	$0
Taxable Value	$182,250	$182,250	$121,286
Regional			
Exemption Value	$0	$0	$0
Taxable Value	$182,250	$182,250	$121,286

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/20/2019	$150,000	31757-1469	Qual by exam of deed
07/01/1985	$125,000	12572-1792	Sales which are qualified
02/01/1982	$75,000	11363-1187	Other disqualified
10/01/1980	$59,000	10899-1793	Sales which are qualified

Version:

ATTACHMENT C
ITE EXCERPTS

Medical-Dental Office Building
(720)

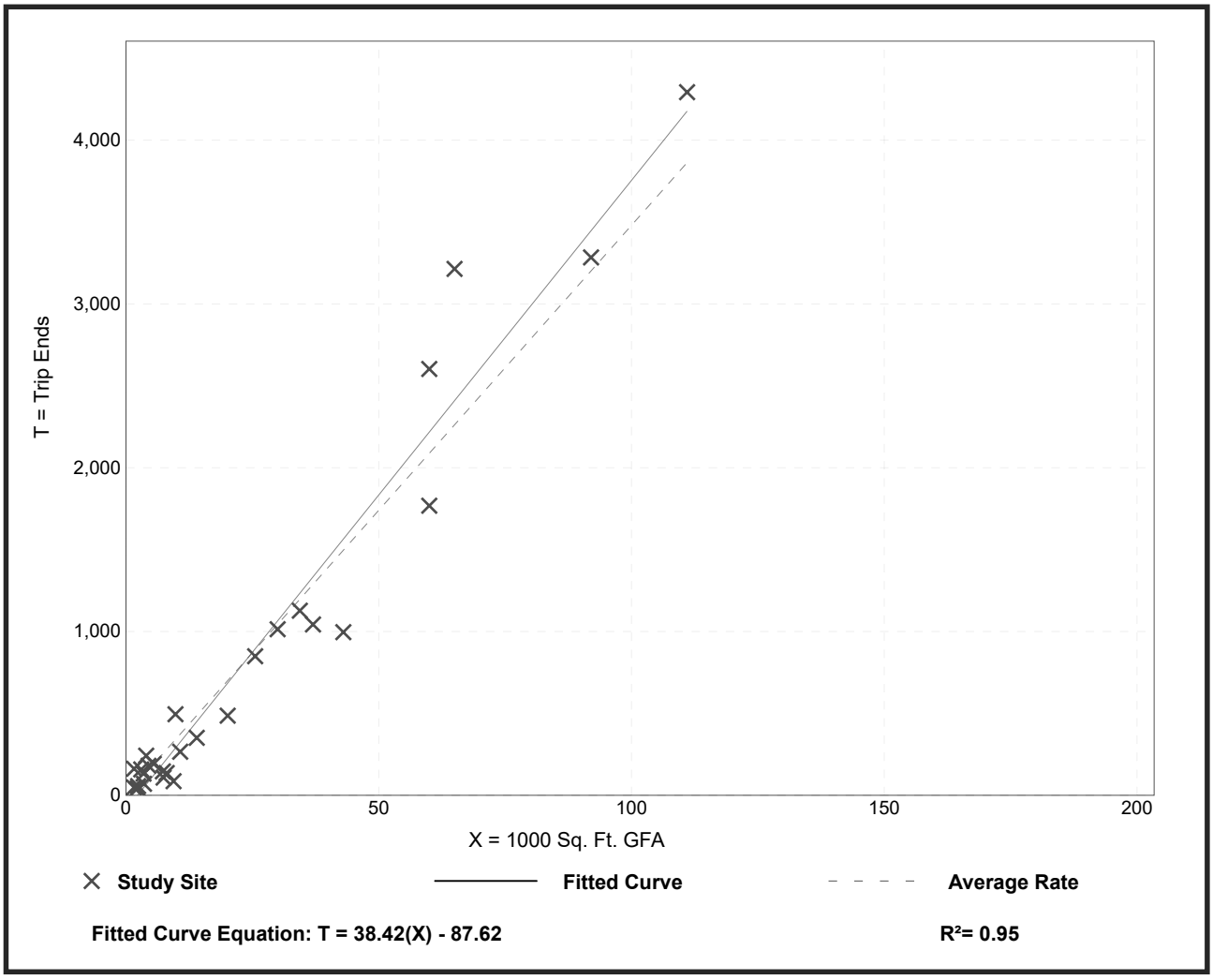
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. 1000 Sq. Ft. GFA: 24
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
34.80	9.14 - 100.75	9.79

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement ● Institute of Transportation Engineers

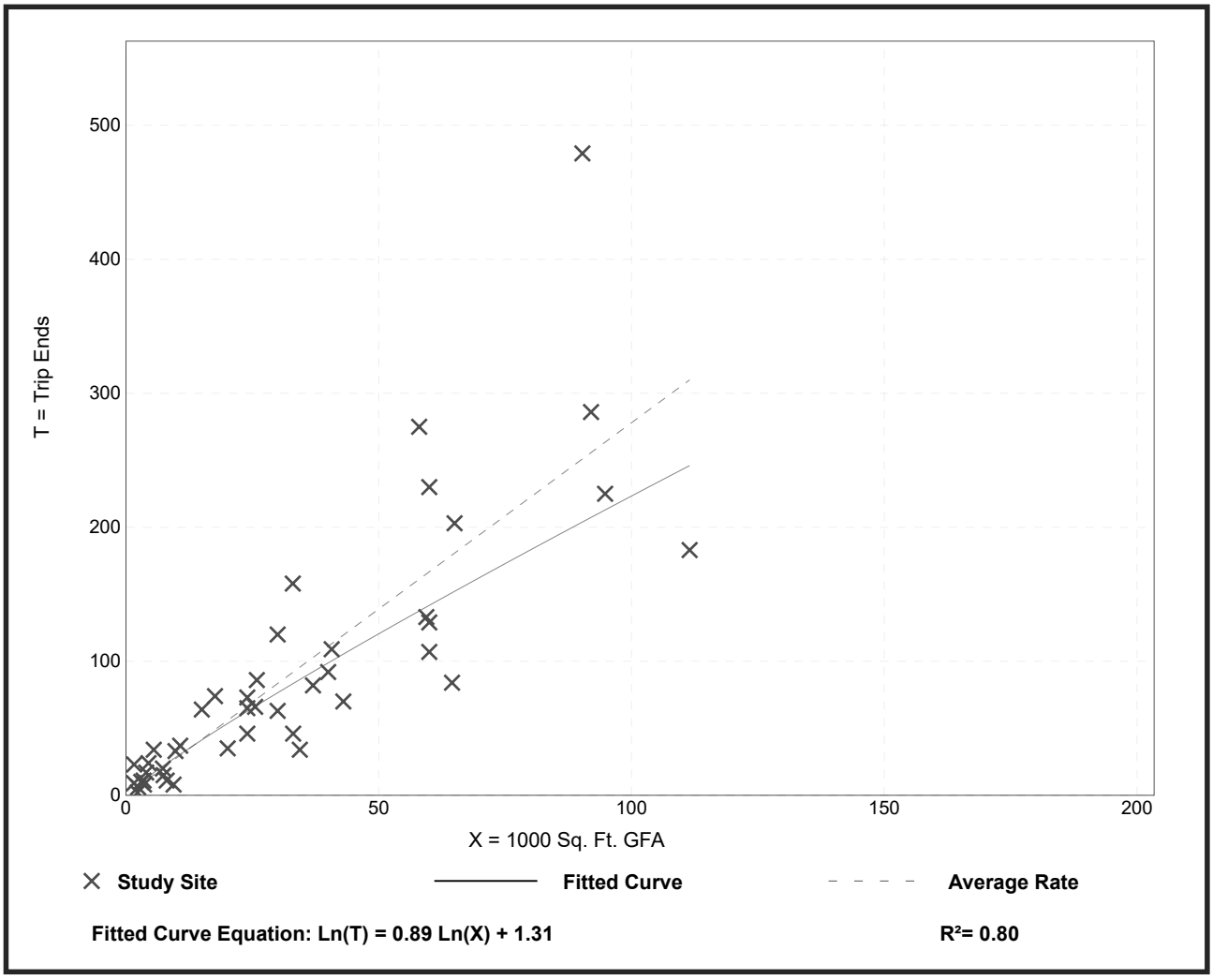
Medical-Dental Office Building
(720)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 44
Avg. 1000 Sq. Ft. GFA: 32
Directional Distribution: 78% entering, 22% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
2.78	0.85 - 14.30	1.28

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement ● Institute of Transportation Engineers

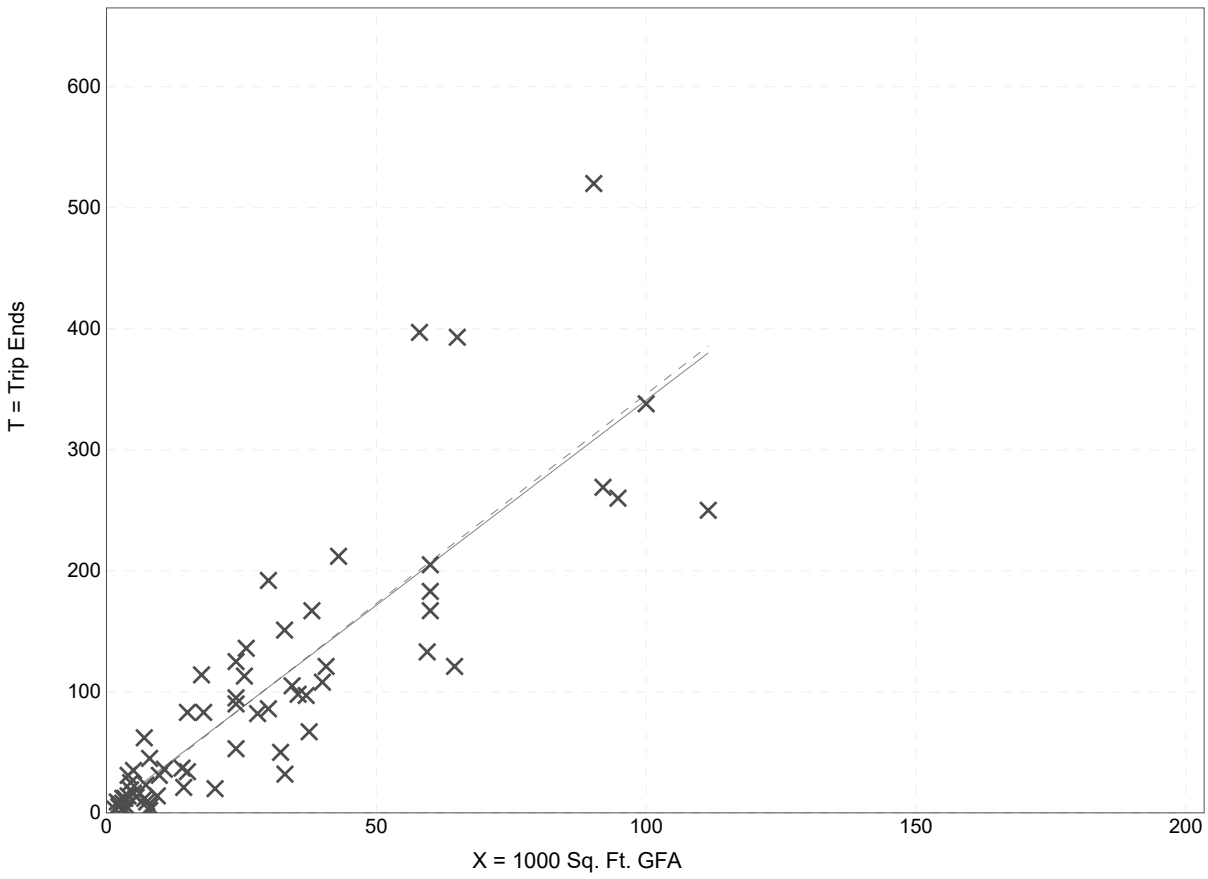
Medical-Dental Office Building
(720)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 65
Avg. 1000 Sq. Ft. GFA: 28
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.46	0.25 - 8.86	1.58

Data Plot and Equation



Trip Gen Manual, 10th Ed + Supplement ● Institute of Transportation Engineers

ATTACHMENT D
TRAFFIC, TAZ & FDOT DATA

National Data & Surveying Services Intersection Turning Movement Count

Location: N Miami Ave & NE 168th St/NW 168th St
City: North Miami Beach
Control: 2-Way Stop(EB/WB)

Project ID: 21-140170-001
Date: 8/4/2021

Data - Total

NS/EW Streets:	N Miami Ave				N Miami Ave				NE 168th St/NW 168th St				NE 168th St/NW 168th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
7:00 AM	20	9	1	0	0	10	5	0	2	2	4	0	4	8	2	0	67
7:15 AM	22	8	7	0	1	15	4	0	0	3	11	0	3	13	1	0	88
7:30 AM	31	9	5	0	0	19	8	0	0	6	17	0	4	18	0	0	117
7:45 AM	27	8	8	0	0	10	5	0	1	11	17	0	10	21	0	0	118
8:00 AM	31	4	8	0	0	18	6	0	0	8	5	0	7	12	0	0	99
8:15 AM	23	13	10	0	0	22	7	0	1	6	14	0	12	14	0	0	122
8:30 AM	33	8	4	0	0	12	4	0	1	4	12	0	6	12	2	0	98
8:45 AM	31	9	6	0	2	15	7	0	1	3	18	0	6	22	0	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	218	68	49	0	3	121	46	0	6	43	98	0	52	120	5	0	829
APPROACH %'s :	65.07%	20.30%	14.63%	0.00%	1.76%	71.18%	27.06%	0.00%	4.08%	29.25%	66.67%	0.00%	29.38%	67.80%	2.82%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	112	34	31	0	0	69	26	0	2	31	53	0	33	65	0	0	456
PEAK HR FACTOR :	0.903	0.654	0.775	0.000	0.000	0.784	0.813	0.000	0.500	0.705	0.779	0.000	0.688	0.774	0.000	0.000	0.934
	0.962				0.819				0.741				0.790				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	TOTAL
4:00 PM	16	13	11	0	1	20	3	0	2	9	8	0	9	23	3	0	118
4:15 PM	8	19	13	0	0	19	4	0	2	5	10	0	8	13	1	0	102
4:30 PM	14	20	14	0	1	15	7	0	0	6	18	0	14	25	2	0	136
4:45 PM	16	27	12	0	1	21	2	0	0	7	24	0	9	26	3	0	148
5:00 PM	12	16	6	0	1	17	5	0	1	10	16	0	13	30	1	0	128
5:15 PM	20	9	8	0	0	26	7	0	1	2	21	0	5	25	2	0	126
5:30 PM	15	29	3	0	3	16	8	0	1	6	18	0	9	27	0	0	135
5:45 PM	10	11	8	0	1	10	6	0	3	4	21	0	7	16	1	0	98
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	111	144	75	0	8	144	42	0	10	49	136	0	74	185	13	0	991
APPROACH %'s :	33.64%	43.64%	`	0.00%	4.12%	74.23%	21.65%	0.00%	5.13%	25.13%	69.74%	0.00%	27.21%	68.01%	4.78%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	62	72	40	0	3	79	21	0	2	25	79	0	41	106	8	0	538
PEAK HR FACTOR :	0.775	0.667	0.714	0.000	0.750	0.760	0.750	0.000	0.500	0.625	0.823	0.000	0.732	0.883	0.667	0.000	0.909
	0.791				0.780				0.855				0.881				

PEAK HR	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOLUME	118	34	28	0	2	67	24	0	3	21	49	0	31	60	2	0	439

PEAK HR	4:30 PM - 5:30 PM																TOTAL
PEAK HR VOLUME	62	72	40	0	3	79	21	0	2	25	79	0	41	106	8	0	538

Prepared by National Data & Surveying Services

N Miami Ave & NE 168th St/NW 168th St

Peak Hour Turning Movement Count

ID: 21-140170-001
City: North Miami Beach

Day: Wednesday
Date: 8/4/2021

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

SOUTHBOUND (N Miami Ave)

AM	26	69	0	0	36	AM
NOON	0	0	0	0	0	NOON
PM	21	79	3	0	82	PM

EASTBOUND (NE 168th St/NW 168th St)

AM	NOON	PM	
203	0	189	⇦
0	0	0	↶ 0
2	0	2	↱ 0
31	0	25	→ 0
53	0	79	↴ 0

WESTBOUND (NE 168th St/NW 168th St)

PM	NOON	AM	
8	0	0	0 ↰
106	0	65	0 ←
41	0	33	0 ↙
0	0	0	0 ↶
68	0	62	⇨

NORTHBOUND (N Miami Ave)

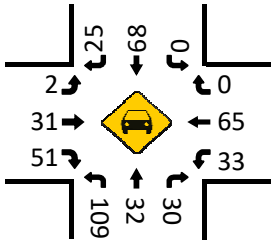
PM	199	0	62	72	40	PM
NOON	0	0	0	0	0	NOON
AM	155	0	112	34	31	AM

CONTROL

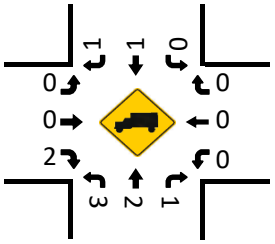
2-Way Stop(EB/WB)

TEV	456	0	538
	AM	NOON	PM
PHF	0.93		0.91

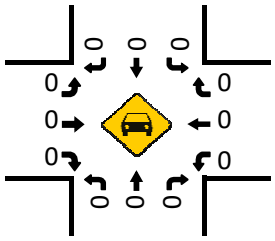
Cars (AM)



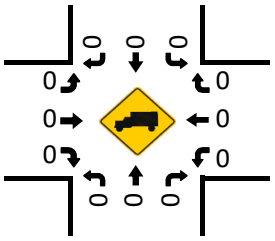
HT (AM)



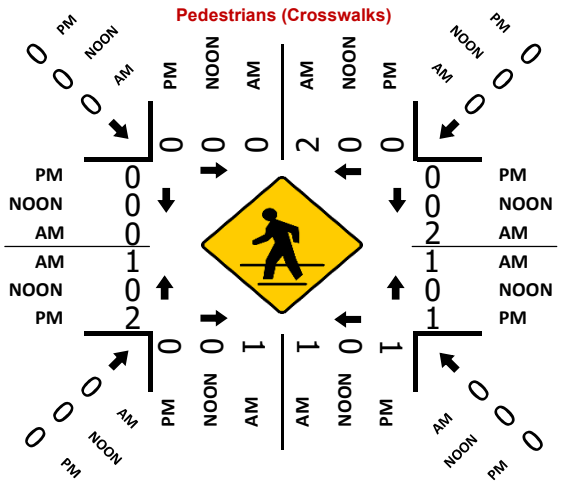
Cars (NOON)



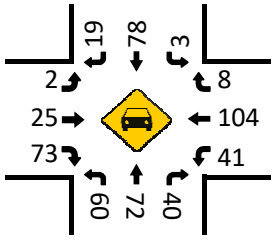
HT (NOON)



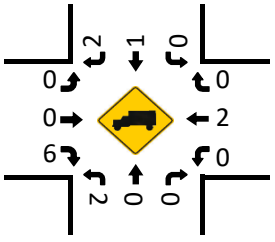
Pedestrians (Crosswalks)



Cars (PM)



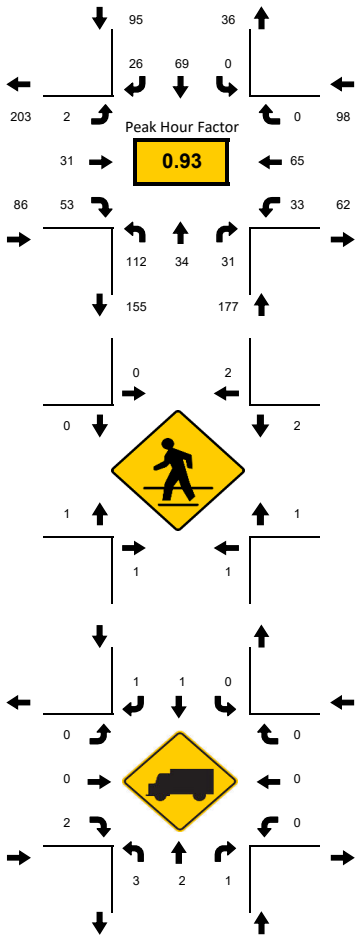
HT (PM)

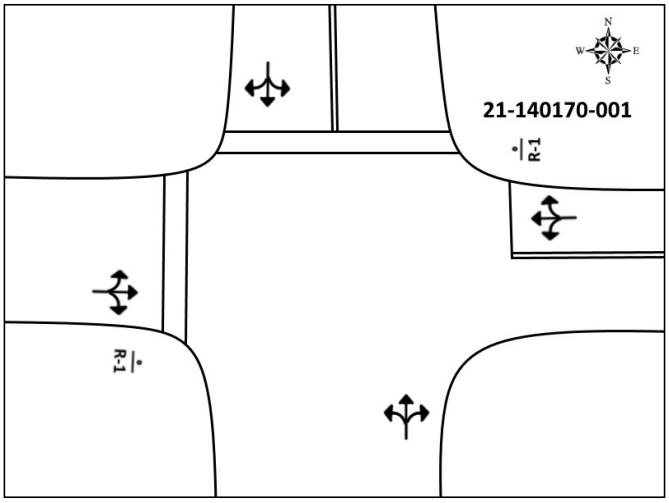


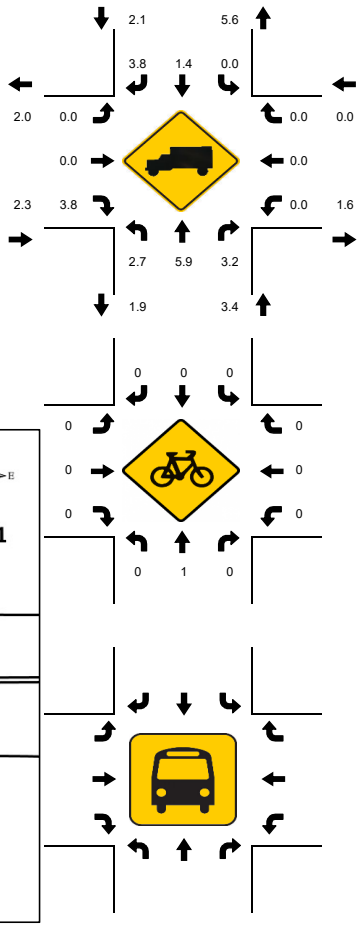
LOCATION: N Miami Ave & NE 168th St/NW 168th St
CITY/STATE: North Miami Beach, FL

PROJECT ID: 21-140170-001
DATE: Wed, Aug 04, 2021

Peak-Hour: 07:30 AM - 08:30 AM
Peak 15-Minute: 08:15 AM - 08:30 AM





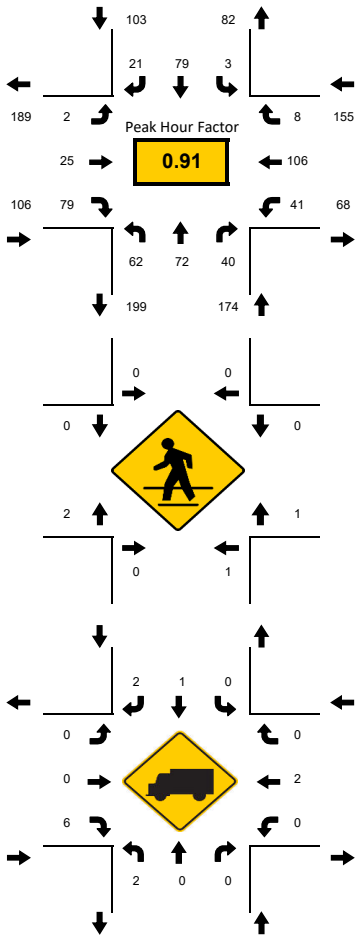


15-Min Count Period Beginning At	N Miami Ave Northbound					N Miami Ave Southbound					NE 168th St/NW 168th St Eastbound					NE 168th St/NW 168th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	20	9	1	0		0	10	5	0		2	2	4	0		4	8	2	0		67	390
07:15 AM	22	8	7	0		1	15	4	0		0	3	11	0		3	13	1	0		88	422
07:30 AM	31	9	5	0		0	19	8	0		0	6	17	0		4	18	0	0		117	456
07:45 AM	27	8	8	0		0	10	5	0		1	11	17	0		10	21	0	0		118	437
08:00 AM	31	4	8	0		0	18	6	0		0	8	5	0		7	12	0	0		99	439
08:15 AM	23	13	10	0		0	22	7	0		1	6	14	0		12	14	0	0		122	340
08:30 AM	33	8	4	0		0	12	4	0		1	4	12	0		6	12	2	0		98	218
08:45 AM	31	9	6	0		2	15	7	0		1	3	18	0		6	22	0	0		120	120
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**					**Total**	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	124	52	40	0		0	88	32	0		4	44	68	0		48	84	0	0		**584**	
Heavy Trucks	4	4	4	0		0	4	4	0		0	0	4	0		0	0	0	0		**24**	
Pedestrians		4					4					4					8				**20**	
Bicycles	0	4	0	0		0	0	0	0		0	0	0	0		0	0	0	0		**4**	
Buses																						
Stopped Buses																						

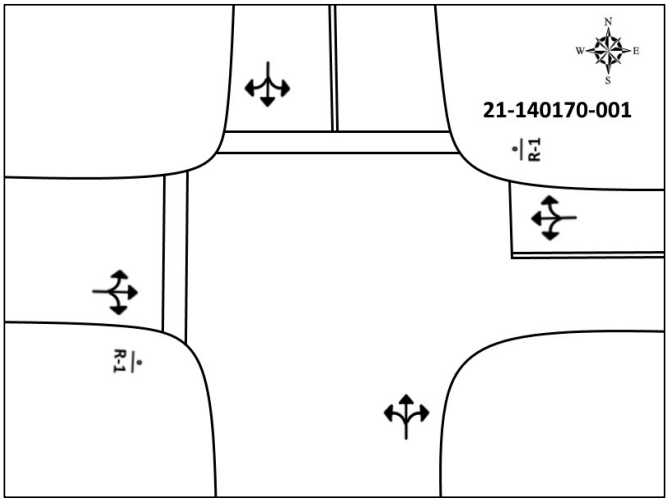
LOCATION: N Miami Ave & NE 168th St/NW 168th St
CITY/STATE: North Miami Beach, FL

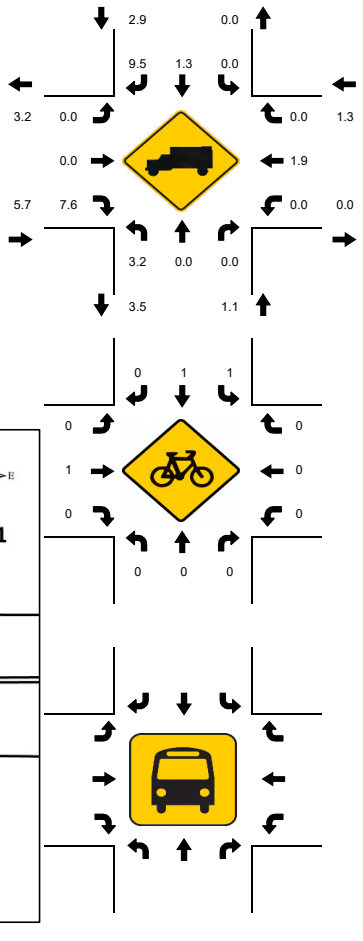
PROJECT ID: 21-140170-001
DATE: Wed, Aug 04, 2021

Peak-Hour: 04:30 PM - 05:30 PM
Peak 15-Minute: 04:45 PM - 05:00 PM



National Data & Surveying Services





15-Min Count Period Beginning At	N Miami Ave Northbound					N Miami Ave Southbound					NE 168th St/NW 168th St Eastbound					NE 168th St/NW 168th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	16	13	11	0		1	20	3	0		2	9	8	0		9	23	3	0		118	504
04:15 PM	8	19	13	0		0	19	4	0		2	5	10	0		8	13	1	0		102	514
04:30 PM	14	20	14	0		1	15	7	0		0	6	18	0		14	25	2	0		136	538
04:45 PM	16	27	12	0		1	21	2	0		0	7	24	0		9	26	3	0		148	537
05:00 PM	12	16	6	0		1	17	5	0		1	10	16	0		13	30	1	0		128	487
05:15 PM	20	9	8	0		0	26	7	0		1	2	21	0		5	25	2	0		126	359
05:30 PM	15	29	3	0		3	16	8	0		1	6	18	0		9	27	0	0		135	233
05:45 PM	10	11	8	0		1	10	6	0		3	4	21	0		7	16	1	0		98	98
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**					**Total**	
	Left	**Thru**	**Rgt**	**U**	**R***	**Left**	**Thru**	**Rgt**	**U**	**R***	**Left**	**Thru**	**Rgt**	**U**	**R***	**Left**	**Thru**	**Rgt**	**U**	**R***		
All Vehicles	80	108	56	0		4	104	28	0		4	40	96	0		56	120	12	0		**708**	
Heavy Trucks	4	0	0	0		0	4	4	0		0	0	12	0		0	4	0	0		**28**	
Pedestrians		4					0					4					4				**12**	
Bicycles	0	0	0	0		4	4	0	0		0	4	0	0		0	0	0	0		**12**	
Buses																						
Stopped Buses																						

National Data & Surveying Services Intersection Turning Movement Count

Location: N Miami Ave & SR 826/NW 167th St
City: North Miami Beach
Control: Signalized

Project ID: 21-140193-001
Date: 8/31/2021

Data - Total

NS/EW Streets:	N Miami Ave				N Miami Ave				SR 826/NW 167th St				SR 826/NW 167th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	52	10	5	0	5	6	12	0	26	380	12	4	11	346	10	1	880
7:15 AM	41	15	8	0	9	12	14	0	28	371	8	1	11	345	4	0	867
7:30 AM	60	9	11	0	17	19	13	0	28	409	6	7	21	348	8	0	956
7:45 AM	40	20	16	0	12	8	21	0	34	423	15	8	7	381	7	0	992
8:00 AM	58	21	15	0	13	11	10	0	36	377	20	5	20	371	9	2	968
8:15 AM	50	12	12	0	12	5	12	0	27	445	15	12	21	377	6	1	1007
8:30 AM	61	6	17	0	11	14	7	0	17	428	15	7	12	345	8	2	950
8:45 AM	32	16	23	0	10	11	11	0	24	463	25	6	15	397	5	2	1040
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	394	109	107	0	89	86	100	0	220	3296	116	50	118	2910	57	8	7660
APPROACH %'s :	64.59%	17.87%	17.54%	0.00%	32.36%	31.27%	36.36%	0.00%	5.98%	89.52%	3.15%	1.36%	3.82%	94.08%	1.84%	0.26%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	201	55	67	0	46	41	40	0	104	1713	75	30	68	1490	28	7	3965
PEAK HR FACTOR :	0.824	0.655	0.728	0.000	0.885	0.732	0.833	0.000	0.722	0.925	0.750	0.625	0.810	0.938	0.778	0.875	0.953
	0.859				0.934				0.928				0.950				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	71	18	18	0	20	15	13	0	19	384	15	11	16	386	8	2	996
4:15 PM	88	21	24	0	10	13	21	0	13	406	13	9	11	363	9	0	1001
4:30 PM	68	20	9	0	13	11	24	0	17	432	11	3	3	390	4	0	1005
4:45 PM	81	21	13	0	6	10	23	0	16	416	15	6	7	398	8	0	1020
5:00 PM	75	18	22	0	11	18	21	0	19	390	8	1	7	413	8	0	1011
5:15 PM	87	30	16	0	14	17	22	0	7	440	10	5	3	427	10	0	1088
5:30 PM	79	20	9	0	8	11	18	0	11	361	13	1	6	344	3	1	885
5:45 PM	75	18	12	0	3	9	13	0	17	363	14	6	13	364	10	0	917
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	624	166	123	0	85	104	155	0	119	3192	99	42	66	3085	60	3	7923
APPROACH %'s :	68.35%	18.18%	13.47%	0.00%	24.71%	30.23%	45.06%	0.00%	3.45%	92.47%	2.87%	1.22%	2.05%	95.99%	1.87%	0.09%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	311	89	60	0	44	56	90	0	59	1678	44	15	20	1628	30	0	4124
PEAK HR FACTOR :	0.894	0.742	0.682	0.000	0.786	0.778	0.938	0.000	0.776	0.953	0.733	0.625	0.714	0.953	0.750	0.000	0.948
	0.865				0.896				0.970				0.953				

Prepared by National Data & Surveying Services

N Miami Ave & SR 826/NW 167th St

Peak Hour Turning Movement Count

ID: 21-140193-001
City: North Miami Beach

Day: Tuesday
Date: 8/31/2021

PEAK HOURS		COUNT PERIODS
AM	08:00 AM - 09:00 AM	7:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	4:00 PM - 06:00 PM

SOUTHBOUND – N Miami Ave

	Right	Thru	Left	U-Turn	Exiting
AM	40	41	46	0	187
NOON	0	0	0	0	0
PM	90	56	44	0	178
Bikes	0	0	0	0	

EASTBOUND – SR 826/NW 167th St

	AM	NOON	PM	Bikes
Exiting	1761	0	2044	
U-Turn	30	0	15	0
Left	104	0	59	0
Thru	1713	0	1678	0
Right	75	0	44	0

WESTBOUND – SR 826/NW 167th St

	PM	NOON	AM	Bikes
Right	30	0	28	0
Thru	1628	0	1490	0
Left	20	0	68	0
U-Turn	0	0	7	0
Exiting	1782	0	1833	

NORTHBOUND – N Miami Ave

	Exiting	U-Turn	Left	Thru	Right
Bikes		0	0	0	0
PM	120	0	311	89	60
NOON	0	0	0	0	0
AM	184	0	201	55	67

CONTROL

Signalized

	AM	NOON	PM
TEV	3965	0	4124
PHF	0.95		0.95

Cars and HT by approach

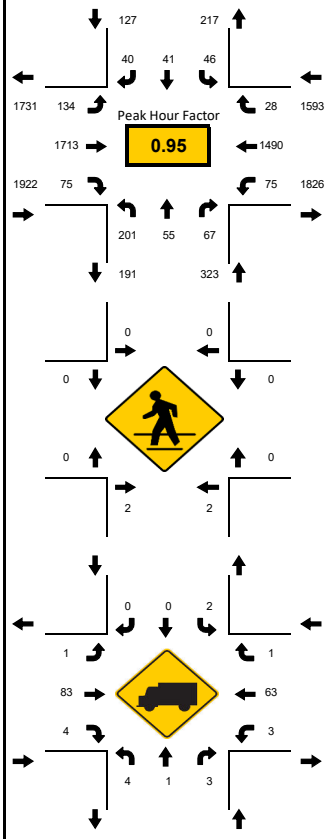
	SB (R / T / L)	EB (L / T / R)	WB (R / T / L)	NB (U+L / T / R)
Cars (AM)	40 / 41 / 44	103 / 1630 / 71	27 / 1427 / 65	197 / 54 / 64
HT (AM)	0 / 0 / 2	1 / 83 / 4	1 / 63 / 3	4 / 1 / 3
Cars (NOON)	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0
HT (NOON)	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0	0 / 0 / 0
Cars (PM)	87 / 55 / 41	59 / 1644 / 41	28 / 1559 / 19	299 / 89 / 56
HT (PM)	3 / 1 / 3	0 / 34 / 3	2 / 69 / 1	12 / 0 / 4

Pedestrians (Crosswalks)

Crosswalk	AM	NOON	PM
North leg (westbound crossing)	0	0	2
North leg (eastbound crossing)	0	0	0
West leg (southbound crossing)	0	0	0
West leg (northbound crossing)	0	0	0
East leg (southbound crossing)	0	0	1
East leg (northbound crossing)	0	0	0
South leg (eastbound crossing)	2	0	3
South leg (westbound crossing)	2	0	1
NW corner (diagonal)	0	0	0
NE corner (diagonal)	0	0	0
SW corner (diagonal)	0	0	0
SE corner (diagonal)	0	0	0

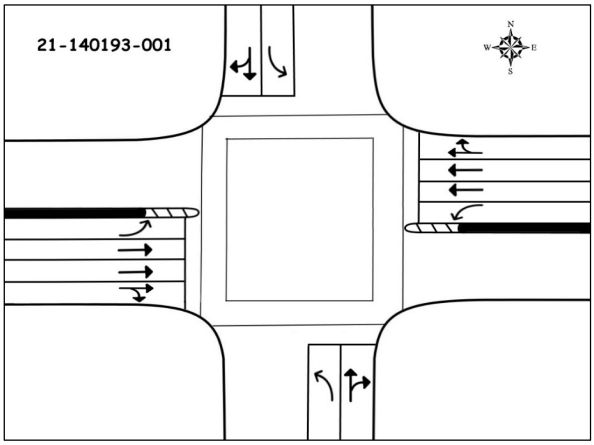
LOCATION: N Miami Ave & SR 826/NW 167th St
CITY/STATE: North Miami Beach, FL

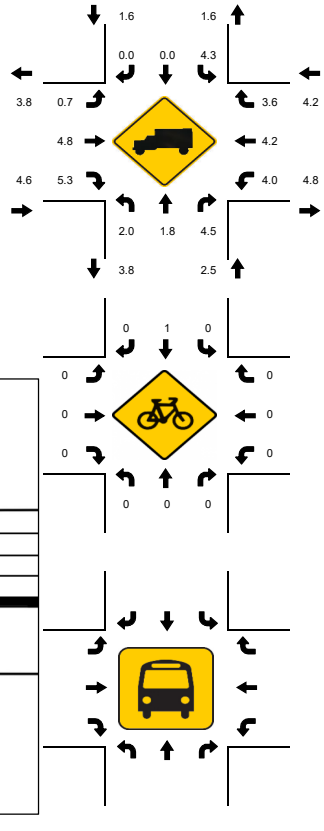
PROJECT ID: 21-140193-001
DATE: Tue, Aug 31, 2021



Peak-Hour: 08:00 AM - 09:00 AM
Peak 15-Minute: 08:45 AM - 09:00 AM

National Data & Surveying Services



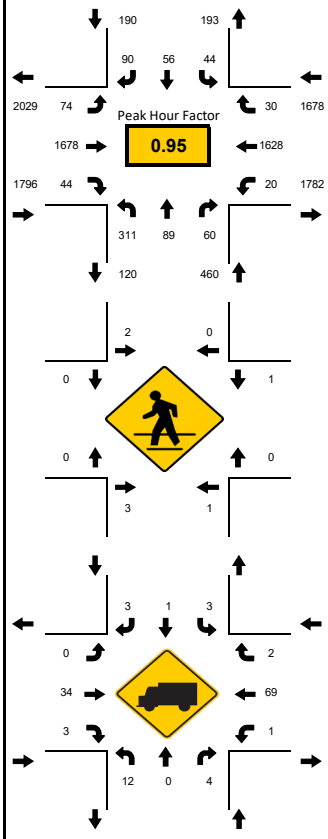


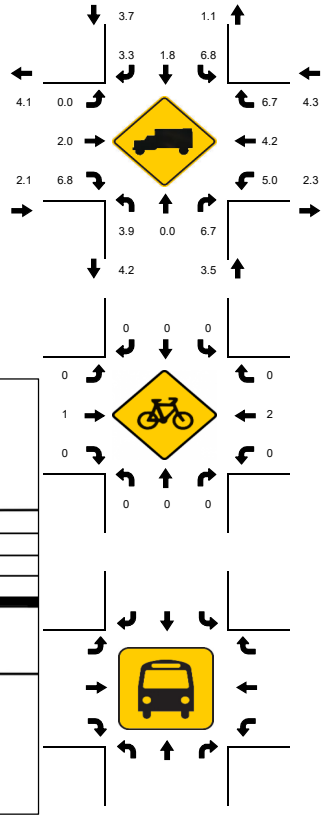
15-Min Count Period Beginning At	N Miami Ave Northbound					N Miami Ave Southbound					SR 826/NW 167th St Eastbound					SR 826/NW 167th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	52	10	5	0		5	6	12	0		26	380	12	4		11	346	10	1		880	3695
07:15 AM	41	15	8	0		9	12	14	0		28	371	8	1		11	345	4	0		867	3783
07:30 AM	60	9	11	0		17	19	13	0		28	409	6	7		21	348	8	0		956	3923
07:45 AM	40	20	16	0		12	8	21	0		34	423	15	8		7	381	7	0		992	3917
08:00 AM	58	21	15	0		13	11	10	0		36	377	20	5		20	371	9	2		968	3965
08:15 AM	50	12	12	0		12	5	12	0		27	445	15	12		21	377	6	1		1007	2997
08:30 AM	61	6	17	0		11	14	7	0		17	428	15	7		12	345	8	2		950	1990
08:45 AM	32	16	23	0		10	11	11	0		24	463	25	6		15	397	5	2		1040	1040
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**					**Total**	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	244	84	92	0		52	56	48	0		144	1852	100	48		84	1588	36	8		**4436**	
Heavy Trucks	8	4	8	0		4	0	0	0		4	108	16	0		4	88	4	0		**248**	
Pedestrians		8					0					0					0				**8**	
Bicycles	0	0	0	0		0	4	0	0		0	0	0	0		0	0	0	0		**4**	
Buses																						
Stopped Buses																						

LOCATION: N Miami Ave & SR 826/NW 167th St
CITY/STATE: North Miami Beach, FL

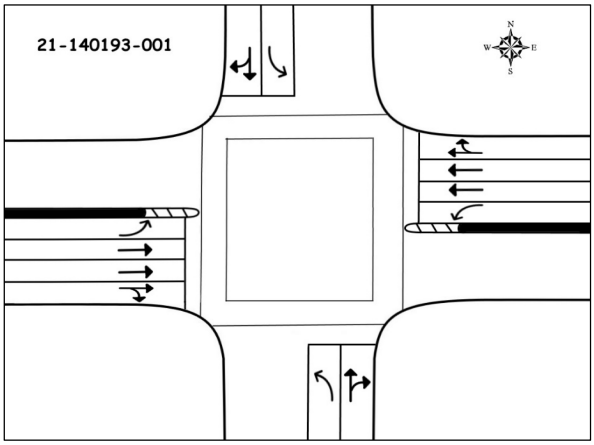
PROJECT ID: 21-140193-001
DATE: Tue, Aug 31, 2021

Peak-Hour: 04:30 PM - 05:30 PM
Peak 15-Minute: 05:15 PM - 05:30 PM





National Data & Surveying Services



15-Min Count Period Beginning At	N Miami Ave Northbound					N Miami Ave Southbound					SR 826/NW 167th St Eastbound					SR 826/NW 167th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	71	18	18	0		20	15	13	0		19	384	15	11		16	386	8	2		996	4022
04:15 PM	88	21	24	0		10	13	21	0		13	406	13	9		11	363	9	0		1001	4037
04:30 PM	68	20	9	0		13	11	24	0		17	432	11	3		3	390	4	0		1005	4124
04:45 PM	81	21	13	0		6	10	23	0		16	416	15	6		7	398	8	0		1020	4004
05:00 PM	75	18	22	0		11	18	21	0		19	390	8	1		7	413	8	0		1011	3901
05:15 PM	87	30	16	0		14	17	22	0		7	440	10	5		3	427	10	0		1088	2890
05:30 PM	79	20	9	0		8	11	18	0		11	361	13	1		6	344	3	1		885	1802
05:45 PM	75	18	12	0		3	9	13	0		17	363	14	6		13	364	10	0		917	917
Peak 15-Min Flowrates	**Northbound**					**Southbound**					**Eastbound**					**Westbound**					**Total**	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	348	120	88	0		56	72	96	0		76	1760	60	24		28	1708	40	0		**4476**	
Heavy Trucks	16	0	8	0		4	4	4	0		0	40	8	0		4	92	4	0		**184**	
Pedestrians		8					4					0					4				**16**	
Bicycles	0	0	0	0		0	0	0	0		0	4	0	0		0	8	0	0		**12**	
Buses																						
Stopped Buses																						

County: 87
Station: 0366
Description: SR 826/NE 167 ST, 200' E N MIAMI AV
Start Date: 07/09/2019
Start Time: 0000

	Direction: E					Direction: W					
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Combined Total
0000	152	112	101	90	455	138	113	103	88	442	897
0100	90	74	69	55	288	65	75	83	56	279	567
0200	52	55	54	45	206	54	32	53	45	184	390
0300	28	39	48	44	159	29	40	40	51	160	319
0400	33	45	34	65	177	39	53	52	74	218	395
0500	61	101	135	183	480	82	119	154	154	509	989
0600	205	270	328	262	1065	201	249	246	258	954	2019
0700	316	303	314	333	1266	272	297	351	314	1234	2500
0800	364	358	369	381	1472	302	385	354	368	1409	2881
0900	329	355	324	335	1343	356	372	319	376	1423	2766
1000	347	353	344	387	1431	331	391	341	355	1418	2849
1100	332	357	339	362	1390	342	354	371	325	1392	2782
1200	381	355	341	340	1417	374	385	408	414	1581	2998
1300	310	356	251	282	1199	373	344	268	344	1329	2528
1400	286	308	302	314	1210	286	325	354	379	1344	2554
1500	320	304	293	318	1235	391	343	362	374	1470	2705
1600	355	339	322	324	1340	363	379	384	338	1464	2804
1700	354	311	350	350	1365	352	324	358	371	1405	2770
1800	369	379	334	352	1434	395	343	371	332	1441	

2875											
1900	339	334	307	292	1272	309	303	286	271	1169	
2441											
2000	291	267	257	241	1056	284	252	258	260	1054	
2110											
2100	240	253	213	237	943	259	238	238	247	982	
1925											
2200	224	215	224	195	858	220	205	186	179	790	
1648											
2300	153	187	141	161	642	196	160	162	138	656	
1298											

24-Hour Totals:	23703	24307	48010

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	800	1472	815	1463	815	2900
P.M.	1730	1448	1200	1581	1200	2998
Daily	800	1472	1200	1581	1200	2998

Truck Percentage	6.89	3.97	5.41

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	134	18601	2946	361	1081	62	4	43	58	15	0	0	10	0	388	1634	23703
W	552	20199	2226	255	432	136	5	67	41	14	0	0	14	0	366	964	24307

Generated by SPS 5.0.53P

County: 87
Station: 0366
Description: SR 826/NE 167 ST, 200' E N MIAMI AV
Start Date: 07/10/2019
Start Time: 0000

	Direction: E					Direction: W					
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Combined Total
0000	110	136	99	82	427	146	111	103	87	447	874
0100	59	68	52	50	229	65	46	68	43	222	451
0200	52	45	33	31	161	44	42	36	37	159	320
0300	36	29	37	40	142	26	36	44	29	135	277
0400	53	36	49	56	194	38	49	52	68	207	401
0500	60	88	134	176	458	83	113	139	187	522	980
0600	216	262	330	333	1141	165	245	239	245	894	2035
0700	350	348	334	374	1406	290	329	302	314	1235	2641
0800	348	381	386	342	1457	307	380	359	362	1408	2865
0900	393	400	341	414	1548	339	326	355	338	1358	2906
1000	362	364	355	343	1424	320	388	354	343	1405	2829
1100	354	329	330	381	1394	347	368	358	385	1458	2852
1200	373	330	397	347	1447	371	351	396	374	1492	2939
1300	380	372	378	412	1542	385	422	402	408	1617	3159
1400	406	406	360	379	1551	360	377	403	375	1515	3066
1500	373	366	337	388	1464	339	341	368	379	1427	2891
1600	446	362	358	369	1535	375	363	326	361	1425	2960
1700	370	366	367	379	1482	389	333	379	375	1476	2958
1800	390	384	379	375	1528	372	353	397	337	1459	

2987
1900 381 372 355 345 1453 | 346 371 291 307 1315 |
2768
2000 355 280 318 321 1274 | 323 281 333 297 1234 |
2508
2100 262 270 299 263 1094 | 262 274 279 266 1081 |
2175
2200 248 217 235 209 909 | 278 216 220 229 943 |
1852
2300 204 198 202 182 786 | 199 187 193 140 719 |
1505

24-Hour Totals: 26046 25153
51199

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	830	1521	815	1440	815	2942
P.M.	1330	1602	1300	1617	1315	3160
Daily	1330	1602	1300	1617	1315	3160

Truck Percentage 4.81 3.54 4.19

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	154	21585	2607	298	779	44	8	40	62	12	0	0	10	0	447	1253	26046
W	535	21370	1929	199	436	120	8	66	34	7	0	0	20	0	429	890	25153

Generated by SPS 5.0.53P

County: 87
Station: 0366
Description: SR 826/NE 167 ST, 200' E N MIAMI AV
Start Date: 07/11/2019
Start Time: 0000

	Direction: E					Direction: W					
Time	1st	2nd	3rd	4th	Total	1st	2nd	3rd	4th	Total	Combined Total
0000	139	130	100	91	460	144	117	113	88	462	922
0100	79	60	59	59	257	87	71	58	57	273	530
0200	51	46	39	41	177	39	54	49	44	186	363
0300	39	30	39	49	157	39	40	40	37	156	313
0400	25	45	56	60	186	40	46	57	57	200	386
0500	53	75	132	180	440	94	101	158	182	535	975
0600	218	260	320	287	1085	221	244	236	259	960	2045
0700	283	320	335	288	1226	270	322	306	366	1264	2490
0800	299	362	356	374	1391	309	378	336	358	1381	2772
0900	407	338	334	362	1441	355	373	360	310	1398	2839
1000	383	354	342	375	1454	325	378	325	362	1390	2844
1100	389	321	367	318	1395	339	350	385	397	1471	2866
1200	376	383	405	406	1570	367	384	357	407	1515	3085
1300	363	412	394	358	1527	398	429	420	406	1653	3180
1400	351	377	354	392	1474	362	366	368	381	1477	2951
1500	360	351	297	369	1377	399	388	385	341	1513	2890
1600	350	347	386	339	1422	257	272	283	234	1046	2468
1700	352	332	383	373	1440	272	286	346	344	1248	2688
1800	382	376	419	386	1563	338	351	380	365	1434	

2997
1900 361 351 306 318 1336 | 301 378 341 310 1330 |
2666
2000 349 353 321 305 1328 | 318 312 314 276 1220 |
2548
2100 265 325 255 319 1164 | 280 298 292 257 1127 |
2291
2200 274 282 247 214 1017 | 229 262 228 220 939 |
1956
2300 184 208 191 162 745 | 191 197 180 164 732 |
1477

24-Hour Totals: 25632 24910
50542

Peak Volume Information

	Direction: E		Direction: W		Combined Directions	
	Hour	Volume	Hour	Volume	Hour	Volume
A.M.	815	1499	845	1446	815	2926
P.M.	1230	1586	1245	1654	1245	3229
Daily	1230	1586	1245	1654	1245	3229

Truck Percentage 6.13 3.04 4.60

Classification Summary Database

Dir	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TotTrk	TotVol
E	254	20706	2669	288	1064	68	12	49	69	13	0	0	7	0	433	1570	25632
W	392	21836	1527	180	357	108	5	49	39	8	0	0	11	0	398	757	24910

Generated by SPS 5.0.53P

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 8700 MIAMI-DADE NORTH

MOCF: 0.92

WEEK	DATES	SF	PSCF
* 1	01/01/2020 - 01/04/2020	0.99	1.08
* 2	01/05/2020 - 01/11/2020	0.94	1.02
* 3	01/12/2020 - 01/18/2020	0.88	0.96
* 4	01/19/2020 - 01/25/2020	0.88	0.96
* 5	01/26/2020 - 02/01/2020	0.87	0.95
* 6	02/02/2020 - 02/08/2020	0.86	0.93
* 7	02/09/2020 - 02/15/2020	0.85	0.92
* 8	02/16/2020 - 02/22/2020	0.88	0.96
* 9	02/23/2020 - 02/29/2020	0.90	0.98
*10	03/01/2020 - 03/07/2020	0.93	1.01
*11	03/08/2020 - 03/14/2020	0.95	1.03
*12	03/15/2020 - 03/21/2020	0.98	1.07
*13	03/22/2020 - 03/28/2020	1.06	1.15
14	03/29/2020 - 04/04/2020	1.13	1.23
15	04/05/2020 - 04/11/2020	1.21	1.32
16	04/12/2020 - 04/18/2020	1.28	1.39
17	04/19/2020 - 04/25/2020	1.24	1.35
18	04/26/2020 - 05/02/2020	1.19	1.29
19	05/03/2020 - 05/09/2020	1.15	1.25
20	05/10/2020 - 05/16/2020	1.11	1.21
21	05/17/2020 - 05/23/2020	1.09	1.18
22	05/24/2020 - 05/30/2020	1.07	1.16
23	05/31/2020 - 06/06/2020	1.05	1.14
24	06/07/2020 - 06/13/2020	1.04	1.13
25	06/14/2020 - 06/20/2020	1.02	1.11
26	06/21/2020 - 06/27/2020	1.03	1.12
27	06/28/2020 - 07/04/2020	1.04	1.13
28	07/05/2020 - 07/11/2020	1.05	1.14
29	07/12/2020 - 07/18/2020	1.05	1.14
30	07/19/2020 - 07/25/2020	1.04	1.13
31	07/26/2020 - 08/01/2020	1.03	1.12
32	08/02/2020 - 08/08/2020	1.02	1.11
33	08/09/2020 - 08/15/2020	1.01	1.10
34	08/16/2020 - 08/22/2020	1.01	1.10
35	08/23/2020 - 08/29/2020	1.01	1.10
36	08/30/2020 - 09/05/2020	1.01	1.10
37	09/06/2020 - 09/12/2020	1.01	1.10
38	09/13/2020 - 09/19/2020	1.01	1.10
39	09/20/2020 - 09/26/2020	1.00	1.09
40	09/27/2020 - 10/03/2020	0.99	1.08
41	10/04/2020 - 10/10/2020	0.98	1.07
42	10/11/2020 - 10/17/2020	0.97	1.05
43	10/18/2020 - 10/24/2020	0.97	1.05
44	10/25/2020 - 10/31/2020	0.98	1.07
45	11/01/2020 - 11/07/2020	0.98	1.07
46	11/08/2020 - 11/14/2020	0.99	1.08
47	11/15/2020 - 11/21/2020	0.99	1.08
48	11/22/2020 - 11/28/2020	0.99	1.08
49	11/29/2020 - 12/05/2020	0.99	1.08
50	12/06/2020 - 12/12/2020	0.99	1.08
51	12/13/2020 - 12/19/2020	0.99	1.08
52	12/20/2020 - 12/26/2020	0.94	1.02
53	12/27/2020 - 12/31/2020	0.88	0.96

* PEAK SEASON

GROWTH RATE CALCULATION
NMB MEDICAL OFFICE

Linear

Roadway	FDOT Site	5 Year Trend
NORTH MIAMI AVENUE -- 200' NORTH OF NW 159TH STREET	8272	-9.83%
SR 915/NE 6 AV -- 200' S NE 170 ST	0168	-0.23%
MEMORIAL HWY/NW 2ND AVE -- 200' SOUTH OF NW 167TH STREET	8169	5.02%
SR 826/NE 167 ST -- 200' E N MIAMI AV	366	-2.15%
Average Annual Growth Rate		**-1.80%**

Used 0.5% Growth Rate

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 0168 - SR 915/NE 6 AV, 200' S NE 170 ST

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	24000 C	N 12000	S 12000	9.00	54.20	1.40
2019	27500 C	N 13500	S 14000	9.00	54.60	4.50
2018	28000 C	N 13000	S 15000	9.00	54.30	1.90
2017	27000 C	N 13000	S 14000	9.00	55.00	2.00
2016	28500 C	N 14500	S 14000	9.00	54.50	2.20
2015	26000 C	N 12500	S 13500	9.00	54.70	1.90
2014	24000 C	N 11500	S 12500	9.00	54.50	5.70
2013	28500 C	N 11500	S 17000	9.00	52.40	4.00
2012	26500 C	N 12500	S 14000	9.00	55.70	1.90
2011	24000 C	N 12000	S 12000	9.00	55.10	6.00
2010	26000 C	N 12500	S 13500	8.98	54.08	6.00
2009	28500 C	N 14000	S 14500	8.99	53.24	4.00
2008	29000 C	N 14500	S 14500	9.09	55.75	4.80
2007	30500 C	N 15500	S 15000	8.01	54.34	3.70
2006	30500 C	N 14000	S 16500	7.97	54.22	1.80
2005	28000 C	N 13500	S 14500	8.80	53.80	5.30

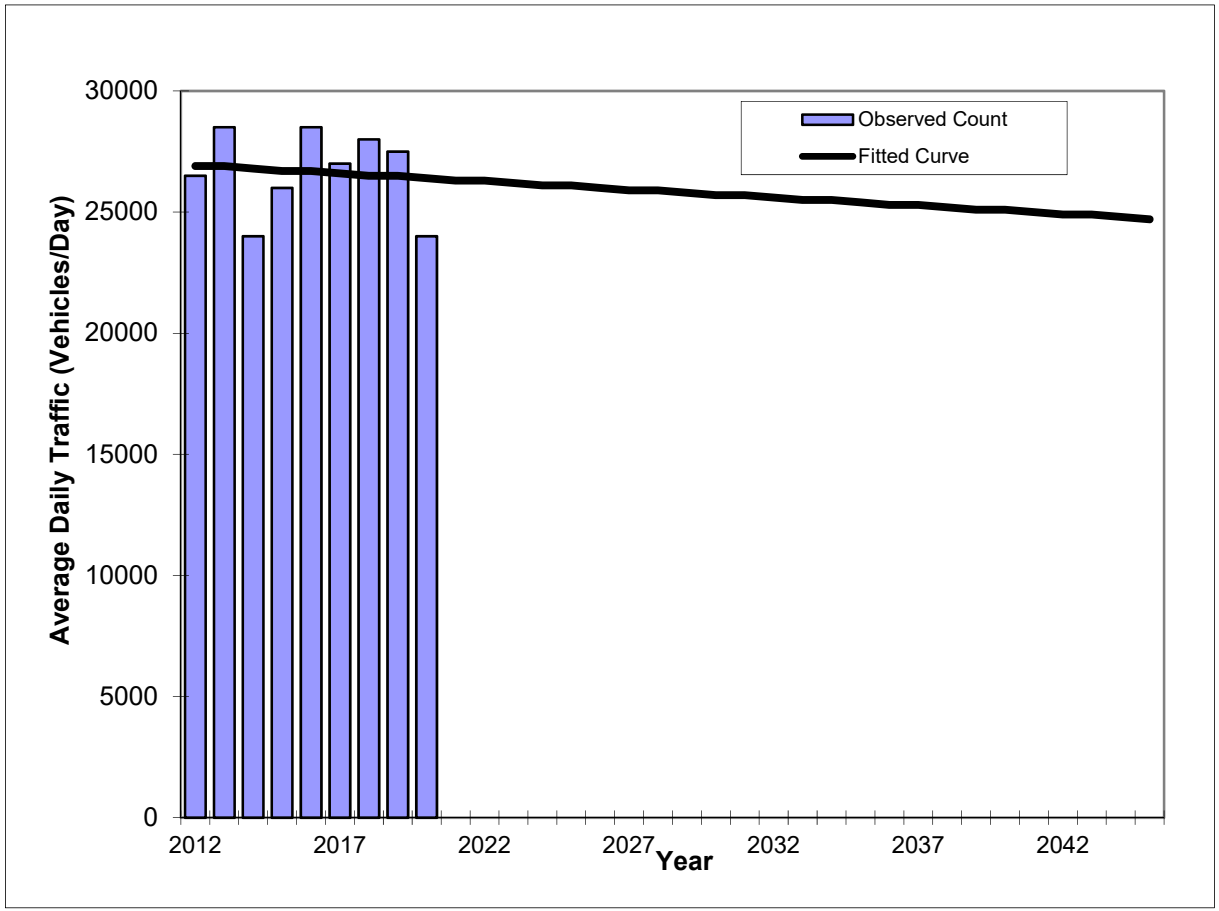
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SR 915/NE 6 AV -- 200' S NE 170 ST

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	0168
Highway:	SR 915/NE 6 AV



Year	Traffic (ADT/AADT) Count*	Trend**
2012	26500	26900
2013	28500	26900
2014	24000	26800
2015	26000	26700
2016	28500	26700
2017	27000	26600
2018	28000	26500
2019	27500	26500
2020	24000	26400
2023 Opening Year Trend		
2023	N/A	26200
2035 Mid-Year Trend		
2035	N/A	25400
2045 Design Year Trend		
2045	N/A	24700
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-67
Trend R-squared:	1.11%
Trend Annual Historic Growth Rate:	-0.23%
Trend Growth Rate (2020 to Design Year):	-0.26%
Printed:	13-Aug-21

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 0366 - SR 826/NE 167 ST, 200' E N MIAMI AV

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	49500 C	E 25000	W 24500	9.00	54.20	3.60
2019	51500 C	E 26000	W 25500	9.00	54.60	4.70
2018	56000 C	E 24500	W 31500	9.00	54.30	7.90
2017	65000 C	E 33000	W 32000	9.00	55.00	3.80
2016	66500 C	E 33500	W 33000	9.00	54.50	3.80
2015	65500 C	E 32500	W 33000	9.00	54.70	3.70
2014	62500 C	E 32000	W 30500	9.00	54.50	5.20
2013	57000 C	E 26500	W 30500	9.00	52.40	4.50
2012	63000 C	E 31000	W 32000	9.00	55.70	2.80
2011	50500 C	E 24500	W 26000	9.00	55.10	2.50
2010	63500 C	E 31500	W 32000	8.98	54.08	2.50
2009	61500 C	E 30500	W 31000	8.99	53.24	3.30
2008	64500 C	E 32000	W 32500	9.09	55.75	3.80
2007	68000 C	E 34000	W 34000	8.01	54.34	3.40
2006	49500 C	E 25500	W 24000	7.97	54.22	11.30
2005	62000 C	E 30000	W 32000	8.80	53.80	5.40

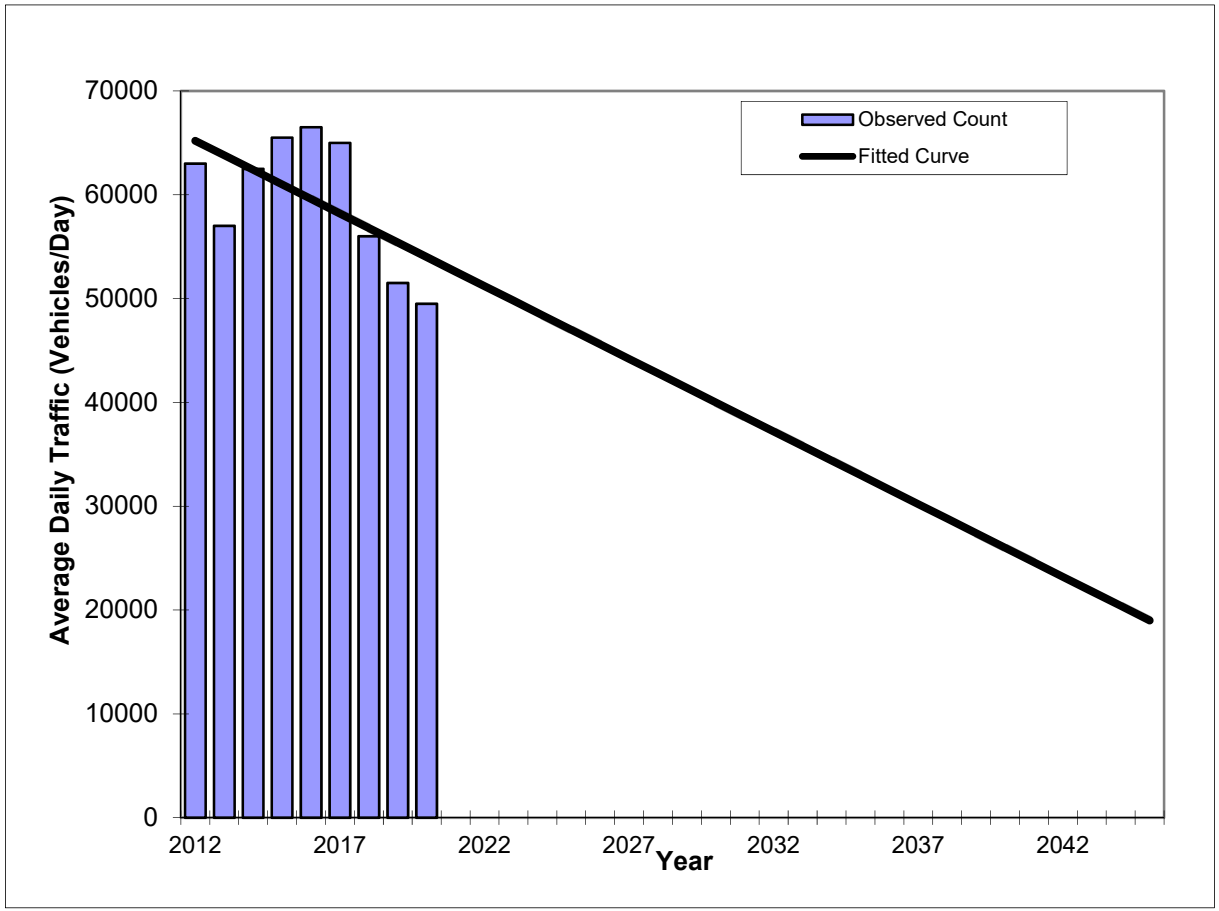
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SR 826/NE 167 ST -- 200' E N MIAMI AV

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	0366
Highway:	SR 826/NE 167 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2012	63000	65200
2013	57000	63800
2014	62500	62400
2015	65500	61000
2016	66500	59600
2017	65000	58200
2018	56000	56800
2019	51500	55400
2020	49500	54000
2023 Opening Year Trend		
2023	N/A	49800
2035 Mid-Year Trend		
2035	N/A	33000
2045 Design Year Trend		
2045	N/A	19000
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-1,400
Trend R-squared:	36.88%
Trend Annual Historic Growth Rate:	-2.15%
Trend Growth Rate (2020 to Design Year):	-2.59%
Printed:	13-Aug-21

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8169 - MEMORIAL HWY/NW 2ND AVE, 200' SOUTH OF NW 167TH STREET

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	21000 S	N 10500	S 10500	9.00	54.20	10.40
2019	22000 F	N 11000	S 11000	9.00	54.60	11.00
2018	22000 C	N 11000	S 11000	9.00	54.30	12.10
2017	19100 S	N 9100	S 10000	9.00	55.00	12.60
2016	18600 F	N 8800	S 9800	9.00	54.50	13.50
2015	17700 C	N 8400	S 9300	9.00	54.70	13.70
2014	16500 S	N 9300	S 7200	9.00	54.50	17.40
2013	16300 F	N 9200	S 7100	9.00	52.40	16.20
2012	16600 C	N 9400	S 7200	9.00	55.70	16.00

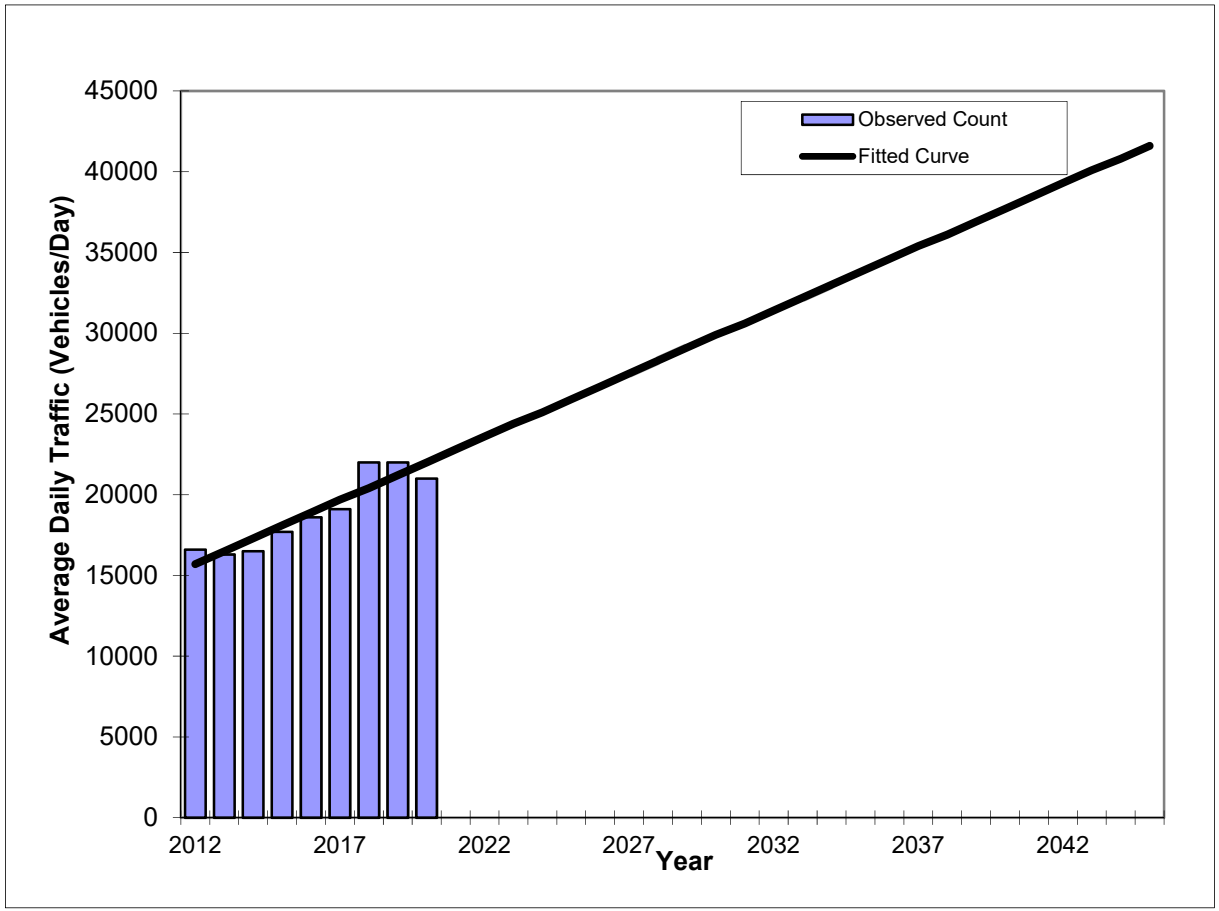
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

MEMORIAL HWY/NW 2ND AVE -- 200' SOUTH OF NW 167TH STREET

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	8169
Highway:	MEMORIAL HWY/NW 2ND AVE



Year	Traffic (ADT/AADT) Count*	Trend**
2012	16600	15700
2013	16300	16500
2014	16500	17300
2015	17700	18100
2016	18600	18900
2017	19100	19700
2018	22000	20400
2019	22000	21200
2020	21000	22000
2023 Opening Year Trend		
2023	N/A	24400
2035 Mid-Year Trend		
2035	N/A	33800
2045 Design Year Trend		
2045	N/A	41600
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	785
Trend R-squared:	85.98%
Trend Annual Historic Growth Rate:	5.02%
Trend Growth Rate (2020 to Design Year):	3.56%
Printed:	13-Aug-21

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2020 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8272 - NORTH MIAMI AVENUE, 200' NORTH OF NW 159TH STREET

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2020	6300 F	N 3600	S 2700	9.00	54.20	10.40
2019	6600 C	N 3800	S 2800	9.00	54.60	11.00
2018	6800 S	N 3900	S 2900	9.00	54.30	12.10
2017	6700 F	N 3800	S 2900	9.00	55.00	12.60
2016	6500 C	N 3700	S 2800	9.00	54.50	13.50
2015	18300 T	N 8300	S 10000	9.00	54.70	13.70
2014	17900 S	N 8000	S 9900	9.00	54.50	17.40
2013	17700 F	N 7900	S 9800	9.00	52.40	16.20
2012	18000 C	N 8000	S 10000	9.00	55.70	16.00

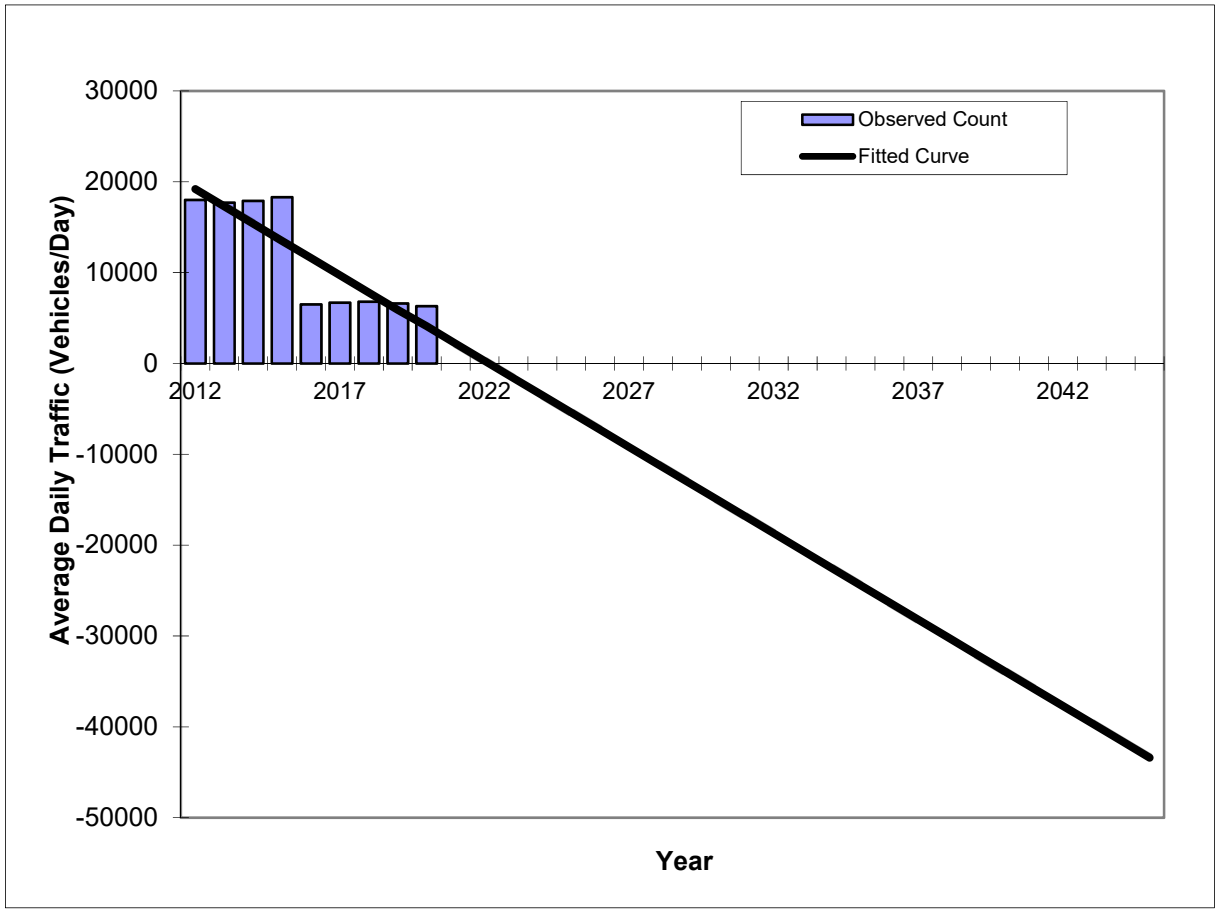
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

NORTH MIAMI AVENUE -- 200' NORTH OF NW 159TH STREET

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	8272
Highway:	NORTH MIAMI AVENUE

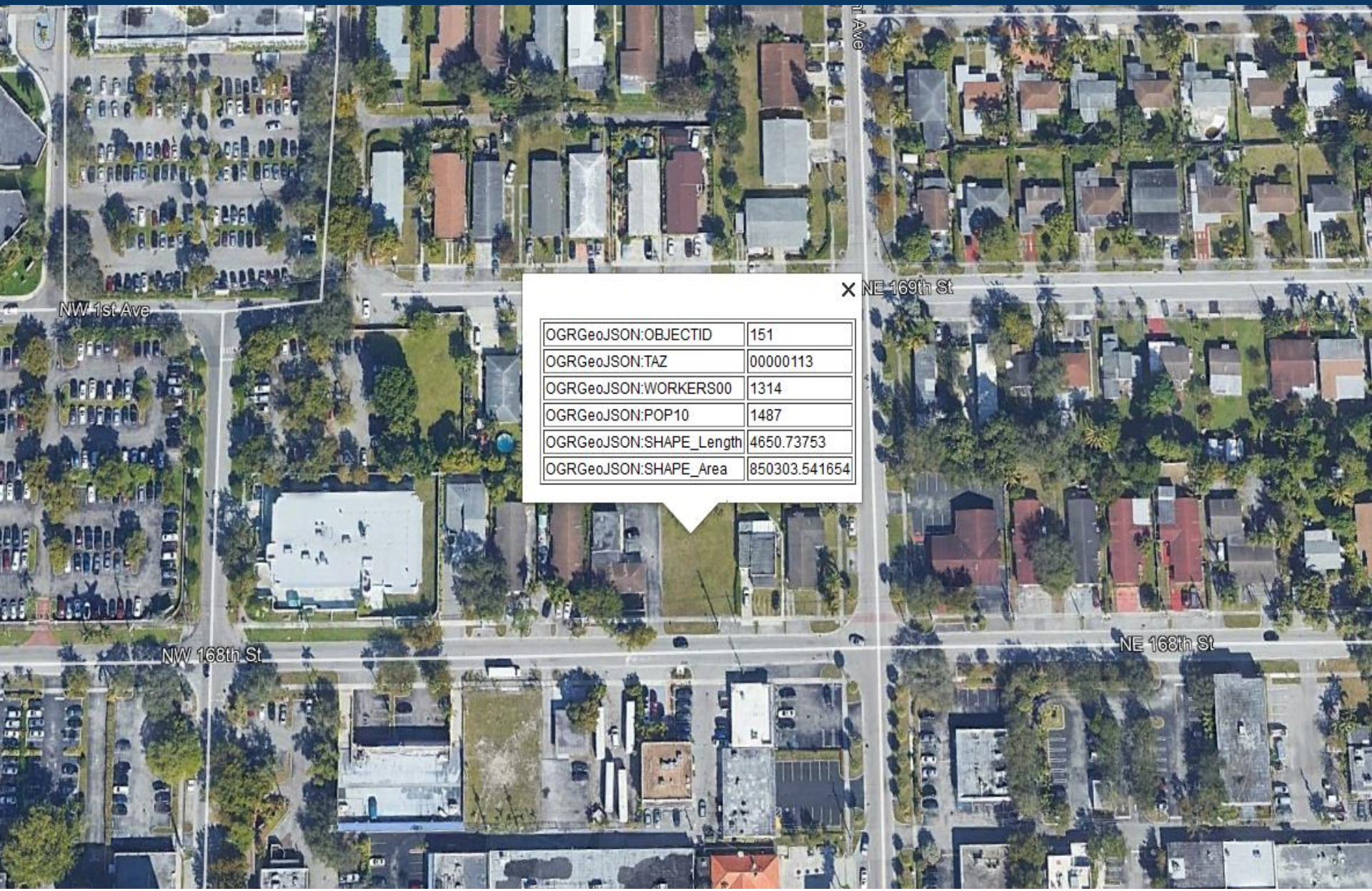


Year	Traffic (ADT/AADT) Count*	Trend**
2012	18000	19200
2013	17700	17300
2014	17900	15400
2015	18300	13500
2016	6500	11600
2017	6700	9700
2018	6800	7800
2019	6600	5900
2020	6300	4100
2023 Opening Year Trend		
2023	N/A	-1600
2035 Mid-Year Trend		
2035	N/A	-24400
2045 Design Year Trend		
2045	N/A	-43400
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-1,898
Trend R-squared:	74.85%
Trend Annual Historic Growth Rate:	-9.83%
Trend Growth Rate (2020 to Design Year):	-46.34%
Printed:	13-Aug-21

Straight Line Growth Option

***Axle-Adjusted**



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OGRGeoJSON:POP10	1487
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OGRGeoJSON:SHAPE_Area	850303.541654

Traffic Analysis Zones 2010

Miami-Dade 2015 Base Year Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
105	3005	Trips	309	199	183	334	406	199	136	310	2,094
105	3005	Percent	14.9	9.6	8.8	16.1	19.6	9.6	6.5	15.0	
106	3006	Trips	718	412	137	257	716	442	501	508	3,818
106	3006	Percent	19.5	11.2	3.7	7.0	19.4	12.0	13.6	13.8	
107	3007	Trips	649	509	260	517	874	754	570	614	4,926
107	3007	Percent	13.7	10.7	5.5	10.9	18.4	15.9	12.0	12.9	
108	3008	Trips	60	60	13	64	131	72	62	63	526
108	3008	Percent	11.5	11.4	2.4	12.2	25.0	13.7	11.8	11.9	
109	3009	Trips	393	278	225	412	481	385	262	368	2,832
109	3009	Percent	14.0	9.9	8.0	14.7	17.2	13.7	9.4	13.1	
110	3010	Trips	341	321	226	347	419	324	331	293	2,700
110	3010	Percent	13.1	12.3	8.7	13.3	16.1	12.5	12.7	11.3	
111	3011	Trips	344	281	177	246	533	374	325	356	2,698
111	3011	Percent	13.1	10.7	6.7	9.3	20.2	14.2	12.3	13.5	
112	3012	Trips	650	648	416	665	889	562	332	565	4,896
112	3012	Percent	13.7	13.7	8.8	14.1	18.8	11.9	7.0	12.0	
113	3013	Trips	854	911	605	897	1,139	694	661	928	6,817
113	3013	Percent	12.8	13.6	9.1	13.4	17.0	10.4	9.9	13.9	
114	3014	Trips	948	648	424	684	1,025	761	611	899	6,100
114	3014	Percent	15.8	10.8	7.1	11.4	17.1	12.7	10.2	15.0	
115	3015	Trips	998	873	540	680	991	703	361	792	6,197
115	3015	Percent	16.8	14.7	9.1	11.5	16.7	11.8	6.1	13.4	
116	3016	Trips	564	362	312	347	370	328	346	433	3,147
116	3016	Percent	18.4	11.8	10.2	11.3	12.1	10.7	11.3	14.2	
117	3017	Trips	364	279	180	292	362	246	210	301	2,266
117	3017	Percent	16.3	12.5	8.1	13.1	16.2	11.0	9.4	13.5	
118	3018	Trips	550	338	199	385	561	323	250	476	3,104
118	3018	Percent	17.8	11.0	6.5	12.5	18.2	10.5	8.1	15.4	
119	3019	Trips	537	475	393	507	926	643	481	680	4,761
119	3019	Percent	11.6	10.2	8.5	10.9	20.0	13.9	10.4	14.7	
120	3020	Trips	882	884	569	1,029	1,277	893	634	1,058	7,496
120	3020	Percent	12.2	12.2	7.9	14.3	17.7	12.4	8.8	14.6	
121	3021	Trips	541	212	295	489	487	247	219	232	2,766
121	3021	Percent	19.9	7.8	10.8	18.0	17.9	9.1	8.0	8.5	
122	3022	Trips	545	366	253	383	553	361	343	404	3,320
122	3022	Percent	17.0	11.4	7.9	11.9	17.2	11.2	10.7	12.6	
123	3023	Trips	1,199	861	656	1,176	991	691	468	687	6,962
123	3023	Percent	17.8	12.8	9.8	17.5	14.7	10.3	7.0	10.2	
124	3024	Trips	418	381	383	390	416	290	187	386	2,934
124	3024	Percent	14.7	13.4	13.4	13.7	14.6	10.2	6.6	13.5	
125	3025	Trips	332	161	184	226	242	138	208	204	1,707
125	3025	Percent	19.6	9.5	10.8	13.3	14.3	8.1	12.3	12.1	
126	3026	Trips	524	432	378	561	706	524	258	366	3,783
126	3026	Percent	14.0	11.5	10.1	15.0	18.8	14.0	6.9	9.8	
127	3027	Trips	252	220	155	232	268	210	132	195	1,687
127	3027	Percent	15.2	13.2	9.3	13.9	16.1	12.6	7.9	11.7	
128	3028	Trips	429	239	163	276	357	302	160	249	2,184
128	3028	Percent	19.7	11.0	7.5	12.7	16.4	13.9	7.4	11.4	
129	3029	Trips	364	306	233	314	457	284	302	304	2,628
129	3029	Percent	14.2	11.9	9.1	12.2	17.8	11.1	11.8	11.8	
130	3030	Trips	418	229	156	269	426	259	319	284	2,391
130	3030	Percent	17.7	9.7	6.6	11.4	18.0	11.0	13.5	12.0	

Miami-Dade 2045 Cost Feasible Plan Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
105	3005	Trips	315	175	112	171	458	304	126	264	1,937
105	3005	Percent	16.4	9.1	5.8	8.9	23.8	15.8	6.5	13.7	
106	3006	Trips	790	346	158	381	939	625	549	632	4,612
106	3006	Percent	17.9	7.8	3.6	8.6	21.2	14.2	12.4	14.3	
107	3007	Trips	831	545	344	744	1,536	1,153	787	738	7,015
107	3007	Percent	12.5	8.2	5.2	11.1	23.0	17.3	11.8	11.1	
108	3008	Trips	120	70	35	75	161	137	42	62	716
108	3008	Percent	17.1	9.9	4.9	10.6	23.1	19.6	6.0	8.8	
109	3009	Trips	430	250	273	311	565	483	310	317	2,955
109	3009	Percent	14.6	8.5	9.3	10.6	19.2	16.5	10.5	10.8	
110	3010	Trips	498	421	269	369	612	654	360	444	3,734
110	3010	Percent	13.7	11.6	7.4	10.2	16.9	18.0	9.9	12.2	
111	3011	Trips	414	460	271	326	865	502	473	459	3,904
111	3011	Percent	11.0	12.2	7.2	8.6	22.9	13.3	12.5	12.2	
112	3012	Trips	870	975	502	733	1,402	1,004	705	757	7,113
112	3012	Percent	12.5	14.0	7.2	10.5	20.2	14.5	10.2	10.9	
113	3013	Trips	1,533	1,404	1,040	1,419	2,019	1,197	1,177	1,263	11,472
113	3013	Percent	13.9	12.7	9.4	12.8	18.3	10.8	10.7	11.4	
114	3014	Trips	1,159	806	537	893	1,787	1,154	685	935	8,061
114	3014	Percent	14.6	10.1	6.8	11.2	22.5	14.5	8.6	11.8	
115	3015	Trips	1,451	1,200	826	1,028	1,612	1,074	562	1,017	9,191
115	3015	Percent	16.6	13.7	9.4	11.7	18.4	12.2	6.4	11.6	
116	3016	Trips	712	387	274	512	693	538	393	462	4,096
116	3016	Percent	17.9	9.8	6.9	12.9	17.5	13.6	9.9	11.6	
117	3017	Trips	458	292	146	330	516	405	245	336	2,751
117	3017	Percent	16.8	10.7	5.3	12.1	18.9	14.9	9.0	12.3	
118	3018	Trips	569	393	282	452	711	490	325	469	3,768
118	3018	Percent	15.4	10.6	7.6	12.3	19.3	13.3	8.8	12.7	
119	3019	Trips	887	769	623	822	1,496	1,068	641	897	7,443
119	3019	Percent	12.3	10.7	8.7	11.4	20.8	14.8	8.9	12.5	
120	3020	Trips	1,309	1,280	812	1,366	1,814	1,458	855	1,463	10,805
120	3020	Percent	12.6	12.4	7.8	13.2	17.5	14.1	8.3	14.1	
121	3021	Trips	511	313	390	620	543	402	259	248	3,335
121	3021	Percent	15.6	9.5	11.9	18.9	16.5	12.2	7.9	7.6	
122	3022	Trips	624	358	265	398	662	467	394	384	3,651
122	3022	Percent	17.6	10.1	7.5	11.2	18.6	13.2	11.1	10.8	
123	3023	Trips	1,384	872	796	1,149	1,094	994	691	821	7,984
123	3023	Percent	17.7	11.2	10.2	14.7	14.0	12.7	8.9	10.5	
124	3024	Trips	539	425	356	465	550	398	278	481	3,561
124	3024	Percent	15.4	12.2	10.2	13.3	15.8	11.4	8.0	13.8	
125	3025	Trips	885	519	575	590	751	495	440	601	4,882
125	3025	Percent	18.2	10.7	11.8	12.2	15.5	10.2	9.1	12.4	
126	3026	Trips	526	496	451	587	835	578	270	482	4,305
126	3026	Percent	12.5	11.7	10.7	13.9	19.8	13.7	6.4	11.4	
127	3027	Trips	394	348	224	304	493	355	203	243	2,655
127	3027	Percent	15.4	13.6	8.7	11.9	19.2	13.9	7.9	9.5	
128	3028	Trips	450	245	267	369	506	396	265	286	2,832
128	3028	Percent	16.2	8.8	9.6	13.2	18.2	14.2	9.5	10.3	
129	3029	Trips	417	253	256	418	580	346	316	340	2,980
129	3029	Percent	14.3	8.7	8.7	14.3	19.8	11.8	10.8	11.6	
130	3030	Trips	457	274	177	408	624	337	347	237	2,884
130	3030	Percent	16.0	9.6	6.2	14.3	21.8	11.8	12.1	8.3	

ATTACHMENT E
INTERSECTION CAPACITY ANALYSIS

EXISTING CONDITIONS

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	23	54	34	66	2	130	37	31	2	74	26
Future Vol, veh/h	3	23	54	34	66	2	130	37	31	2	74	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	25	59	37	72	2	141	40	34	2	80	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	474	454	94	479	451	57	108	0	0	74	0	0
Stage 1	98	98	-	339	339	-	-	-	-	-	-	-
Stage 2	376	356	-	140	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	501	502	963	497	504	1009	1483	-	-	1526	-	-
Stage 1	908	814	-	676	640	-	-	-	-	-	-	-
Stage 2	645	629	-	863	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	406	451	963	413	453	1009	1483	-	-	1526	-	-
Mov Cap-2 Maneuver	406	451	-	413	453	-	-	-	-	-	-	-
Stage 1	817	813	-	608	576	-	-	-	-	-	-	-
Stage 2	507	566	-	785	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	15.8	5	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1483	-	-	699	443	1526	-	-
HCM Lane V/C Ratio	0.095	-	-	0.124	0.25	0.001	-	-
HCM Control Delay (s)	7.7	0	-	10.9	15.8	7.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	1	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	147	1884	83	1639	221	61	51	45
Future Volume (vph)	147	1884	83	1639	221	61	51	45
Lane Group Flow (vph)	155	2070	87	1758	233	142	54	93
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	81.0	18.0	81.0	20.0	31.0	20.0	31.0
Total Split (%)	12.0%	54.0%	12.0%	54.0%	13.3%	20.7%	13.3%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.45	0.82	0.26	0.69	0.86	0.55	0.27	0.58
Control Delay	30.3	35.0	19.2	30.5	81.4	54.9	49.5	60.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	35.0	19.2	30.5	81.4	54.9	49.5	60.3
Queue Length 50th (ft)	73	613	24	471	208	101	43	62
Queue Length 95th (ft)	160	678	83	526	#312	173	79	120
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	347	2530	337	2536	271	310	275	299
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.82	0.26	0.69	0.86	0.46	0.20	0.31

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1884	83	83	1639	31	221	61	74	51	45	44
Future Volume (veh/h)	147	1884	83	83	1639	31	221	61	74	51	45	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1983	87	87	1725	33	233	64	78	54	47	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	2572	113	369	2579	49	238	97	119	173	60	58
Arrive On Green	0.17	0.51	0.51	0.16	0.50	0.50	0.10	0.13	0.13	0.04	0.07	0.07
Sat Flow, veh/h	1781	5015	219	1781	5158	99	1781	767	935	1781	868	849
Grp Volume(v), veh/h	155	1344	726	87	1138	620	233	0	142	54	0	93
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1781	1702	1853	1781	0	1702	1781	0	1717
Q Serve(g_s), s	4.7	47.7	48.0	2.6	37.7	37.7	14.3	0.0	11.9	4.2	0.0	8.0
Cycle Q Clear(g_c), s	4.7	47.7	48.0	2.6	37.7	37.7	14.3	0.0	11.9	4.2	0.0	8.0
Prop In Lane	1.00		0.12	1.00		0.05	1.00		0.55	1.00		0.49
Lane Grp Cap(c), veh/h	421	1745	939	369	1702	926	238	0	216	173	0	118
V/C Ratio(X)	0.37	0.77	0.77	0.24	0.67	0.67	0.98	0.00	0.66	0.31	0.00	0.79
Avail Cap(c_a), veh/h	421	1745	939	369	1702	926	238	0	272	277	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.5	29.4	29.5	21.5	28.2	28.2	60.7	0.0	62.3	61.9	0.0	68.8
Incr Delay (d2), s/veh	0.2	3.3	6.2	0.1	2.1	3.8	52.0	0.0	3.1	0.4	0.0	10.9
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	2.8	20.2	22.5	1.5	15.8	17.7	5.4	0.0	5.4	1.9	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	32.8	35.7	21.6	30.3	32.0	112.7	0.0	65.4	62.2	0.0	79.6
LnGrp LOS	B	C	D	C	C	C	F	A	E	E	A	E
Approach Vol, veh/h		2225			1845			375			147	
Approach Delay, s/veh		32.8			30.4			94.8			73.2	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	81.0	11.3	26.1	29.8	82.9	20.0	17.3
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	75.0	* 14	24.0	12.0	75.0	* 14	24.0
Max Q Clear Time (g_c+I1), s	6.7	39.7	6.2	13.9	4.6	50.0	16.3	10.0
Green Ext Time (p_c), s	0.1	5.8	0.0	0.4	0.0	7.2	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	38.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	28	87	45	117	9	68	79	44	3	87	23
Future Vol, veh/h	2	28	87	45	117	9	68	79	44	3	87	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	30	95	49	127	10	74	86	48	3	95	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	441	396	108	434	384	110	120	0	0	134	0	0
Stage 1	114	114	-	258	258	-	-	-	-	-	-	-
Stage 2	327	282	-	176	126	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	527	541	946	532	550	943	1468	-	-	1451	-	-
Stage 1	891	801	-	747	694	-	-	-	-	-	-	-
Stage 2	686	678	-	826	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	405	510	946	437	519	943	1468	-	-	1451	-	-
Mov Cap-2 Maneuver	405	510	-	437	519	-	-	-	-	-	-	-
Stage 1	842	799	-	706	656	-	-	-	-	-	-	-
Stage 2	517	641	-	714	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	16.2	2.7	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	771	506	1451	-	-
HCM Lane V/C Ratio	0.05	-	-	0.165	0.367	0.002	-	-
HCM Control Delay (s)	7.6	0	-	10.6	16.2	7.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	1.7	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	81	1846	22	1791	342	98	48	62
Future Volume (vph)	81	1846	22	1791	342	98	48	62
Lane Group Flow (vph)	85	1994	23	1920	360	172	51	169
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	82.0	18.0	82.0	20.0	30.0	20.0	30.0
Total Split (%)	12.0%	54.7%	12.0%	54.7%	13.3%	20.0%	13.3%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.32	0.78	0.09	0.75	1.41	0.56	0.22	0.75
Control Delay	22.5	32.7	10.4	31.6	245.7	58.7	44.1	67.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	32.7	10.4	31.6	245.7	58.7	44.1	67.2
Queue Length 50th (ft)	27	567	7	534	~377	142	39	120
Queue Length 95th (ft)	86	628	20	592	#547	218	72	197
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	269	2568	269	2570	255	312	311	297
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.78	0.09	0.75	1.41	0.55	0.16	0.57

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	1846	48	22	1791	33	342	98	66	48	62	99
Future Volume (veh/h)	81	1846	48	22	1791	33	342	98	66	48	62	99
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	1943	51	23	1885	35	360	103	69	51	65	104
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	311	2653	70	286	2615	49	237	184	123	213	74	119
Arrive On Green	0.12	0.52	0.52	0.11	0.51	0.51	0.10	0.18	0.18	0.03	0.11	0.11
Sat Flow, veh/h	1781	5116	134	1781	5161	96	1781	1045	700	1781	648	1036
Grp Volume(v), veh/h	85	1292	702	23	1243	677	360	0	172	51	0	169
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1781	1702	1853	1781	0	1744	1781	0	1684
Q Serve(g_s), s	2.8	44.2	44.3	0.8	42.6	42.6	14.3	0.0	13.5	3.8	0.0	14.8
Cycle Q Clear(g_c), s	2.8	44.2	44.3	0.8	42.6	42.6	14.3	0.0	13.5	3.8	0.0	14.8
Prop In Lane	1.00		0.07	1.00		0.05	1.00		0.40	1.00		0.62
Lane Grp Cap(c), veh/h	311	1765	957	286	1725	939	237	0	308	213	0	194
V/C Ratio(X)	0.27	0.73	0.73	0.08	0.72	0.72	1.52	0.00	0.56	0.24	0.00	0.87
Avail Cap(c_a), veh/h	311	1765	957	286	1725	939	237	0	308	322	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	28.0	28.1	18.1	28.7	28.8	56.0	0.0	56.5	56.0	0.0	65.3
Incr Delay (d2), s/veh	0.2	2.7	5.0	0.0	2.6	4.8	252.6	0.0	1.9	0.2	0.0	21.4
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	1.2	18.6	20.8	0.3	17.9	20.1	18.8	0.0	6.2	1.7	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.8	30.8	33.0	18.2	31.4	33.5	308.6	0.0	58.4	56.2	0.0	86.7
LnGrp LOS	C	C	C	B	C	C	F	A	E	E	A	F
Approach Vol, veh/h		2079			1943			532			220	
Approach Delay, s/veh		31.1			32.0			227.7			79.6	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.8	82.0	10.8	33.4	22.0	83.8	20.0	24.2
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	76.0	* 14	23.0	12.0	76.0	* 14	23.0
Max Q Clear Time (g_c+I1), s	4.8	44.6	5.8	15.5	2.8	46.3	16.3	16.8
Green Ext Time (p_c), s	0.0	6.6	0.0	0.4	0.0	6.9	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

FUTURE NO BUILD CONDITIONS

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	23	54	34	67	2	131	38	31	2	74	27
Future Vol, veh/h	3	23	54	34	67	2	131	38	31	2	74	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	25	59	37	73	2	142	41	34	2	80	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	479	458	95	483	455	58	109	0	0	75	0	0
Stage 1	99	99	-	342	342	-	-	-	-	-	-	-
Stage 2	380	359	-	141	113	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	497	499	962	494	501	1008	1481	-	-	1524	-	-
Stage 1	907	813	-	673	638	-	-	-	-	-	-	-
Stage 2	642	627	-	862	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	402	449	962	410	450	1008	1481	-	-	1524	-	-
Mov Cap-2 Maneuver	402	449	-	410	450	-	-	-	-	-	-	-
Stage 1	816	812	-	606	574	-	-	-	-	-	-	-
Stage 2	503	564	-	784	801	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.9	15.9	5	0.1
HCM LOS	B	C		

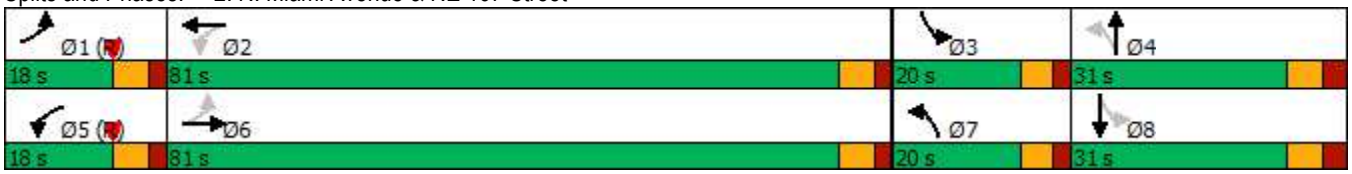
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1481	-	-	697	441	1524	-	-
HCM Lane V/C Ratio	0.096	-	-	0.125	0.254	0.001	-	-
HCM Control Delay (s)	7.7	0	-	10.9	15.9	7.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	1	0	-	-

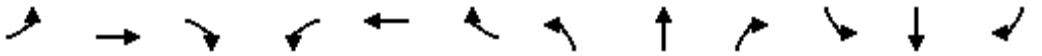
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	149	1903	83	1655	223	61	51	46
Future Volume (vph)	149	1903	83	1655	223	61	51	46
Lane Group Flow (vph)	157	2090	87	1775	235	142	54	94
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	81.0	18.0	81.0	20.0	31.0	20.0	31.0
Total Split (%)	12.0%	54.0%	12.0%	54.0%	13.3%	20.7%	13.3%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.46	0.83	0.26	0.70	0.87	0.55	0.27	0.59
Control Delay	31.9	35.4	19.2	30.7	82.4	54.8	49.4	61.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	35.4	19.2	30.7	82.4	54.8	49.4	61.5
Queue Length 50th (ft)	77	623	24	478	210	101	43	64
Queue Length 95th (ft)	164	688	83	534	#320	173	79	122
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	343	2530	335	2536	271	310	276	299
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.83	0.26	0.70	0.87	0.46	0.20	0.31

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	1903	83	83	1655	31	223	61	74	51	46	44
Future Volume (veh/h)	149	1903	83	83	1655	31	223	61	74	51	46	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	157	2003	87	87	1742	33	235	64	78	54	48	46
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	418	2576	112	365	2580	49	238	98	119	174	61	58
Arrive On Green	0.17	0.51	0.51	0.16	0.50	0.50	0.10	0.13	0.13	0.04	0.07	0.07
Sat Flow, veh/h	1781	5018	217	1781	5159	98	1781	767	935	1781	878	841
Grp Volume(v), veh/h	157	1357	733	87	1149	626	235	0	142	54	0	94
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1781	1702	1853	1781	0	1702	1781	0	1719
Q Serve(g_s), s	4.8	48.4	48.7	2.6	38.2	38.3	14.3	0.0	11.9	4.2	0.0	8.1
Cycle Q Clear(g_c), s	4.8	48.4	48.7	2.6	38.2	38.3	14.3	0.0	11.9	4.2	0.0	8.1
Prop In Lane	1.00		0.12	1.00		0.05	1.00		0.55	1.00		0.49
Lane Grp Cap(c), veh/h	418	1747	940	365	1702	926	238	0	217	174	0	119
V/C Ratio(X)	0.38	0.78	0.78	0.24	0.68	0.68	0.99	0.00	0.65	0.31	0.00	0.79
Avail Cap(c_a), veh/h	418	1747	940	365	1702	926	238	0	272	278	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.0	29.5	29.6	22.0	28.3	28.3	60.8	0.0	62.3	61.8	0.0	68.7
Incr Delay (d2), s/veh	0.2	3.5	6.4	0.1	2.2	3.9	54.4	0.0	3.0	0.4	0.0	10.9
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	2.8	20.5	22.9	1.6	16.1	18.0	5.6	0.0	5.4	1.9	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.2	33.0	36.0	22.1	30.5	32.3	115.2	0.0	65.3	62.2	0.0	79.6
LnGrp LOS	C	C	D	C	C	C	F	A	E	E	A	E
Approach Vol, veh/h		2247			1862			377			148	
Approach Delay, s/veh		33.1			30.7			96.4			73.2	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.6	81.0	11.3	26.1	29.6	83.0	20.0	17.4
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	75.0	* 14	24.0	12.0	75.0	* 14	24.0
Max Q Clear Time (g_c+I1), s	6.8	40.3	6.2	13.9	4.6	50.7	16.3	10.1
Green Ext Time (p_c), s	0.1	5.8	0.0	0.4	0.0	7.2	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	38.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	28	88	46	118	9	69	80	44	3	87	23
Future Vol, veh/h	2	28	88	46	118	9	69	80	44	3	87	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	30	96	50	128	10	75	87	48	3	95	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	444	399	108	438	387	111	120	0	0	135	0	0
Stage 1	114	114	-	261	261	-	-	-	-	-	-	-
Stage 2	330	285	-	177	126	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	524	539	946	529	547	942	1468	-	-	1449	-	-
Stage 1	891	801	-	744	692	-	-	-	-	-	-	-
Stage 2	683	676	-	825	792	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	401	508	946	434	515	942	1468	-	-	1449	-	-
Mov Cap-2 Maneuver	401	508	-	434	515	-	-	-	-	-	-	-
Stage 1	841	799	-	702	653	-	-	-	-	-	-	-
Stage 2	513	638	-	712	790	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	16.4	2.7	0.2
HCM LOS	B	C		

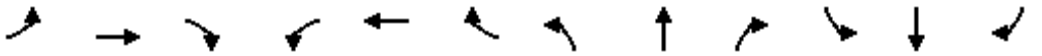
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1468	-	-	771	502	1449	-	-
HCM Lane V/C Ratio	0.051	-	-	0.166	0.375	0.002	-	-
HCM Control Delay (s)	7.6	0	-	10.6	16.4	7.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.6	1.7	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	82	1864	22	1809	346	99	49	62
Future Volume (vph)	82	1864	22	1809	346	99	49	62
Lane Group Flow (vph)	86	2014	23	1939	364	175	52	170
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	82.0	18.0	82.0	20.0	30.0	20.0	30.0
Total Split (%)	12.0%	54.7%	12.0%	54.7%	13.3%	20.0%	13.3%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.32	0.78	0.09	0.75	1.44	0.57	0.22	0.76
Control Delay	22.7	33.0	10.4	31.9	255.2	59.3	44.2	67.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	33.0	10.4	31.9	255.2	59.3	44.2	67.1
Queue Length 50th (ft)	27	577	7	542	~388	145	40	120
Queue Length 95th (ft)	88	639	20	601	#559	223	73	197
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	269	2568	269	2570	253	311	310	298
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.78	0.09	0.75	1.44	0.56	0.17	0.57

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	1864	49	22	1809	33	346	99	67	49	62	100
Future Volume (veh/h)	82	1864	49	22	1809	33	346	99	67	49	62	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	1962	52	23	1904	35	364	104	71	52	65	105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	2652	70	283	2616	48	237	183	125	212	74	120
Arrive On Green	0.12	0.52	0.52	0.11	0.51	0.51	0.10	0.18	0.18	0.03	0.12	0.12
Sat Flow, veh/h	1781	5115	135	1781	5163	95	1781	1036	707	1781	644	1040
Grp Volume(v), veh/h	86	1305	709	23	1255	684	364	0	175	52	0	170
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1781	1702	1853	1781	0	1743	1781	0	1683
Q Serve(g_s), s	2.9	44.9	45.0	0.8	43.2	43.3	14.3	0.0	13.8	3.8	0.0	14.9
Cycle Q Clear(g_c), s	2.9	44.9	45.0	0.8	43.2	43.3	14.3	0.0	13.8	3.8	0.0	14.9
Prop In Lane	1.00		0.07	1.00		0.05	1.00		0.41	1.00		0.62
Lane Grp Cap(c), veh/h	308	1765	957	283	1725	939	237	0	307	212	0	194
V/C Ratio(X)	0.28	0.74	0.74	0.08	0.73	0.73	1.53	0.00	0.57	0.25	0.00	0.87
Avail Cap(c_a), veh/h	308	1765	957	283	1725	939	237	0	307	320	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	28.2	28.2	18.4	28.9	28.9	56.0	0.0	56.6	55.9	0.0	65.3
Incr Delay (d2), s/veh	0.2	2.8	5.1	0.0	2.7	4.9	259.9	0.0	2.1	0.2	0.0	21.6
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	1.3	18.9	21.2	0.3	18.2	20.4	19.3	0.0	6.3	1.8	0.0	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	31.0	33.4	18.4	31.6	33.9	315.9	0.0	58.7	56.1	0.0	86.9
LnGrp LOS	C	C	C	B	C	C	F	A	E	E	A	F
Approach Vol, veh/h		2100			1962			539			222	
Approach Delay, s/veh		31.4			32.3			232.4			79.7	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.7	82.0	10.9	33.4	21.9	83.8	20.0	24.3
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	76.0	* 14	23.0	12.0	76.0	* 14	23.0
Max Q Clear Time (g_c+I1), s	4.9	45.3	5.8	15.8	2.8	47.0	16.3	16.9
Green Ext Time (p_c), s	0.0	6.7	0.0	0.4	0.0	7.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

FUTURE BUILD CONDITIONS

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	25	60	34	74	2	151	38	31	2	74	31
Future Vol, veh/h	4	25	60	34	74	2	151	38	31	2	74	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	27	65	37	80	2	164	41	34	2	80	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	528	504	97	533	504	58	114	0	0	75	0	0
Stage 1	101	101	-	386	386	-	-	-	-	-	-	-
Stage 2	427	403	-	147	118	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	461	470	959	458	470	1008	1475	-	-	1524	-	-
Stage 1	905	811	-	637	610	-	-	-	-	-	-	-
Stage 2	606	600	-	856	798	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	358	415	959	370	415	1008	1475	-	-	1524	-	-
Mov Cap-2 Maneuver	358	415	-	370	415	-	-	-	-	-	-	-
Stage 1	800	810	-	563	539	-	-	-	-	-	-	-
Stage 2	455	530	-	770	797	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	17.6	5.3	0.1
HCM LOS	B	C		

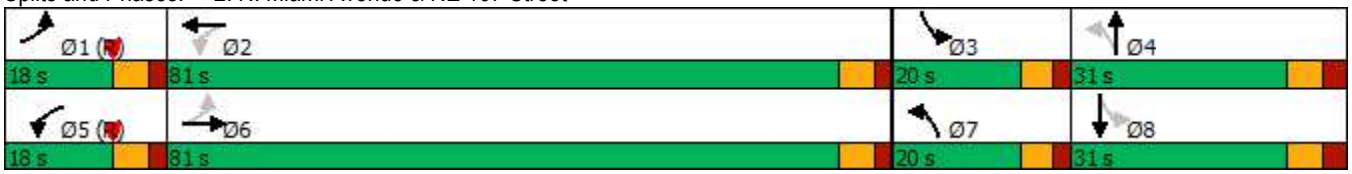
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1475	-	-	664	404	1524	-	-
HCM Lane V/C Ratio	0.111	-	-	0.146	0.296	0.001	-	-
HCM Control Delay (s)	7.7	0	-	11.3	17.6	7.4	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	1.2	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	158	1903	83	1655	223	64	53	47
Future Volume (vph)	158	1903	83	1655	223	64	53	47
Lane Group Flow (vph)	166	2090	87	1783	235	145	56	98
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	81.0	18.0	81.0	20.0	31.0	20.0	31.0
Total Split (%)	12.0%	54.0%	12.0%	54.0%	13.3%	20.7%	13.3%	20.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.49	0.83	0.26	0.70	0.87	0.56	0.27	0.60
Control Delay	34.4	35.4	19.5	30.8	82.6	56.3	49.2	60.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	35.4	19.5	30.8	82.6	56.3	49.2	60.8
Queue Length 50th (ft)	87	623	25	482	209	106	45	66
Queue Length 95th (ft)	179	688	84	537	#318	179	80	125
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	340	2530	332	2536	271	308	278	300
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.83	0.26	0.70	0.87	0.47	0.20	0.33

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1903	83	83	1655	39	223	64	74	53	47	47
Future Volume (veh/h)	158	1903	83	83	1655	39	223	64	74	53	47	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	166	2003	87	87	1742	41	235	67	78	56	49	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	412	2587	112	358	2566	60	238	102	118	176	62	62
Arrive On Green	0.17	0.52	0.52	0.15	0.50	0.50	0.10	0.13	0.13	0.04	0.07	0.07
Sat Flow, veh/h	1781	5018	217	1781	5132	121	1781	788	917	1781	858	858
Grp Volume(v), veh/h	166	1357	733	87	1155	628	235	0	145	56	0	98
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1781	1702	1849	1781	0	1705	1781	0	1716
Q Serve(g_s), s	5.1	48.2	48.5	2.7	38.5	38.6	14.3	0.0	12.1	4.3	0.0	8.4
Cycle Q Clear(g_c), s	5.1	48.2	48.5	2.7	38.5	38.6	14.3	0.0	12.1	4.3	0.0	8.4
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.54	1.00		0.50
Lane Grp Cap(c), veh/h	412	1755	944	358	1702	924	238	0	220	176	0	123
V/C Ratio(X)	0.40	0.77	0.78	0.24	0.68	0.68	0.99	0.00	0.66	0.32	0.00	0.79
Avail Cap(c_a), veh/h	412	1755	944	358	1702	924	238	0	273	277	0	275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	29.3	29.3	22.0	28.4	28.4	60.5	0.0	62.2	61.4	0.0	68.5
Incr Delay (d2), s/veh	0.2	3.4	6.2	0.1	2.2	4.0	54.4	0.0	3.3	0.4	0.0	10.9
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	3.0	20.4	22.8	1.6	16.2	18.1	5.6	0.0	5.5	2.0	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	32.7	35.6	22.1	30.6	32.4	114.9	0.0	65.5	61.7	0.0	79.4
LnGrp LOS	C	C	D	C	C	C	F	A	E	E	A	E
Approach Vol, veh/h		2256			1870			380			154	
Approach Delay, s/veh		32.7			30.8			96.0			73.0	
Approach LOS		C			C			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.2	81.0	11.4	26.3	28.9	83.3	20.0	17.8
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	75.0	* 14	24.0	12.0	75.0	* 14	24.0
Max Q Clear Time (g_c+I1), s	7.1	40.6	6.3	14.1	4.7	50.5	16.3	10.4
Green Ext Time (p_c), s	0.1	5.9	0.0	0.4	0.0	7.3	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

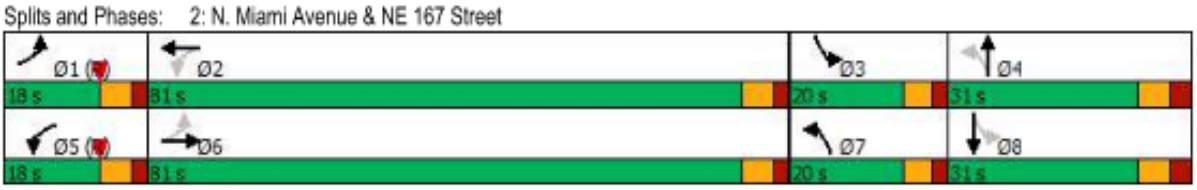
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

NMB Medical Office
Signal Timing Optimization Modifications
1st September 2021
330088701

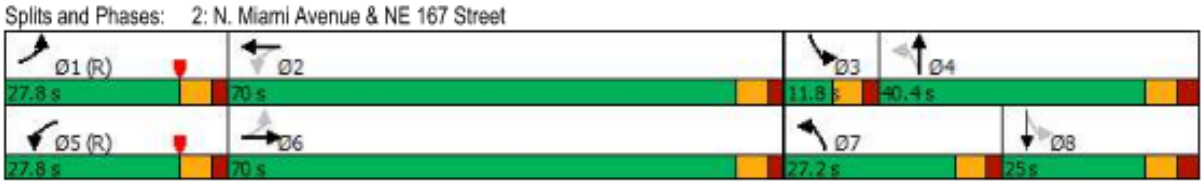
N. Miami Avenue and NW/NE 167th Street

Morning Peak Hour

Existing Timing



Optimized Timing

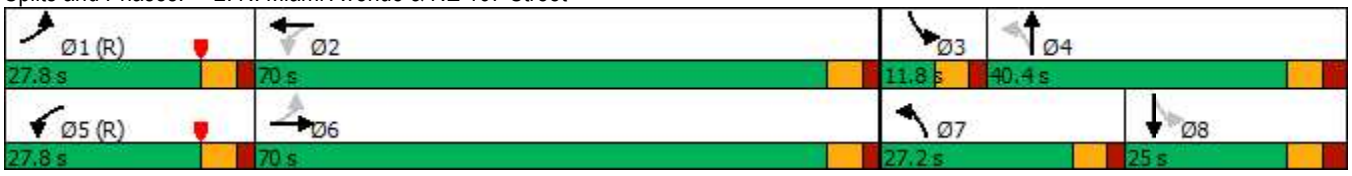


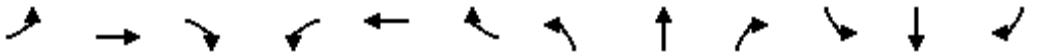
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	158	1903	83	1655	223	64	53	47
Future Volume (vph)	158	1903	83	1655	223	64	53	47
Lane Group Flow (vph)	166	2090	87	1783	235	145	56	98
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	27.8	70.0	27.8	70.0	27.2	40.4	11.8	25.0
Total Split (%)	18.5%	46.7%	18.5%	46.7%	18.1%	26.9%	7.9%	16.7%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.42	0.97	0.22	0.82	0.69	0.41	0.32	0.61
Control Delay	32.4	55.0	17.0	42.0	57.5	43.4	47.2	63.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	55.0	17.0	42.0	57.5	43.4	47.2	63.8
Queue Length 50th (ft)	91	723	29	558	196	95	42	68
Queue Length 95th (ft)	178	#840	78	623	270	160	76	128
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	395	2159	395	2164	350	409	179	230
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.97	0.22	0.82	0.67	0.35	0.31	0.43

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	1903	83	83	1655	39	223	64	74	53	47	47
Future Volume (veh/h)	158	1903	83	83	1655	39	223	64	74	53	47	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	166	2003	87	87	1742	41	235	67	78	56	49	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	448	2239	97	393	2190	52	304	131	152	204	61	61
Arrive On Green	0.20	0.45	0.45	0.19	0.43	0.43	0.13	0.17	0.17	0.04	0.07	0.07
Sat Flow, veh/h	1781	5018	217	1781	5132	121	1781	788	917	1781	858	858
Grp Volume(v), veh/h	166	1357	733	87	1155	628	235	0	145	56	0	98
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1781	1702	1849	1781	0	1705	1781	0	1716
Q Serve(g_s), s	5.7	55.1	55.4	3.0	44.2	44.2	17.8	0.0	11.6	4.3	0.0	8.4
Cycle Q Clear(g_c), s	5.7	55.1	55.4	3.0	44.2	44.2	17.8	0.0	11.6	4.3	0.0	8.4
Prop In Lane	1.00		0.12	1.00		0.07	1.00		0.54	1.00		0.50
Lane Grp Cap(c), veh/h	448	1519	817	393	1452	789	304	0	283	204	0	122
V/C Ratio(X)	0.37	0.89	0.90	0.22	0.80	0.80	0.77	0.00	0.51	0.27	0.00	0.80
Avail Cap(c_a), veh/h	448	1519	817	393	1452	789	323	0	380	209	0	206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.8	38.3	38.4	24.5	37.3	37.3	53.4	0.0	57.1	61.4	0.0	68.6
Incr Delay (d2), s/veh	0.2	8.5	14.6	0.1	4.6	8.2	9.3	0.0	1.1	0.3	0.0	11.5
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	2.5	24.6	28.0	1.3	19.3	21.7	8.8	0.0	5.1	2.0	0.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	46.7	53.0	24.6	41.9	45.5	62.7	0.0	58.1	61.7	0.0	80.1
LnGrp LOS	C	D	D	C	D	D	E	A	E	E	A	F
Approach Vol, veh/h		2256			1870			380			154	
Approach Delay, s/veh		47.0			42.3			61.0			73.4	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	36.7	70.0	11.4	31.9	33.8	72.9	25.6	17.7
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	21.8	64.0	* 6.1	33.4	21.8	64.0	* 22	18.0
Max Q Clear Time (g_c+I1), s	7.7	46.2	6.3	13.6	5.0	57.4	19.8	10.4
Green Ext Time (p_c), s	0.2	5.2	0.0	0.6	0.1	3.8	0.1	0.2

Intersection Summary	
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	37	112	46	121	9	79	80	44	3	88	25
Future Vol, veh/h	7	37	112	46	121	9	79	80	44	3	88	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	40	122	50	132	10	86	87	48	3	96	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	470	423	110	480	412	111	123	0	0	135	0	0
Stage 1	116	116	-	283	283	-	-	-	-	-	-	-
Stage 2	354	307	-	197	129	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	504	522	943	496	530	942	1464	-	-	1449	-	-
Stage 1	889	800	-	724	677	-	-	-	-	-	-	-
Stage 2	663	661	-	805	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	377	488	943	384	495	942	1464	-	-	1449	-	-
Mov Cap-2 Maneuver	377	488	-	384	495	-	-	-	-	-	-	-
Stage 1	832	798	-	678	634	-	-	-	-	-	-	-
Stage 2	487	619	-	664	787	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	17.8	3	0.2
HCM LOS	B	C		

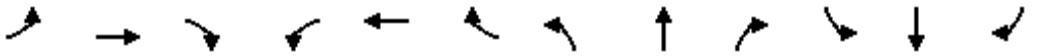
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1464	-	-	732	471	1449	-	-
HCM Lane V/C Ratio	0.059	-	-	0.232	0.406	0.002	-	-
HCM Control Delay (s)	7.6	0	-	11.4	17.8	7.5	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	1.9	0	-	-

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	86	1864	22	1809	346	101	59	66
Future Volume (vph)	86	1864	22	1809	346	101	59	66
Lane Group Flow (vph)	91	2014	23	1943	364	177	62	185
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	82.0	18.0	82.0	20.0	30.0	20.0	30.0
Total Split (%)	12.0%	54.7%	12.0%	54.7%	13.3%	20.0%	13.3%	20.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.35	0.78	0.09	0.76	1.46	0.57	0.25	0.78
Control Delay	24.8	33.0	10.7	31.9	265.9	59.2	44.3	69.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.8	33.0	10.7	31.9	265.9	59.2	44.3	69.1
Queue Length 50th (ft)	30	577	7	544	~393	146	47	133
Queue Length 95th (ft)	94	639	20	603	#583	227	84	215
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	259	2568	259	2570	249	314	317	299
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.78	0.09	0.76	1.46	0.56	0.20	0.62

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1864	49	22	1809	37	346	101	67	59	66	110
Future Volume (veh/h)	86	1864	49	22	1809	37	346	101	67	59	66	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	1962	52	23	1904	39	364	106	71	62	69	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	2658	70	266	2609	53	237	187	125	224	78	131
Arrive On Green	0.11	0.52	0.52	0.10	0.51	0.51	0.10	0.18	0.18	0.04	0.12	0.12
Sat Flow, veh/h	1781	5115	135	1781	5150	105	1781	1045	700	1781	627	1054
Grp Volume(v), veh/h	91	1305	709	23	1258	685	364	0	177	62	0	185
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1781	1702	1851	1781	0	1744	1781	0	1681
Q Serve(g_s), s	3.1	44.8	44.9	0.8	43.4	43.5	14.3	0.0	13.9	4.5	0.0	16.2
Cycle Q Clear(g_c), s	3.1	44.8	44.9	0.8	43.4	43.5	14.3	0.0	13.9	4.5	0.0	16.2
Prop In Lane	1.00		0.07	1.00		0.06	1.00		0.40	1.00		0.63
Lane Grp Cap(c), veh/h	292	1769	959	266	1725	938	237	0	313	224	0	209
V/C Ratio(X)	0.31	0.74	0.74	0.09	0.73	0.73	1.54	0.00	0.57	0.28	0.00	0.89
Avail Cap(c_a), veh/h	292	1769	959	266	1725	938	237	0	313	322	0	258
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.2	28.1	28.1	18.9	29.0	29.0	55.0	0.0	56.2	54.3	0.0	64.6
Incr Delay (d2), s/veh	0.2	2.8	5.1	0.1	2.8	5.0	261.4	0.0	2.0	0.2	0.0	25.1
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	1.4	18.8	21.1	0.3	18.3	20.5	19.3	0.0	6.3	2.1	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	30.9	33.2	18.9	31.7	34.0	316.4	0.0	58.2	54.6	0.0	89.7
LnGrp LOS	C	C	C	B	C	C	F	A	E	D	A	F
Approach Vol, veh/h		2105			1966			541			247	
Approach Delay, s/veh		31.3			32.3			232.0			80.9	
Approach LOS		C			C			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.4	82.0	11.8	33.9	20.4	84.0	20.0	25.6
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	76.0	* 14	23.0	12.0	76.0	* 14	23.0
Max Q Clear Time (g_c+I1), s	5.1	45.5	6.5	15.9	2.8	46.9	16.3	18.2
Green Ext Time (p_c), s	0.0	6.7	0.0	0.4	0.0	7.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	56.6
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

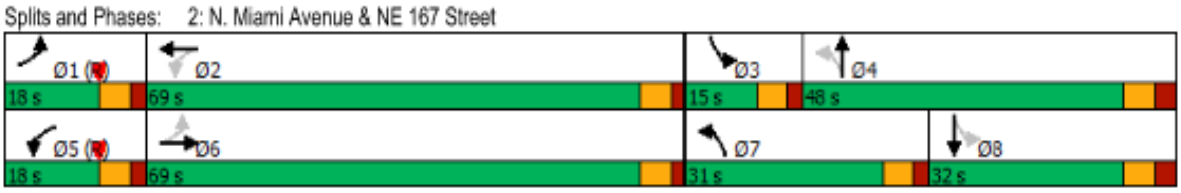
NMB Medical Office
Signal Timing Optimization Modifications
1st September 2021
330088701

N. Miami Avenue and NW/NE 167th Street

Afternoon Peak Hour

Existing Timing

Optimized Timing

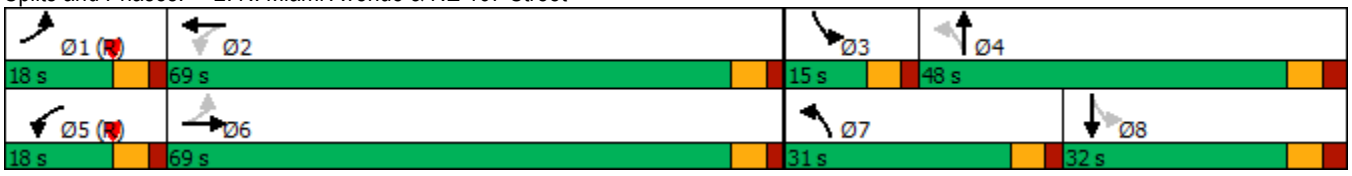


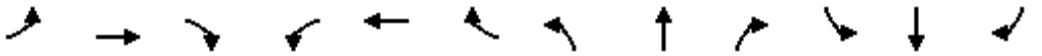
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	86	1864	22	1809	346	101	59	66
Future Volume (vph)	86	1864	22	1809	346	101	59	66
Lane Group Flow (vph)	91	2014	23	1943	364	177	62	185
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA
Protected Phases	1	6	5	2	7	4	3	8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	7	4	3	8
Switch Phase								
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	11.0	24.0	11.0	24.0	10.7	25.0	10.7	25.0
Total Split (s)	18.0	69.0	18.0	69.0	31.0	48.0	15.0	32.0
Total Split (%)	12.0%	46.0%	12.0%	46.0%	20.7%	32.0%	10.0%	21.3%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.7	4.0	3.7	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	5.7	7.0	5.7	7.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	C-Max	Max	None	None	None	None
v/c Ratio	0.33	0.95	0.08	0.91	0.95	0.39	0.26	0.77
Control Delay	24.5	52.3	15.5	48.5	76.5	43.6	37.4	67.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	52.3	15.5	48.5	76.5	43.6	37.4	67.1
Queue Length 50th (ft)	37	688	9	648	299	130	42	133
Queue Length 95th (ft)	95	#767	25	719	#412	195	73	212
Internal Link Dist (ft)		445		642		510		265
Turn Bay Length (ft)	220		300		150			
Base Capacity (vph)	277	2129	277	2130	385	494	261	321
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.95	0.08	0.91	0.95	0.36	0.24	0.58

Intersection Summary

Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: N. Miami Avenue & NE 167 Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	1864	49	22	1809	37	346	101	67	59	66	110
Future Volume (veh/h)	86	1864	49	22	1809	37	346	101	67	59	66	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	1962	52	23	1904	39	364	106	71	62	69	116
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	2235	59	253	2163	44	369	265	177	271	78	132
Arrive On Green	0.12	0.44	0.44	0.10	0.42	0.42	0.17	0.25	0.25	0.04	0.13	0.13
Sat Flow, veh/h	1781	5115	135	1781	5150	105	1781	1045	700	1781	627	1054
Grp Volume(v), veh/h	91	1305	709	23	1258	685	364	0	177	62	0	185
Grp Sat Flow(s),veh/h/ln	1781	1702	1846	1781	1702	1851	1781	0	1744	1781	0	1681
Q Serve(g_s), s	3.7	52.5	52.7	0.9	51.0	51.1	25.3	0.0	12.6	4.5	0.0	16.2
Cycle Q Clear(g_c), s	3.7	52.5	52.7	0.9	51.0	51.1	25.3	0.0	12.6	4.5	0.0	16.2
Prop In Lane	1.00		0.07	1.00		0.06	1.00		0.40	1.00		0.63
Lane Grp Cap(c), veh/h	283	1487	807	253	1430	778	369	0	442	271	0	210
V/C Ratio(X)	0.32	0.88	0.88	0.09	0.88	0.88	0.99	0.00	0.40	0.23	0.00	0.88
Avail Cap(c_a), veh/h	283	1487	807	253	1430	778	369	0	477	309	0	280
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.7	38.6	38.6	26.6	40.0	40.0	47.4	0.0	46.5	54.1	0.0	64.5
Incr Delay (d2), s/veh	0.2	7.6	13.1	0.1	8.0	13.6	43.3	0.0	0.4	0.2	0.0	21.2
Initial Q Delay(d3),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
%ile BackOfQ(50%),veh/ln	1.6	23.3	26.6	0.4	22.8	26.1	16.3	0.0	5.6	2.1	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	46.2	51.7	26.6	48.1	53.7	90.7	0.0	47.0	54.3	0.0	85.7
LnGrp LOS	C	D	D	C	D	D	F	A	D	D	A	F
Approach Vol, veh/h		2105			1966			541			247	
Approach Delay, s/veh		47.3			49.8			76.4			77.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.2	69.0	11.7	45.0	21.7	71.5	31.0	25.8
Change Period (Y+Rc), s	6.0	6.0	* 5.7	7.0	6.0	6.0	* 5.7	7.0
Max Green Setting (Gmax), s	12.0	63.0	* 9.3	41.0	12.0	63.0	* 25	25.0
Max Q Clear Time (g_c+I1), s	5.7	53.1	6.5	14.6	2.9	54.7	27.3	18.2
Green Ext Time (p_c), s	0.0	4.5	0.0	0.8	0.0	4.3	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

DRIVEWAYS

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	224	32	9	0
Future Vol, veh/h	0	0	224	32	9	0
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, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	243	35	10	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	278	0	-	0	261	261
Stage 1	-	-	-	-	261	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1285	-	-	-	728	778
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1285	-	-	-	728	778
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	783	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1285	-	-	-	728
HCM Lane V/C Ratio	-	-	-	-	0.013
HCM Control Delay (s)	0	-	-	-	10
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	210	15	37	0
Future Vol, veh/h	0	0	210	15	37	0
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, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	228	16	40	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	244	0	-	0	236	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	0	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1322	-	-	-	752	803
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1322	-	-	-	752	803
Mov Cap-2 Maneuver	-	-	-	-	752	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1322	-	-	-	752
HCM Lane V/C Ratio	-	-	-	-	0.053
HCM Control Delay (s)	0	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

ATTACHMENT F
ITE EXCERPTS & QUEUING ANALYSIS CALCULATIONS

Valet Service Time Calculations

NMB Medical Office Valet Operations

Hotel Valet Service Time Drop-off	
Activity	**Service Time (min)**
Vehicle Pick-Up	0.40
Lift Time (Get on)	1.00
Return to Valet booth (Weighted Avg.)	0.10
Total Service Time	**1.50**

Hotel Valet Service Time Pick-up	
Activity	**Service Time (min)**
Get Ticket/Keys	0.15
Lift Time (Get off)	1.50
Return car	0.10
Total Service Time	**1.75**

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VALET-QUEUING ANALYSIS NMB MEDICAL OFFICE

Estimated Service Time

Entrance Type	Time (min)
Valet Ingress	1.50
Valet Egress	1.75

Trip Generation Estimates

Peak Hour	In	Out	Total
AM	32	9	41
PM	15	37	52

Morning Peak Hour Valet Queuing Analysis (Ingress)

Peak Hour Arrival Rate (veh/hr): **32**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **1.50**
Number of Operators: **2**

N	Q	q	r	Q_m	M
1	80	32	0.4000	0.4000	**1.3**

Afternoon Peak Hour Valet Queuing Analysis (Ingress)

Peak Hour Arrival Rate (veh/hr): **15**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **1.50**
Number of Operators: **2**

N	Q	q	r	Q_m	M
1	80	15	0.1875	0.1875	**0.0**

Morning Peak Hour Valet Queuing Analysis (Egress)

Peak Hour Arrival Rate (veh/hr): **9**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **1.75**
Number of Operators: **2**

N	Q	q	r	Q_m	M
1	69	9	0.1304	0.1304	**0.0**

Afternoon Peak Hour Valet Queuing Analysis (Egress)

Peak Hour Arrival Rate (veh/hr): **37**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **1.75**
Number of Operators: **2**

N	Q	q	r	Q_m	M
1	69	37	0.5362	0.5362	**2.8**

Table of Q_m Values

r	N=1	2	3	4
0.1	0.1000	0.0182	0.0037	0.0008
0.2	0.2000	0.0666	0.0247	0.0093
0.3	0.3000	0.1385	0.0700	0.0370
0.4	0.4000	0.2286	0.1411	0.0907
0.5	0.5000	0.3333	0.2368	0.1739
0.6	0.6000	0.4501	0.3548	0.2870
0.7	0.7000	0.5766	0.4923	0.4286
0.8	0.8000	0.7111	0.6472	0.5964
0.9	0.9000	0.8526	0.8172	0.7878
1.0	1.0000	1.0000	1.0000	1.0000

* ITE Transportation and Development Table 8.11

Required queuing storage equation:

$$M = \frac{\ln(0.05) - \ln(Q_m)}{\ln \rho} - 1$$

where:

N = Number of Lanes
Q = Average Service Rate (veh/hr)
q = Peak Hour Arrival Rate (veh/hr)
r = Coefficient of Utiliation (q/NQ)
Q_m = ITE table value of relationship between queue l
utilization factor (ITE Transportation and Land D
M = Queue length which is exceeded 5% of the tim

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INSTITUTE
OF
TRANSPORTATION ENGINEERS

Transportation and Land Development

Vergil G. Stover
Texas A & M University

Frank J. Koepke
The Traffic Institute, Northwestern University

Prentice Hall, *Englewood Cliffs, New Jersey 07632*

APPLICATIONS OF QUEUEING ANALYSIS

Providing an adequate and well-defined storage area for drive-thru traffic is particularly critical, especially at fast-food restaurants and drive-thru bank facilities where queues can, and do, become quite long. Waiting vehicles should be stored on private property clear of driveways so that traffic back-up does not interfere with movement on the arterial street. At fast-food restaurants, the menu board should be installed upstream of the service window to permit drive-thru customers to place their orders prior to their arrival at the service window. Preparation of their order can then begin before they reach the service window, thus minimizing their time at the service window. A well-defined storage area for the waiting traffic should be located so that the waiting vehicles do not block or impede the movement of driveway traffic.

Where a single service position is involved, the situation is referred to as a *single-channel problem*. *Multiple-channel problems* arise when two or more service positions are available. Such problems commonly arise with bank tellers (indoor as well as drive-in windows), entrances and exits at large parking lots and garages, at passenger pick-up areas at transit stations and taxi stands, truck terminals or loading/unloading areas, supermarket checkout counters, telephone calls, building entrances, and transit-station turnstiles. The assumptions of Poisson arrivals and negative exponential service time are commonly acceptable and used for both single- and multiple-channel problems. Thurgood [11] found these assumptions to be representative of drive-in facilities.

Customers arriving randomly at a drive-in facility may enter into service immediately or may have to enter the queue until they can be served. Waiting lines occur whenever the immediate demand for service exceeds the current capacity of the facility providing that service.

Basic Notation and Terminology

The following notation is employed throughout this section:

n = number of customers in the drive-in system
M = number of customers in the queue waiting to be served (number of customers in the system minus the number being served)
$P(n)$ = steady-state probability that exactly n customers are in the queueing system
$P(0)$ = probability that zero vehicles are in the queueing system
N = number of parallel service positions
q = mean average arrival rate of vehicles into the system (vehicles/hour)
Q = mean average service rate per service position (vehicles/hour/position)
Avg $(t) = \%Q$ = mean service time expressed in minutes per vehicle
$\rho = \%NQ$ = coefficient of utilization
$E(m)$ = expected (average) number of customers in the system
$E(n)$ = expected (average) number of customers waiting in the queue
$E(t)$ = expected (average) waiting time in system (includes service time)
$E(w)$ = expected (average) waiting time in queue (excludes service time)

The equations employed in the analysis of queueing problems are given in Table 8-10.

Jones, Woods, and Thurgood [4] have developed a graph (Figure 8-6) for determining the probability that there will be no customers in the system—values for $P(0)$. They also developed graphs for determining the average number of waiting customers (Figure 8-7), the average waiting time (Figure 8-8), and average queue length (Figure 8-9). These figures avoid the necessity to perform the time-consuming, although simple, queueing-analysis calculations. See pp. 228–30.

TABLE 8-10
Queueing System Equations

Equation Number	*Variable*	*Equation*
(8-1)	Coefficient of utilization	$\rho = \dfrac{q}{NQ}$
(8-2)	Probability of no customers in the system	$P(0) = \left[\sum_{n=0}^{N-1} \dfrac{\left(\frac{q}{Q}\right)^n}{n!} + \dfrac{\left(\frac{q}{Q}\right)^N}{N!(1-\rho)}\right]^{-1}$
(8-3)	Mean number in the queue	$E(m) = \left[\dfrac{\rho\left(\frac{q}{Q}\right)^N}{N!(1-\rho)^2}\right] P(0)$
(8-4)	Mean number in the system	$E(n) = E(m) + \dfrac{q}{Q}$
(8-5)	Mean wait time in queue (hours)	$E(w) = \dfrac{E(m)}{q}$
(8-6)	Mean time in the system (hours)	$E(t) = E(w) + \dfrac{1}{Q}$ $= E(w) + \text{Avg}\ (t)$
(8-7)	Proportion of customers who wait	$P[E(w) > 0] = \left[\dfrac{\left(\frac{q}{Q}\right)^N}{N!(1-\rho)}\right] P(0)$
(8-8)	Probability of a queue exceeding a length M	$P(x > M) = (\rho^{N+1})P[E(w) > 0]$
(8-9a)	Queue storage required	$M = \left[\dfrac{\ln P(x > M) - \ln E(w) > 0}{\ln \rho}\right] - 1$
(8-9b)*	Queue storage required	$M = \left[\dfrac{\ln P(x > M) - \ln Q_M}{\ln \rho}\right] - 1$

*Q_M is a statistic which is a function of the utilization rate and the number of service channels (service positions); see Table 8-11. The table of Q_M values and use of Equation (8-9b) greatly simplifies the calculations compared to those using Equations (8-9a).

Use of the equations and the graphs may be illustrated by the following example of a drive-in bank.

Conditions:

Number of drive-in windows, $N = 3$

Demand on the system, $q = 70$

Service capacity per channel, $Q = 28.6$ for an average service time, Avg $(t) = 2.1$ minutes

Solution Using Graphs:

- Coefficient of utilization $= 70/(3)(28.6) = 0.816$
- Probability that there are customers waiting in the system, Figure 8-6: $P(0) = 0.05$
- Expected average number of customers waiting in the queue, Figure 8-7: $E(m)/N = 1.0$; and the average number $E(m) = (3)(1.0) = 3$

location, a 5% probability of back-up onto the adjacent street is judged to be acceptable. Demand on the system for design is expected to be 110 vehicles in a 45-minute period. Average service time was expected to be 2.2 minutes. Is the queue storage adequate?

Such problems can be quickly solved using Equation (8–9b) given in Table 8-10 and repeated below for convenience.

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho}\right] - 1$$

where:

M = queue length which is exceeded p percent of the time
N = number of service channels (drive-in positions)
Q = service rate per channel (vehicles per hour)
$\rho = \dfrac{\text{demand rate}}{\text{service rate}} = \dfrac{q}{NQ}$ = utilization factor
q = demand rate on the system (vehicles per hour)
Q_M = tabled values of the relationship between queue length, number of channels, and utilization factor (see Table 8.11)

TABLE 8-11
Table of Q_M Values

	$N = 1$	2	3	4	6	8	10
0.0	0.0000	0.0000	0.0000	0.0000			
0.1	.1000	.0182	.0037	.0008	.0000	0.0000	0.0000
.2	.2000	.0666	.0247	.0096	.0015	.0002	.0000
.3	.3000	.1385	.0700	.0370	.0111	.0036	.0011
.4	.4000	.2286	.1411	.0907	.0400	.0185	.0088
.5	.5000	.3333	.2368	.1739	.0991	.0591	.0360
.6	.6000	.4501	.3548	.2870	.1965	.1395	.1013
.7	.7000	.5766	.4923	.4286	.3359	.2706	.2218
.8	.8000	.7111	.6472	.5964	.5178	.4576	.4093
.9	.9000	.8526	.8172	.7878	.7401	.7014	.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

$\rho = \dfrac{q}{NQ} = \dfrac{\text{arrival rate, total}}{(\text{number of channels})(\text{service rate per channel})}$
N = number of channels (service positions)

Solution

Step 1: $Q = \dfrac{60 \text{ min/hr}}{2.2 \text{ min/service}} = 27.3$ services per hour

Step 2: $q = (110 \text{ veh}/45 \text{ min}) \times (60 \text{ min/hr}) = 146.7$ vehicles per hour

Step 3: $\rho = \dfrac{q}{NQ} = \dfrac{146.7}{(6)(27.3)} = 0.8956$

Step 4: $Q_M = 0.7303$ by interpolation between 0.8 and 0.9 for $N = 6$ from the table of Q_M values (see Table 8-11).

Step 5: The acceptable probability of the queue, M, being longer than the storage, 18 spaces in this example, was stated to be 5%. $P(x > M) = 0.05$, and:

$$M = \left[\frac{\ln 0.05 - \ln 0.7303}{\ln 0.8956}\right] - 1 = \left[\frac{-2.996 - (-0.314)}{-0.110}\right] - 1$$

$$= 24.38 - 1 = 23.38, \text{ say } 23 \text{ vehicles.}$$

The number of vehicles in the queue would be expected to exceed 23 more than 5% of the time. Since the site plan will accommodate a queue of 18 vehicles, the storage is not sufficient for the conditions stated.

It is important to realize that, for any $P\ (x > M)$ value, the queue length required increases very rapidly for values of $\rho > 0.85$ (see Figure 8-9). When $\rho > 1.0$, the solution is indeterminate and the queue length theoretically becomes infinite.

Analysis of Service Times. In many instances it is effective to demonstrate that a proposed design not only is inadequate to store vehicles waiting for service but will result in unacceptable wait times as well. The necessary equations are given in Table 8-10.

For purposes of checking computations it is convenient to know that the limit of $P(0)$, as the number of channels approaches infinity (in practical terms when $N > 10$), is:

$$\lim_{N \to \infty} P(0) = e^{-\lambda} \qquad \text{where } \lambda = q/Q$$

Drive-In Bank Example: Under the site-development approval requirements, representatives of a bank presented a site plan for the construction of a new bank having three service positions. Information provided by bank officials and observations at other local banks provided the following data:

- Expected average arrival rate during the design hour (4:30–5:30 p.m. on Fridays) = 70 vehicles per hour (vph)
- Average service time per customer = 2.1 minutes

Does the site plan provide for sufficient storage to accommodate all vehicles arriving 95% of the time?

$$q = 70 \text{ vph arrival rate}$$

$$Q = \frac{60 \text{ minutes per hour}}{2.1 \text{ minutes per service}} = 28.6 \text{ vph service rate}$$

$$\rho = \frac{70}{(3)(28.6)} = 0.816$$

$$\frac{q}{Q} = \frac{70}{28.6} = 2.45$$

$$Q_M = 0.674 \text{ by interpolation from Table 8-11}$$

$$P(x > M) = 1.00 - 0.95 = 0.05$$

By Equation (8-9b)

$$M = \left[\frac{\ln 0.05 - \ln 0.674}{\ln 0.816}\right] - 1 = \left[\frac{-2.996 - (-0.396)}{-0.203}\right] - 1 = 11.8, \text{ say } 12$$

Thus, it would be necessary to store 12 vehicles, exclusive of the three service positions, in order to accommodate the arriving vehicles 95% of the time; or alternatively, to have waiting vehicles extending back into the adjacent street no more than 5% of the time between 4:30 and 5:30 p.m. on Fridays. Since the site plan provides for six spaces, the site plan as submitted is inadequate and should be disapproved.

A solution to the problem would be to increase the storage, or if this is not possible add a service position in order to reduce the average service time.

Addition of a service position would reduce the number of storage spaces needed to three (three storage plus four service positions)—assuming the same arrival rate and service time:

$$M = \left[\frac{\ln 0.05 - \ln 0.301}{\ln 0.612}\right] - 1 = 2.7, \text{ say } 3$$

A redesign to provide four service positions would have the additional benefit of substantially reducing the expected waiting time (from over 4 minutes to less than $\frac{1}{2}$ minute) for the bank customers using the drive-in windows:

With Three Service Positions:

$$q = 70 \text{ vph}$$
$$Q = 28.6 \text{ vph}$$
$$\frac{q}{Q} = 2.45$$
$$\rho = \frac{70}{(3)(28.6)} = 0.816$$
$$P(0) = \left[\frac{(2.45)^0}{0!} + \frac{(2.45)^1}{1!} + \frac{(2.45)^2}{2!} + \frac{(2.45)^3}{3!\left[1 - \left(\frac{2.45}{3}\right)\right]}\right]^{-1}$$
$$= [1 + 2.45 + 3.00 + 13.37]^{-1} = 0.0505$$
$$E(m) = \left[\frac{(0.816)\left(\frac{70}{28.6}\right)^3}{3!(1 - 0.816)^2}\right] 0.0505 = 2.97$$
$$E(n) = 2.97 + 70.28.6 = 5.42$$
$$E(t) = \frac{2.97}{70} = 0.0424 \text{ hours or } 2.55 \text{ minutes}$$
$$E(w) = 0.0424 + \frac{1}{28.6} = 0.0774 \text{ hours or } 4.64 \text{ minutes}$$

With Four Service Positions:

$$q = 70 \text{ vph}$$
$$Q = 28.6 \text{ vph}$$
$$\frac{q}{Q} = 2.45$$
$$\rho = \frac{70}{(4)(28.6)} = 0.612$$
$$P(0) = \left[\frac{(2.45)^0}{0!} + \frac{(2.45)^1}{1!} + \frac{(2.45)^2}{2!} + \frac{(2.45)^3}{3!} + \frac{(2.45)^4}{4!\left[1 - \left(\frac{2.45}{4}\right)\right]}\right]^{-1}$$
$$= 0.0783$$
$$E(m) = \left[\frac{(0.612)(2.45)^4}{4!(1 - 0.612)^2}\right] 0.0783 = 0.48$$
$$E(n) = 0.48 + 2.45 = 2.93$$
$$E(t) = 0.007 + \frac{1}{28.6} = 0.042 \text{ hours or } 2.51 \text{ minutes}$$
$$E(w) = \frac{0.48}{70} = 0.007 \text{ hours or } 0.41 \text{ minutes}$$

However, the service time would increase somewhat unless an additional teller were also added. Nevertheless, an increase to 2.5 minutes, or more, would still reduce the storage space required and result in better service (less time in the system). Besides, time spent being served is less irritating to the customer than an equal time spent waiting.

Conversion of a Residence. An existing single-family residence was situated on a 2.5-acre tract fronting on the major north–south arterial in the urbanizing fringe of a metropolitan area of 100,000 population. The 85th percentile speed exceeded 50 mph; however, it was anticipated that the speed limit would be reduced to 45 mph as further urbanization occurred.

Requests for rezoning from single-family residential to general commercial had received negative recommendations from the Planning and Zoning Commission and denied by the City Council. Nevertheless, the fact that changing conditions in the vicinity of the site were making the property less desirable as a single-family residence was generally recognized. Therefore, when an application was submitted for a Conditional Use Permit to establish a private school using the existing residence for classrooms, the Planning and Zoning Commission was very favorably disposed to the request. The applicant provided the following information prior to the public hearing.

1. The completed application for a conditional use
2. A statement that the intended use was for a Montessori school using the existing structure
3. A site plan as required for all proposed development, other than single-family and duplex residential development, before a building permit will be issued for a new structure and for remodeling of an existing one

The following information was presented at the public hearing by the applicant:

1. At least 40 students would be enrolled before any change would be made in the site circulation.
2. Eighty percent of the students were expected to be picked up within a 20-minute period—a substantial additional fee was to be charged for children picked up more than 30 minutes after school.
3. A strong parent–school relationship was intended, so that average pick-up time of at least 2 minutes and visits of 5 minutes or longer would not be unusual.

The following were agreed upon at the public hearing:

1. The probability of vehicles backing up onto the main lane of the major arterial should be negligible, less than 1%.
2. The site plan, with no change in the circulation pattern, would provide for four service positions and three storage positions.

Based upon these conditions, the following analysis was performed using Equation (8-9b):

$$M = 3$$

$$N = 4$$

$$Q = 60 \text{ minutes per hour} \div 2 \text{ minutes per service} = 30 \text{ vph}$$

$$q = (40 \text{ students})\,(80\% \text{ in } 20 \text{ minutes})\left(\frac{60}{20}\right) = 96 \text{ vph}$$

$$\rho = \frac{96}{(4)\,(30)} = 0.8000$$

$$P(x > 3) = 0.01 \text{ (a 1\% chance of vehicles backing up onto the arterial)}$$

$$Q_M = 0.8585, \text{ from Table 8-11}$$

$$3 = \left[\frac{\ln P(x > 3) - \ln 0.5964}{\ln 0.8000}\right] - 1$$

$$3 = \left[\frac{\ln P(x > 3) - (-0.5168)}{-0.2231}\right] - 1$$

Then,

$$\ln P(x > 3) = (4)(-0.2231) - 0.5168 = -1.4092$$

and

$$P(x > 3) = e^{-1.4092} = 0.244 \text{ or } 24\%$$

Thus, the calculated probability that the queue could back up onto the arterial is 24% (given the stated conditions), which is considerably greater than the acceptable probability of less than 1%, and the application was denied. The Planning and Zoning Commission suggested various compromises of redesign of the site and issuance of a conditional use permit for a school (under the ordinance, a school can be located in any zoning district by condition) with the condition that the maximum enrollment would not exceed 24 students, which is the number necessary to achieve a value of $P(x > 3) < 0.01$. All such proposals were rejected by the applicant. The site was subsequently rezoned to the Administrative and Professional District (a restricted office district) and is now being used as a dentist's office.

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