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TRAFFIC IMPACT ANALYSIS

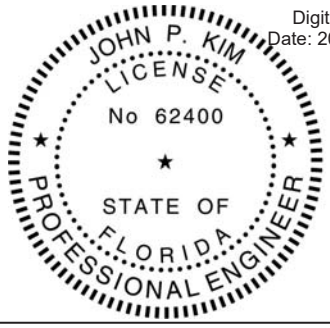
Kendall Baptist

Miami-Dade County
Miami, Florida

Prepared For:
Altman Development Company
1515 S. Federal Highway, Suite 300
Boca Raton, FL 33432

Prepared By:
Langan Engineering & Environmental Services, Inc.
15150 NW 79 Court
Miami Lakes, FL 33016
FL Certificate of Authorization No: 6601

Digitally signed by John P Kim
Date: 2021.09.28 15:22:09-04'00'



This item has been digitally signed and sealed by John P. Kim, PE on the date adjacent to the seal.

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John P. Kim, P.E., PTOE
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Principal/Vice President

17 February 2021
20 May 2021
24 August 2021
Revised: 28 September 2021

LANGAN

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EXECUTIVE SUMMARY

Langan Engineering & Environmental Services, Inc. was retained to prepare a traffic-impact analysis for the Kendall Baptist development that will be built in unincorporated Miami-Dade County, Florida. The 14.49-acre site is on the northeast corner of State Road 825 (SW 137th Avenue) and SW 96th Street and comprises two parcels. The proposed development comprises 52,600 square feet of medical office uses and 342 mid-rise multifamily dwelling units to be built by 2023. We analyzed three signalized intersections and one stop-sign controlled intersection for the 2023 build conditions. The peak-hour traffic-impact analyses with the proposed development's impacts in 2023 yielded the following results:

- The signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets are expected to operate within their adopted Level of Service (LOS) during the morning and afternoon peak-hours with the project's impacts.
- The signalized intersection of SW 137th Avenue and State Road 94 (SW 88th Street) is expected to operate beyond capacity during the afternoon peak hour with and without the project's impacts.
- We optimized the signal timing, without changing the cycle length, of SW 137th Avenue at SW 88th, SW 96th, and SW 104th streets to mitigate the delay for the movements and approaches impacted by the proposed development.
- There are no roadway improvements that can be constructed at the intersection of SW 137th Avenue and SW 88th Street to mitigate the existing and expected delays at this intersection.
- The stop-sign controlled intersection is expected to operate within its adopted LOS during the morning and afternoon peak-hours.
- All of the proposed driveway connections to public roadways will operate at LOS D or better for the morning and afternoon peak-hours.
- The main entrance of the proposed development will align with an existing median opening on SW 137th Avenue that will allow southbound left-turns to enter the site. We analyzed the existing southbound left-turn and determined that it has the capacity to store the expected left-turn vehicle queue at this location.
- The proposed development does not warrant the need for exclusive turn lanes at the proposed entrances; however, the developer has agreed to construct an exclusive northbound right-turn lane at the proposed main entrance.
- The gate-controlled entrance will have sufficient vehicle-stacking storage to accommodate the expected morning and afternoon peak-hour queues due to entering traffic.

We conducted intersection-capacity analyses for the existing, no build (future without project) and build (future with project) conditions. The proposed development is expected to generate 3,752 daily, 246 morning peak-hour, and 327 afternoon peak-hour net-new trips.

INTRODUCTION

Langan was retained to prepare this impact-analysis report for the Kendall Baptist (development) that will be built in unincorporated Miami-Dade County, Florida. The 14.49-acre site comprises two parcels on the northeast corner of SW 137th Avenue and SW 96th Street. The proposed development comprises 52,600 square feet of medical office uses and 342 mid-rise multifamily dwelling units to be built by 2023.

We analyzed three signalized intersections and one stop-sign controlled intersection during the morning and afternoon peak hours. We found that the signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets are expected to operate within their adopted LOS during the morning and afternoon peak-hours with the proposed project's impacts. The signalized intersection of SW 137th Avenue and SW 88th Street is expected to operate beyond capacity during the afternoon peak-hour with and without the proposed project's impacts. We optimized the signal timing, without changing the cycle length, of the three signalized intersections to mitigate the movements and approaches impacted by the proposed development. The stop-sign controlled intersection is expected to operate within its adopted LOS with the project's impacts. The queuing analysis for the proposed gated entrance shows that the expected vehicle queues will not spill back onto SW 137th Avenue. This report presents the traffic-data and traffic-impact analysis for this proposed development.

Project Description

Appendix A contains the figures of this report and Figure **1** illustrates the site location. **Appendix B** contains copies of the site plans showing the proposed development program and a list of the development's parcels (Folio Nos. 30-5902-050-0010 and 30-5902-000-0100). The proposed development will have access through three driveway connections to SW 137th Avenue. The north driveway will operate as a right-turn only driveway connection to access the proposed medical office building. The middle driveway (main entrance) will align with an existing median opening that will allow left-turns and right-turns to enter the site and will only allow right-turns out of this proposed driveway. The south driveway will operate as an exit-only driveway for residents and as a right-turn only entrance for emergency vehicles. The driveway will be signed and designed accordingly.

Scope of Study

Langan undertook the following steps to prepare this study in accordance with the methodology accepted by Miami-Dade County Department of Transportation and Public Works Traffic Division. **Appendix C** contains a copy of the methodology letter accepted by county staff.

- Collected morning (7 to 9 AM) and afternoon (4 to 6 PM) peak-hour vehicle turning-movement volumes at the following study intersections:
    - SW 137th Avenue and SW 88th Street (signalized)
    - SW 137th Avenue and Median Opening (second opening north of SW 96th Street) (unsignalized)
    - SW 137th Avenue and SW 96th Street (signalized)
    - SW 137th Avenue and SW 104th Street (signalized)

- Developed a COVID-adjustment factor by comparing 2019 traffic data to 2020 traffic data at the intersection of SW 137th Avenue and SW 88th and SW 104th streets to convert the traffic data into peak-season volumes.
- Prepared trip-generation estimates for the proposed development, based on accepted trip-generation rates developed by the Institute of Transportation Engineers (ITE)
- Calculated a growth rate for background traffic by using FDOT historical data from traffic-count stations near the project.
- Developed trip-distribution estimates for the project, based on the cardinal distribution for the corresponding Traffic Analysis Zone of the Miami-Dade County 2045 Long Range Transportation Plan (LRTP). A computer program used to develop the *2045 LRTP Directional Distribution Report* generates directional distributions for each TAZ for the eight secondary-intercardinal directions (NNE; ENE; ESE; SSE; SSW; WSW; WNW; NNW).
- Prepared morning and afternoon peak-hour intersection-capacity analyses for the following conditions at the study intersections: 2020 existing, 2023 future no-build, and 2023 future build.
- Calculated the morning and afternoon peak-hour LOS intersection-capacity analyses of the development's driveways for the 2023 build conditions.

DESCRIPTION OF EXISTING CONDITIONS

Langan visited the study area to collect the lane-configuration and traffic-control data shown in **Figure 2**. **Appendix D** contains the county's signal-timing data.

Roads

SW 137th Avenue

SW 137th Avenue (SR-825) is a six-lane, north-south, divided, state-maintained principal arterial with a 40 MPH posted speed limit. North of SW 88th Street, the road is maintained by the county.

SW 88th Street

SW 88th Street (SR 94) is a six-lane, east-west, divided, state-maintained principal arterial with a 40 MPH posted speed limit.

SW 96th Street

SW 96th Street is a four-lane divided, east-west, county-maintained local roadway with a posted speed limit of 30 MPH.

SW 104th Street

SW 104th Street (SR 990) is a six-lane, east-west, divided, county-maintained minor arterial with a 40 MPH posted speed limit.

Traffic Volumes

Traffic-volume data was collected on Wednesday, November 4, 2020 from 7:00 to 9:00 AM and 4:00 to 6:00 PM. We developed peak-hour COVID-adjustment factors (1.16 morning and 1.17 afternoon) by comparing the traffic data collected at the intersections of SW 137th Avenue and SW 88th and SW 104th streets to 2019 traffic counts collected at the same intersections. The factors were applied to convert the data to peak-season volumes. We compared the data of each intersection and determined that the peak hour occurred between 8:00 and 9:00 AM and between 4:45 and 5:45 PM for the study area. **Figure 3** illustrates the existing weekday morning and afternoon peak-hour traffic volumes. Appendix D contains the traffic data and seasonal-adjustment factors.

Intersection Capacity Analysis (Level of Service)

We conducted 2020 existing-conditions capacity analyses for the study intersections using Synchro software. We found that the signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets operate within their adopted LOS during the morning and afternoon peak-hours. The signalized intersection of SW 137th Avenue and SW 88th Street operates beyond capacity during the afternoon peak-hour. The stop-sign controlled approach of the intersection of SW 137th Avenue and the median opening operates within its adopted LOS during the morning and afternoon peak hours. **Table 1** summarizes the results of the existing-conditions analysis. **Appendix E** contains intersection-volume tables; **Appendix F** contains the capacity-analyses worksheets.

Capacity analyses for stop-sign controlled intersections are calculated for certain intersection approaches, not for the entire intersection. The stop-sign controlled approaches of stop-sign controlled intersections often exceed their adopted LOS during peak hours because all vehicles must stop and incur a delay before proceeding through the intersection. Capacity analysis provides an indication of the adequacy of intersection and roadway facilities to serve traffic demand. The evaluation criteria used to analyze the study intersections is based on the *2010 Highway Capacity Manual* published by the Transportation Research Board. The adopted maximum LOS for intersections and roadways is LOS D for county roadways and LOS E for state roadways.

Table 1 - 2020 Existing Intersection Capacity Analysis Summary

Location	Control Type	Approach	AM Peak Hour		PM Peak Hour	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SW 137th Avenue & SW 88th Street	Signalized	Overall	E	72.3	F	80.0
SW 137th Avenue & Median Opening	Unsignalized	SBL	D	25.8	C	23.6
SW 137th Avenue & SW 96th Street	Signalized	Overall	C	26.6	C	21.7
SW 137th Avenue & SW 104th Street	Signalized	Overall	E	72.3	E	61.5

PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS

We reviewed the Transportation Planning Organization's 2020 Transportation Improvement Program (2020 through 2025), the county Long Range Transportation Plan (2045) and the FDOT Five Year Work Program (2020 through 2025) and found that there two projects within our study area. Miami Dade County TPO shows project DT4377841 as a priority one project as part of the Strategic Miami Area Rapid Transit (SMART) Plan to improve the rapid transit along SW 88th Street and enhance transit accessibility. Miami Dade County's LRTP shows project PW185 that will widen SW 104th Street from four to six lanes from SW 137th Avenue to SW 147th Avenue. Appendix D includes excerpts from the 2045 LRTP showing the planned improvements.

FUTURE CONDITIONS

This section of the report covers background traffic growth, site-generated trips, trip distribution, and future traffic volumes. The project should be completed by the end of 2023. We developed 2023 no-build traffic volumes by applying a compounded growth rate to the 2020 volumes and by adding traffic from the Calusa Kendall residential development as a committed development. We added site-generated trips to the 2023 no-build traffic volumes to develop 2023 build traffic volumes. **Appendix G** contains excerpts from the committed developments.

Background Traffic

We conducted intersection capacity analyses and found that the signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets are expected to operate within their adopted LOS during the morning and afternoon peak-hours. The signalized intersection of SW 137th Avenue and SW 88th Street is expected to operate beyond capacity during the afternoon peak-hour. The stop-sign controlled approach of the intersection of SW 137th Avenue and the median opening is expected to operate at LOS A during the morning and afternoon peak hours. We used a 0.17 percent annual growth-rate factor to develop future background volumes based on FDOT historical traffic volumes. The growth-rate factor accounts for increased background traffic volumes and was applied to the existing volumes to develop 2023 no-build traffic volumes. **Figure 4** illustrates the 2023 no-build traffic volumes. **Table 2** summarizes the results of the 2023 no-build conditions capacity analysis. Appendix F contains the capacity-analyses worksheets.

Table 2 - 2023 No Build Intersection Capacity Analysis Summary

Location	Control Type	Approach	AM Peak Hour		PM Peak Hour	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SW 137th Avenue & SW 88th Street	Signalized	Overall	E	73.2	F	81.0
SW 137th Avenue & Median Opening	Unsignalized	SBL	D	26.2	C	23.7
SW 137th Avenue & SW 96th Street	Signalized	Overall	C	26.8	C	21.8
SW 137th Avenue & SW 104th Street	Signalized	Overall	E	73.5	E	67.7

Site-Generated Trips

The proposed development is expected to generate 3,752 daily, 246 morning peak-hour, and 327 afternoon net-new peak-hour trips. We prepared daily, morning peak-hour and afternoon peak-hour trip estimates for the proposed development using equations from the 10th Edition of the

ITE *Trip Generation Manual*. We applied a 2.3% non-vehicular reduction factor based on census data for the area. **Table 3** summarizes the trip-generation estimates for the proposed development. **Appendix H** contains the trip-generation data.

Table 3 - Trip Generation Estimates

Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Uses								
Medical Office	52,600 SF	1,933	98	28	126	50	130	180
Multifamily Housing (Mid-Rise)	342 DU	1,862	32	91	123	95	61	156
Subtotal		3,861	131	122	249	142	188	330
Non-Vehicular Reduction (2.3%)*		43	1	2	3	2	1	3
Net New Trips		**3,752**	**129**	**117**	**246**	**140**	**187**	**327**

** Multimodal Reduction based on census data.*

Trip Distribution

We determined the directional distribution of site-generated trips based on the cardinal distribution data for TAZ 1283 from the Miami-Dade County 2045 Transportation Model (see Appendix D) and from the development's access to the surrounding roadway network. We interpolated the 2015 and 2045 directional-distribution values from the model data to develop percentages for 2023. **Table 4** shows the proposed development's trip distributions. **Figure 5** shows the proposed development's traffic distributions to the study intersections. **Figure 6** illustrates the morning and afternoon development-traffic assignments at the study intersections.

Table 4 - Cardinal Distribution

Year	NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW
2015	17.90%	22.10%	8.40%	10.50%	8.90%	13.10%	11.00%	8.20%
2045	19.70%	22.30%	8.40%	12.90%	9.80%	9.90%	9.00%	8.20%
2023	**18.38%**	**22.15%**	**8.40%**	**11.14%**	**9.14%**	**12.25%**	**10.47%**	**8.20%**

Build Traffic Volumes

We conducted intersection capacity analyses for the study intersections and found that the signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets are expected to operate within their adopted LOS during the morning and afternoon peak-hours for the 2023 build conditions. The signalized intersection of SW 137th Avenue and SW 88th Street is expected to operate beyond capacity in the afternoon peak-hour in 2023 with and without the proposed development's impacts. We optimized the signal timing, without changing the cycle length, of the three signalized intersections to mitigate the movements and approaches impacted by the

proposed development. The stop-sign controlled approach of the intersection of SW 137th Avenue and the median opening (main entrance) is expected to operate at LOS D during the morning and afternoon peak hours for the 2023 build conditions.

The 2023 build traffic volumes were derived by adding the total site-generated trips to the 2023 no-build traffic volumes. **Figure 7** illustrates the 2023 build morning and afternoon peak-hour traffic volumes. **Table 5** summarizes the 2023 build LOS for the morning and afternoon peak hours.

Table 5 - 2023 Build Intersection Capacity Analysis Summary

Location	Control Type	Approach	AM Peak Hour		PM Peak Hour	
			LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SW 137th Avenue & SW 88th Street	Signalized	Overall	E	78.5	F	86.5
	Signalized*		E	75.7	F	84.6
SW 137th Avenue & Median Opening	One-way Stop	WB	D	26.8	D	33.1
SW 137th Avenue & SW 96th Street	Signalized	Overall	C	27.2	C	23.4
	Signalized*		C	26.4	B	18.5
SW 137th Avenue & SW 104th Street	Signalized	Overall	E	74.6	E	69.9
	Signalized*		E	73.9	E	64.1

* *Optimized signal timing without changing cycle length*

Driveway Volumes and Turn Lane Analysis

We analyzed the development's proposed driveway connections to SW 137th Avenue for the morning and afternoon peak-hour build conditions and determined that they are expected to operate at LOS D or better during the morning and afternoon peak-hours for the 2023 build conditions. The north driveway on SW 137th Avenue will operate as a right-turn only driveway that primarily serves the medical office. The middle driveway (main entrance) will align with an existing median opening that will allow left-turns and right-turns to enter the site and will only allow right-turns out of this proposed driveway. The south driveway will operate as an exit-only driveway for residents and as a right-turn only entrance for emergency vehicles. We analyzed the southbound left-turn lanes at the main entrance and determined that the existing southbound left-turn lane has the capacity to store the expected vehicle queues for this movement. The developer will pay for and construct an exclusive northbound right-turn lane on SW 137th Avenue for the project's main driveway as shown on the site plan included in Appendix B even though the peak-hour right-turn volumes do not warrant it. **Figure 8** shows the project site generated trips at the driveway connections to public roadways; Appendix F contains the capacity analysis worksheets.

Queueing Analysis

We prepared a queuing analysis for the proposed gate-controlled entrance for the residential development and found that it will not cause entering traffic to spillback onto the adjacent public roadway (SW 137th Avenue). The middle driveway on SW 137th Avenue will serve residents and visitors to the gate-controlled entrance that will provide access to the eastern and western portions of the residential development. The site plan shows the location of the gated-controlled entrance and the vehicle-storage lengths for each lane (resident & visitor). Note that the gated entrance is well within the site which is served by private roads and the gates are more than 350 feet from the nearest public road (SW 137th Avenue).

We used the queuing-analysis methodology from *Transportation and Land Development* published by the ITE. This methodology requires hourly rates of vehicle arrival and service times for the gate-controlled driveway 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 vehicle arrival rate was based on the project's peak-hour trip generation, summarized in Table 3. The development is expected to generate 90 afternoon peak-hour entering trips. We used the afternoon peak-hour values because they were higher than morning peak-hour values. We used a visitor traffic percentage of 8% based on the Dunwoody Lakes Traffic Engineering Evaluation report prepared by Traftech Engineering, Inc. and approved by the county. An excerpt from the report citing the visitor percentage is included in **Appendix I**.

The developer confirmed that the gate operation will have access control barriers with gate arms that operate vertically for each lane. The resident lane will operate with a bar code reader and the visitor lane will operate with a call box. We collected service times at the gated entrance of the Fiji at the Oasis residential development, which operates with the same type of gate equipment proposed by the developer. The data was collected on Wednesday, September 18, 2019 between 3:30 and 6:00 PM. The service-time data is included in **Appendix J** and shows that the average service time was 22 seconds for the visitor's lane and three seconds for the resident's lane. In order to be conservative, we used the maximum service time of 120 seconds for the visitor's lane and 9 seconds for the resident's lane. Vehicle lengths of 25 feet were used to convert the number of vehicles to linear feet.

Table 6 summarizes the results of the queuing analysis and indicates that queues for the proposed gated entrance are not expected to exceed one vehicle and will not exceed vehicle-storage capacity at the entrance. The outside lane of the internal (private) roadway provides 376 feet of vehicle-storage capacity for visitors and the other lane provides 75 feet of vehicle storage

for residents. **Appendix K** contains excerpts from the ITE and the queuing analysis calculations. Residents and visitors will have separate entrance lanes and gates and they will be required to stop at the gate location. The gates will open separately upon accepted access and visitors will be expected to yield to resident vehicles if both are granted access at the same time. The visitor lane will include a sign that indicates that visitor traffic must yield to resident traffic.

Table 6 - Queuing Analysis Summary

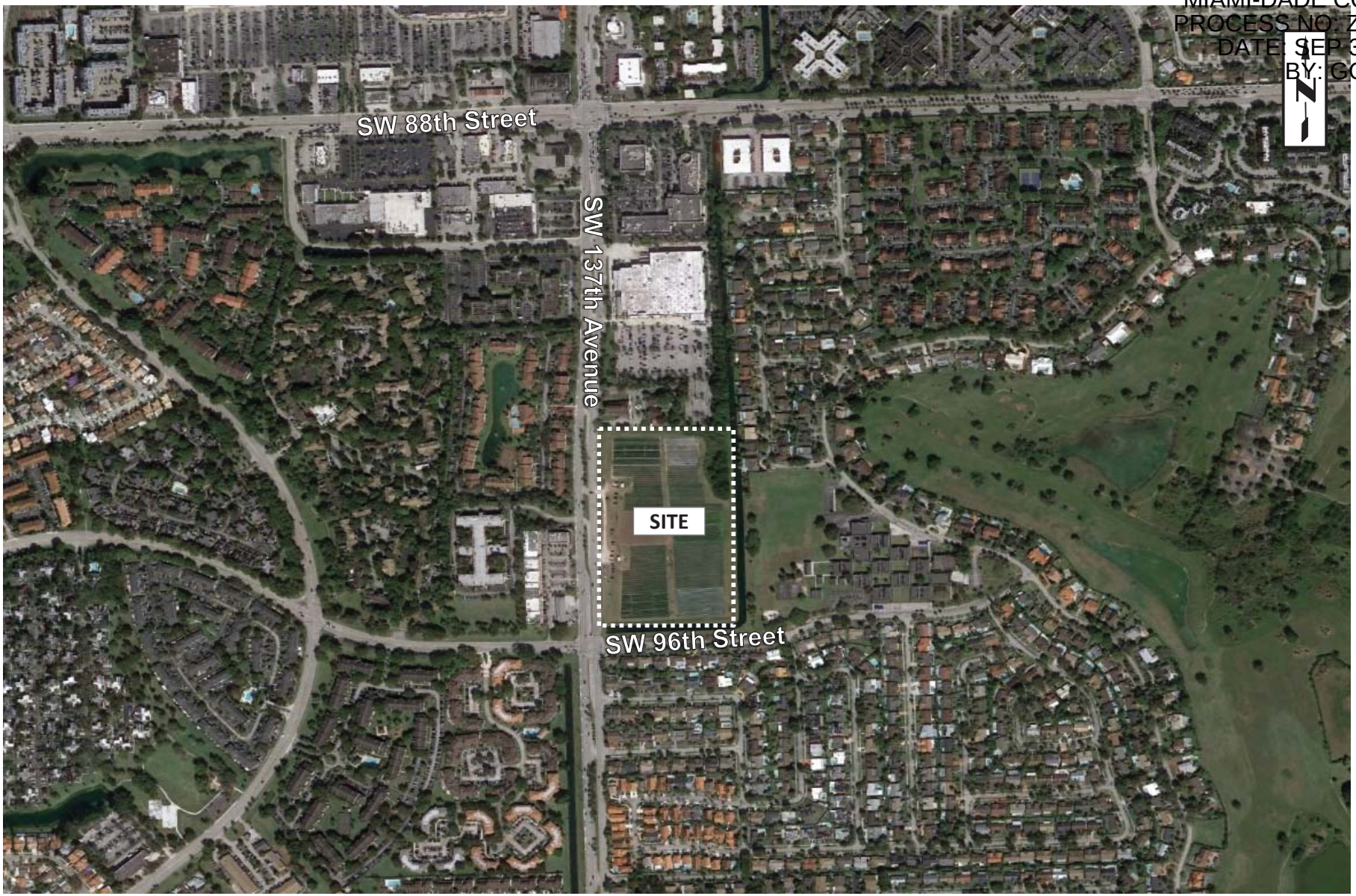
Entrance	Entrance Type	Storage Capacity (feet)	95th Percentile Queue Length		Exceeds Capacity?
			Vehicles	Feet	
Residential Entrance	Resident	376	1	25	**NO**
	Visitor	376	1	25	**NO**

CONCLUSIONS

Langan performed a traffic-impact analysis for the Kendall Baptist development expected to be completed by 2023. The analysis shows the following results for the 2023 build conditions:

- The signalized intersections of SW 137th Avenue at SW 96th and SW 104th streets are expected to operate within their adopted Level of Service (LOS) during the morning and afternoon peak-hours with the project's impacts.
- The signalized intersection of SW 137th Avenue and SW 88th Street is expected to operate beyond capacity during the afternoon peak hour with and without the project's impacts.
- We optimized the signal timing, without changing the cycle length, of the intersections of SW 137th Avenue at SW 88th, SW 96th, and SW 104th streets to mitigate the movements and approaches impacted by the proposed development.
- There are no roadway improvements that can be constructed at intersection of SW 137th Avenue and SW 88th Street to mitigate the existing and expected delays at this intersection.
- The stop-sign controlled intersection is expected to operate within its adopted LOS during the morning and afternoon peak-hours.
- All of the proposed driveway connections to public roadways will operate at LOS D or better for the morning and afternoon peak-hours.
- The main entrance of the proposed development aligns with an existing median opening on SW 137th Avenue that will allow southbound left-turns to enter the site. We analyzed the existing southbound left-turn and determined that it has the capacity to store the expected left-turn vehicle queues at this location.
- The proposed development does not warrant the need for exclusive turn lanes at the proposed entrances; however, the developer has agreed to construct an exclusive right-turn lane at the proposed main entrance.
- The gate-controlled entrances will have sufficient vehicle-stacking storage to accommodate the expected morning and afternoon peak-hour queues due to entering traffic.

APPENDIX A
FIGURES



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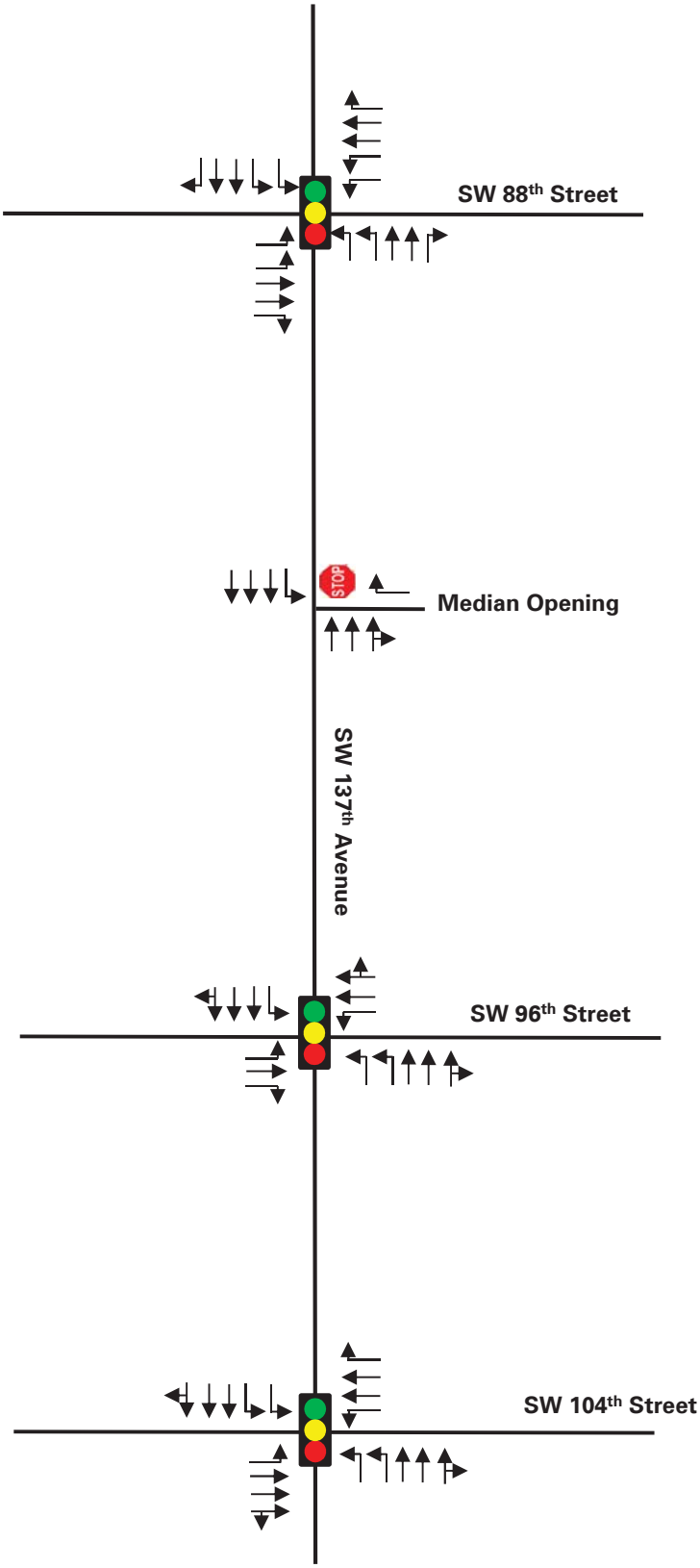

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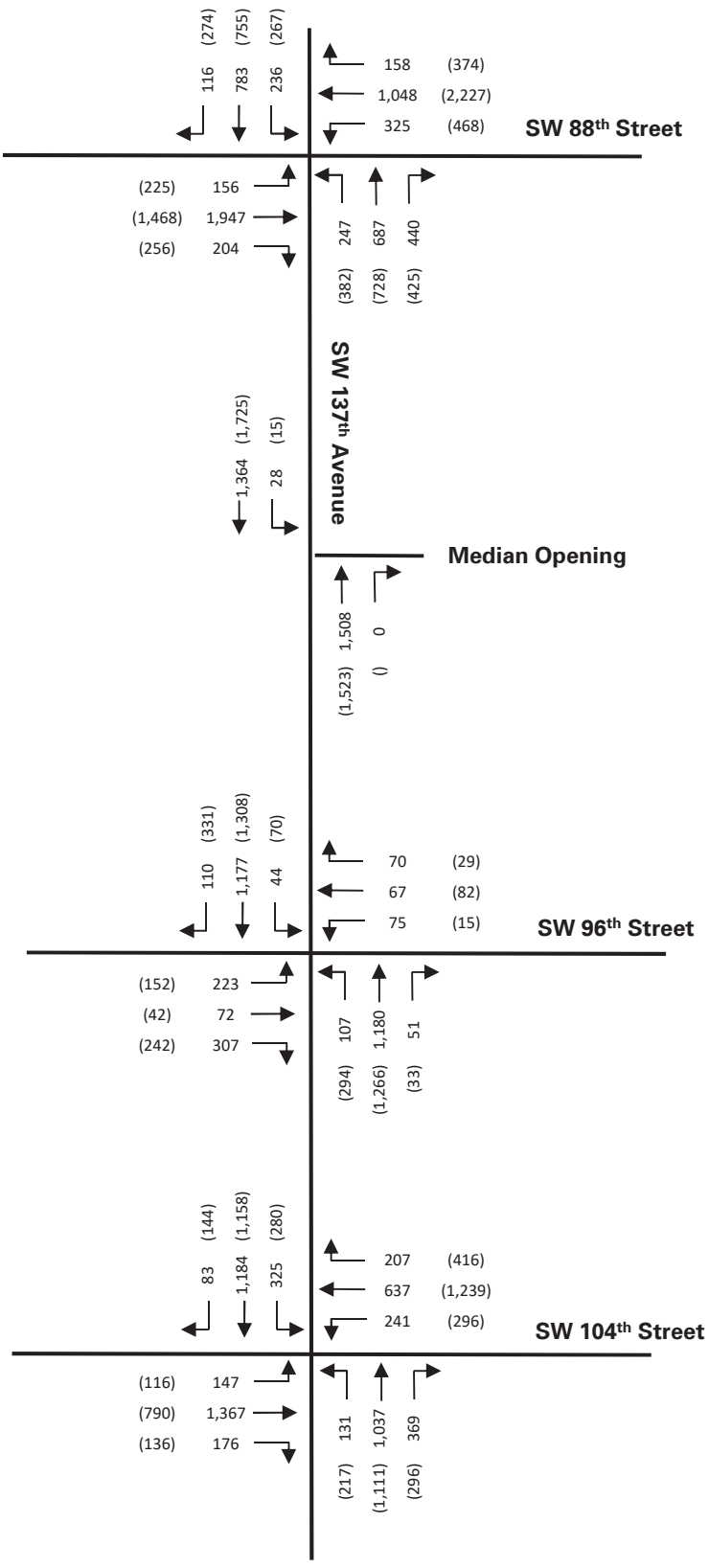
Project	Figure Title	Project No.	
KENDALL BAPTIST UNINCORPORATED MIAMI-DADE FLORIDA	INTERSECTION LANE CONFIGURATIONS	330074001	FIGURE 2
		Date 9/27/2021	
		Scale NTS	



LEGEND
AM Peak Hour
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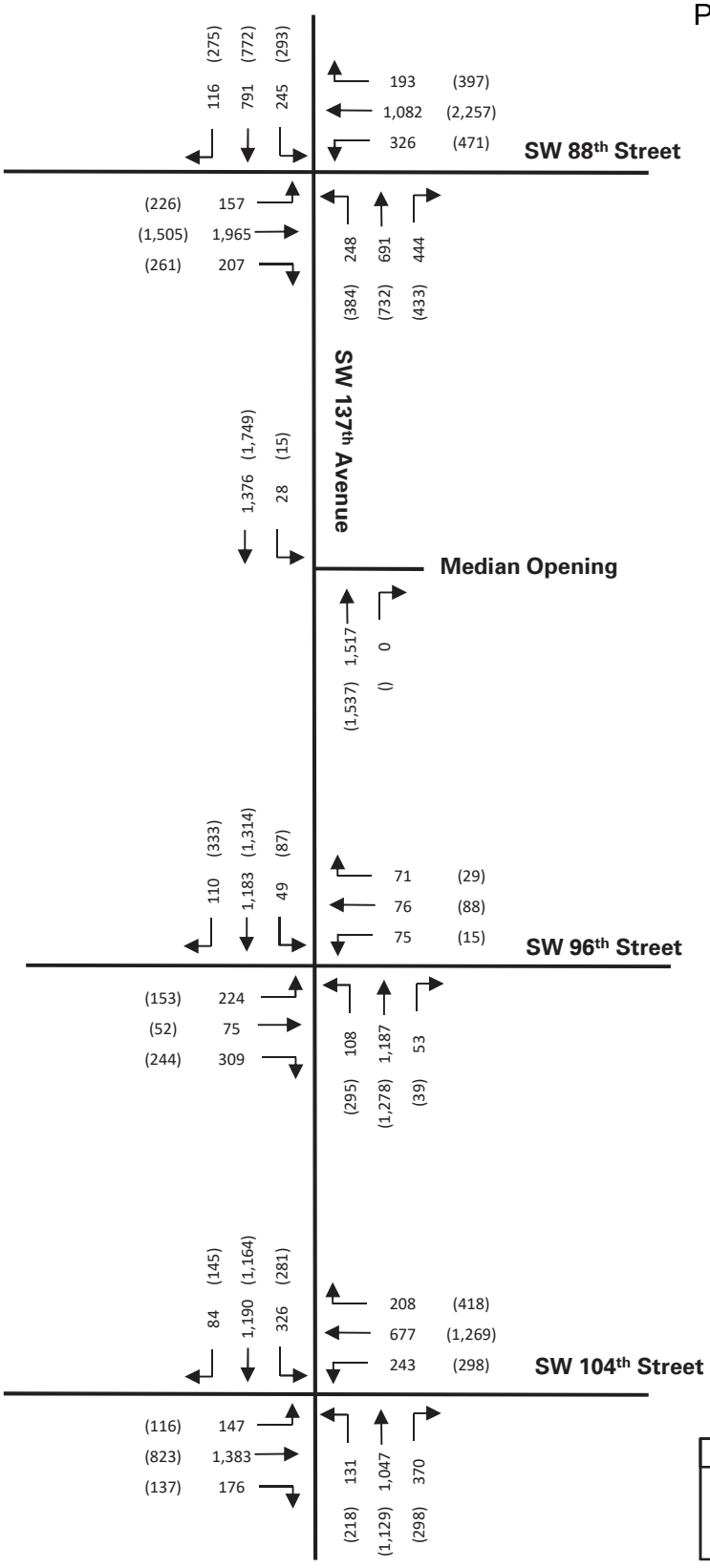
Project	Figure Title	Project No.	
KENDALL BAPTIST UNINCORPORATED MIAMI-DADE FLORIDA	2020 EXISTING TRAFFIC VOLUMES	330074001	FIGURE 3
		Date 9/27/2021	
		Scale NTS	



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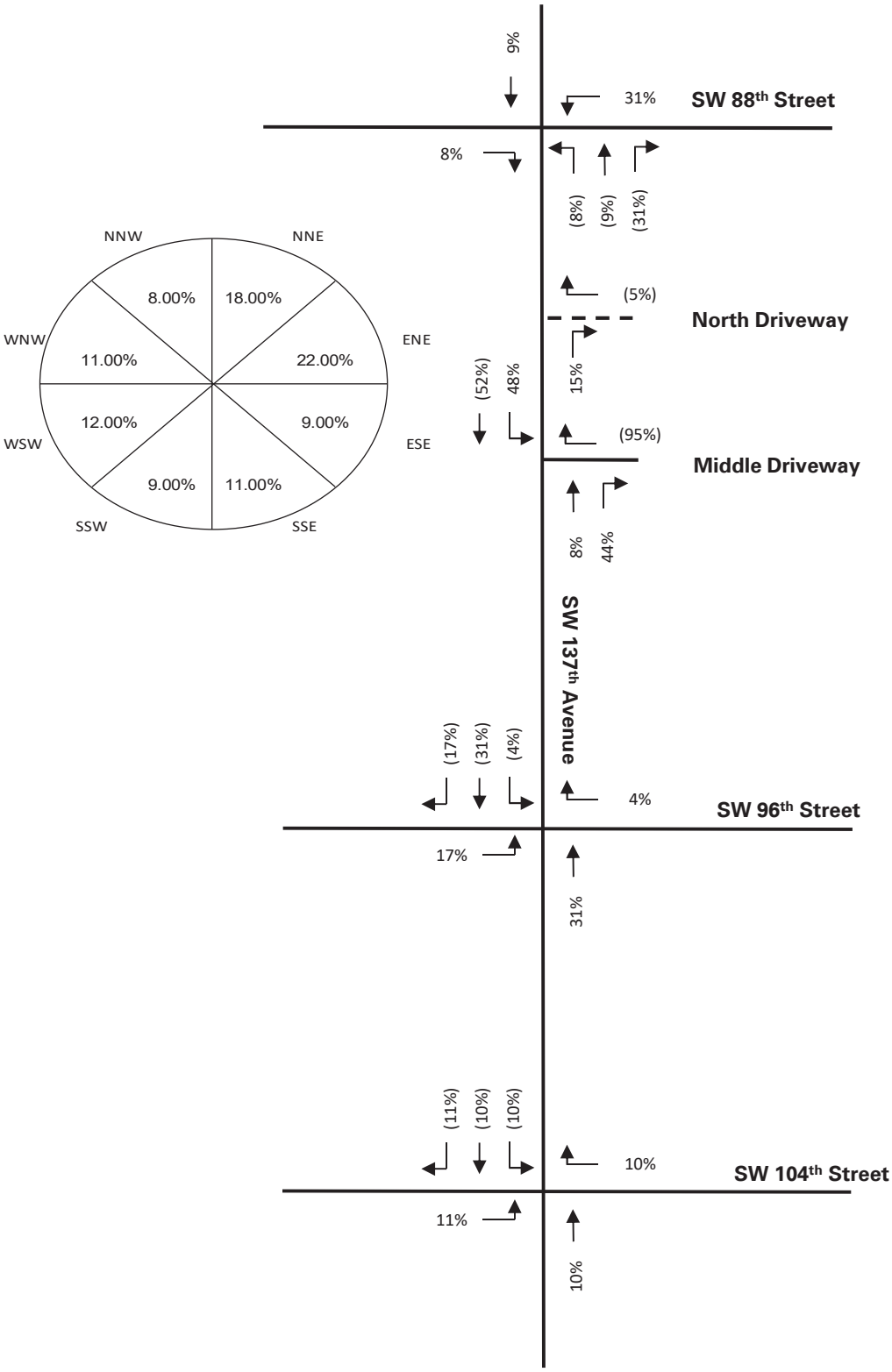

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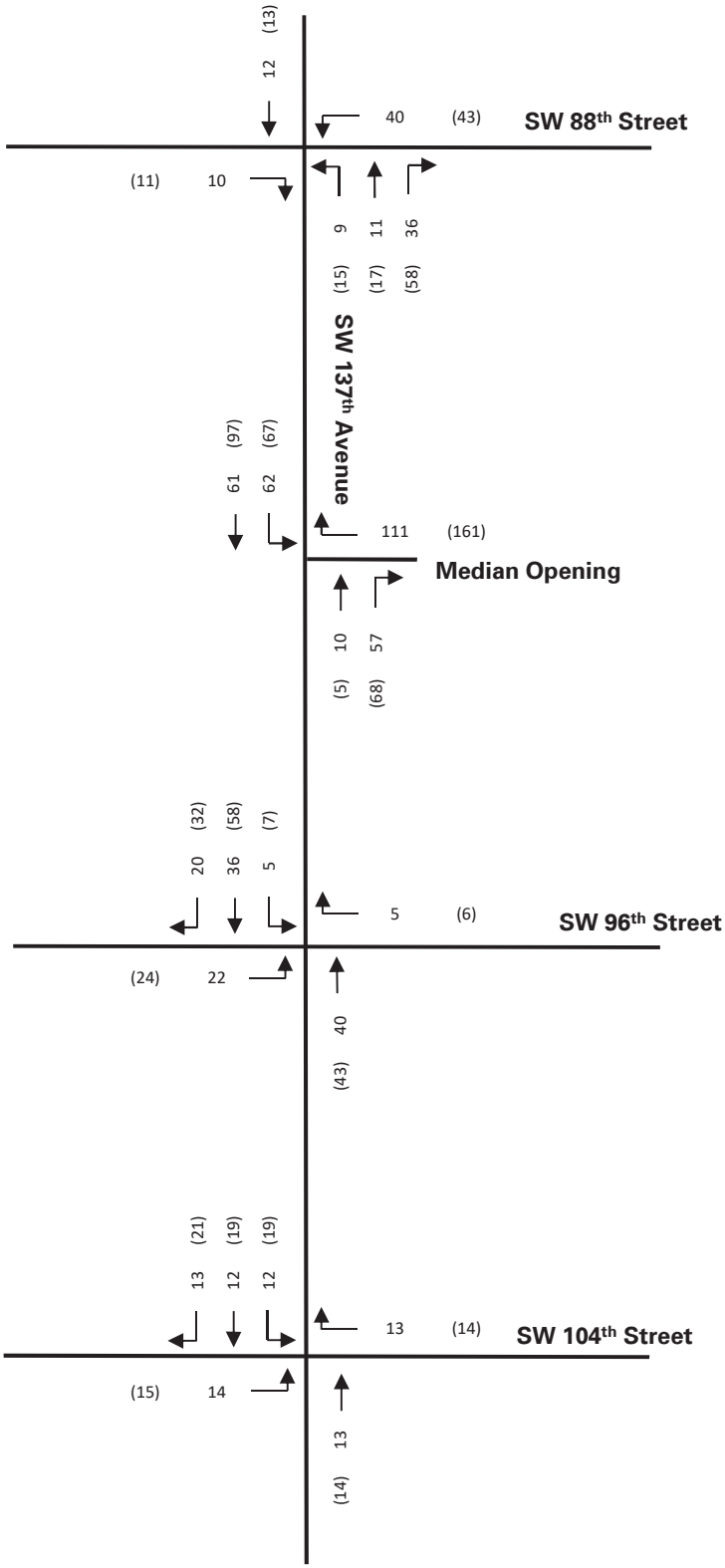

LEGEND
AM Peak Hour
(#) PM Peak Hour

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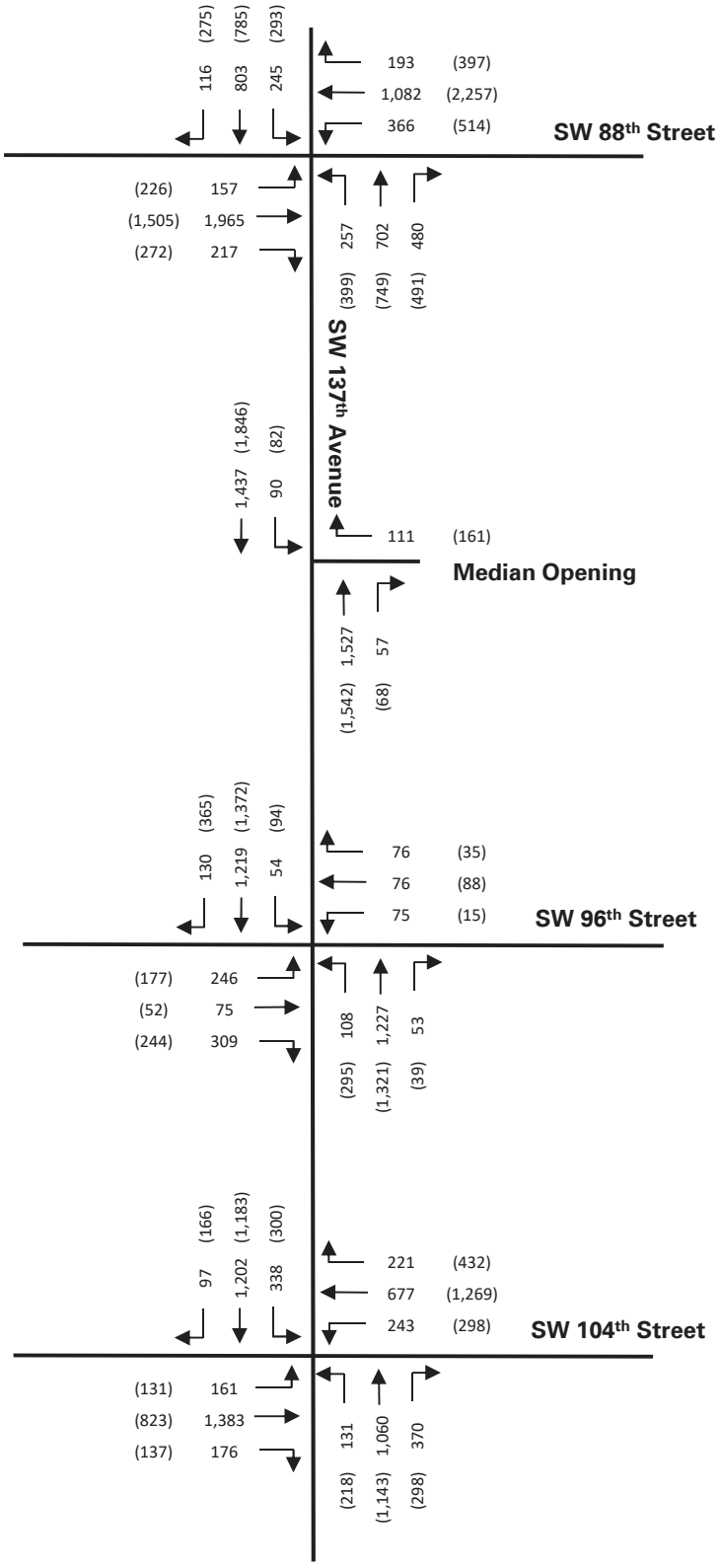

LEGEND
AM Peak Hour
(#) PM Peak Hour

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Project	Figure Title	Project No.	
KENDALL BAPTIST UNINCORPORATED MIAMI-DADE FLORIDA	2023 BUILD TRAFFIC VOLUMES	330074001	FIGURE 7
		Date 9/27/2021	
		Scale NTS	

LEGEND	
#	AM Peak Hour
(#)	PM Peak Hour
	Driveway

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Project	Figure Title	Project No.	
KENDALL BAPTIST UNINCORPORATED MIAMI-DADE FLORIDA	DRIVEWAY VOLUMES	330074001 Date 9/27/2021 Scale NTS	FIGURE 8

APPENDIX B
SITE PLAN

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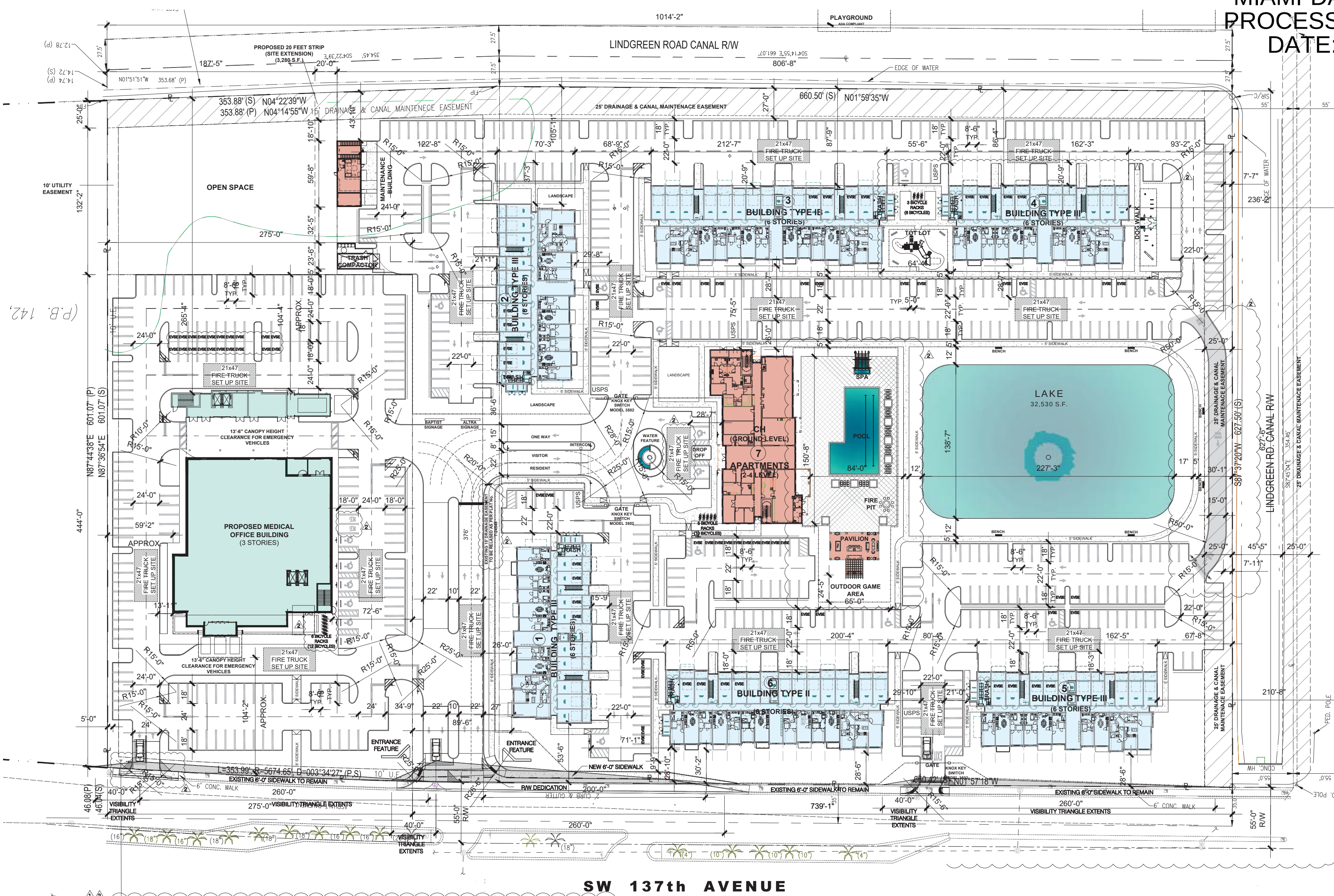
MIAMI-DADE COUNTY
PROCESS NO: Z21-047
DATE: SEP 30 2021
BY: GONGOL



ILLUMINATED SITE PLAN MAP GUIDELINES
A. SITE MAP SHALL BE SUFFICIENT SIZE AND BE LOCATED AT ALL EMERGENCY VEHICLE ENTRANCES IN AN AREA TO BE CLEARLY VIEWED FROM WITHIN A RESPONDING EMERGENCY VEHICLE.
B. THE MAP MUST BE A DETAILED REPRESENTATION OF THE ACCESS ROADS AND BUILDINGS WITHIN THE COMPLEX.
C. THE MAP SHALL BE CONSTRUCTED WITH DURABLE MATERIALS SUITABLE TO WITHSTAND OUTDOOR ENVIRONMENTS AND SHALL BE MAINTAINED AND UPDATED AS NECESSARY.
D. EACH BUILDING ON THE SITE SHALL BE REPRESENTED AS AN OUTLINE OF THE FOOT PRINT OF THE BUILDING AS IT IS LOCATED ON THE SITE
E. THE BUILDING NUMBERS/ADDRESS SHALL BE CLEARLY IDENTIFIED FOR EACH BUILDING ON THE MAP.

PROPOSED SITE PLAN

SCALE 1" = 40'

NOTE:
MAIN ENTRANCE SIGNS AND GATES DESIGNED TO CONTROL VEHICULAR INGRESS AND EGRESS ARE NOT PART OF THIS APPLICATION AND WILL REQUIRE A SEPARATE ENTRANCE FEATURE APPLICATION FOR REVIEW AND APPROVAL BY THE MIAMI DADE COUNTY PLAT COMMITEE

revisions:
1. 06-21-2021 ASPR
2. 08-23-2021 ASPR

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ANILLO TOLEDO LOPEZ
ATL | ARCHITECTURE

BAPTIST HEALTH / ALTRA KENDALL
PROPOSED MIXED-USE PROJECT
9501 SW 137 AVE MIAMI DADE COUNTY, FLORIDA 33186

ARCH. LICENSE
AR 0016093
AA 26003571
job no.
date.
02 - 11 - 2021
scale.
As Shown
drawn by.
A.T.L.

A-1.1

RECEIVED
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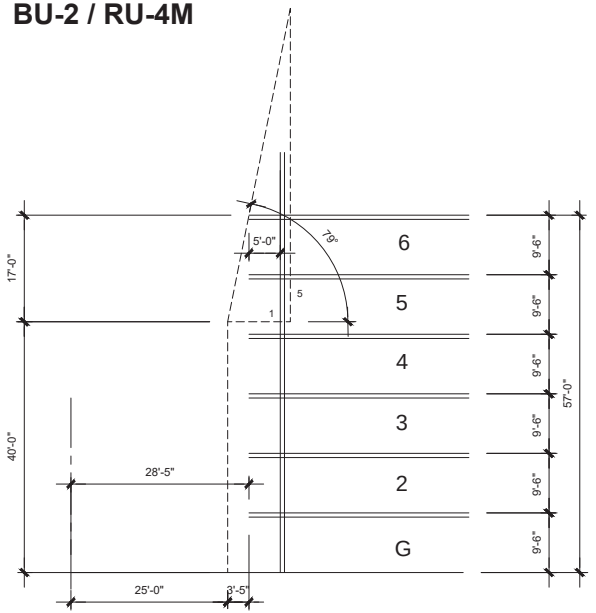
BU-2 / RU-4M



BUILDINGS IN BU-2 OVER 40 FEET
REQUIRED FRONT SETBACK
(6 STORY BUILDINGS)

ZONING LEGEND

BU-2		OFFICE parcel size: 124,133.00 s.f. (2.849 ACRES)	RESIDENTIAL parcel size: 507,018 s.f. (11.661 ACRES)	TOTAL parcel size: 631,151 s.f. (+/-14.51 ACRES)
REQUIRED / ALLOWED		PROVIDED	PROVIDED	PROVIDED
MAXIMUM LOT COVERAGE = 40% of net lot area. 631,151 s.f. x 40%	252,460.40 s.f. (5.7956 ACRES) 40%	33,500 s.f. (0.769 ACRES) 5.30%	85,160 s.f. (1.955 ACRES) 13.49%	118,660 s.f. (2.724 ACRES) 18.80%
MAXIMUM HEIGHT	NOT LIMITED	3 STORIES 55' including parapets	6 STORIES 67' including parapets	6 STORIES
MAX. FAR shall be .40 at 1 story and may be increased .11 for each additional story up to 6 stories (5 x .11 = 0.55) 631,151 s.f. x 0.95	599,593 s.f.	52,600 s.f.	432,287 s.f.	484,887.00 s.f.
LANDSCAPED OPEN SPACE. The minimum landscaped open space at one (1) story shall be More than five (5) acres and up to twenty-five (25) acres 14.0% shall be increased by one and one-half (1½) percent for each additional story or part thereof, up to eight (8) stories (5 x 1.5 = 7.5%) 631,151 s.f. x 21.5%	135,697.47 s.f. (3.11 ACRES)	23,490.00 s.f. (0.539 ACRES)	174,555 s.f. (excludes 32,530 s.f. lake) (4.00 ACRES)	198,045 s.f. 4.54 ACRES)
DENSITY: 631,151s.f. (14.48 acres) = 521 Units Allowed		342 UNITS @23.61 UNITS PER ACRE		

SETBACKS (BU-2)			
(a) Front—20 feet. * SEE SPECIAL SETBACKS NOTE	27'-0"	104'-2"	
(b) Side street—15 feet	N/A	N/A	
(c) Interior side—5 feet where any openings are provided in the wall of the proposed structure, adjacent to the interior side property lot line. 15 feet where the adjacent property is zoned RU or EU or GU	15'-0"	54'-5"	
(d) Rear—20 feet from residential district boundary, except that credit shall be given for full width of dedicated alleys in computing this setback. 5 feet from business or industrial district boundary, where any openings are provided in wall of proposed structure, adjacent to rear lot line.	20'-0"	275'-5"	

SETBACKS (RU-4M)	REQUIRED		PROVIDED
a) Front—25 feet. *SEE SPECIAL SETBACKS NOTE	28'-5"		28'-6"
b) Side street—25 feet	N/A		N/A
c) Interior side—20 feet (over 2 stories)	20'-0"		20'-0"
d) Rear—25 feet	25'-0"		43'-10"

* Sec. 33-57 Special front setbacks
"Any portion of a building in the BU-2, BU-3, IU-1, IU-2 and IU-3 Districts which is between thirty-five (35) and forty (40) feet in height shall be setback at least twenty-five (25) feet from the lot line adjacent to any street or thoroughfare. Thereafter one (1) additional foot of setback shall be provided for each five (5) feet of additional height." (see sketch on this sheet)

RESIDENTIAL PARKING:	REQUIRED		PROVIDED
1 BEDROOM 157 UNITS X 1.5 = 235.5 2 BEDROOM 143 UNITS X 1.75 = 250.25 3 BEDROOM 42 UNITS X 2 = 84 TOTAL = 569.75 =570	570 SPACES		445 SPACES including 12 H.C. +61 Private Garages +61 Tandem Spaces **Residential 572**
OFFICE @ 1 PER 300 S.F. 52,600 / 300 = 176	176 SPACES	181 SPACES including 8 H.C.	748 SPACES (INCLUDING 75 ELECTRIC VEHICLE (EV) CHARGING STATION PROVISIONS AS PER SEC. 33-122.5)

ESTIMATED UNIT BREAKDOWN

UNIT TYPE	A1 1BR,1BA	A2 1BR,1BA	A3 1BR,1BA	A14 1BR,1BA	A15 1BR,1BA	B2 2BR,2BA	B2A 2BR,2BA	B3A 2BR,2BA	B3B 2BR,2BA	B4 2BR,2BA	B6 2BR,2BA	B7 2BR,2BA	B8 2BR,2BA	B8A 2BR,2BA	B9 2BR,2BA	B12 2BR,2BA	C1 3BR,2BA	TOTAL
AREA (S.F.)	755	735	792	612	662	1,087	1,105	1,145	1,185	1,105	1,218	1,236	1,243	1,231	1,607	1,170	1,324	
BUILDING 1 (TYPE III)	5	5	16	0	0	0	1	5	11	0	0	0	0	0	0	0	6	49
BUILDING 2 (TYPE III)	5	5	16	0	0	0	1	5	11	0	0	0	0	0	0	0	6	49
BUILDING 3 (TYPE IB)	0	1	17	0	0	5	11	5	5	5	0	0	0	0	0	0	12	61
BUILDING 4 (TYPE III)	5	5	16	0	0	0	1	5	11	0	0	0	0	0	0	0	6	49
BUILDING 5 (TYPE III)	5	5	16	0	0	0	1	5	11	0	0	0	0	0	0	0	6	49
BUILDING 6 (TYPE II)	6	12	11	0	0	10	0	5	6	5	0	0	0	0	0	0	6	61
BUILDING 7 (CH/APART)	0	0	0	3	3	0	0	0	0	0	3	3	3	3	3	3	0	24
TOTAL UNITS	26	33	92	3	3	15	15	30	55	10	3	3	3	3	3	3	42	**342**
LEASABLE AREA	19,630.00	24,255.00	72,864.00	1,836.00	1,986.00	16,305.00	16,575.00	34,350.00	64,075.00	11,050.00	3,654.00	3,708.00	3,729.00	3,693.00	4,821.00	3,510.00	55,608.00	**341,649.00**
PERCENTAGE	7.60%	9.65%	26.90%	0.88%	0.88%	4.39%	4.39%	8.77%	16.08%	2.92%	0.88%	0.88%	0.88%	0.88%	0.88%	0.88%	12.28%	100.00%
	157 1B UNITS 45.91%					143 2B UNITS 41.81%											42 12.28%	

RESIDENTIAL 342 UNITS

PARKING PROVIDED
450 SURFACE PARKING SPACES
61 SPACES IN PRIVATE PARKING GARAGES
61 TANDEM SPACES

revisions:
1 09-21-2021 ADMIN COMMENTS
2 09-28-2021 ADMIN COMMENTS

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BAPTIST HEALTH / ALTRA KENDALL
PROPOSED MIXED-USE PROJECT
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ARCH. LICENSE
AR 0016093
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job no.
*
date.
02 - 11 - 2021
scale.
As Shown
drawn by.
A.T.L.

A-1.2

OFFICE OF THE PROPERTY APPRAISER

Summary Report

Generated On : 12/22/2020

Property Information	
Folio:	30-5902-000-0100
Property Address:	9501 SW 137 AVE Miami, FL 33186-0000
Owner	BAPTIST HOSPITAL OF MIAMI INC
Mailing Address	8900 N KENDALL DR MIAMI, FL 33176-2118
PA Primary Zone	2800 TOWNHOUSE
Primary Land Use	5381 VEG CROPLANDS MIXED/ROTATED : VACANT LAND
Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	200 Sq.Ft
Living Area	200 Sq.Ft
Adjusted Area	200 Sq.Ft
Lot Size	391,212.36 Sq.Ft
Year Built	2010

Assessment Information			
Year	2020	2019	2018
Land Value	$2,694,300	$2,694,300	$2,694,300
Building Value	$8,918	$9,016	$9,114
XF Value	$0	$0	$0
Market Value	$2,703,218	$2,703,316	$2,703,414
Assessed Value	$256,053	$256,151	$256,249

Taxable Value Information			
	2020	2019	2018
County			
Exemption Value	$0	$0	$0
Taxable Value	$256,053	$256,151	$256,249
School Board			
Exemption Value	$0	$0	$0
Taxable Value	$256,053	$256,151	$256,249
City			
Exemption Value	$0	$0	$0
Taxable Value	$0	$0	$0
Regional			
Exemption Value	$0	$0	$0
Taxable Value	$256,053	$256,151	$256,249

Benefits Information				
Benefit	Type	2020	2019	2018
Agriculture	Classified Value	$2,447,165	$2,447,165	$2,447,165

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

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/01/1997	$2,500,000	17895-1427	Other disqualified

Short Legal Description

2 55 39 8.981 AC
SW1/4 OF SW1/4 OF NW1/4
LESS W35FT & LESS EXT AREA OF
CURVE IN NW COR
OR 17895-1427 1297 6

Version:

OFFICE OF THE PROPERTY APPRAISER

Summary Report

Generated On : 12/22/2020

Property Information	
Folio:	30-5902-050-0010
Property Address:	
Owner	BAPTIST HOSPITAL OF MIAMI INC
Mailing Address	8900 N KENDALL DR MIAMI, FL 33176-2118
PA Primary Zone	6900 SEMI PROFESSIONAL OFFICE
Primary Land Use	5381 VEG CROPLANDS MIXED/ROTATED : 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	217,800 Sq.Ft
Year Built	0

Assessment Information			
Year	2020	2019	2018
Land Value	$4,323,940	$4,029,300	$3,449,952
Building Value	$0	$0	$0
XF Value	$0	$0	$0
Market Value	$4,323,940	$4,029,300	$3,449,952
Assessed Value	$1,177,483	$1,071,225	$974,627

Taxable Value Information			
	2020	2019	2018
County			
Exemption Value	$0	$0	$0
Taxable Value	$1,177,483	$1,071,225	$974,627
School Board			
Exemption Value	$0	$0	$0
Taxable Value	$1,296,622	$1,136,844	$974,627
City			
Exemption Value	$0	$0	$0
Taxable Value	$0	$0	$0
Regional			
Exemption Value	$0	$0	$0
Taxable Value	$1,177,483	$1,071,225	$974,627

Benefits Information				
Benefit	Type	2020	2019	2018
Agriculture	Classified Value	$3,027,318	$2,892,456	$2,475,325
Non-Homestead Cap	Assessment Reduction	$119,139	$65,619	

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

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
10/01/1991	$1,698,900	15253-1054	Sales which are qualified

Short Legal Description
BAPTIST HOSPITAL WEST KENDALL
PB 142-68 T-17824
TR A
LOT SIZE 5 AC M/L
F/A/U 30-5902-000-0480

Version:

APPENDIX C
METHODOLOGY LETTER

LANGAN

7 January 2021; **Revised: 3 February 2021**

Yamilet A. Senespleda, P.E., PTOE
Assistant Division Chief, Traffic Engineering
Miami-Dade Department of Transportation and Public Works (DTPW)
111 NW 1st Street, Suite 1510
Miami, FL 33128

Re: Traffic Analysis Methodology
Kendall Baptist
Langan Project No.: 330074001

Dear Ms. Senespleda:

Langan Engineering and Environmental Services, Inc. was retained to prepare a traffic-impact analysis for the Kendall Baptist development expected to be built by 2022. The mixed-use development will comprise 52,600 square feet of medical-dental office uses and 336 mid-rise multifamily dwelling units. The 14.49-acre vacant site is on the northeast corner of SW 137th Avenue and SW 96th Street in unincorporated Miami-Dade County, Florida (see Figure 1 below). A copy of the site plan for the proposed project is included in Attachment A. We coordinated with Anamersy Arce to confirm the study intersections. Please accept this letter as the traffic-analysis methodology for the proposed development.

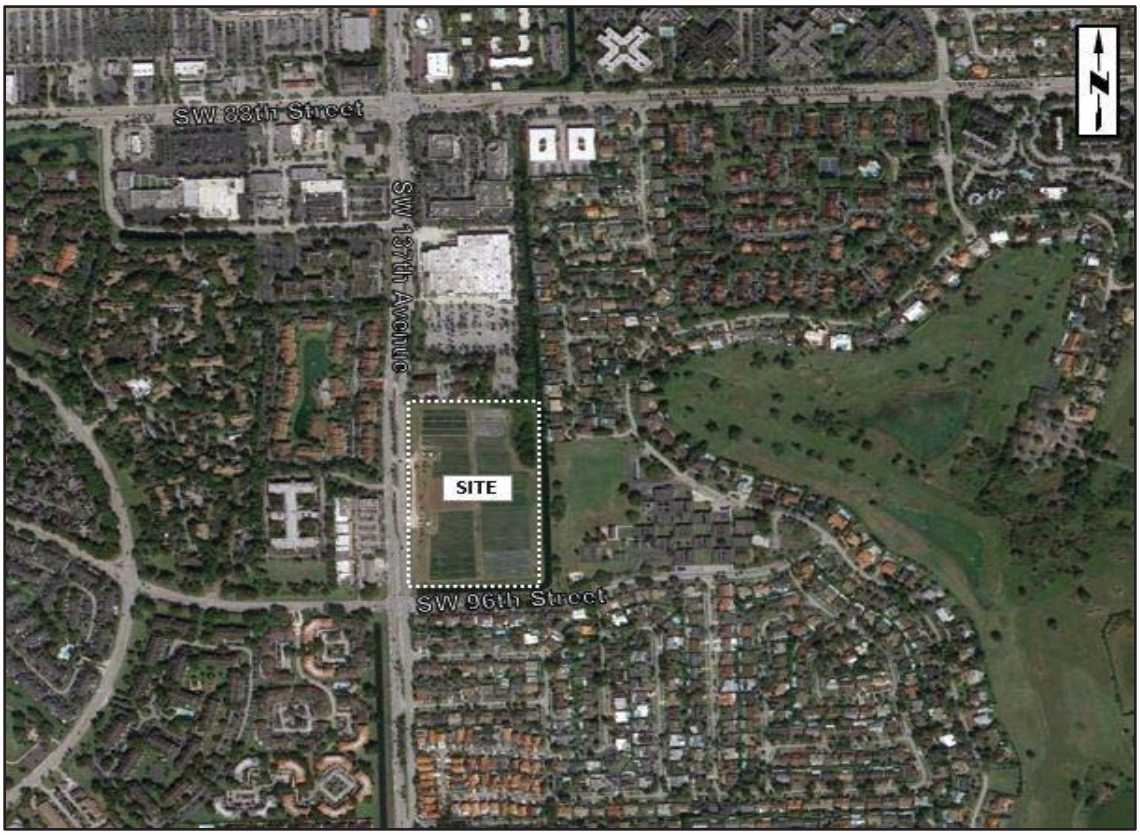


Figure 1 – Site Aerial Photograph

Trip Generation

Trip generation will be based on information contained in the Institute of Transportation Engineer's (ITE), Trip Generation Manual, 10th Edition. We applied a 6.1% non-vehicular reduction factor based on census data for the study area. The proposed development is expected to generate 3,720 daily, 244 morning and 325 afternoon peak-hour net new trips as summarized in **Table 1** below. The trip generation and census data are included in Attachment B.

Table 1 - Trip Generation Estimates

Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Uses								
Medical-Dental Office	52,600 SF	1,933	98	28	126	50	130	180
Multifamily Housing (Mid-Rise)	336 DU	1,829	31	90	121	90	58	148
Total		3,762	129	118	247	140	188	328
Non-Vehicular Reduction (6.1%)		42	1	2	3	2	1	3
Net New Trips		3,720	128	116	244	138	187	325

** Multimodal Reduction based on census data, applied only to the residential development.*

Data Collection

Morning and afternoon peak hour turning movement data will be collected on a typical weekday at the following intersections:

- SW 137th Avenue and SW 88th Street
- SW 137th Avenue and Median Opening (second opening north of SW 96th Street)
- SW 137th Avenue and SW 96th Street
- SW 137th Avenue and SW 104th Street

Data will be collected for four hours between 7:00 and 9:00 AM and between 4:00 and 6:00 PM and will be adjusted to include a COVID adjustment factor by comparing 2019 synopsis data to 2020 counts along the same segment of roadway impacted by the development to convert traffic into peak-season traffic volumes.

Project Distribution

Project trip distribution will be based on the cardinal distribution for Traffic Analysis Zones 1258 of the Miami-Dade County 2045 Transportation Model. **Table 2** below shows the interpolated cardinal distribution based on a 2022 build out year. Attachment B includes the cardinal distribution data.

Table 2 - Cardinal Distribution

Year	NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW
2015	17.90%	22.10%	8.40%	10.50%	8.90%	13.10%	11.00%	8.20%
2045	19.70%	22.30%	8.40%	12.90%	9.80%	9.90%	9.00%	8.20%
2022	**18.32%**	**22.15%**	**8.40%**	**11.06%**	**9.11%**	**12.35%**	**10.53%**	**8.20%**

Future Traffic

We will develop future traffic volumes by applying a compound growth rate to the collected traffic data. The growth rate will be based on a FDOT historical data from traffic count stations near the project. A one-half percent annual growth rate will be used if a negative growth rate is determined. We will review the county's platting database and include traffic from any approved

but unbuilt projects. We will also include any roadway improvements planned within the first three years of the county's Transportation Improvement Program.

Intersection Analysis

Intersection capacity analysis will be performed for the study intersections using software based on the Highway Capacity Manual methodology. The analysis will be performed for morning and afternoon peak-hour conditions using Synchro Software. The analysis scenarios will include the existing (2020), no-build (2022 without project) and build (2022 with project) conditions. Project driveways will be analyzed for the build conditions. We will provide tables in the appendices that summarize the LOS and delay for each intersection and intersection approaches for the existing, no-build and build conditions. Tables summarizing the LOS and delay for each intersection and intersection approaches for the existing, no-build and build conditions will be included in the report appendices. We will include Synchro reports for 95th percentile queue lengths and tables summarizing this information for all exclusive turn-lanes. We will evaluate the need for exclusive left and right turn lanes on abutting public roads for the project driveways. We will provide gate-queuing analysis if the development proposed gate-controlled access. We will coordinate the proposed driveway connections to SW 137th Avenue (State Road 825) with FDOT

Queuing

The residential part of the development will have gate-controlled entrances. We will use the queuing-analysis methodology from *Transportation and Land Development* published by the Institute of Transportation Engineers (ITE) to calculate 95th percentile queue lengths for entering traffic at the gated entrance. We will use the highest peak-hour entering volumes and use visitor and resident service times based on the type of proposed access control. We will include the data and analysis in the report appendices and a queue-length summary table in the report body.

Report

The study methodology, analysis and findings will be summarized in a report that will be signed and sealed by a Florida registered professional engineer. Synchro LOS, queuing and timing reports will be included in report's appendices. If you have any questions regarding the information contained herein, please do not hesitate to contact me at (786) 264-7226.

Sincerely,

Langan Engineering and Environmental Services, Inc.

John P. Kim, P.E., PTOE
Senior Project Manager

JPK:jpk

Attachments

Attachment A – Preliminary Site Plan
Attachment B – Trip Generation, Census & TAZ Data

\\langan.com\data\FTL\data0\330074001\Project Data\Correspondence\Methodology\2021-02-03 Kendall Baptist Traffic Methodology.docx

APPENDIX D
TRAFFIC, TAZ, SIGNAL TIMING & FDOT DATA

National Data & Surveying Services

Intersection Turning Movement Count

Location: SW 137th Ave & SW 88th St
City: Miami
Control: Signalized

Project ID: 20-140070-001
Date: 11/4/2020

Total

NS/EW Streets:	SW 137th Ave				SW 137th Ave				SW 88th St				SW 88th 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	27	125	96	0	40	117	17	0	19	444	25	0	31	164	20	1	1126
7:15 AM	24	151	93	0	59	135	11	0	21	484	29	0	41	190	17	0	1255
7:30 AM	32	155	99	3	59	152	20	0	33	467	31	0	59	161	27	2	1300
7:45 AM	35	160	80	4	56	168	24	0	22	434	44	3	70	216	31	0	1347
8:00 AM	48	150	78	3	63	173	26	0	31	439	39	5	75	223	34	0	1387
8:15 AM	46	152	111	5	42	159	28	0	29	433	55	5	55	222	31	3	1376
8:30 AM	47	156	95	4	53	166	18	0	34	467	36	3	79	232	36	1	1427
8:45 AM	60	137	97	1	46	180	28	0	20	346	47	8	68	230	36	0	1304
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	319	1186	749	20	418	1250	172	0	209	3514	306	24	478	1638	232	7	10522
APPROACH %'s :	14.03%	52.15%	32.94%	0.88%	22.72%	67.93%	9.35%	0.00%	5.16%	86.70%	7.55%	0.59%	20.30%	69.55%	9.85%	0.30%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	176	618	364	16	214	666	96	0	116	1773	174	16	279	893	132	4	5537
PEAK HR FACTOR :	0.917	0.966	0.820	0.800	0.849	0.962	0.857	0.000	0.853	0.949	0.791	0.800	0.883	0.962	0.917	0.333	0.970
	0.935				0.931				0.963				0.940				

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	79	172	87	6	60	174	62	1	32	272	61	5	91	423	59	2	1586
4:15 PM	59	143	85	5	55	130	39	2	37	317	63	6	127	478	63	0	1609
4:30 PM	66	187	89	2	51	174	62	1	32	289	40	8	73	415	72	0	1561
4:45 PM	79	139	102	3	45	140	49	0	38	315	44	12	113	516	74	1	1670
5:00 PM	82	163	85	1	76	182	59	0	45	292	51	8	93	438	71	0	1646
5:15 PM	66	141	91	6	46	141	61	0	38	327	65	9	99	524	87	2	1703
5:30 PM	84	179	85	5	60	182	65	1	36	320	59	6	92	424	87	0	1685
5:45 PM	71	143	81	4	42	146	64	0	48	255	49	11	97	531	76	0	1618
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	586	1267	705	32	435	1269	461	5	306	2387	432	65	785	3749	589	5	13078
APPROACH %'s :	22.63%	48.92%	27.22%	1.24%	20.05%	58.48%	21.24%	0.23%	9.59%	74.83%	13.54%	2.04%	15.31%	73.11%	11.49%	0.10%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	311	622	363	15	227	645	234	1	157	1254	219	35	397	1902	319	3	6704
PEAK HR FACTOR :	0.926	0.869	0.890	0.625	0.747	0.886	0.900	0.250	0.872	0.959	0.842	0.729	0.878	0.907	0.917	0.375	0.984
	0.928				0.873				0.948				0.920				

PEAK HR :	8:00 AM - 9:00 AM																TOTAL
PEAK HR VOL :	201	595	381	13	204	678	100	0	114	1685	177	21	277	907	137	4	5494

Prepared by National Data & Surveying Services

SW 137th Ave & SW 88th St

Peak Hour Turning Movement Count

ID: 20-140070-001
City: Miami

Day: Wednesday
Date: 11/04/2020

PEAK HOURS	COUNT PERIODS
07:45 AM - 08:45 AM	07:00 AM - 09:00 AM
NONE	NONE
04:45 PM - 05:45 PM	04:00 PM - 06:00 PM

SW 137th Ave — SOUTHBOUND

AM	96	666	214	0	866	AM
NOON	0	0	0	0	0	NOON
PM	234	645	227	1	1099	PM

SW 88th St — EASTBOUND

AM	NOON	PM	
1181	0	2482	⇦
16	0	35	↶ 0
116	0	157	↱ 0
1773	0	1254	→ 0
174	0	219	↴ 0
AM	NOON	PM	

SW 88th St — WESTBOUND

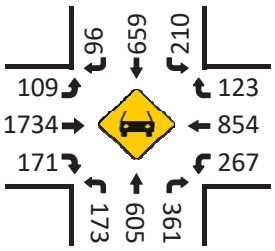
PM	NOON	AM	
319	0	132	0 ↰
1902	0	893	0 ←
397	0	279	0 ↰
3	0	4	0 ↰
1847	0	2355	⇨
PM	NOON	AM	

SW 137th Ave — NORTHBOUND

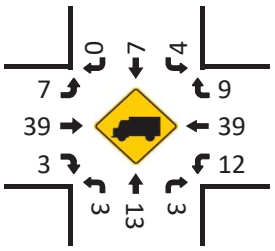
PM	1276	15	311	622	363	PM
NOON	0	0	0	0	0	NOON
AM	1135	16	176	618	364	AM

CONTROL			
Signalized			
TEV	5537 AM	0 NOON	6704 PM
PHF	0.97		0.98

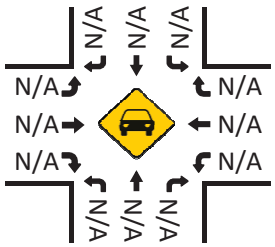
Cars (AM)



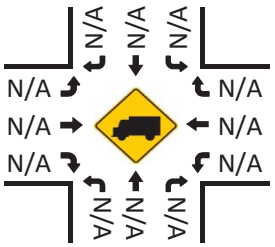
HT (AM)



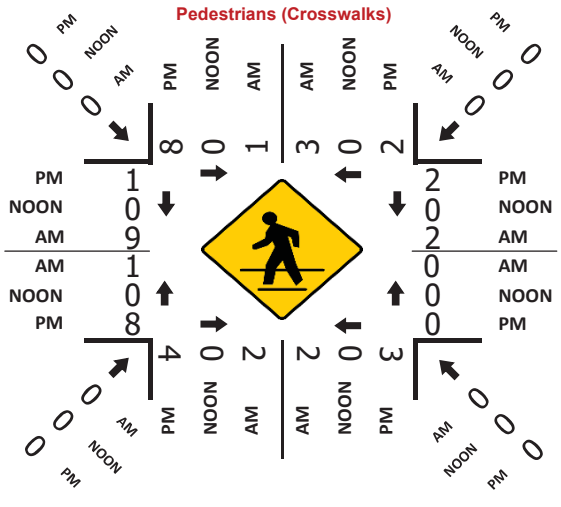
Cars (NOON)



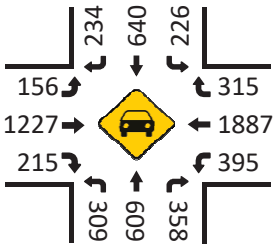
HT (NOON)



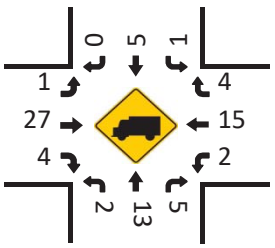
Pedestrians (Crosswalks)



Cars (PM)



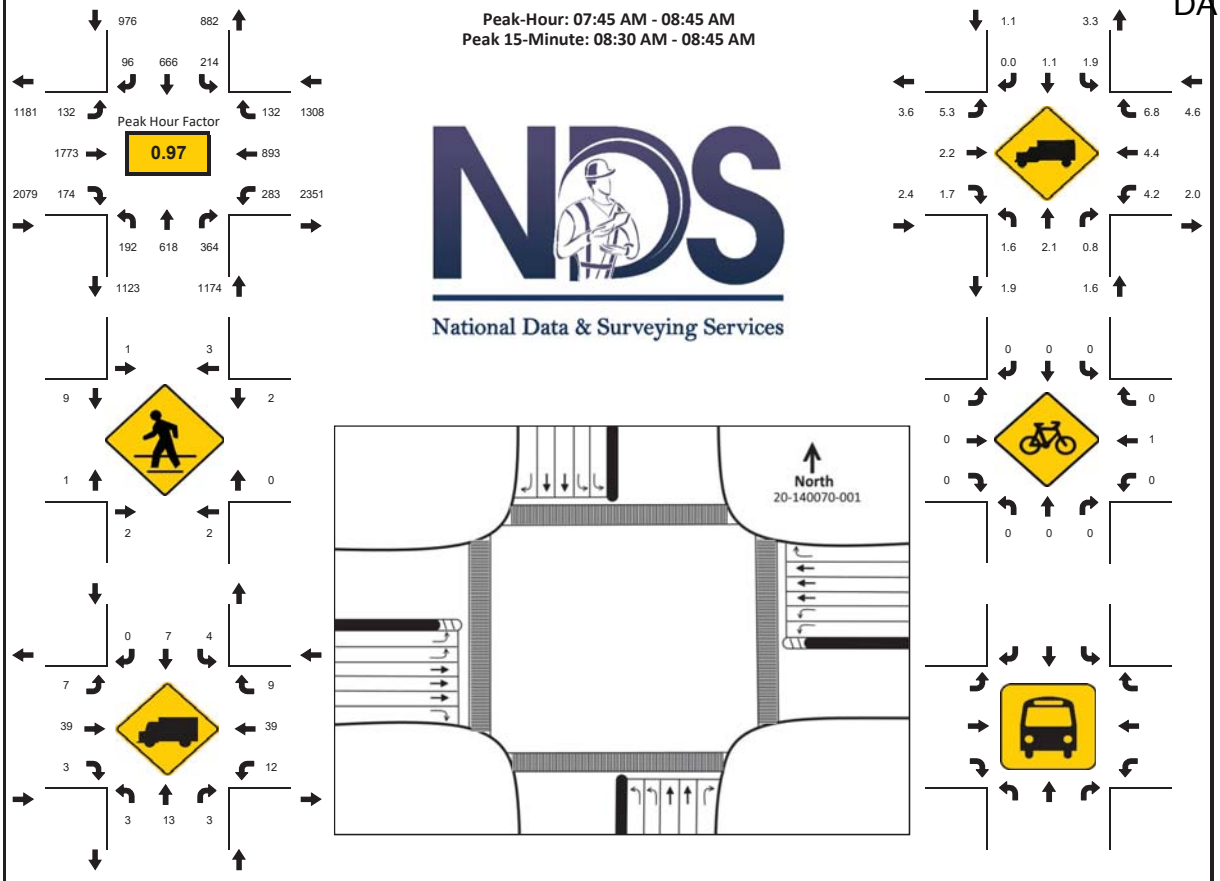
HT (PM)



LOCATION: SW 137th Ave & SW 88th St
CITY/STATE: Miami, FL

PROJECT ID: 20-140070-001
DATE: 11/04/2020

Peak-Hour: 07:45 AM - 08:45 AM
Peak 15-Minute: 08:30 AM - 08:45 AM

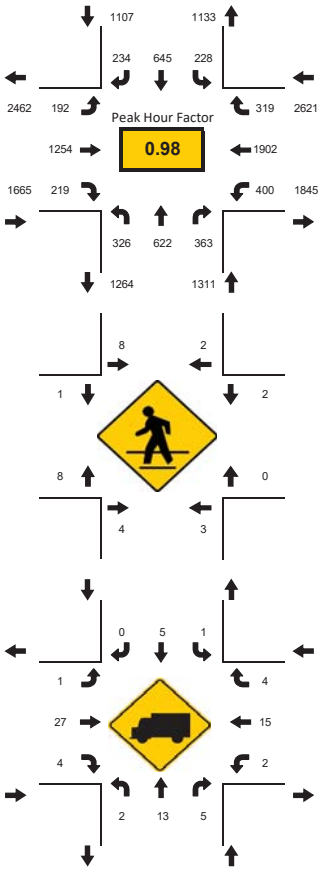


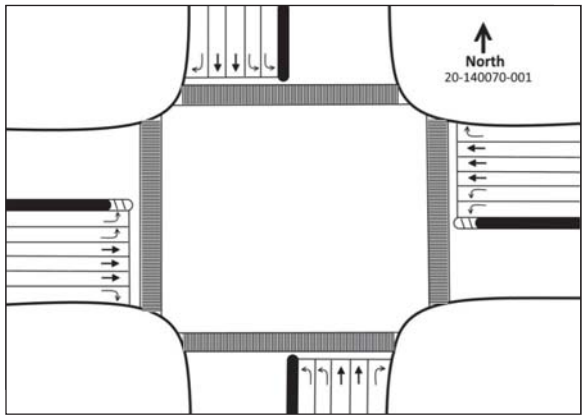
15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 88th St Eastbound					SW 88th St Westbound						Hourly
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Total	Total
07:00 AM	27	125	96	0		40	117	17	0		19	444	25	0		31	164	20	1		1126	5028
07:15 AM	24	151	93	0		59	135	11	0		21	484	29	0		41	190	17	0		1255	5289
07:30 AM	32	155	99	3		59	152	20	0		33	467	31	0		59	161	27	2		1300	5410
07:45 AM	35	160	80	4		56	168	24	0		22	434	44	3		70	216	31	0		1347	5537
08:00 AM	48	150	78	3		63	173	26	0		31	439	39	5		75	223	34	0		1387	5494
08:15 AM	46	152	111	5		42	159	28	0		29	433	55	5		55	222	31	3		1376	4107
08:30 AM	47	156	95	4		53	166	18	0		34	467	36	3		79	232	36	1		1427	2731
08:45 AM	60	137	97	1		46	180	28	0		20	346	47	8		68	230	36	0		1304	1304
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	192	640	444	20		252	692	112	0		136	1868	220	20		316	928	144	12		**5996**	
Heavy Trucks	4	20	4			8	20	0			12	48	8			20	48	20			**212**	
Pedestrians		8					8					20					4				**40**	
Bicycles	0	0	0			0	0	0			0	0	0			0	4	0			**4**	
Railroad																						
Stopped Buses																						

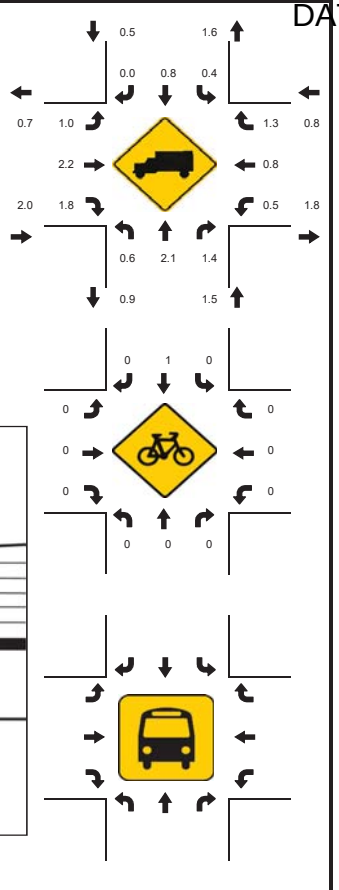
LOCATION: SW 137th Ave & SW 88th St
CITY/STATE: Miami, FL

PROJECT ID: 20-140070-001
DATE: 11/04/2020

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







15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 88th St Eastbound					SW 88th 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	79	172	87	6		60	174	62	1		32	272	61	5		91	423	59	2		1586	6426
04:15 PM	59	143	85	5		55	130	39	2		37	317	63	6		127	478	63	0		1609	6486
04:30 PM	66	187	89	2		51	174	62	1		32	289	40	8		73	415	72	0		1561	6580
04:45 PM	79	139	102	3		45	140	49	0		38	315	44	12		113	516	74	1		1670	6704
05:00 PM	82	163	85	1		76	182	59	0		45	292	51	8		93	438	71	0		1646	6652
05:15 PM	66	141	91	6		46	141	61	0		38	327	65	9		99	524	87	2		1703	5006
05:30 PM	84	179	85	5		60	182	65	1		36	320	59	6		92	424	87	0		1685	3303
05:45 PM	71	143	81	4		42	146	64	0		48	255	49	11		97	531	76	0		1618	1618
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	336	716	408	24		304	728	260	4		180	1308	260	48		452	2096	348	8		**7480**	
Heavy Trucks	8	36	12			4	8	0			4	44	8			4	24	12			**164**	
Pedestrians		12					16					12					4				**44**	
Bicycles	0	0	0			0	4	0			0	0	0			0	0	0			**4**	
Railroad																						
Stopped Buses																						

National Data & Surveying Services

Intersection Turning Movement Count

Location: SW 137th Ave & Median Opening
City: Miami
Control: No Control

Project ID: 20-140070-002
Date: 11/4/2020

Total

NS/EW Streets:	SW 137th Ave				SW 137th Ave				Median Opening				Median Opening				
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	0	275	0	0	0	178	0	6	0	0	0	0	0	0	0	0	459
7:15 AM	0	265	0	0	0	205	0	5	0	0	0	0	0	0	0	0	475
7:30 AM	0	290	0	0	0	253	0	4	0	0	0	0	0	0	0	0	547
7:45 AM	0	312	0	0	0	297	0	6	0	0	0	0	0	0	0	0	615
8:00 AM	0	308	0	0	0	285	0	1	0	0	0	0	0	0	0	0	594
8:15 AM	0	315	0	0	0	284	0	9	0	0	0	0	0	0	0	0	608
8:30 AM	0	338	0	0	1	298	0	9	0	0	0	0	0	0	0	0	646
8:45 AM	0	344	0	0	0	314	0	4	0	0	0	0	0	0	0	0	662
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2447	0	0	1	2114	0	44	0	0	0	0	0	0	0	0	4606
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.05%	97.92%	0.00%	2.04%									
PEAK HR :	**08:00 AM - 09:00 AM**																TOTAL
PEAK HR VOL :	0	1305	0	0	1	1181	0	23	0	0	0	0	0	0	0	0	2510
PEAK HR FACTOR :	0.000	0.948	0.000	0.000	0.250	0.940	0.000	0.639	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.948
		0.948				0.947											

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	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	0	343	0	0	0	320	0	2	0	0	0	0	0	0	0	0	665
4:15 PM	0	308	0	0	0	371	0	1	0	0	0	0	0	0	0	0	680
4:30 PM	0	341	0	0	0	307	0	2	0	0	0	0	0	0	0	0	650
4:45 PM	0	348	0	0	0	361	0	2	0	0	0	0	0	0	0	0	711
5:00 PM	0	315	0	0	0	365	0	5	0	0	0	0	0	0	0	0	685
5:15 PM	0	313	0	0	0	385	0	3	0	0	0	0	0	0	0	0	701
5:30 PM	0	325	0	0	0	362	0	3	0	0	0	0	0	0	0	0	690
5:45 PM	0	338	0	0	0	377	0	2	0	0	0	0	0	0	0	0	717
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2631	0	0	0	2848	0	20	0	0	0	0	0	0	0	0	5499
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	99.30%	0.00%	0.70%									
PEAK HR :	**05:00 PM - 06:00 PM**																TOTAL
PEAK HR VOL :	0	1291	0	0	0	1489	0	13	0	0	0	0	0	0	0	0	2793
PEAK HR FACTOR :	0.000	0.955	0.000	0.000	0.000	0.967	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.974
		0.955				0.968											

PEAK HR :	**4:45 PM - 5:45 PM**																TOTAL
PEAK HR VOL :	0	1301	0	0	0	1473	0	13	0	0	0	0	0	0	0	0	2787

Prepared by National Data & Surveying Services

SW 137th Ave & Median Opening

Peak Hour Turning Movement Count

ID: 20-140070-002
City: Miami

Day: Wednesday
Date: 11/04/2020

PEAK HOURS		COUNT PERIODS
AM	08:00 AM - 09:00 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	05:00 PM - 06:00 PM	04:00 PM - 06:00 PM

SOUTHBOUND (SW 137th Ave)

AM	0	1181	1	23	1328	AM
NOON	0	0	0	0	0	NOON
PM	0	1489	0	13	1304	PM

EASTBOUND (Median Opening)

AM	NOON	PM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

WESTBOUND (Median Opening)

PM	NOON	AM
0	0	0
0	0	0
0	0	0
0	0	0
0	0	1

CONTROL

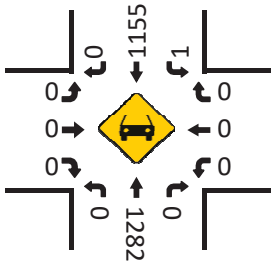
No Control

TEV	2510 AM	0 NOON	2793 PM
PHF	0.95		0.97

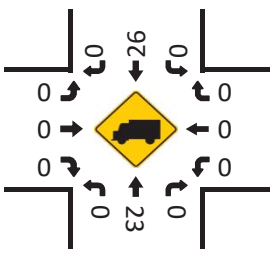
NORTHBOUND (SW 137th Ave)

PM	1489	0	0	1291	0 PM
NOON	0	0	0	0	0 NOON
AM	1181	0	0	1305	0 AM

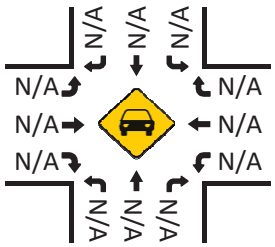
Cars (AM)



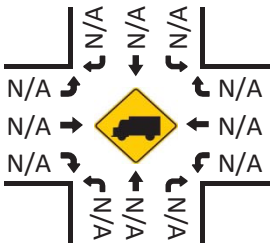
HT (AM)



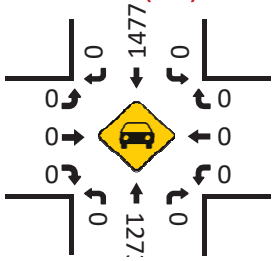
Cars (NOON)



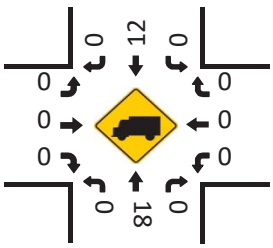
HT (NOON)



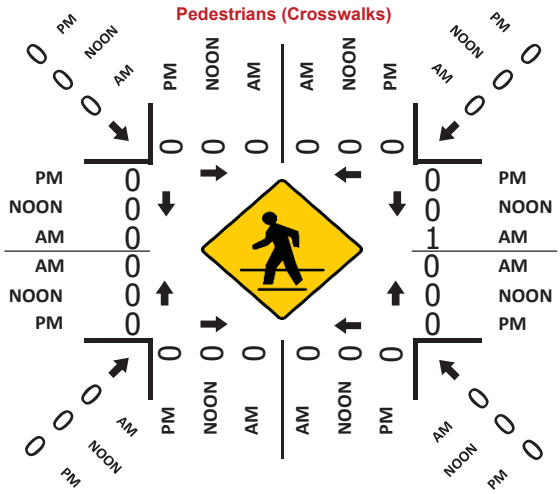
Cars (PM)



HT (PM)



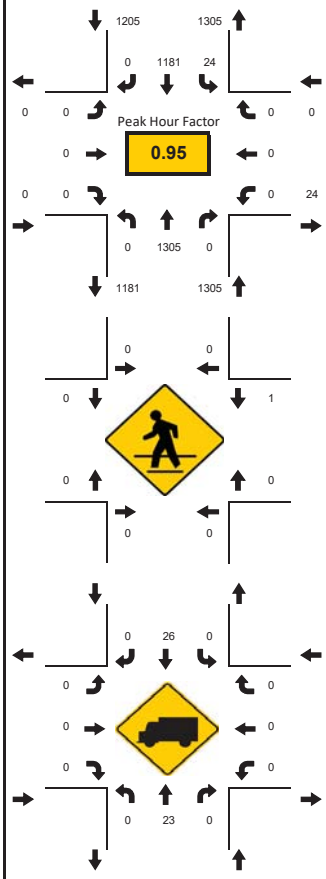
Pedestrians (Crosswalks)



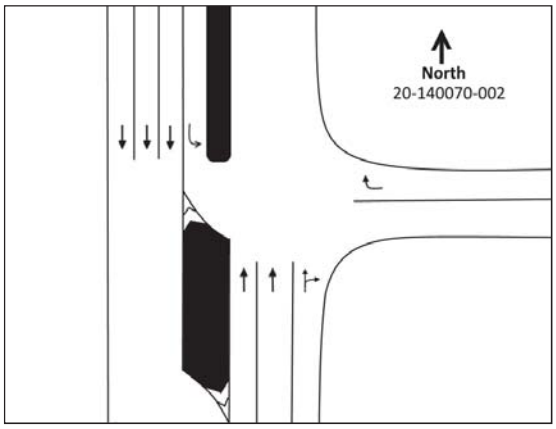
LOCATION: SW 137th Ave & Median Opening
CITY/STATE: Miami, FL

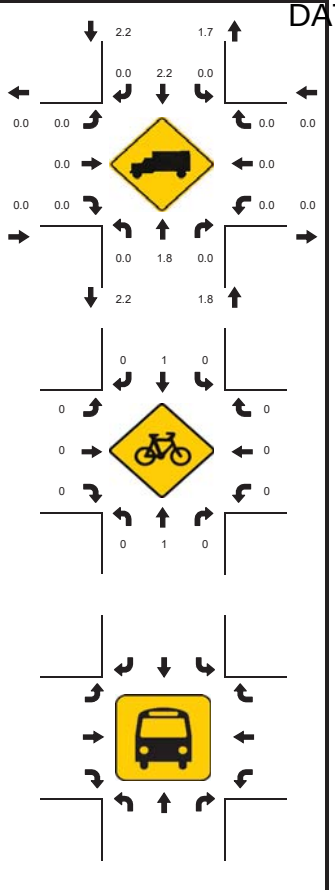
PROJECT ID: 20-140070-002
DATE: 11/04/2020

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



National Data & Surveying Services



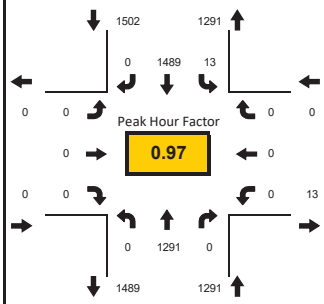


15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					Median Opening Eastbound					Median Opening Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	0	275	0	0		0	178	0	6		0	0	0	0		0	0	0	0		459	2096
07:15 AM	0	265	0	0		0	205	0	5		0	0	0	0		0	0	0	0		475	2231
07:30 AM	0	290	0	0		0	253	0	4		0	0	0	0		0	0	0	0		547	2364
07:45 AM	0	312	0	0		0	297	0	6		0	0	0	0		0	0	0	0		615	2463
08:00 AM	0	308	0	0		0	285	0	1		0	0	0	0		0	0	0	0		594	2510
08:15 AM	0	315	0	0		0	284	0	9		0	0	0	0		0	0	0	0		608	1916
08:30 AM	0	338	0	0		1	298	0	9		0	0	0	0		0	0	0	0		646	1308
08:45 AM	0	344	0	0		0	314	0	4		0	0	0	0		0	0	0	0		662	662
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	0	1376	0	0		4	1256	0	36		0	0	0	0		0	0	0	0		**2672**	
Heavy Trucks	0	36	0			0	36	0			0	0	0			0	0	0			**72**	
Pedestrians		0					0					0					4				**4**	
Bicycles	0	4	0			0	4	0			0	0	0			0	0	0			**8**	
Railroad Stopped Buses																						

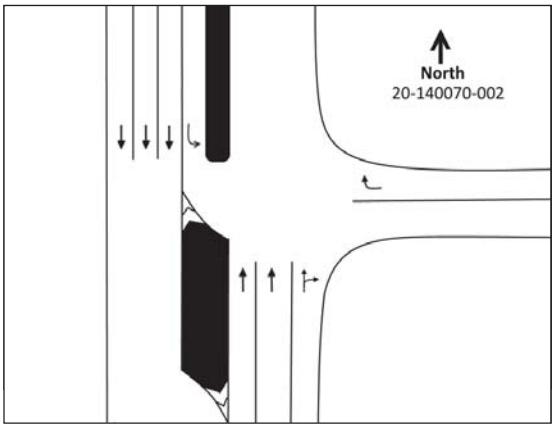
LOCATION: SW 137th Ave & Median Opening
CITY/STATE: Miami, FL

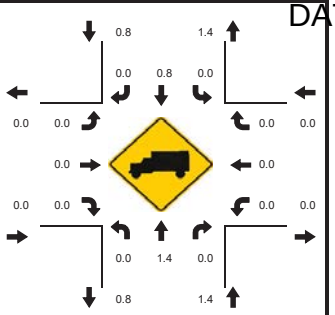
PROJECT ID: 20-140070-002
DATE: 11/04/2020

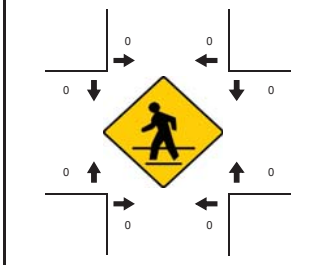
Peak-Hour: 05:00 PM - 06:00 PM
Peak 15-Minute: 05:45 PM - 06:00 PM

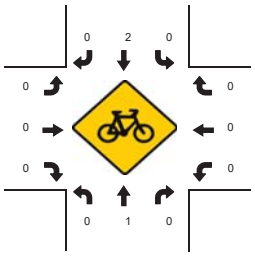


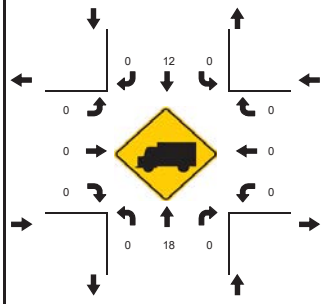
National Data & Surveying Services

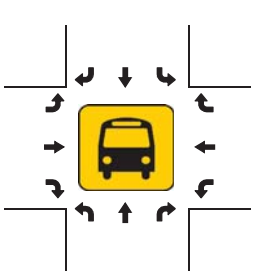












15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					Median Opening Eastbound					Median Opening Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
04:00 PM	0	343	0	0		0	320	0	2		0	0	0	0		0	0	0	0		665	2706
04:15 PM	0	308	0	0		0	371	0	1		0	0	0	0		0	0	0	0		680	2726
04:30 PM	0	341	0	0		0	307	0	2		0	0	0	0		0	0	0	0		650	2747
04:45 PM	0	348	0	0		0	361	0	2		0	0	0	0		0	0	0	0		711	2787
05:00 PM	0	315	0	0		0	365	0	5		0	0	0	0		0	0	0	0		685	2793
05:15 PM	0	313	0	0		0	385	0	3		0	0	0	0		0	0	0	0		701	2108
05:30 PM	0	325	0	0		0	362	0	3		0	0	0	0		0	0	0	0		690	1407
05:45 PM	0	338	0	0		0	377	0	2		0	0	0	0		0	0	0	0		717	717
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	0	1352	0	0		0	1540	0	20		0	0	0	0		0	0	0	0		**2912**	
Heavy Trucks	0	32	0			0	16	0			0	0	0			0	0	0			**48**	
Pedestrians		0					0					0					0				**0**	
Bicycles	0	4	0			0	4	0			0	0	0			0	0	0			**8**	
Railroad																						
Stopped Buses																						

National Data & Surveying Services

Intersection Turning Movement Count

Location: SW 137th Ave & SW 96th St
City: Miami
Control: Signalized

Project ID: 20-140070-003
Date: 11/4/2020

Total

NS/EW Streets:	SW 137th Ave				SW 137th Ave				SW 96th St				SW 96th 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	13	226	6	0	5	162	8	3	53	5	40	0	1	6	2	0	530
7:15 AM	12	203	4	0	4	184	12	5	53	18	66	0	2	3	1	0	567
7:30 AM	19	243	8	2	4	229	29	6	54	9	56	0	6	1	2	0	668
7:45 AM	26	244	15	0	7	273	17	3	44	23	80	0	4	7	2	0	745
8:00 AM	12	249	28	0	9	246	22	2	48	21	75	0	17	16	21	0	766
8:15 AM	28	255	13	0	3	260	19	3	51	18	70	0	35	25	20	0	800
8:30 AM	30	261	1	0	7	262	27	8	45	14	54	0	9	13	13	0	744
8:45 AM	24	279	2	1	2	277	27	4	50	9	70	0	5	4	7	0	761
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	164	1960	77	3	41	1893	161	34	398	117	511	0	79	75	68	0	5581
APPROACH %'s :	7.44%	88.93%	3.49%	0.14%	1.93%	88.91%	7.56%	1.60%	38.79%	11.40%	49.81%	0.00%	35.59%	33.78%	30.63%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	94	1044	44	1	21	1045	95	17	194	62	269	0	66	58	61	0	3071
PEAK HR FACTOR :	0.783	0.935	0.393	0.250	0.583	0.943	0.880	0.531	0.951	0.738	0.897	0.000	0.471	0.580	0.726	0.000	0.960
	0.967				0.950				0.911				0.578				

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	52	314	13	0	9	256	60	12	29	11	43	0	4	13	5	0	821
4:15 PM	49	242	4	1	7	284	50	5	34	10	38	0	2	19	9	0	754
4:30 PM	50	308	3	1	15	237	68	9	34	10	43	0	7	16	7	0	808
4:45 PM	42	273	5	1	8	254	69	6	36	7	54	0	3	16	8	0	782
5:00 PM	64	291	11	0	9	294	75	8	28	8	49	0	3	14	4	0	858
5:15 PM	58	234	7	0	7	298	62	7	40	13	54	0	5	19	9	0	813
5:30 PM	80	299	6	6	7	282	78	8	27	9	51	0	3	21	5	0	882
5:45 PM	56	269	4	2	2	295	52	5	38	16	40	0	9	35	16	0	839
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	451	2230	53	11	64	2200	514	60	266	84	372	0	36	153	63	0	6557
APPROACH %'s :	16.43%	81.24%	1.93%	0.40%	2.26%	77.52%	18.11%	2.11%	36.84%	11.63%	51.52%	0.00%	14.29%	60.71%	25.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	258	1093	28	8	25	1169	267	28	133	46	194	0	20	89	34	0	3392
PEAK HR FACTOR :	0.806	0.914	0.636	0.333	0.694	0.981	0.856	0.875	0.831	0.719	0.898	0.000	0.556	0.636	0.531	0.000	0.961
	0.887				0.964				0.871				0.596				

RECEIVED
MIAMI-DADE COUNTY
PROCESS NO: Z21-047
DATE: SEP 30 2021
BY: GONGOL

Prepared by National Data & Surveying Services

SW 137th Ave & SW 96th St

Peak Hour Turning Movement Count

ID: 20-140070-003
City: Miami

Day: Wednesday
Date: 11/04/2020

PEAK HOURS

AM	08:00 AM - 09:00 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

SOUTHBOUND — SW 137th Ave

AM	95	1045	21	17	1316	AM
NOON	0	0	0	0	0	NOON
PM	267	1169	25	28	1288	PM

EASTBOUND — SW 96th St

AM	NOON	PM	
247	0	614	⇦
0	0	0	↶ 0
194	0	133	↱ 0
62	0	46	→ 0
269	0	194	↴ 0

WESTBOUND — SW 96th St

PM	NOON	AM	
34	0	61	↰ 0
89	0	58	← 0
20	0	66	↰ 0
0	0	0	↰ 0
99	0	127	⇨

NORTHBOUND — SW 137th Ave

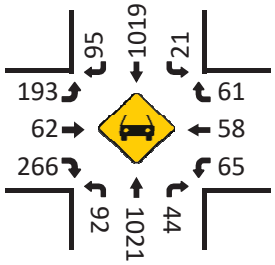
PM	1391	8	258	1093	28	PM
NOON	0	0	0	0	0	NOON
AM	1381	1	94	1044	44	AM

CONTROL

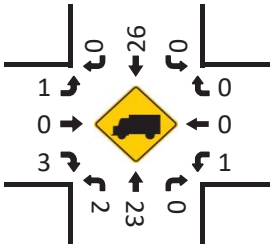
Signalized

TEV	3071 AM	0 NOON	3392 PM
PHF	0.96		0.96

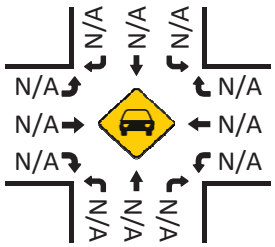
Cars (AM)



HT (AM)



Cars (NOON)



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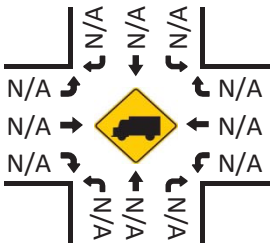
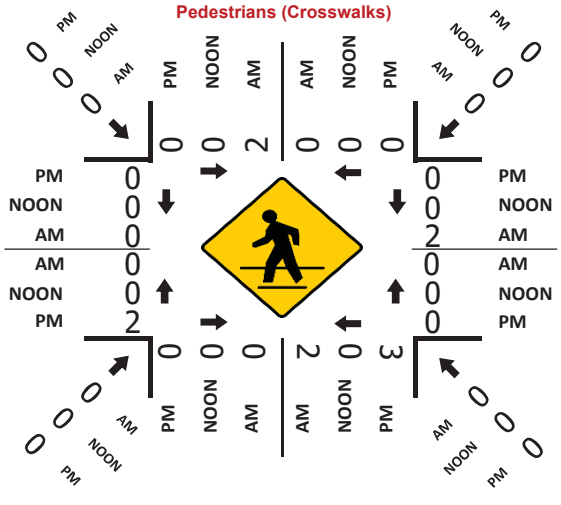
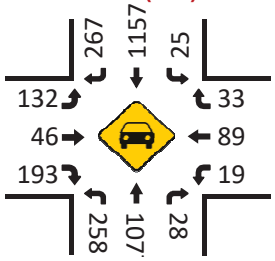


Pedestrians (Crosswalks)



Cars (PM)



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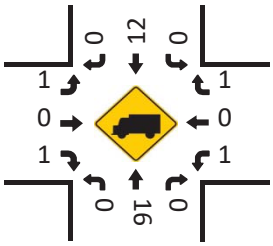
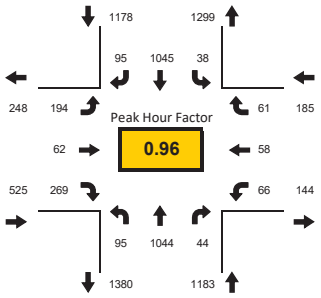
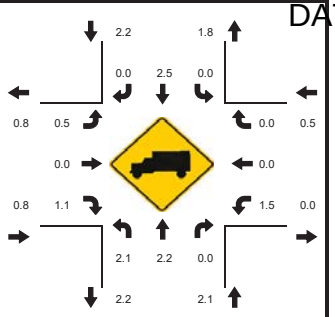


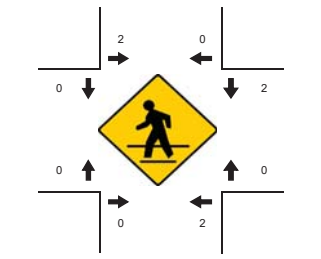
LOCATION: SW 137th Ave & SW 96th St
CITY/STATE: Miami, FL

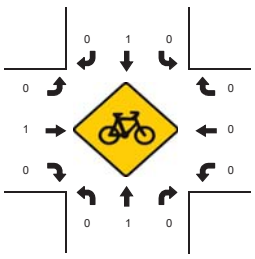
PROJECT ID: 20-140070-003
DATE: 11/04/2020

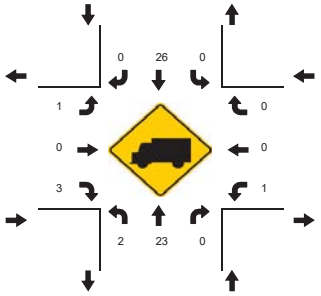
Peak-Hour: 08:00 AM - 09:00 AM
Peak 15-Minute: 08:15 AM - 08:30 AM

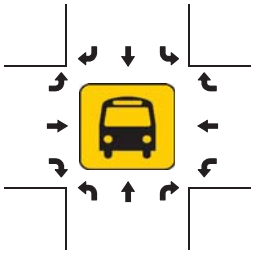


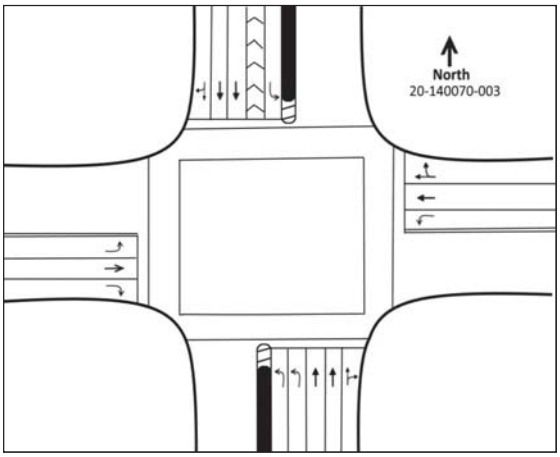










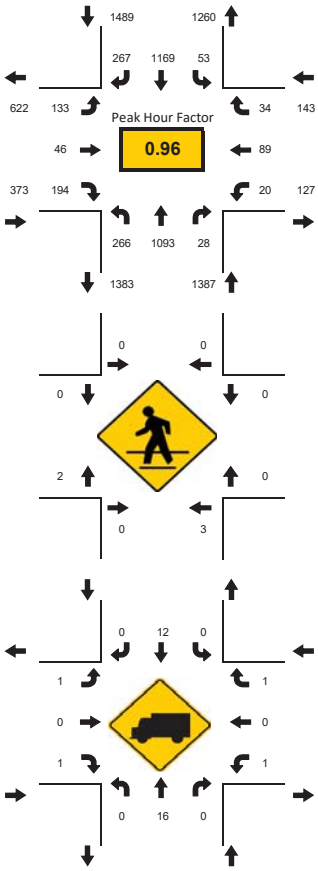


15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 96th St Eastbound					SW 96th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	13	226	6	0		5	162	8	3		53	5	40	0		1	6	2	0		530	2510
07:15 AM	12	203	4	0		4	184	12	5		53	18	66	0		2	3	1	0		567	2746
07:30 AM	19	243	8	2		4	229	29	6		54	9	56	0		6	1	2	0		668	2979
07:45 AM	26	244	15	0		7	273	17	3		44	23	80	0		4	7	2	0		745	3055
08:00 AM	12	249	28	0		9	246	22	2		48	21	75	0		17	16	21	0		766	3071
08:15 AM	28	255	13	0		3	260	19	3		51	18	70	0		35	25	20	0		800	2305
08:30 AM	30	261	1	0		7	262	27	8		45	14	54	0		9	13	13	0		744	1505
08:45 AM	24	279	2	1		2	277	27	4		50	9	70	0		5	4	7	0		761	761
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	120	1116	112	4		36	1108	108	32		204	84	300	0		140	100	84	0		**3548**	
Heavy Trucks	4	28	0			0	32	0			4	0	8			4		0	0		**80**	
Pedestrians		8						8				0					8				**24**	
Bicycles	0	4	0			0	4	0			0	4	0			0		0	0		**12**	
Railroad																						
Stopped Buses																						

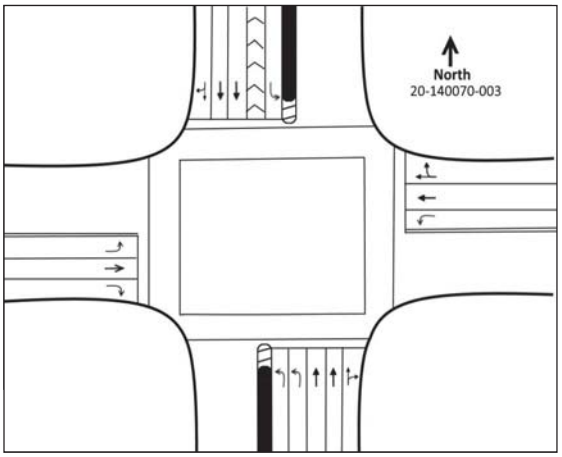
LOCATION: SW 137th Ave & SW 96th St
CITY/STATE: Miami, FL

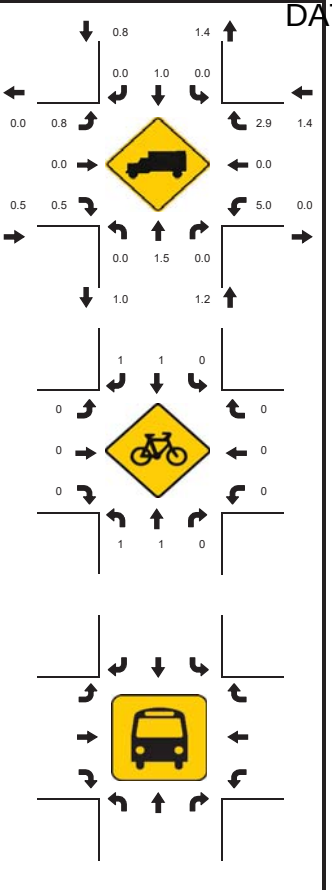
PROJECT ID: 20-140070-003
DATE: 11/04/2020

Peak-Hour: 05:00 PM - 06:00 PM
Peak 15-Minute: 05:30 PM - 05:45 PM



National Data & Surveying Services





15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 96th St Eastbound					SW 96th 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	52	314	13	0		9	256	60	12		29	11	43	0		4	13	5	0		821	3165
04:15 PM	49	242	4	1		7	284	50	5		34	10	38	0		2	19	9	0		754	3202
04:30 PM	50	308	3	1		15	237	68	9		34	10	43	0		7	16	7	0		808	3261
04:45 PM	42	273	5	1		8	254	69	6		36	7	54	0		3	16	8	0		782	3335
05:00 PM	64	291	11	0		9	294	75	8		28	8	49	0		3	14	4	0		858	3392
05:15 PM	58	234	7	0		7	298	62	7		40	13	54	0		5	19	9	0		813	2534
05:30 PM	80	299	6	6		7	282	78	8		27	9	51	0		3	21	5	0		882	1721
05:45 PM	56	269	4	2		2	295	52	5		38	16	40	0		9	35	16	0		839	839
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	320	1196	44	24		36	1192	312	32		160	64	216	0		36	140	64	0		**3836**	
Heavy Trucks	0	32	0			0	16	0			4	0	4			4		0	4		**64**	
Pedestrians		12						0				8					0				**20**	
Bicycles	4	4	0			0	4	4			0	0	0			0		0	0		**16**	
Railroad																						
Stopped Buses																						

National Data & Surveying Services

Intersection Turning Movement Count

Location: SW 137th Ave & SW 104th St
City: Miami
Control: Signalized

Project ID: 20-140070-001
Date: 11/4/2020

Total

NS/EW Streets:	SW 137th Ave				SW 137th Ave				SW 104th St				SW 104th 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	16	170	94	0	37	160	7	0	23	273	19	0	32	66	23	0	920
7:15 AM	12	174	103	0	34	167	5	0	17	312	40	0	37	99	18	0	1018
7:30 AM	17	231	114	0	62	213	8	1	27	329	24	0	45	116	39	0	1226
7:45 AM	28	230	79	0	50	322	13	0	21	290	42	0	47	134	34	0	1290
8:00 AM	18	205	73	0	81	230	13	0	34	316	40	0	43	128	35	0	1216
8:15 AM	29	223	86	2	59	238	20	1	30	329	35	0	54	144	43	0	1293
8:30 AM	25	246	82	0	70	263	18	1	37	282	36	0	55	112	54	0	1281
8:45 AM	38	224	78	1	69	294	21	0	26	256	41	0	57	167	47	0	1319
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	183	1703	709	3	462	1887	105	3	215	2387	277	0	370	966	293	0	9563
APPROACH %'s :	7.04%	65.55%	27.29%	0.12%	18.80%	76.80%	4.27%	0.12%	7.47%	82.91%	9.62%	0.00%	22.71%	59.30%	17.99%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	110	898	319	3	279	1025	72	2	127	1183	152	0	209	551	179	0	5109
PEAK HR FACTOR :	0.724	0.913	0.927	0.375	0.861	0.872	0.857	0.500	0.858	0.899	0.927	0.000	0.917	0.825	0.829	0.000	0.968
		0.942				0.897				0.928				0.866			

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	61	248	45	1	62	232	23	0	25	182	36	0	88	276	92	0	1371
4:15 PM	46	241	68	0	40	239	33	4	22	162	22	1	70	302	76	0	1326
4:30 PM	52	212	42	0	52	202	34	0	21	191	43	0	64	289	99	0	1301
4:45 PM	35	244	70	1	44	229	30	0	25	182	35	1	87	284	71	0	1338
5:00 PM	57	234	62	1	64	255	35	0	26	167	23	0	66	273	87	1	1351
5:15 PM	42	235	67	1	52	259	22	1	22	159	32	0	53	277	91	1	1314
5:30 PM	48	236	54	0	73	246	36	5	25	167	26	0	44	224	106	1	1291
5:45 PM	46	223	61	1	35	247	30	0	26	172	39	0	42	232	82	0	1236
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	387	1873	469	5	422	1909	243	10	192	1382	256	2	514	2157	704	3	10528
APPROACH %'s :	14.16%	68.51%	17.15%	0.18%	16.33%	73.88%	9.40%	0.39%	10.48%	75.44%	13.97%	0.11%	15.22%	63.85%	20.84%	0.09%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	194	945	225	2	198	902	120	4	93	717	136	2	309	1151	338	0	5336
PEAK HR FACTOR :	0.795	0.953	0.804	0.500	0.798	0.944	0.882	0.250	0.930	0.938	0.791	0.500	0.878	0.953	0.854	0.000	0.973
		0.962				0.965				0.929				0.986			

PEAK HR :	4:45 PM - 5:45 PM																TOTAL
PEAK HR VOL :	182	949	253	3	233	989	123	6	98	675	116	1	250	1058	355	3	5294

RECEIVED
MIAMI-DADE COUNTY
PROCESS NO: Z21-047
DATE: SEP 30 2021
BY: GONGOL

Prepared by National Data & Surveying Services

SW 137th Ave & SW 104th St

Peak Hour Turning Movement Count

ID: 20-140070-004
City: Miami

Day: Wednesday
Date: 11/04/2020

SW 137th Ave

SOUTHBOUND

PEAK HOURS	COUNT PERIODS
08:00 AM - 09:00 AM	07:00 AM - 09:00 AM
NONE	NONE
04:00 PM - 05:00 PM	04:00 PM - 06:00 PM

AM	72	1025	279	2	1206	AM
NOON	0	0	0	0	0	NOON
PM	120	902	198	4	1380	PM

EASTBOUND

AM	NOON	PM	
733	0	1467	⇦
0	0	2	↶ 0
127	0	93	↱ 0
1183	0	717	→ 0
152	0	136	↳ 0
AM	NOON	PM	

WESTBOUND

PM	NOON	AM	
338	0	179	↰ 0
1151	0	551	← 0
309	0	209	↰ 0
0	0	0	↶ 0
1140	0	1781	⇨
PM	NOON	AM	

CONTROL

Signalized

TEV	5109 AM	0 NOON	5336 PM
PHF	0.97		0.97

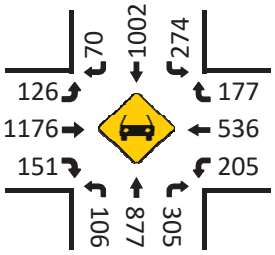
PM	1349	2	194	945	225	PM
NOON	0	0	0	0	0	NOON
AM	1389	3	110	898	319	AM

NORTHBOUND

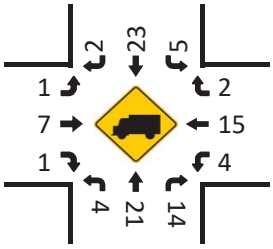
SW 137th Ave

SW 104th St (left) / **SW 104th St** (right)

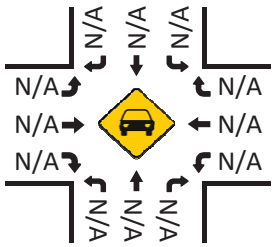
Cars (AM)



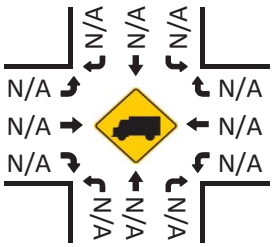
HT (AM)



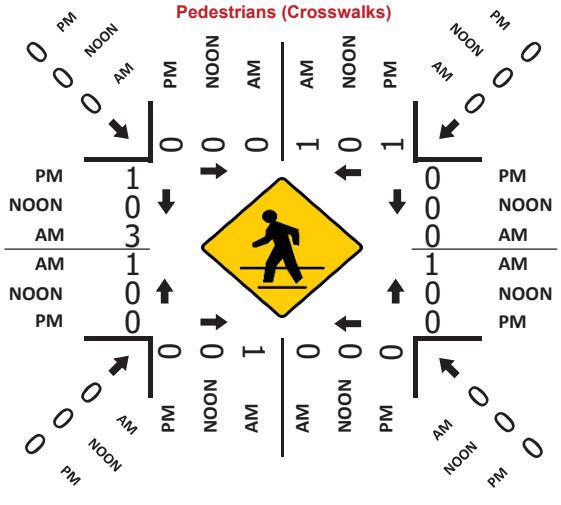
Cars (NOON)



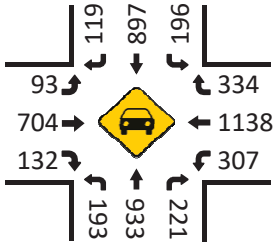
HT (NOON)



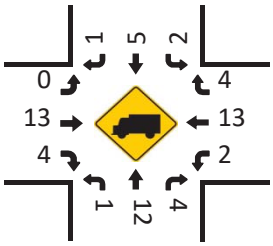
Pedestrians (Crosswalks)



Cars (PM)



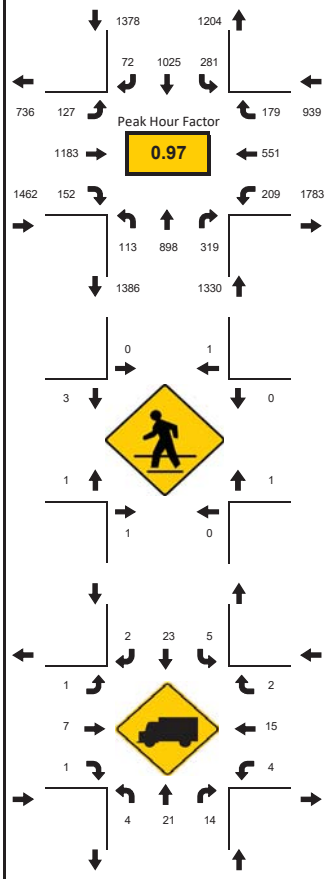
HT (PM)

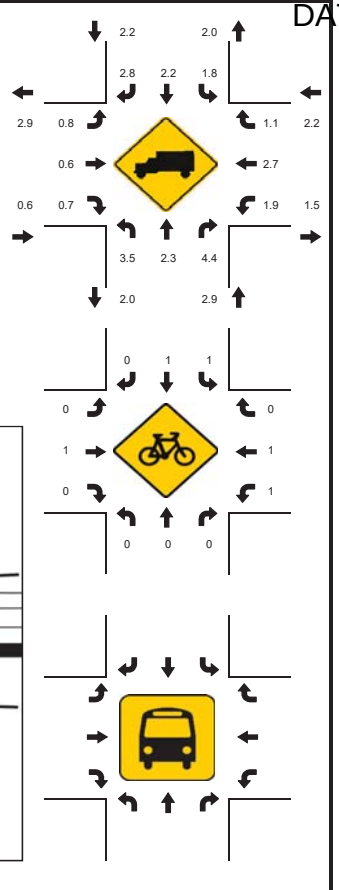


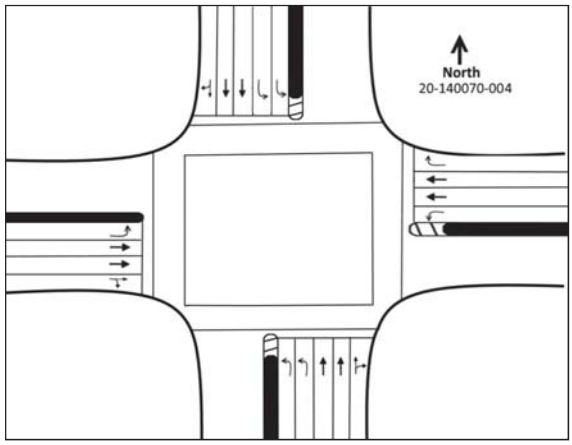
LOCATION: SW 137th Ave & SW 104th St
CITY/STATE: Miami, FL

PROJECT ID: 20-140070-004
DATE: 11/04/2020

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





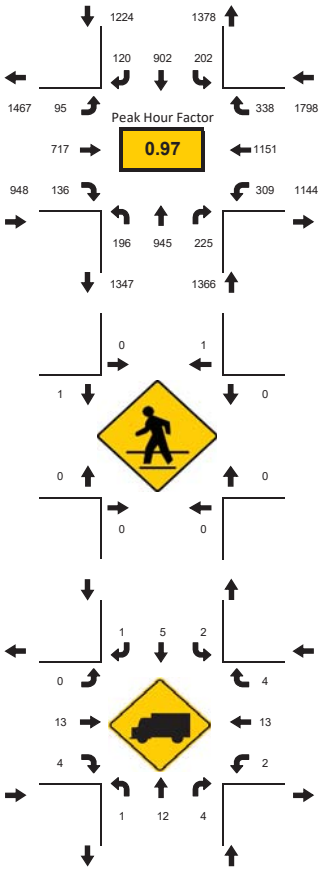


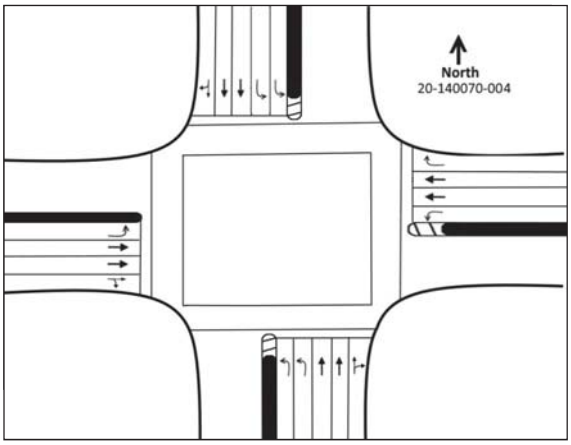
15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 104th St Eastbound					SW 104th St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
07:00 AM	16	170	94	0		37	160	7	0		23	273	19	0		32	66	23	0		920	4454
07:15 AM	12	174	103	0		34	167	5	0		17	312	40	0		37	99	18	0		1018	4750
07:30 AM	17	231	114	0		62	213	8	1		27	329	24	0		45	116	39	0		1226	5025
07:45 AM	28	230	79	0		50	322	13	0		21	290	42	0		47	134	34	0		1290	5080
08:00 AM	18	205	73	0		81	230	13	0		34	316	40	0		43	128	35	0		1216	5109
08:15 AM	29	223	86	2		59	238	20	1		30	329	35	0		54	144	43	0		1293	3893
08:30 AM	25	246	82	0		70	263	18	1		37	282	36	0		55	112	54	0		1281	2600
08:45 AM	38	224	78	1		69	294	21	0		26	256	41	0		57	167	47	0		1319	1319
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	152	984	344	8		324	1176	84	4		148	1316	164	0		228	668	216	0		**5816**	
Heavy Trucks	8	32	28			8	28	4			4	12	4			8	20	8			**164**	
Pedestrians		4					4					8					4				**20**	
Bicycles	0	0	0			4	4	0			0	4	0			4	4	0			**20**	
Railroad Stopped Buses																						

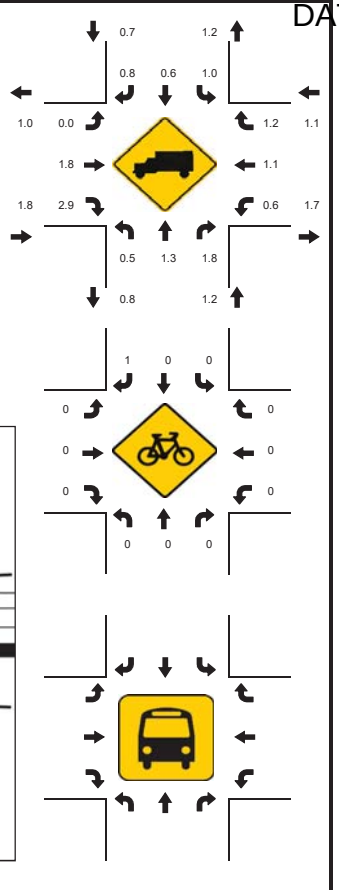
LOCATION: SW 137th Ave & SW 104th St
CITY/STATE: Miami, FL

PROJECT ID: 20-140070-004
DATE: 11/04/2020

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







15-Min Count Period Beginning At	SW 137th Ave Northbound					SW 137th Ave Southbound					SW 104th St Eastbound					SW 104th 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	61	248	45	1		62	232	23	0		25	182	36	0		88	276	92	0		1371	5336
04:15 PM	46	241	68	0		40	239	33	4		22	162	22	1		70	302	76	0		1326	5316
04:30 PM	52	212	42	0		52	202	34	0		21	191	43	0		64	289	99	0		1301	5304
04:45 PM	35	244	70	1		44	229	30	0		25	182	35	1		87	284	71	0		1338	5294
05:00 PM	57	234	62	1		64	255	35	0		26	167	23	0		66	273	87	1		1351	5192
05:15 PM	42	235	67	1		52	259	22	1		22	159	32	0		53	277	91	1		1314	3841
05:30 PM	48	236	54	0		73	246	36	5		25	167	26	0		44	224	106	1		1291	2527
05:45 PM	46	223	61	1		35	247	30	0		26	172	39	0		42	232	82	0		1236	1236

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	992	280	4		248	956	136	16		100	764	172	4		352	1208	396	0		**5872**
Heavy Trucks	4	24	12			8	8	4			0	24	8			4	20	16			**132**
Pedestrians		0					4					4					0				**8**
Bicycles	0	0	0			0	0	4			0	0	0			0	0	0			**4**
Railroad																					
Stopped Buses																					

Miami-Dade, FL

TOD Schedule Report

3842 - Kendall Dr. SW 137th Ave.

2070-1C-Econolite Type-Cobalt

3/30/2020, 5:16 PM

Phase Data

Phase	Direction	Split	Timing Plan	Walk	Ped Clear	Min Green	Max Green	Vehicle Ext	MAX 2	MAX 3	Yellow	Red Clear
1	E - L	24	1	0	0	5	7	2.5	35	0	4.4	2.6
			2	0	0	5	15	2.5	10	0	4.4	2.6
			3	0	0	5	15	2.5	0	0	4.4	2.6
			4	0	0	0	0	0	0	0	0	0
2	W - T	103	1	7	35	18	30	1	0	0	4.4	2.6
			2	7	35	18	40	1	30	0	4.4	2.6
			3	7	35	18	40	1	0	0	4.4	2.6
			4	0	0	0	0	0	0	0	0	0
3	S - L	29	1	0	0	5	12	2.5	30	0	4.8	2.6
			2	0	0	5	15	2.5	15	0	4.8	2.6
			3	0	0	5	15	2.5	0	0	4.8	2.6
			4	0	0	0	0	0	0	0	0	0
4	N - T	44	1	7	37	7	17	2.5	50	0	4.8	3
			2	7	37	7	20	2.5	15	0	4.8	3
			3	7	37	7	20	2.5	0	0	4.8	3
			4	0	0	0	0	0	0	0	0	0
5	W - L	51	1	0	0	5	10	4	50	0	4.4	2.6
			2	0	0	5	30	2.5	20	0	4.4	2.6
			3	0	0	5	20	2.5	0	0	4.4	2.6
			4	0	0	0	0	0	0	0	0	0
6	E - T	76	1	7	35	18	30	1	0	0	4.4	2.6
			2	7	35	18	40	1	30	0	4.4	2.6
			3	7	35	18	40	1	0	0	4.4	2.6
			4	0	0	0	0	0	0	0	0	0
7	N - L	29	1	0	0	5	12	2.5	30	0	4.8	2.6
			2	0	0	5	20	2.5	15	0	4.8	2.6
			3	0	0	5	15	2.5	0	0	4.8	2.6
			4	0	0	0	0	0	0	0	0	0
8	S - T	44	1	7	37	7	17	2.5	50	0	4.8	3
			2	7	37	7	20	2.5	15	0	4.8	3
			3	7	37	7	20	2.5	0	0	4.8	3
			4	0	0	0	0	0	0	0	0	0

Schedule - 1

Day of Week

SUN	MON	TUE	WED	THU	FRI	SAT
-	X	X	X	-	X	-

Day Plan - 1 -

Time of Day	Action Plan	Cycle Length	Offset	Phs Spl 1	Phs Spl 2	Phs Spl 3	Phs Spl 4	Phs Spl 5	Phs Spl 6	Phs Spl 7	Phs Spl 8
00:00:00	64	-	-	-	-	-	-	-	-	-	-
00:30:00	65	-	-	-	-	-	-	-	-	-	-
05:00:00	32	120	23	24	50	21	25	24	50	21	25
05:30:00	1	180	118	23	91	21	45	23	91	21	45
11:00:00	23	150	53	27	59	25	39	27	59	25	39
13:00:00	5	200	115	25	101	25	49	25	101	25	49
15:00:00	45	200	107	24	103	29	44	51	76	29	44
19:30:00	13	150	81	22	73	22	33	42	53	22	33
21:00:00	13	150	81	22	73	22	33	42	53	22	33
23:00:00	62	-	-	-	-	-	-	-	-	-	-

Schedule - 2

Day of Week

SUN	MON	TUE	WED	THU	FRI	SAT
-	-	-	-	X	-	-

Day Plan - 2 -

Time of Day	Action Plan	Cycle Length	Offset	Phs Spl 1	Phs Spl 2	Phs Spl 3	Phs Spl 4	Phs Spl 5	Phs Spl 6	Phs Spl 7	Phs Spl 8
00:00:00	62	-	-	-	-	-	-	-	-	-	-
05:00:00	2	120	23	24	50	21	25	24	50	21	25
05:30:00	1	180	118	23	91	21	45	23	91	21	45
11:00:00	23	150	53	27	59	25	39	27	59	25	39
13:00:00	5	200	115	25	101	25	49	25	101	25	49
15:00:00	45	200	107	24	103	29	44	51	76	29	44
19:30:00	13	150	81	22	73	22	33	42	53	22	33
21:00:00	13	150	81	22	73	22	33	42	53	22	33
23:00:00	64	-	-	-	-	-	-	-	-	-	-

Schedule - 3

Day of Week

SUN	MON	TUE	WED	THU	FRI	SAT
-	-	-	-	-	-	X

Day Plan - 3 -

Time of Day	Action Plan	Cycle Length	Offset	Phs Spl 1	Phs Spl 2	Phs Spl 3	Phs Spl 4	Phs Spl 5	Phs Spl 6	Phs Spl 7	Phs Spl 8
00:00:00	64	-	-	-	-	-	-	-	-	-	-
01:00:00	65	-	-	-	-	-	-	-	-	-	-
05:30:00	62	-	-	-	-	-	-	-	-	-	-
07:00:00	23	150	53	27	59	25	39	27	59	25	39
09:00:00	14	130	38	32	50	20	28	32	50	20	28
11:00:00	25	170	119	24	82	20	44	28	78	25	39
20:00:00	13	150	81	22	73	22	33	42	53	22	33
22:00:00	2	120	23	24	50	21	25	24	50	21	25

Schedule - 4

Day of Week

SUN	MON	TUE	WED	THU	FRI	SAT
X	-	-	-	-	-	-

Day Plan - 4 -

Time of Day	Action Plan	Cycle Length	Offset	Phs Spl 1	Phs Spl 2	Phs Spl 3	Phs Spl 4	Phs Spl 5	Phs Spl 6	Phs Spl 7	Phs Spl 8
00:00:00	64	-	-	-	-	-	-	-	-	-	-
01:00:00	65	-	-	-	-	-	-	-	-	-	-
08:00:00	2	120	23	24	50	21	25	24	50	21	25
09:00:00	14	130	38	32	50	20	28	32	50	20	28
12:00:00	25	170	119	24	82	20	44	28	78	25	39

Miami-Dade, FL

3842 - Kendall Dr. SW 137th Ave. - 2070-1C - Econolite Type - Cobalt

Controller Timing Plan (MM) 2-1
Plan 1 - "Phase Bank 1"

Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
Direction	**E-L**	**W-T**	**S-L**	**N-T**	**W-L**	**E-T**	**N-L**	**S-T**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Min Green	5	18	5	7	5	18	5	7	0	0	0	0	0	0	0	0
Bk Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CS Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk	0	7	0	7	0	7	0	7	0	0	0	0	0	0	0	0
Walk2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Walk Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear	0	35	0	37	0	35	0	37	0	0	0	0	0	0	0	0
Ped Clear 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped Clear Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped CO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Ext	2.5	1.0	2.5	2.5	4.0	1.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vehicle Ext 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max1	7	30	12	17	10	30	12	17	0	0	0	0	0	0	0	0
Max2	35	0	30	50	50	0	30	50	0	0	0	0	0	0	0	0
Max3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DYM Max	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dym Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.4	4.4	4.8	4.8	4.4	4.4	4.8	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Clear	2.6	2.6	2.6	3.0	2.6	2.6	2.6	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Act B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sec/Act	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPTDuc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TTReduc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	2.5	1.0	2.5	2.5	4.0	1.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Miami-Dade, FL

3842 - Kendall Dr. SW 137th Ave. - 2070-1C - Econolite Type - Cobalt

Coordination Pattern Data
Coordinator Pattern Data (MM) 3-2

Coordinator Pattern # 1

Split Pattern	1	TS2 (Pat-Off)	0-1	Splits In	Seconds
Cycle	180	Std (COS)	9	Offsets In	Seconds
Offset Value	118s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	E-L	W-T	S-L	N-T	W-L	E-T	N-L	S-T	N	N	N	N	N	N	N	N
Splits (Split Pat 1)	23	91	21	45	23	91	21	45	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	180s	180s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 14

Split Pattern	14	TS2 (Pat-Off)	4-2	Splits In	Seconds
Cycle	130	Std (COS)	161	Offsets In	Seconds
Offset Value	38s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	E-L	W-T	S-L	N-T	W-L	E-T	N-L	S-T	N	N	N	N	N	N	N	N
Splits (Split Pat 14)	32	50	20	28	32	50	20	28	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	130s	130s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0	
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0	

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time																
Omit Phase									X	X	X	X	X	X	X	X
Special Funciton Outputs																

Coordinator Pattern # 15

Split Pattern	15	TS2 (Pat-Off)	4-3	Splits In	Seconds
Cycle	200	Std (COS)	169	Offsets In	Seconds
Offset Value	107s	Dwell/Add Time	0		
Actuated Coord	No	Timing Plan	1		
Actuated Walk Rest	No	Sequence	1		
Phase Reservice	No	Action Plan	0		
Max Select	None	Force Off	None		

Split Preference Phases

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Description	E-L	W-T	S-L	N-T	W-L	E-T	N-L	S-T	N	N	N	N	N	N	N	N
Splits (Split Pat 15)	24	103	29	44	51	76	29	44	0	0	0	0	0	0	0	0
Pref 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pref 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Ring	1	2	3	4
Ring Split Ext	0	0	0	0
Ring Displacement	-	0	0	0
Split Sum	200s	200s	0s	0s

Misc. Data

Veh Perm 1	0	Veh Perm 2	0	Veh Perm 2 Disp	0	
Split Demand Pat 1	0	Split Demand Pat 2	0	Crossing Arterial Pat	0	

Split Pattern

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Coord Phase		X				X										
Vehicle Recall																
Pedestrian Recall																
Recall to Max. Time					X											
Omit Phase									X	X	X	X	X	X	X	X

Special Funciton Outputs							

Miami-Dade, FL

3842 - Kendall Dr. SW 137th Ave. - 2070-1C - Econolite Type - Cobalt

Time Base Action Plan
Action Plan (MM) 5-2

Action Plan - 1 - "1"

Pattern	1	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	2	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 32 - "32"

Pattern	2	Override Sys	No
Timing Plan	2	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	2	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall																
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Action Plan - 45 - "45"

Pattern	15	Override Sys	No
Timing Plan	1	Sequence	1
Veh Detector Plan	0	Det Log	None
Flash	No	Red Rest	No
Veh Det Diag Plan	2	Ped Det Diag Plan	0
Dimming Enable	No	Pmt Veh Priority Ret	No
Pmt Ped Priority Ret	No	Pmt Queue Delay	No
Pmt Cond Delay	No		

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Ped Recall																
Walk 2																
Veh Ext 2																
Veh Recall																
Max Recall	X	X	X	X	X	X	X	X								
Max 2																
Max 3																
CS Inhibit																
Omit																
Spec Func (1-8)																
Aux Func (1-3)																

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LP 91-100	.	.	.	.	.	.	.	.	.	.					

Miami-Dade, FL

3842 - Kendall Dr. SW 137th Ave. - 2070-1C - Econolite Type - Cobalt

Time Base Day Plan/Schedule
Day Plan (MM) 5-3

Day Plan #1 - "1"

Event	Action Plan	Start Time
1	64	00:00
2	65	00:30
3	32	05:00
4	1	05:30
5	23	11:00
6	5	13:00
7	45	15:00
8	13	19:30
9	13	21:00
10	62	23:00

Day Plan #2 - "2"

Event	Action Plan	Start Time
1	62	00:00
2	2	05:00
3	1	05:30
4	23	11:00
5	5	13:00
6	45	15:00
7	13	19:30
8	13	21:00
9	64	23:00

Day Plan #3 - "3"

Event	Action Plan	Start Time
1	64	00:00
2	65	01:00
3	62	05:30
4	23	07:00
5	14	09:00
6	25	11:00
7	13	20:00
8	2	22:00

Day Plan #4 - "4"

Event	Action Plan	Start Time
1	64	00:00
2	65	01:00
3	2	08:00
4	14	09:00
5	25	12:00
6	13	18:00
7	2	22:00

Schedule (MM) 5-4

Schedule Number - 1

Day Plan No.: 1

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
		X	X	X		X	

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 2

Day Plan No.: 2

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
					X		

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

Schedule Number - 3

Day Plan No.: 3

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
	X	X	X	X	X	X	X	X	X	X	X	X

Day (DOW)	SUN	MON	TUE	WED	THU	FRI	SAT
							X

Day (DOM)	1	2	3	4	5	6	7	8	9	10	11
	X	X	X	X	X	X	X	X	X	X	X
	12	13	14	15	16	17	18	19	20	21	22
	X	X	X	X	X	X	X	X	X	X	X
	23	24	25	26	27	28	29	30	31		
	X	X	X	X	X	X	X	X	X		

TOD Schedule Report
for 5432: SW 137 Av&SW 96 St

Print Date: 4/15/2020

Print Time: 2:23 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
5432	SW 137 Av&SW 96 St	DOW-4	TOD	N/A	0	0	N/A	0	Max 0

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

Phase		Walk			Don't Walk			Min Initial			Veh Ext			Max Limit			Max 2			Yellow	Red
		Phase Bank 1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1	NBL	0	0	0	0	0	0	5	5	5	2	2	2	5	7	10	25	15	7	4.4	2
2	SBT	7	7	7	21	21	21	7	7	7	1	1	1	20	30	30	0	40	25	4.4	2
3	EBL	0	0	0	0	0	0	5	5	5	2	2	2	5	7	10	25	15	7	4	2.5
4	WBT	7	7	7	30	30	30	7	7	7	2.5	2.5	2.5	10	16	20	50	45	15	4	2.5
5	SBL	0	0	0	0	0	0	5	5	5	2	2	2	5	7	10	25	15	7	4.4	2
6	NBT	7	7	7	21	21	21	7	7	7	1	1	1	20	30	30	0	40	25	4.4	2
7	WBL	0	0	0	0	0	0	5	5	5	2	2	2	5	7	10	25	15	7	4	2.5
8	EBT	7	7	7	30	30	30	7	7	7	2.5	2.5	2.5	10	16	20	50	45	15	4	2.5

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12345678
External Permit 0	--------
External Permit 1	12345678
External Permit 2	12345678

TOD Schedule Report

for 5432: SW 137 Av&SW 96 St

Print Date: 4/15/2020

Print Time: 2:23 AM

Current TOD Schedule	Plan	Cycle	Green Time 1 NBL	2 SBT	3 EBL	4 WBT	5 SBL	6 NBT	7 WBL	8 EBT	Ring Offset	Offset
	1	180	13	86	15	41	13	86	15	41	0	13
	2	140	10	66	11	28	8	68	11	28	0	123
	4	90	6	41	7	11	6	41	7	11	0	68
	6	180	13	96	15	31	13	96	15	31	0	19
	7	130	10	56	11	28	8	58	11	28	0	119
	8	150	10	76	11	28	8	78	11	28	0	141
	10	200	23	118	15	19	13	128	15	19	0	147
	11	160	10	86	11	28	8	88	11	28	0	64
	12	120	10	46	11	28	8	48	11	28	0	76
	13	150	10	76	11	28	8	78	11	28	0	0
	19	150	10	76	11	28	8	78	11	28	0	55
	20	180	13	96	15	31	13	96	15	31	0	11
	21	180	13	96	15	31	13	96	15	31	0	99
	22	160	10	86	11	28	8	88	11	28	0	64

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0000	Free	Su S
0500	2	M T W Th F
0530	1	M T W Th F
0800	19	S
0900	7	M T W Th F
1100	8	M T W Th F
1100	21	S
1300	20	S
1500	10	M T W Th F
1800	22	S
2000	11	M T W Th F
2200	12	M T W Th F
2300	Free	Su S

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0530	TOD OUTPUTS	-------1	SuM T W ThF S
0630	TOD OUTPUTS	--------	M T W ThF
0900	TOD OUTPUTS	--------	M T W ThF
1600	TOD OUTPUTS	--------	M T W ThF
1930	TOD OUTPUTS	------2-	M T W ThF
2130	TOD OUTPUTS	-----3--	SuM T W ThF S
2230	TOD OUTPUTS	----4---	SuM T W ThF S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0530	TOD OUTPUTS	-------1	SuM T W ThF S
0630	TOD OUTPUTS	--------	M T W ThF
0800	TOD OUTPUTS	------2-	Su S
0900	TOD OUTPUTS	--------	M T W ThF
1600	TOD OUTPUTS	--------	M T W ThF
1930	TOD OUTPUTS	------2-	M T W ThF
2130	TOD OUTPUTS	-----3--	SuM T W ThF S
2230	TOD OUTPUTS	----4---	SuM T W ThF S

*** Settings**

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

TOD Schedule Report

for 4398: SW 137 Av&SW 104 St

Print Date: 4/21/2020

Print Time: 2:08 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
4398	SW 137 Av&SW 104 St	DOW-3	TOD	Free	0	0	N/A	3	Max 2

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
NBL	SBT	EBL	WBT	SBL	NBT	WBL	EBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 3

Phase	Walk (Phase Bank 1 - 2 - 3)	Don't Walk (1 - 2 - 3)	Min Initial (1 - 2 - 3)	Veh Ext (1 - 2 - 3)	Max Limit (1 - 2 - 3)	Max 2 (1 - 2 - 3)	Yellow	Red
1 NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	3 - 3 - 3	7 - 20 - 10	30 - 12 - 30	4.4	2.3
2 SBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	1 - 1 - 1	30 - 30 - 30	0 - 30 - 25	4.4	2.3
3 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	7 - 15 - 10	35 - 12 - 20	4.4	2.6
4 WBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	4 - 3 - 3	25 - 40 - 30	100 - 25 - 60	4.4	2.6
5 SBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	3 - 3 - 3	7 - 20 - 10	40 - 12 - 30	4.4	2.3
6 NBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	1 - 1 - 1	30 - 30 - 30	0 - 30 - 25	4.4	2.3
7 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	7 - 25 - 10	40 - 12 - 20	4.4	2.6
8 EBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	4 - 3 - 3	25 - 40 - 30	100 - 25 - 60	4.4	2.6

Last In Service Date: unknown

Permitted Phases

	12345678
Default	12345678
External Permit 0	--------
External Permit 1	12-456-8
External Permit 2	12-456-8

TOD Schedule Report

for 4398: SW 137 Av&SW 104 St

Print Date: 4/21/2020

Print Time: 2:08 AM

Current TOD Schedule	Plan	Cycle	Green Time 1 NBL	2 SBT	3 EBL	4 WBT	5 SBL	6 NBT	7 WBL	8 EBT	Ring Offset	Offset
	1	190	10	59	14	79	20	49	14	79	0	129
	2	140	14	47	11	40	22	39	11	40	0	66
	4	110	14	27	11	30	14	27	11	30	0	38
	6	130	15	36	11	40	15	36	11	40	0	98
	7	130	14	37	11	40	22	29	11	40	0	60
	8	150	14	52	9	47	17	49	16	40	0	77
	10	200	15	62	9	86	19	58	33	62	0	165
	11	160	19	46	10	57	22	43	29	35	0	86
	12	120	14	27	11	40	14	27	11	40	0	94
	13	150	14	53	14	41	14	53	14	41	0	147
	14	160	19	46	10	57	22	43	29	35	0	93
	15	120	14	27	11	40	14	27	11	40	0	83
	16	150	14	53	14	41	14	53	14	41	0	130
	18	130	15	36	11	40	15	36	11	40	0	75
	19	160	22	43	10	57	25	40	10	57	0	100
	20	130	15	36	11	40	15	36	11	40	0	52
	21	160	19	46	10	57	22	43	29	35	0	22
	22	120	14	27	11	40	14	27	11	40	0	5

Local TOD Schedule

Time	Plan	DOW
0000	Free	M T W Th F
0000	Free	Su S
0500	2	M T W Th F
0530	1	M T W Th F
0530	18	S
0600	19	S
0630	18	Su
1000	20	S
1000	8	M T W Th F
1200	19	Su
1400	21	S
1500	10	M T W Th F
2100	16	M T W Th F
2100	22	Su S
2300	Free	Su S
2300	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	TOD OUTPUTS	----4---	M T W ThF
0530	TOD OUTPUTS	--------	M T W ThF
1600	VEH MAX RECALL	-7------	M T W ThF
1945	VEH MAX RECALL	--------	M T W ThF
2300	TOD OUTPUTS	-----3--	M T W ThF

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	TOD OUTPUTS	----4---	M T W ThF
0530	TOD OUTPUTS	--------	M T W ThF
1600	VEH MAX RECALL	-7------	M T W ThF
1945	VEH MAX RECALL	--------	M T W ThF
2300	TOD OUTPUTS	-----3--	M T W ThF

* Settings

Blank - FREE - Phase Bank 1, Max 1
Blank - Plan - Phase Bank 1, Max 2
1 - Phase Bank 2, Max 1
2 - Phase Bank 2, Max 2
3 - Phase Bank 3, Max 1
4 - Phase Bank 3, Max 2
5 - EXTERNAL PERMIT 1
6 - EXTERNAL PERMIT 2
7 - X-PED OMIT
8 - TBA

No Calendar Defined/Enabled

COVID ADJUSTMENT FACTOR CALULATION*

KENDALL BAPTIST

Description / Roadway	NB SW 137th Ave & SW 88th St[1]	SB SW 137th Ave & SW 88th St[1]	EB SW 137th Ave & SW 88th St[1]	WB SW 137th Ave & SW 88th St[1]	NB SW 137th Ave & SW 104th St[2]	SB SW 137th Ave & SW 104th St[2]
2019 AM Peak-Hour Counts	1349	1162	2172	1314	1464	1709
2020 AM Peak-Hour Counts[3]	1190	982	1997	1325	1130	1378
AM Adjustment Factor	1.13	1.18	1.09	0.99	1.30	1.24
Average AM Adjustment Factor	**1.16**					
2019 PM Peak-Hour Counts	1520	1280	2235	2487	1517	1790
2020 PM Peak-Hour Counts[3]	1311	1107	1665	2621	1387	1351
PM Adjustment Factor	1.16	1.16	1.34	0.95	1.09	1.32
Average PM Adjustment Factor	**1.17**					

[1] 2019 data based on synopsis data on SW 137th Avenue and SW 88th Street

[2] 2020 data based on NB & SB count data on SW 137th Avenue and SW 104th Street

[3] 2020 data based on count data on SW 137th Avenue and SW 88th and SW 104th streets

FDOT 2019 SYNOPSIS DATA

Count Station 2520 & 0060	NB SW 137th Ave & SW 88th St	SB SW 137th Ave & SW 88th St	EB SW 137th Ave & SW 88th St	WB SW 137th Ave & SW 88th St
4/30/2019 AM Peak-Hour	1370	1147	2180	1297
5/1/2019 AM Peak-Hour	1363	1187	2176	1317
5/2/2019 AM Peak-Hour	1313	1153	2160	1327
Average AM Count	**1349**	**1162**	**2172**	**1314**
6/4/2019 PM Peak-Hour	1500	1272	2189	2417
6/5/2019 PM Peak-Hour	1516	1286	2231	2501
6/6/2019 PM Peak-Hour	1545	1281	2286	2544
Average PM Count	**1520**	**1280**	**2235**	**2487**

**Based on 2019 synopsis data on SW 137th Avenue and SW 88th Street*

FDOT 2019 SYNOPSIS DATA

Count Station 2519	NB SW 137th Ave & SW 104th St	SB SW 137th Ave & SW 104th St
4/2/2019 AM Peak-Hour	1514	1747
4/3/2019 AM Peak-Hour	1468	1640
4/4/2019 AM Peak-Hour	1409	1741
Average AM Count	**1464**	**1709**
4/2/2019 PM Peak-Hour	1537	1862
4/3/2019 PM Peak-Hour	1520	1736
4/4/2019 PM Peak-Hour	1493	1771
Average PM Count	**1517**	**1790**

**Based on 2019 NB & SB synopsis data on SW 137th Avenue and SW 104th Street*

COUNTY: 87
STATION: 0060
DESCRIPTION: SR 94/KENDALL DR, 200' E SW 137 AV
START DATE: 06/04/2019
START TIME: 0000

	DIRECTION: E					DIRECTION: W					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	103	92	63	56	314	208	186	120	111	625	939
0100	40	38	38	25	141	79	80	60	57	276	417
0200	41	36	37	35	149	49	30	37	43	159	308
0300	19	30	28	50	127	30	43	38	35	146	273
0400	54	73	107	128	362	32	22	39	35	128	490
0500	179	229	312	497	1217	47	53	83	78	261	1478
0600	530	641	624	579	2374	85	126	125	156	492	2866
0700	592	549	460	386	1987	171	208	267	259	905	2892
0800	368	419	434	518	1739	255	263	281	321	1120	2859
0900	538	538	550	577	2203	310	322	344	332	1308	3511
1000	551	560	581	534	2226	331	366	377	363	1437	3663
1100	557	500	505	533	2095	404	403	444	427	1678	3773
1200	519	522	547	567	2155	469	459	439	458	1825	3980
1300	519	533	508	564	2124	506	535	480	548	2069	4193
1400	554	563	468	502	2087	459	555	553	530	2097	4184
1500	483	511	462	460	1916	578	618	591	600	2387	4303
1600	457	452	460	488	1857	587	613	579	622	2401	4258
1700	462	447	467	481	1857	603	582	607	594	2386	4243
1800	443	474	434	443	1794	551	583	532	584	2250	4044
1900	382	421	386	406	1595	558	585	566	558	2267	3862
2000	421	384	346	381	1532	526	519	469	449	1963	3495
2100	334	313	280	253	1180	450	428	449	362	1689	2869
2200	274	227	196	210	907	330	292	303	303	1228	2135
2300	178	150	131	101	560	273	245	199	185	902	1462
24-HOUR TOTALS:					34498					31999	66497

PEAK VOLUME INFORMATION

	DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	645	2180	845	1297	845	3441
P.M.	1330	2189	1615	2417	1500	4303
DAILY	615	2436	1615	2417	1500	4303

TRUCK PERCENTAGE 2.75 4.60 3.64

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	164	29872	3463	151	413	83	24	166	85	16	0	0	10	0	51	948	34498
W	146	27157	3123	213	560	280	101	105	119	72	0	0	22	0	101	1472	31999

GENERATED BY SPS 5.0.47P

COUNTY: 87
STATION: 0060
DESCRIPTION: SR 94/KENDALL DR, 200' E SW 137 AV
START DATE: 06/05/2019
START TIME: 0000

	DIRECTION: E					DIRECTION: W					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	104	68	68	53	293	170	137	148	95	550	843
0100	49	61	46	31	187	96	68	62	53	279	466
0200	40	28	30	26	124	57	48	55	27	187	311
0300	27	32	41	52	152	37	32	42	30	141	293
0400	65	72	91	139	367	27	29	35	44	135	502
0500	162	250	306	479	1197	50	57	86	88	281	1478
0600	558	612	610	603	2383	94	139	146	161	540	2923
0700	539	551	402	373	1865	172	181	271	279	903	2768
0800	384	466	488	519	1857	253	289	274	367	1183	3040
0900	522	591	544	594	2251	292	360	298	369	1319	3570
1000	553	568	552	543	2216	341	349	376	390	1456	3672
1100	544	521	516	495	2076	384	386	425	447	1642	3718
1200	548	541	571	562	2222	478	452	465	505	1900	4122
1300	539	559	533	564	2195	488	525	517	532	2062	4257
1400	560	547	534	550	2191	502	535	537	553	2127	4318
1500	510	523	506	479	2018	578	570	639	578	2365	4383
1600	487	461	466	471	1885	556	643	590	610	2399	4284
1700	455	473	445	462	1835	647	633	599	622	2501	4336
1800	463	474	474	455	1866	581	590	611	625	2407	4273
1900	468	450	404	415	1737	574	608	596	543	2321	4058
2000	405	416	376	423	1620	553	526	492	449	2020	3640
2100	368	321	309	299	1297	415	422	434	332	1603	2900
2200	280	205	223	184	892	355	319	313	276	1263	2155
2300	173	172	141	120	606	233	229	223	196	881	1487
24-HOUR TOTALS:					35332					32465	67797

PEAK VOLUME INFORMATION

	DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	845	2176	845	1317	845	3493
P.M.	1230	2231	1700	2501	1445	4429
DAILY	600	2383	1700	2501	1445	4429

TRUCK PERCENTAGE 2.75 4.51 3.59

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	208	30549	3557	160	399	82	27	157	108	23	0	0	16	0	46	972	35332
W	107	27690	3102	161	557	321	132	103	99	68	0	0	23	0	102	1464	32465

GENERATED BY SPS 5.0.47P

COUNTY: 87
STATION: 0060
DESCRIPTION: SR 94/KENDALL DR, 200' E SW 137 AV
START DATE: 06/06/2019
START TIME: 0000

	DIRECTION: E					DIRECTION: W					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	119	85	89	74	367	176	136	141	114	567	934
0100	53	46	45	44	188	81	80	79	77	317	505
0200	40	35	38	25	138	56	65	58	58	237	375
0300	28	46	35	51	160	44	35	27	32	138	298
0400	58	94	83	117	352	30	30	35	46	141	493
0500	160	248	311	475	1194	54	67	73	92	286	1480
0600	501	615	593	537	2246	86	134	156	160	536	2782
0700	590	534	499	421	2044	157	195	252	277	881	2925
0800	447	458	487	505	1897	283	258	276	346	1163	3060
0900	530	540	538	561	2169	297	361	323	347	1328	3497
1000	538	554	538	503	2133	366	349	364	420	1499	3632
1100	539	526	537	491	2093	394	354	410	427	1585	3678
1200	521	572	517	576	2186	425	449	433	390	1697	3883
1300	562	568	580	573	2283	454	479	528	471	1932	4215
1400	530	583	546	523	2182	488	508	518	498	2012	4194
1500	523	460	533	489	2005	512	606	588	580	2286	4291
1600	526	481	466	481	1954	624	643	640	612	2519	4473
1700	499	503	451	453	1906	614	619	603	611	2447	4353
1800	472	471	512	452	1907	667	620	627	630	2544	4451
1900	464	426	405	394	1689	600	593	617	561	2371	4060
2000	389	425	408	405	1627	518	521	513	484	2036	3663
2100	351	347	319	315	1332	485	463	427	373	1748	3080
2200	287	238	225	206	956	359	327	278	276	1240	2196
2300	199	209	144	154	706	242	206	179	212	839	1545
24-HOUR TOTALS:					35714					32349	68063

PEAK VOLUME INFORMATION

	DIRECTION: E		DIRECTION: W		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	645	2160	845	1327	845	3440
P.M.	1245	2286	1800	2544	1600	4473
DAILY	615	2335	1800	2544	1600	4473

TRUCK PERCENTAGE 2.83 4.22 3.49

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
E	135	30965	3574	151	473	78	20	168	102	11	0	0	8	0	29	1011	35714
W	95	27782	3044	179	508	247	121	124	104	69	0	0	14	0	62	1366	32349

GENERATED BY SPS 5.0.47P

COUNTY: 87
STATION: 2520
DESCRIPTION: SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR
START DATE: 04/30/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	73	58	43	41	215	79	59	46	41	225	440
0100	37	30	26	25	118	43	29	36	27	135	253
0200	20	22	23	18	83	32	26	16	15	89	172
0300	23	23	24	28	98	17	26	12	19	74	172
0400	22	32	63	64	181	19	16	18	37	90	271
0500	69	105	129	189	492	29	48	55	89	221	713
0600	245	324	312	373	1254	69	92	128	152	441	1695
0700	321	320	323	335	1299	188	219	243	275	925	2224
0800	318	316	327	309	1270	280	278	306	283	1147	2417
0900	376	358	312	319	1365	259	242	227	255	983	2348
1000	346	316	356	312	1330	211	253	218	234	916	2246
1100	347	332	346	318	1343	233	230	245	253	961	2304
1200	332	346	319	355	1352	245	271	254	295	1065	2417
1300	330	336	321	364	1351	251	256	252	252	1011	2362
1400	388	371	377	352	1488	269	272	320	265	1126	2614
1500	349	355	311	371	1386	296	320	323	290	1229	2615
1600	360	336	359	332	1387	333	303	328	308	1272	2659
1700	362	329	348	361	1400	303	314	325	268	1210	2610
1800	350	355	340	287	1332	323	305	304	262	1194	2526
1900	290	271	276	272	1109	269	271	286	256	1082	2191
2000	289	285	271	237	1082	258	270	219	232	979	2061
2100	268	205	166	225	864	216	203	195	163	777	1641
2200	170	171	145	124	610	152	150	115	111	528	1138
2300	123	96	79	79	377	103	91	88	65	347	724
24-HOUR TOTALS:					22786					18027	40813

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	830	1370	800	1147	830	2460
P.M.	1345	1500	1600	1272	1545	2680
DAILY	1345	1500	1600	1272	1545	2680

GENERATED BY SPS 5.0.53P

COUNTY: 87
STATION: 2520
DESCRIPTION: SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR
START DATE: 05/01/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	67	51	35	23	176	63	53	39	40	195	371
0100	33	25	22	26	106	32	28	26	19	105	211
0200	18	19	18	16	71	28	21	17	19	85	156
0300	16	22	20	31	89	11	12	19	21	63	152
0400	22	38	57	62	179	12	21	22	31	86	265
0500	78	112	133	173	496	28	41	58	67	194	690
0600	255	296	254	310	1115	71	100	138	182	491	1606
0700	341	329	328	325	1323	194	237	252	282	965	2288
0800	306	331	299	331	1267	291	292	300	304	1187	2454
0900	346	335	351	316	1348	273	273	232	229	1007	2355
1000	287	325	288	363	1263	263	224	254	234	975	2238
1100	371	334	318	356	1379	258	239	208	257	962	2341
1200	374	337	361	306	1378	285	252	282	250	1069	2447
1300	357	362	359	391	1469	287	280	284	278	1129	2598
1400	371	395	354	357	1477	310	283	325	325	1243	2720
1500	380	376	368	343	1467	344	292	297	307	1240	2707
1600	353	348	364	349	1414	316	300	331	284	1231	2645
1700	345	310	384	323	1362	307	295	295	303	1200	2562
1800	350	324	319	358	1351	298	271	271	274	1114	2465
1900	331	273	315	233	1152	295	261	288	269	1113	2265
2000	286	273	250	271	1080	243	240	252	242	977	2057
2100	243	223	202	183	851	229	190	188	200	807	1658
2200	187	169	167	111	634	166	148	116	130	560	1194
2300	99	92	87	75	353	122	120	73	84	399	752
24-HOUR TOTALS:					22800					18397	41197

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	845	1363	800	1187	815	2476
P.M.	1330	1516	1430	1286	1415	2763
DAILY	1330	1516	1430	1286	1415	2763

GENERATED BY SPS 5.0.53P

COUNTY: 87
STATION: 2520
DESCRIPTION: SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR
START DATE: 05/02/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	60	51	47	33	191	60	55	55	53	223	414
0100	28	33	31	28	120	39	35	22	32	128	248
0200	17	21	20	15	73	25	16	12	22	75	148
0300	12	21	21	22	76	18	14	19	11	62	138
0400	23	44	53	51	171	14	15	28	30	87	258
0500	68	106	138	186	498	40	41	53	93	227	725
0600	256	281	334	334	1205	86	111	129	161	487	1692
0700	314	291	295	322	1222	170	240	247	284	941	2163
0800	302	333	337	303	1275	270	292	295	296	1153	2428
0900	340	322	336	315	1313	235	250	258	248	991	2304
1000	281	262	356	305	1204	219	207	238	234	898	2102
1100	363	312	336	346	1357	226	248	288	238	1000	2357
1200	379	360	375	353	1467	260	283	274	270	1087	2554
1300	342	376	399	366	1483	270	277	267	284	1098	2581
1400	344	392	388	385	1509	290	280	313	289	1172	2681
1500	380	380	364	355	1479	319	315	343	304	1281	2760
1600	354	354	347	335	1390	291	303	329	294	1217	2607
1700	347	326	351	316	1340	302	307	300	312	1221	2561
1800	356	317	312	309	1294	278	309	283	287	1157	2451
1900	300	283	303	287	1173	266	262	290	262	1080	2253
2000	313	256	258	226	1053	233	267	241	214	955	2008
2100	246	215	197	188	846	198	207	157	157	719	1565
2200	159	178	173	119	629	164	150	139	148	601	1230
2300	122	90	103	57	372	115	105	101	86	407	779
24-HOUR TOTALS:					22740					18267	41007

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	815	1313	800	1153	745	2435
P.M.	1415	1545	1500	1281	1445	2775
DAILY	1415	1545	1500	1281	1445	2775

GENERATED BY SPS 5.0.53P

COUNTY: 87
STATION: 2519
DESCRIPTION: SR 825/SW 137 AV, 200' S SW 104 ST
START DATE: 04/02/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	54	46	33	42	175	75	51	46	47	219	394
0100	40	15	23	22	100	45	36	40	22	143	243
0200	11	20	17	22	70	20	29	20	21	90	160
0300	22	9	28	17	76	20	19	16	24	79	155
0400	29	32	51	62	174	15	22	34	46	117	291
0500	82	138	173	277	670	51	37	84	119	291	961
0600	338	375	363	394	1470	90	139	189	267	685	2155
0700	383	361	376	371	1491	228	302	326	413	1269	2760
0800	398	297	353	331	1379	347	460	463	422	1692	3071
0900	324	286	325	328	1263	402	361	283	310	1356	2619
1000	323	373	355	331	1382	342	317	327	372	1358	2740
1100	285	362	315	342	1304	318	337	364	299	1318	2622
1200	348	312	365	320	1345	315	334	345	376	1370	2715
1300	318	345	349	360	1372	328	325	336	359	1348	2720
1400	353	354	410	380	1497	404	361	397	369	1531	3028
1500	339	325	274	345	1283	386	524	432	491	1833	3116
1600	337	378	340	392	1447	415	448	382	419	1664	3111
1700	368	418	359	366	1511	401	441	389	409	1640	3151
1800	334	356	336	327	1353	367	395	332	377	1471	2824
1900	279	286	285	283	1133	348	403	394	406	1551	2684
2000	286	280	259	228	1053	400	325	319	332	1376	2429
2100	216	214	189	167	786	263	276	267	224	1030	1816
2200	158	113	156	114	541	212	248	210	188	858	1399
2300	108	88	79	66	341	172	155	127	99	553	894
24-HOUR TOTALS:					23216					24842	48058

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	645	1514	815	1747	745	3102
P.M.	1645	1537	1515	1862	1645	3187
DAILY	1645	1537	1515	1862	1645	3187

TRUCK PERCENTAGE 3.11 2.88 2.99

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	72	18821	3602	73	441	56	61	61	20	5	0	0	4	0	0	721	23216
S	93	20193	3840	80	424	50	7	105	42	3	0	0	5	0	0	716	24842

GENERATED BY SPS 5.0.49P

COUNTY: 87
STATION: 2519
DESCRIPTION: SR 825/SW 137 AV, 200' S SW 104 ST
START DATE: 04/03/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	65	54	43	29	191	118	84	71	48	321	512
0100	23	25	21	17	86	60	55	39	42	196	282
0200	19	16	12	20	67	38	29	23	23	113	180
0300	24	21	31	15	91	29	22	21	17	89	180
0400	21	29	53	65	168	18	28	22	45	113	281
0500	105	141	165	269	680	35	55	81	111	282	962
0600	340	365	368	374	1447	120	138	206	260	724	2171
0700	384	358	352	343	1437	249	282	328	401	1260	2697
0800	355	339	365	321	1380	341	466	420	355	1582	2962
0900	327	320	352	334	1333	399	332	312	267	1310	2643
1000	305	303	334	326	1268	339	306	289	334	1268	2536
1100	317	346	341	339	1343	333	360	347	376	1416	2759
1200	367	347	387	371	1472	353	388	390	384	1515	2987
1300	327	370	387	356	1440	337	346	361	364	1408	2848
1400	352	374	357	377	1460	443	386	429	399	1657	3117
1500	359	354	312	389	1414	416	424	416	434	1690	3104
1600	366	363	366	348	1443	419	455	419	443	1736	3179
1700	353	427	358	382	1520	390	425	352	403	1570	3090
1800	328	378	313	303	1322	364	398	359	434	1555	2877
1900	288	293	282	324	1187	364	409	343	387	1503	2690
2000	255	269	251	223	998	370	332	318	309	1329	2327
2100	202	211	148	165	726	302	242	268	205	1017	1743
2200	167	170	140	102	579	260	208	187	180	835	1414
2300	106	93	48	91	338	149	115	116	102	482	820
24-HOUR TOTALS:					23390					24971	48361

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	645	1468	815	1640	745	3030
P.M.	1700	1520	1600	1736	1545	3211
DAILY	1700	1520	1600	1736	1545	3211

TRUCK PERCENTAGE 3.07 3.07 3.07

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	73	19041	3559	71	466	58	43	51	18	3	2	0	5	0	0	717	23390
S	92	20462	3651	67	467	49	6	101	38	16	0	0	22	0	0	766	24971

GENERATED BY SPS 5.0.49P

COUNTY: 87
STATION: 2519
DESCRIPTION: SR 825/SW 137 AV, 200' S SW 104 ST
START DATE: 04/04/2019
START TIME: 0000

	DIRECTION: N					DIRECTION: S					COMBINED
TIME	1ST	2ND	3RD	4TH	TOTAL	1ST	2ND	3RD	4TH	TOTAL	TOTAL
0000	54	39	59	28	180	69	71	78	57	275	455
0100	33	29	22	14	98	53	44	35	33	165	263
0200	16	11	16	22	65	31	21	17	16	85	150
0300	14	22	21	25	82	16	19	17	13	65	147
0400	16	31	49	63	159	17	30	20	45	112	271
0500	39	125	221	221	606	42	40	64	107	253	859
0600	123	377	315	332	1147	91	137	186	231	645	1792
0700	370	373	330	336	1409	208	291	297	392	1188	2597
0800	358	338	327	314	1337	399	470	469	403	1741	3078
0900	297	362	316	356	1331	379	332	304	290	1305	2636
1000	320	336	389	373	1418	323	294	291	331	1239	2657
1100	305	321	310	326	1262	292	313	334	332	1271	2533
1200	344	336	322	325	1327	316	310	342	363	1331	2658
1300	340	370	344	347	1401	300	332	345	375	1352	2753
1400	333	339	348	353	1373	361	373	401	390	1525	2898
1500	356	346	292	386	1380	384	467	425	439	1715	3095
1600	330	356	330	402	1418	440	448	415	422	1725	3143
1700	369	351	371	309	1400	366	388	331	396	1481	2881
1800	211	262	202	209	884	368	376	355	370	1469	2353
1900	233	265	312	228	1038	340	345	350	369	1404	2442
2000	250	265	248	231	994	330	308	277	296	1211	2205
2100	207	212	185	159	763	276	261	281	206	1024	1787
2200	213	184	148	178	723	216	210	173	148	747	1470
2300	133	94	80	93	400	140	99	109	85	433	833
24-HOUR TOTALS:					22195					23761	45956

PEAK VOLUME INFORMATION

	DIRECTION: N		DIRECTION: S		COMBINED DIRECTIONS	
	HOUR	VOLUME	HOUR	VOLUME	HOUR	VOLUME
A.M.	700	1409	800	1741	745	3089
P.M.	1645	1493	1515	1771	1545	3144
DAILY	1645	1493	1515	1771	1545	3144

TRUCK PERCENTAGE 3.13 2.86 2.99

CLASSIFICATION SUMMARY DATABASE

DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTTRK	TOTVOL
N	57	18080	3364	62	446	77	46	35	24	2	0	0	2	0	0	694	22195
S	76	19337	3669	82	378	102	1	66	44	5	0	0	1	0	0	679	23761

GENERATED BY SPS 5.0.49P

GROWTH RATE CALCULATION

KENDALL BAPTIST

Roadway	FDOT Site	7 Year Trend
SR 94/Kendall Dr; 200' E SW 137 Ave	0060	-0.31%
SR 825/SW 137 Ave; 200' S SR 94/Kendall Dr	2520	-1.03%
SR 825/SW 137 Ave; 200' S SW 104 St	2519	1.73%
SW 104 ST; 200' W SW 137 Ave	8220	-0.19%
SW 104 ST; 200' W SW 127 Ave	8125	0.63%
Average Annual Growth Rate		**0.17%**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 0060 - SR 94/KENDALL DR, 200' E SW 137 AV

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	68000 C	E 35500	W 32500	9.00	56.00	3.60
2018	71500 C	E 36000	W 35500	9.00	54.30	4.50
2017	67500 C	E 33500	W 34000	9.00	54.00	4.40
2016	67000 C	E 32000	W 35000	9.00	56.10	4.80
2015	70500 C	E 34500	W 36000	9.00	57.40	5.60
2014	69500 C	E 34500	W 35000	9.00	59.30	7.20
2013	72500 C	E 35500	W 37000	9.00	58.90	3.20
2012	68500 C	E 35000	W 33500	9.00	59.70	3.50
2011	74000 C	E 36500	W 37500	9.00	58.20	3.20
2010	68500 C	E 34000	W 34500	7.87	58.27	3.20
2009	62500 C	E 31000	W 31500	7.98	59.96	1.70
2008	63000 C	E 30500	W 32500	8.07	66.31	2.10
2007	71500 C	E 35500	W 36000	7.90	63.12	2.90
2006	67000 C	E 32500	W 34500	7.39	58.66	16.80
2005	70000 C	E 35000	W 35000	7.70	65.70	7.50
2004	82000 C	E 40500	W 41500	8.20	67.10	7.50

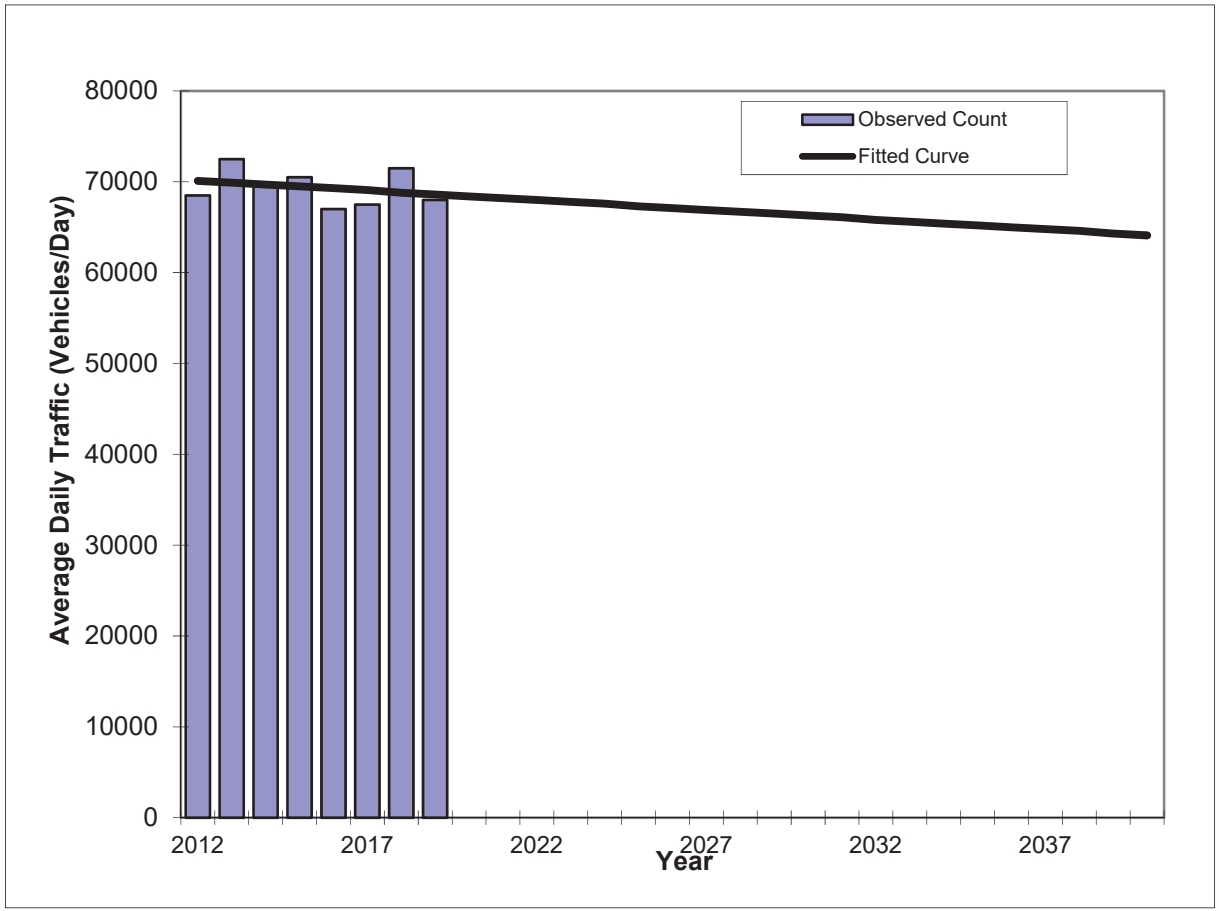
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SR 94/KENDALL DR -- 200' E SW 137 AV

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	0060
Highway:	SR 94/KENDALL DR



Year	Traffic (ADT/AADT) Count*	Trend**
2012	68500	70100
2013	72500	69900
2014	69500	69700
2015	70500	69500
2016	67000	69300
2017	67500	69100
2018	71500	68800
2019	68000	68600
2023 Opening Year Trend		
2023	N/A	67800
2030 Mid-Year Trend		
2030	N/A	66300
2040 Design Year Trend		
2040	N/A	64100
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-214
Trend R-squared:	7.05%
Trend Annual Historic Growth Rate:	-0.31%
Trend Growth Rate (2019 to Design Year):	-0.31%
Printed:	17-Dec-20

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2520 - SR 825/SW 137 AV, 200' S SR 94/N KENDALL DR

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	40500 C	N 22500	S 18000	9.00	56.00	2.30
2018	39500 C	N 20500	S 19000	9.00	54.30	2.20
2017	40000 C	N 21500	S 18500	9.00	54.00	3.60
2016	39000 C	N 20000	S 19000	9.00	56.10	2.70
2015	36000 C	N 17000	S 19000	9.00	57.40	2.80
2014	43000 C	N 23500	S 19500	9.00	59.30	3.80
2013	38500 C	N 21000	S 17500	9.00	58.90	3.10
2012	45500 C	N 22500	S 23000	9.00	59.70	2.40
2011	40000 C	N 20500	S 19500	9.00	58.20	3.30
2010	41500 C	N 22000	S 19500	7.87	58.27	3.00
2009	45000 C	N 23000	S 22000	7.98	59.96	2.70
2008	39000 C	N 20000	S 19000	8.07	66.31	3.40
2007	45000 C	N 22500	S 22500	7.90	63.12	3.50
2006	43500 C	N 21500	S 22000	7.39	58.66	4.90
2005	52500 F	N 23500	S 29000	7.70	65.70	5.50
2004	45000 C	N 20000	S 25000	8.20	67.10	7.30

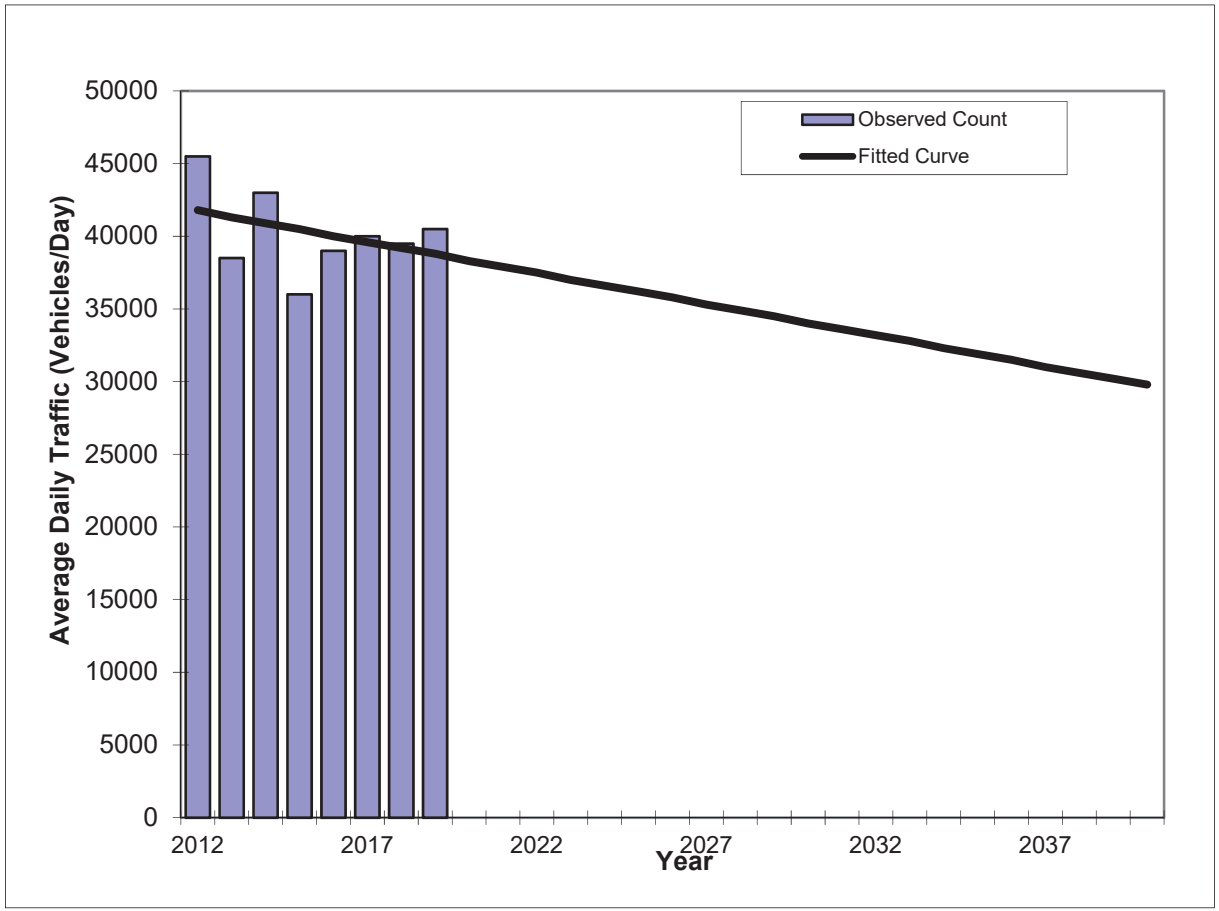
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SR 825/SW 137 AV -- 200' S ST 94/N KENDALL DR

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	2520
Highway:	SR 825/SW 137 AV



Year	Traffic (ADT/AADT) Count*	Trend**
2012	45500	41800
2013	38500	41300
2014	43000	40900
2015	36000	40500
2016	39000	40000
2017	40000	39600
2018	39500	39200
2019	40500	38800
2023 Opening Year Trend		
2023	N/A	37000
2030 Mid-Year Trend		
2030	N/A	34000
2040 Design Year Trend		
2040	N/A	29800
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-429
Trend R-squared:	13.19%
Trend Annual Historic Growth Rate:	-1.03%
Trend Growth Rate (2019 to Design Year):	-1.10%
Printed:	17-Dec-20

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2519 - SR 825/SW 137 AV, 200' S SW 104 ST

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	45500 C	N 22000	S 23500	9.00	56.00	3.00
2018	48000 C	N 24000	S 24000	9.00	54.30	2.20
2017	45500 C	N 23000	S 22500	9.00	54.00	2.90
2016	46000 C	N 24000	S 22000	9.00	56.10	2.60
2015	44000 C	N 22000	S 22000	9.00	57.40	3.30
2014	43500 C	N 21500	S 22000	9.00	59.30	2.80
2013	41500 C	N 22000	S 19500	9.00	58.90	3.20
2012	42500 C	N 21500	S 21000	9.00	59.70	3.20
2011	39000 C	N 20000	S 19000	9.00	58.20	3.80
2010	45000 C	N 23000	S 22000	7.87	58.27	3.80
2009	48000 C	N 24000	S 24000	7.98	59.96	3.70
2008	40000 C	N 19500	S 20500	8.07	66.31	3.50
2007	44500 C	N 21500	S 23000	7.90	63.12	4.50
2006	41500 C	N 20000	S 21500	7.39	58.66	4.20
2005	41000 C	N 20500	S 20500	7.70	65.70	4.30
2004	46500 C	N 22500	S 24000	8.20	67.10	4.30

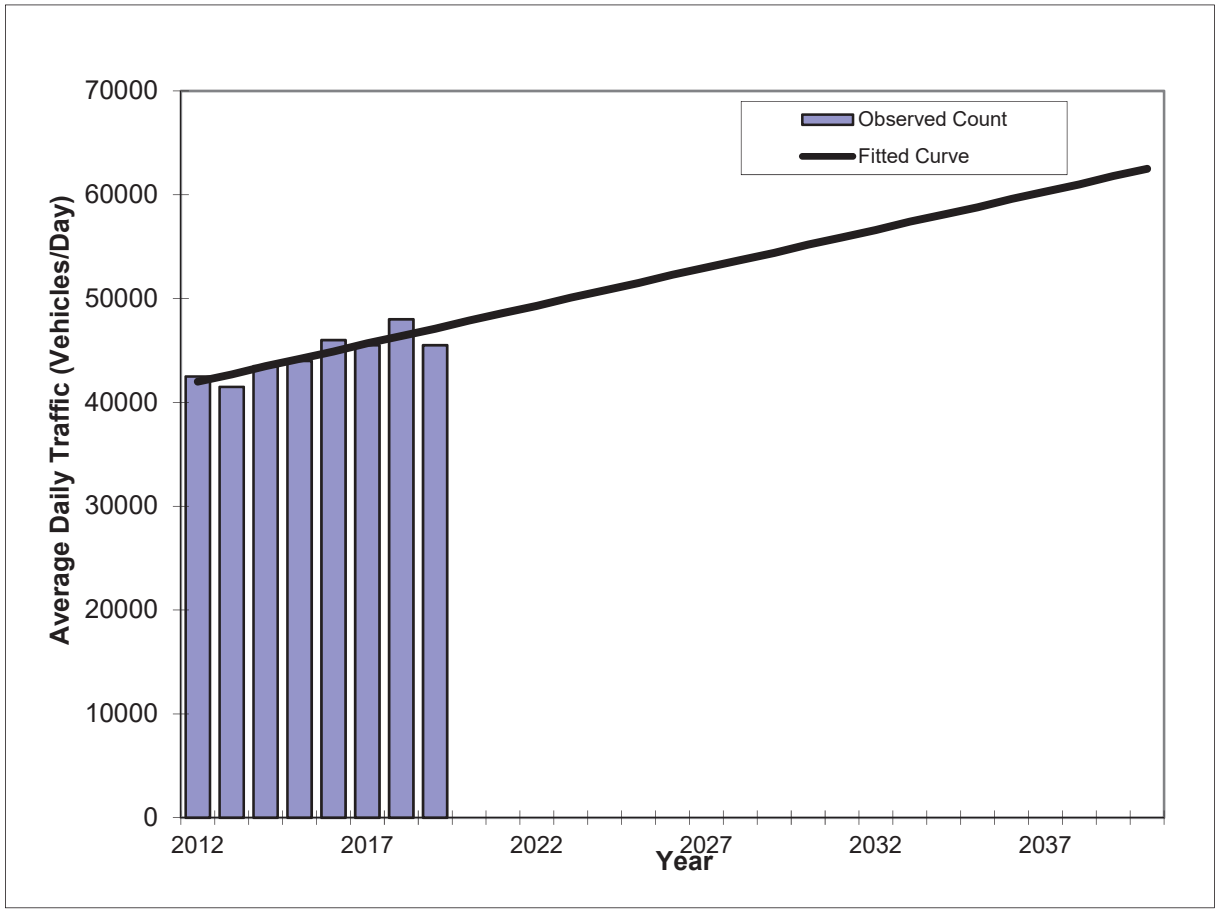
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SR 825/SW 137 AV -- 200' S SW 104 ST

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	2519
Highway:	SR 825/SW 137 AV



Year	Traffic (ADT/AADT) Count*	Trend**
2012	42500	42000
2013	41500	42700
2014	43500	43500
2015	44000	44200
2016	46000	44900
2017	45500	45700
2018	48000	46400
2019	45500	47100
2023 Opening Year Trend		
2023	N/A	50100
2030 Mid-Year Trend		
2030	N/A	55200
2040 Design Year Trend		
2040	N/A	62500
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	732
Trend R-squared:	73.29%
Trend Annual Historic Growth Rate:	1.73%
Trend Growth Rate (2019 to Design Year):	1.56%
Printed:	17-Dec-20

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8220 - SW 104TH ST, 200' WEST OF SW 137TH AVENUE

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	31500 F	E 15500	W 16000	9.00	56.00	11.00
2018	32500 C	E 16000	W 16500	9.00	54.30	12.10
2017	28000 S	E 15000	W 13000	9.00	55.70	12.60
2016	28000 F	E 15000	W 13000	9.00	56.10	13.50
2015	28000 C	E 15000	W 13000	9.00	57.40	13.70
2014	31500 S	E 16000	W 15500	9.00	59.30	17.40
2013	31500 F	E 16000	W 15500	9.00	58.90	16.20
2012	31500 C	E 16000	W 15500	9.00	59.70	16.00

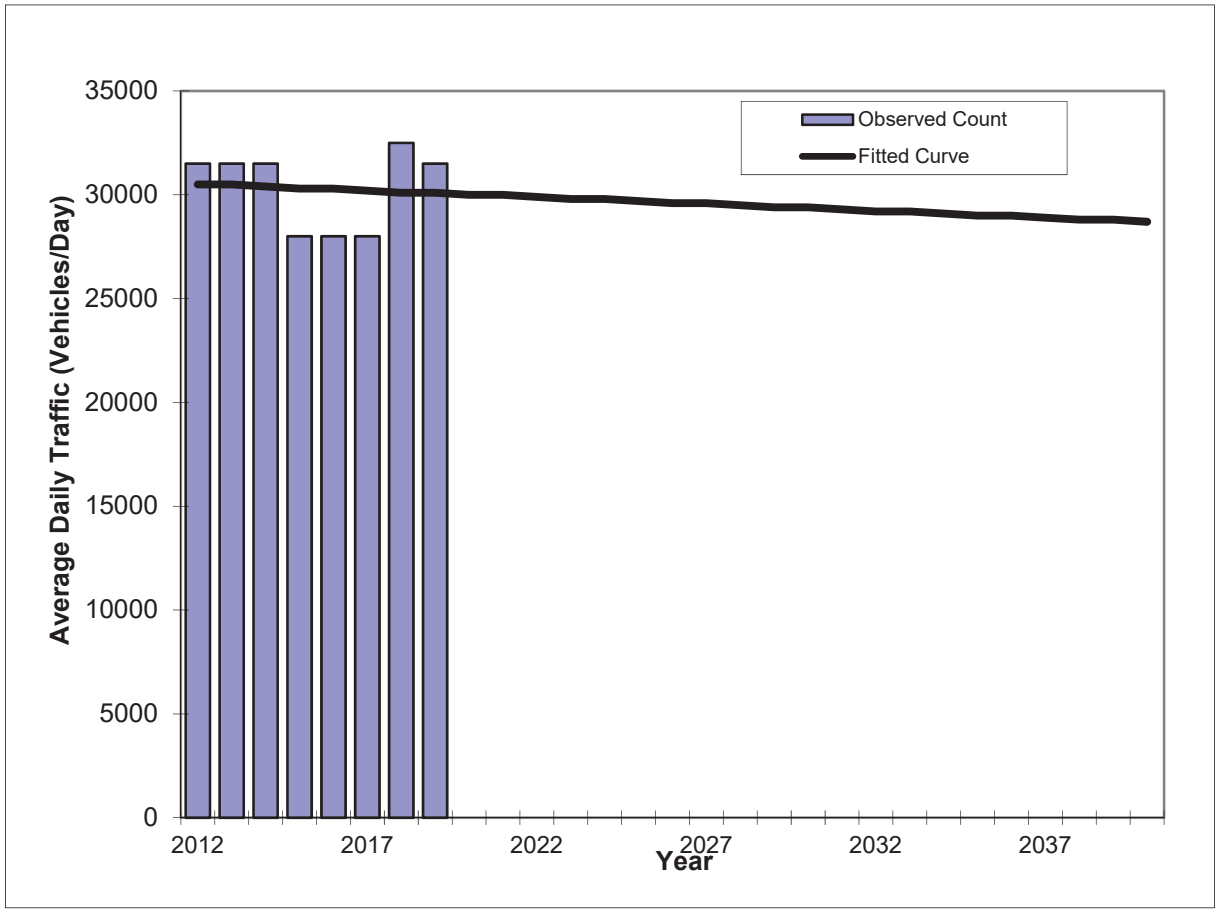
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SW 104 ST -- 200' W SW 137 AVE

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	8220
Highway:	SW 104 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2012	31500	30500
2013	31500	30500
2014	31500	30400
2015	28000	30300
2016	28000	30300
2017	28000	30200
2018	32500	30100
2019	31500	30100
2023 Opening Year Trend		
2023	N/A	29800
2030 Mid-Year Trend		
2030	N/A	29400
2040 Design Year Trend		
2040	N/A	28700
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	-65
Trend R-squared:	0.68%
Trend Annual Historic Growth Rate:	-0.19%
Trend Growth Rate (2019 to Design Year):	-0.22%
Printed:	17-Dec-20

Straight Line Growth Option

***Axle-Adjusted**

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2019 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8125 - SW 104TH STREET, 200 ' WEST OF SW 127TH AVE

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2019	40500 S	E 20500	W 20000	9.00	56.00	11.00
2018	41500 F	E 21000	W 20500	9.00	54.30	12.10
2017	46500 C	E 23500	W 23000	9.00	55.70	12.60
2016	42500 F	E 22000	W 20500	9.00	56.10	13.50
2015	43500 C	E 22500	W 21000	9.00	57.40	13.70
2014	40500 S	E 22000	W 18500	9.00	59.30	17.40
2013	40500 F	E 22000	W 18500	9.00	58.90	16.20
2012	40500 C	E 22000	W 18500	9.00	59.70	16.00

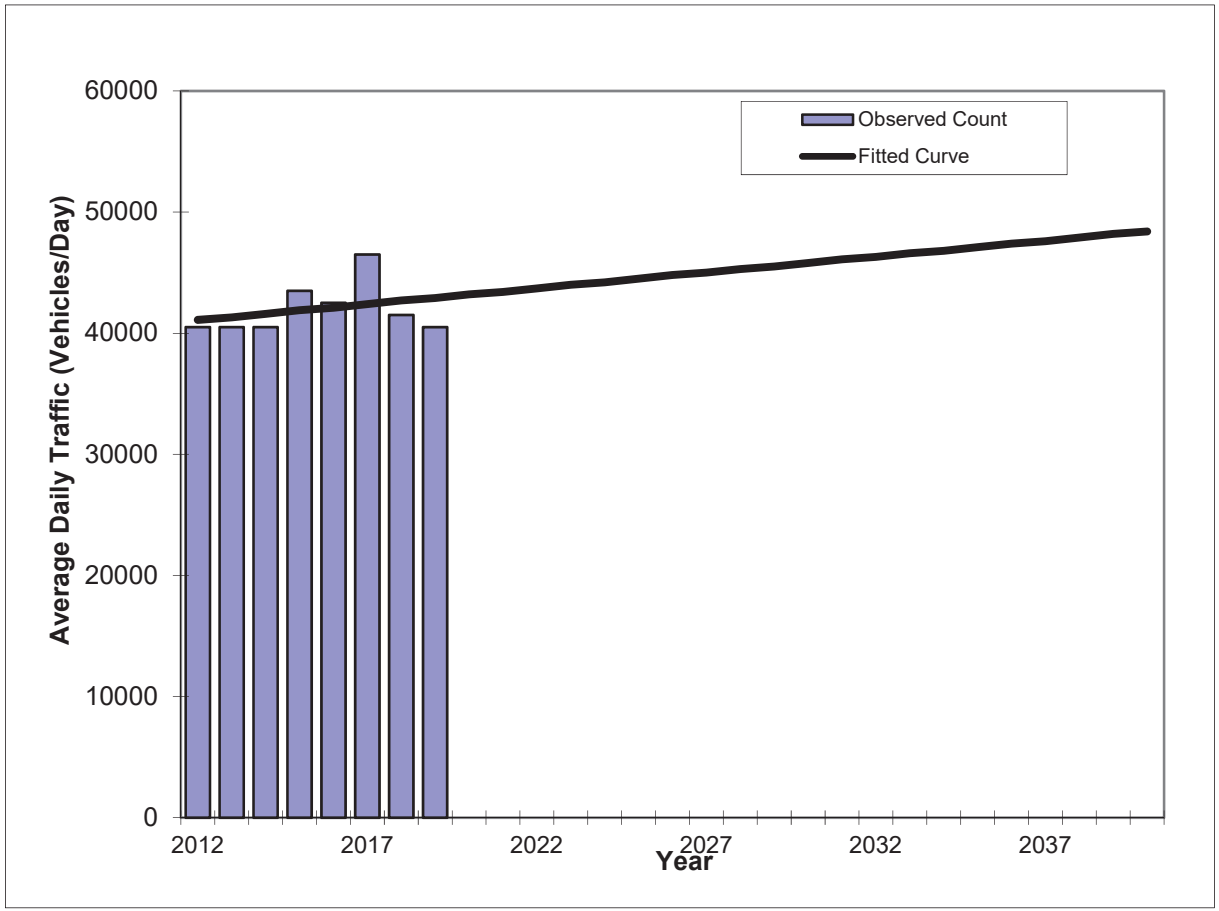
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V3.0

SW 104 ST -- 200' W SW 127 AVE

FIN#	0
Location	1

County:	Miami-Dade (87)
Station #:	8125
Highway:	SW 104 ST



Year	Traffic (ADT/AADT) Count*	Trend**
2012	40500	41100
2013	40500	41300
2014	40500	41600
2015	43500	41900
2016	42500	42100
2017	46500	42400
2018	41500	42700
2019	40500	42900
2023 Opening Year Trend		
2023	N/A	44000
2030 Mid-Year Trend		
2030	N/A	45800
2040 Design Year Trend		
2040	N/A	48400
TRANPLAN Forecasts/Trends		

**** Annual Trend Increase:**	262
Trend R-squared:	9.00%
Trend Annual Historic Growth Rate:	0.63%
Trend Growth Rate (2019 to Design Year):	0.61%
Printed:	17-Dec-20

Straight Line Growth Option

***Axle-Adjusted**

COMMUTING CHARACTERISTICS BY SEX

Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

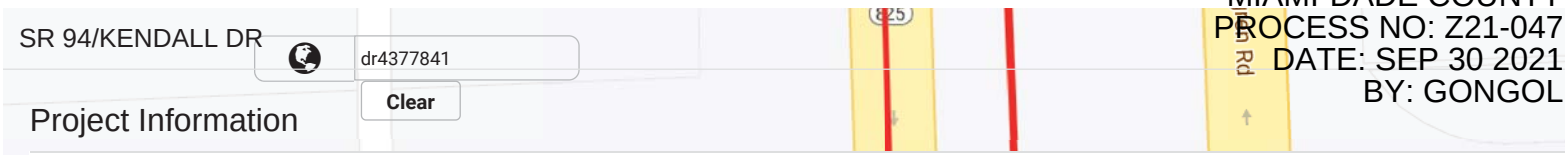
	ZCTA5 33186	
	Total	
Label	Estimate	Margin of Erro
Workers 16 years and over	35,103	±1,44
MEANS OF TRANSPORTATION TO WORK		
Car, truck, or van	92.7%	±1.
Drove alone	83.7%	±2.
Carpooled	8.9%	±1.
In 2-person carpool	6.1%	±1.
In 3-person carpool	1.8%	±0.
In 4-or-more person carpool	1.0%	±0.
Workers per car, truck, or van	1.06	±0.0
Public transportation (excluding taxicab)	1.7%	±0.
Walked	0.3%	±0.
Bicycle	0.3%	±0.
Taxicab, motorcycle, or other means	1.2%	±0.
Worked from home	3.8%	±0.
PLACE OF WORK		
Worked in state of residence	99.8%	±0.
Worked in county of residence	97.8%	±0.
Worked outside county of residence	2.0%	±0.
Worked outside state of residence	0.2%	±0.
Living in a place	100.0%	±0.
Worked in place of residence	7.2%	±1.
Worked outside place of residence	92.8%	±1.
Not living in a place	0.0%	±0.
Living in 12 selected states	0.0%	±0.
Worked in minor civil division of residence	0.0%	±0.
Worked outside minor civil division of residence	0.0%	±0.

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	
1249	4149	Trips	724	874	233	494	165	29	198	411	3,175
1249	4149	Percent	23.2	28.0	7.5	15.8	5.3	0.9	6.3	13.2	
1250	4150	Trips	227	268	46	85	42	53	77	85	899
1250	4150	Percent	25.7	30.3	5.2	9.7	4.8	6.0	8.7	9.6	
1251	4151	Trips	586	545	171	292	319	95	224	307	2,617
1251	4151	Percent	23.1	21.5	6.7	11.5	12.6	3.7	8.8	12.1	
1252	4152	Trips	388	340	63	160	139	66	80	138	1,382
1252	4152	Percent	28.3	24.7	4.6	11.7	10.1	4.8	5.8	10.1	
1253	4153	Trips	195	242	109	88	76	72	107	112	1,009
1253	4153	Percent	19.5	24.2	10.9	8.8	7.6	7.2	10.7	11.2	
1254	4154	Trips	1,185	1,434	514	461	571	336	497	515	5,764
1254	4154	Percent	21.5	26.0	9.3	8.4	10.4	6.1	9.0	9.4	
1255	4155	Trips	645	704	367	267	347	315	277	359	3,346
1255	4155	Percent	19.7	21.5	11.2	8.1	10.6	9.6	8.4	11.0	
1256	4156	Trips	400	34	-	26	21	6	35	69	591
1256	4156	Percent	67.7	5.7	-	4.4	3.6	1.0	6.0	11.7	
1257	4157	Trips	657	801	314	373	130	184	376	189	3,067
1257	4157	Percent	21.7	26.5	10.4	12.3	4.3	6.1	12.5	6.3	
1258	4158	Trips	952	1,179	446	562	472	697	587	439	5,552
1258	4158	Percent	17.9	22.1	8.4	10.5	8.9	13.1	11.0	8.2	
1259	4159	Trips	1,517	2,262	598	954	778	650	830	893	8,857
1259	4159	Percent	17.9	26.7	7.1	11.2	9.2	7.7	9.8	10.5	
1260	4160	Trips	653	975	250	251	254	229	198	332	3,215
1260	4160	Percent	20.8	31.0	7.9	8.0	8.1	7.3	6.3	10.6	
1261	4161	Trips	1,399	1,621	607	664	433	317	498	733	6,651
1261	4161	Percent	22.3	25.9	9.7	10.6	6.9	5.1	8.0	11.7	
1262	4162	Trips	809	1,268	310	338	276	261	182	238	3,740
1262	4162	Percent	22.0	34.4	8.4	9.2	7.5	7.1	4.9	6.5	
1263	4163	Trips	323	469	177	255	181	93	56	196	1,766
1263	4163	Percent	18.5	26.8	10.1	14.6	10.4	5.3	3.2	11.2	
1264	4164	Trips	216	433	90	141	89	57	61	130	1,227
1264	4164	Percent	17.7	35.6	7.4	11.6	7.3	4.7	5.0	10.7	
1265	4165	Trips	477	624	162	188	137	128	128	177	2,063
1265	4165	Percent	23.6	30.9	8.0	9.3	6.8	6.3	6.3	8.8	
1266	4166	Trips	327	488	115	104	47	58	82	110	1,331
1266	4166	Percent	24.6	36.7	8.6	7.8	3.5	4.3	6.2	8.3	
1267	4167	Trips	852	1,254	750	440	296	61	314	503	4,870
1267	4167	Percent	19.1	28.1	16.8	9.9	6.6	1.4	7.0	11.3	
1268	4168	Trips	963	1,096	694	256	105	49	42	231	3,520
1268	4168	Percent	28.0	31.9	20.2	7.5	3.1	1.4	1.2	6.7	
1269	4169	Trips	2,215	2,428	1,338	1,491	690	304	286	853	10,186
1269	4169	Percent	23.1	25.3	13.9	15.5	7.2	3.2	3.0	8.9	
1270	4170	Trips	289	492	343	300	81	52	65	54	1,714
1270	4170	Percent	17.2	29.4	20.5	17.9	4.9	3.1	3.9	3.2	
1271	4171	Trips	412	986	400	172	103	-	39	85	2,236
1271	4171	Percent	18.8	44.9	18.2	7.8	4.7	-	1.8	3.9	
1272	4172	Trips	872	1,483	685	249	89	-	0	117	3,730
1272	4172	Percent	25.0	42.4	19.6	7.1	2.5	-	-	3.4	
1273	4173	Trips	446	891	377	184	92	-	65	15	2,222
1273	4173	Percent	21.6	43.0	18.2	8.9	4.5	-	3.1	0.7	
1274	4174	Trips	671	1,456	870	397	85	6	4	18	4,056
1274	4174	Percent	19.1	41.5	24.8	11.3	2.4	0.2	0.1	0.5	

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	
1249	4149	Trips	974	1,036	249	566	260	35	264	375	3,810
1249	4149	Percent	25.9	27.6	6.6	15.1	6.9	0.9	7.0	10.0	
1250	4150	Trips	258	267	91	103	63	17	45	131	983
1250	4150	Percent	26.5	27.3	9.4	10.6	6.5	1.7	4.6	13.4	
1251	4151	Trips	716	669	200	303	328	84	261	328	2,963
1251	4151	Percent	24.8	23.1	6.9	10.5	11.4	2.9	9.0	11.4	
1252	4152	Trips	450	395	100	170	160	60	125	99	1,567
1252	4152	Percent	28.9	25.3	6.4	10.9	10.3	3.9	8.0	6.4	
1253	4153	Trips	394	293	107	172	138	86	142	195	1,567
1253	4153	Percent	25.8	19.2	7.0	11.3	9.0	5.6	9.3	12.8	
1254	4154	Trips	1,390	1,500	380	580	556	323	392	429	5,856
1254	4154	Percent	25.0	27.0	6.9	10.5	10.0	5.8	7.1	7.7	
1255	4155	Trips	699	827	306	406	396	226	252	295	3,475
1255	4155	Percent	20.5	24.3	9.0	11.9	11.6	6.6	7.4	8.7	
1256	4156	Trips	1,677	163	-	97	19	19	37	282	2,535
1256	4156	Percent	73.1	7.1	-	4.2	0.8	0.8	1.6	12.3	
1257	4157	Trips	740	800	285	426	226	120	247	195	3,116
1257	4157	Percent	24.4	26.3	9.4	14.0	7.4	4.0	8.1	6.4	
1258	4158	Trips	1,309	1,481	556	856	649	660	596	545	6,997
1258	4158	Percent	19.7	22.3	8.4	12.9	9.8	9.9	9.0	8.2	
1259	4159	Trips	1,528	2,233	637	1,273	916	588	610	696	8,766
1259	4159	Percent	18.0	26.3	7.5	15.0	10.8	6.9	7.2	8.2	
1260	4160	Trips	925	1,009	312	407	197	114	183	338	3,557
1260	4160	Percent	26.6	29.0	9.0	11.7	5.7	3.3	5.2	9.7	
1261	4161	Trips	1,631	2,034	869	870	423	250	472	750	7,735
1261	4161	Percent	22.3	27.9	11.9	11.9	5.8	3.4	6.5	10.3	
1262	4162	Trips	883	1,089	298	447	196	151	138	269	3,593
1262	4162	Percent	25.4	31.4	8.6	12.9	5.6	4.3	4.0	7.7	
1263	4163	Trips	387	633	262	264	155	140	48	175	2,116
1263	4163	Percent	18.8	30.7	12.7	12.8	7.5	6.8	2.3	8.5	
1264	4164	Trips	218	293	86	114	84	24	52	61	956
1264	4164	Percent	23.4	31.4	9.3	12.2	9.0	2.6	5.6	6.6	
1265	4165	Trips	517	701	249	214	221	142	115	226	2,473
1265	4165	Percent	21.7	29.4	10.4	9.0	9.3	5.9	4.8	9.5	
1266	4166	Trips	299	492	151	174	30	35	75	87	1,368
1266	4166	Percent	22.3	36.6	11.3	13.0	2.2	2.6	5.6	6.5	
1267	4167	Trips	985	1,559	889	723	389	46	361	728	6,334
1267	4167	Percent	17.4	27.5	15.7	12.7	6.9	0.8	6.4	12.8	
1268	4168	Trips	904	1,102	570	341	92	25	65	202	3,353
1268	4168	Percent	27.4	33.4	17.3	10.3	2.8	0.7	2.0	6.1	
1269	4169	Trips	2,515	3,035	1,677	1,978	827	222	524	1,024	12,492
1269	4169	Percent	21.3	25.7	14.2	16.8	7.0	1.9	4.4	8.7	
1270	4170	Trips	735	962	595	470	88	21	144	133	3,306
1270	4170	Percent	23.4	30.6	18.9	14.9	2.8	0.7	4.6	4.2	
1271	4171	Trips	618	1,083	373	176	60	-	55	75	2,504
1271	4171	Percent	25.3	44.4	15.3	7.2	2.5	-	2.3	3.1	
1272	4172	Trips	812	1,328	507	249	54	-	0	160	3,388
1272	4172	Percent	26.1	42.7	16.3	8.0	1.7	-	-	5.2	
1273	4173	Trips	713	1,076	467	375	176	0	183	43	3,234
1273	4173	Percent	23.5	35.5	15.4	12.4	5.8	-	6.0	1.4	
1274	4174	Trips	2,170	3,574	2,210	1,203	267	4	16	124	12,255
1274	4174	Percent	22.7	37.4	23.1	12.6	2.8	0.0	0.2	1.3	

SR 94/KENDALL DR dr4377841 Clear

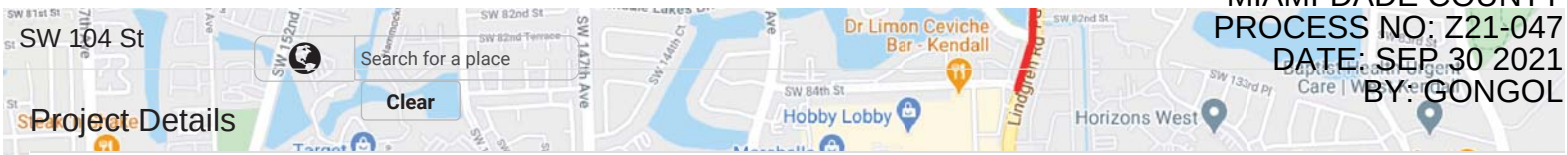


Project Information

MPO Project No.	DT4377841
Project Name	SR 94/KENDALL DR
Location/From	FROM SR 997/KROME AVE
Location/To	TO SR 5/S DIXIE HWY (BRT STUDY)
Description	.
TIP Year	2021
Type of Project	Arterial/Collector Road
Agency	FL Dept. of Transportation
Management Agency :	FDOT
Type of Work	PD&E/EMO STUDY
Status	
Construction Year	
Next Step	
Agency Project No.	4377841
Contact Person	
Contact E-mail	
Phone No	

Funding Information $(thousands)

Project Phase	Funding	2020 - 2021	2021 - 2022	2022

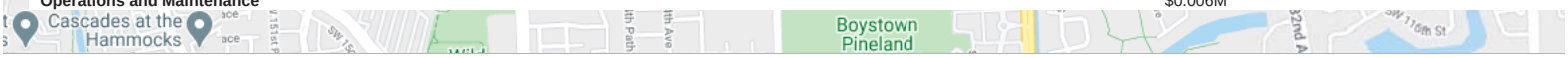


Project Details

LRTP Project Code	PW185
Facility	SW 104 St
Limit From	SW 147 Ave
Limit To	SW 137 Ave
Description	Add 2 lanes and reconstruct; widen 4 to 6 lanes
LRTP Year	2045
Project Type	Arterial/Collector
Agency Name	Miami-Dade Dept. of Transportation and Public Works
Purpose	
Last Approved Date	
Last Approved User Name	
Last Amended Date	
Last Amended User Name	

Priority Data

	Priority 1 2020-2025 (Y-O-E $)	Priority 2 2026-2030 (Y-O-E $)	Priority 3 2031-2035
Preliminary Engineering		$M	
Right of Way		$2.497M	
Construction		$9.585M	
Operations and Maintenance		$0.006M	



APPENDIX E
INTERSECTION VOLUME SPREADSHEETS

AM PEAK HOUR TRAFFIC VOLUME CALCULATIONS
KENDALL BAPTIST

Intersection	Scenario	Traffic Volumes											
		EBLT	EBT	EBRT	WBLT	WBT	WBRT	NBLT	NBT	NBRT	SBLT	SBT	SBRT
SW 137th Avenue & SW 88th Street	Traffic Count	135	1,685	177	281	907	137	214	595	381	204	678	100
	Peak Season Conversion Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	2020 Peak Season Traffic	**156**	**1,947**	**204**	**325**	**1,048**	**158**	**247**	**687**	**440**	**236**	**783**	**116**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	157	1,956	206	326	1,053	159	248	691	442	237	787	116
	Committed Development Trips	0	9	1	0	29	34	0	0	2	8	4	0
	2023 Background Traffic	**157**	**1,965**	**207**	**326**	**1,082**	**193**	**248**	**691**	**444**	**245**	**791**	**116**
	In/Out			In	In			Out	Out	Out		In	
	Project Assignment			8%	31%			8%	9%	31%		9%	
	Net New Project Trips	0	0	10	40	0	0	9	11	36	0	12	0
	2023 Total Traffic	**157**	**1,965**	**217**	**366**	**1,082**	**193**	**257**	**702**	**480**	**245**	**803**	**116**
SW 137th Avenue & Median Opening	Traffic Count	0	0	0	0	0	0	0	1,305	0	24	1,181	0
	Peak Season Conversion Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	2020 Peak Season Traffic	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,508**	**0**	**28**	**1,364**	**0**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	0	0	0	0	0	0	0	1,515	0	28	1,371	0
	Committed Development Trips	0	0	0	0	0	0	0	2	0	0	5	0
	2023 Background Traffic	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,517**	**0**	**28**	**1,376**	**0**
	In/Out						Out		In	In	In	Out	
	Project Assignment						95%		8%	44%	48%	52%	
	Net New Project Trips	0	0	0	0	0	111	0	10	57	62	61	0
	2023 Total Traffic	**0**	**0**	**0**	**0**	**0**	**111**	**0**	**1,527**	**57**	**90**	**1,437**	**0**
SW 137th Avenue & SW 96th Street	Traffic Count	193	62	266	65	58	61	93	1,021	44	38	1,019	95
	Peak Season Conversion Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	2020 Peak Season Traffic	**223**	**72**	**307**	**75**	**67**	**70**	**107**	**1,180**	**51**	**44**	**1,177**	**110**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	224	72	309	75	67	71	108	1,185	51	44	1,183	110
	Committed Development Trips	0	3	0	0	9	0	0	2	2	5	0	0
	2023 Background Traffic	**224**	**75**	**309**	**75**	**76**	**71**	**108**	**1,187**	**53**	**49**	**1,183**	**110**
	In/Out	In					In		In		Out	Out	Out
	Project Assignment	17%					4%		31%		4%	31%	17%
	Net New Project Trips	22	0	0	0	0	5	0	40	0	5	36	20
	2023 Total Traffic	**246**	**75**	**309**	**75**	**76**	**76**	**108**	**1,227**	**53**	**54**	**1,219**	**130**
SW 137th Avenue & SW 104th Street	Traffic Count	127	1,183	152	209	551	179	113	898	319	281	1,025	72
	Peak Season Conversion Factor	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
	2020 Peak Season Traffic	**147**	**1,367**	**176**	**241**	**637**	**207**	**131**	**1,037**	**369**	**325**	**1,184**	**83**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	147	1,374	176	243	640	208	131	1,043	370	326	1,190	84
	Committed Development Trips		9			37			4				
	2023 Background Traffic	**147**	**1,383**	**176**	**243**	**677**	**208**	**131**	**1,047**	**370**	**326**	**1,190**	**84**
	In/Out	In					In		In		Out	Out	Out
	Project Assignment	11%					10%		10%		10%	10%	11%
	Net New Project Trips	14	0	0	0	0	13	0	13	0	12	12	13
	2023 Total Traffic	**161**	**1,383**	**176**	**243**	**677**	**221**	**131**	**1,060**	**370**	**338**	**1,202**	**97**

PM PEAK HOUR TRAFFIC VOLUME CALCULATIONS
KENDALL BAPTIST

Intersection	Scenario	Traffic Volumes											
		EBLT	EBT	EBRT	WBLT	WBT	WBRT	NBLT	NBT	NBRT	SBLT	SBT	SBRT
SW 137th Avenue & SW 88th Street	Traffic Count	192	1,254	219	400	1,902	319	326	622	363	228	645	234
	Peak Season Conversion Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
	2020 Peak Season Traffic	**225**	**1,468**	**256**	**468**	**2,227**	**374**	**382**	**728**	**425**	**267**	**755**	**274**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	226	1,476	258	471	2,238	375	384	732	427	268	759	275
	Committed Development Trips	0	29	3	0	19	22	0	0	6	25	13	0
	2023 Background Traffic	**226**	**1,505**	**261**	**471**	**2,257**	**397**	**384**	**732**	**433**	**293**	**772**	**275**
	In/Out			In	In			Out	Out	Out		In	
	Project Assignment			8%	31%			8%	9%	31%		9%	
	Net New Project Trips	0	0	11	43	0	0	15	17	58	0	13	0
	2023 Total Traffic	**226**	**1,505**	**272**	**514**	**2,257**	**397**	**399**	**749**	**491**	**293**	**785**	**275**
SW 137th Avenue & Median Opening	Traffic Count	0	0	0	0	0	0	0	1,301	0	13	1,473	0
	Peak Season Conversion Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
	2020 Peak Season Traffic	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,523**	**0**	**15**	**1,725**	**0**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	0	0	0	0	0	0	0	1,531	0	15	1,733	0
	Committed Development Trips	0	0	0	0	0	0	0	6	0	0	16	0
	2023 Background Traffic	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,537**	**0**	**15**	**1,749**	**0**
	In/Out						Out		In	In	In	Out	
	Project Assignment						86%		4%	49%	48%	52%	
	Net New Project Trips	0	0	0	0	0	161	0	5	68	67	97	0
	2023 Total Traffic	**0**	**0**	**0**	**0**	**0**	**161**	**0**	**1,542**	**68**	**82**	**1,846**	**0**
SW 137th Avenue & SW 96th Street	Traffic Count	130	36	207	13	70	25	251	1,081	28	60	1,117	283
	Peak Season Conversion Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
	2020 Peak Season Traffic	**152**	**42**	**242**	**15**	**82**	**29**	**294**	**1,266**	**33**	**70**	**1,308**	**331**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	153	42	244	15	82	29	295	1,272	33	71	1,314	333
	Committed Development Trips	0	10	0	0	6	0	0	6	6	16	0	0
	2023 Background Traffic	**153**	**52**	**244**	**15**	**88**	**29**	**295**	**1,278**	**39**	**87**	**1,314**	**333**
	In/Out	In					In		In		Out	Out	Out
	Project Assignment	17%					4%		31%		4%	31%	17%
	Net New Project Trips	24	0	0	0	0	6	0	43	0	7	58	32
	2023 Total Traffic	**177**	**52**	**244**	**15**	**88**	**35**	**295**	**1,321**	**39**	**94**	**1,372**	**365**
SW 137th Avenue & SW 104th Street	Traffic Count	99	675	116	253	1,058	355	185	949	253	239	989	123
	Peak Season Conversion Factor	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
	2020 Peak Season Traffic	**116**	**790**	**136**	**296**	**1,239**	**416**	**217**	**1,111**	**296**	**280**	**1,158**	**144**
	Compound Growth Rate	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%	0.17%
	Existing plus Background Growth	116	794	137	298	1,245	418	218	1,117	298	281	1,164	145
	Committed Development Trips	0	29	0	0	24	0	0	12	0	0	0	0
	2023 Background Traffic	**116**	**823**	**137**	**298**	**1,269**	**418**	**218**	**1,129**	**298**	**281**	**1,164**	**145**
	In/Out	In					In		In		Out	Out	Out
	Project Assignment	11%					10%		10%		10%	10%	11%
	Net New Project Trips	15	0	0	0	0	14	0	14	0	19	19	21
	2023 Total Traffic	**131**	**823**	**137**	**298**	**1,269**	**432**	**218**	**1,143**	**298**	**300**	**1,183**	**166**

APPENDIX F
INTERSECTION CAPACITY REPORTS

EXISTING CONDITIONS

Table 1.1 - 2020 Existing Intersection Capacity Analysis

Movement/Approach	Time	Level of Service[1]							
		SW 137th Avenue & SW 88th Street		SW 137th Avenue & Median Opening		SW 137th Avenue & SW 96th Street		SW 137th Avenue & SW 104th Street	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM	F	90.7	N/A		E	65.7	D	35.4
	PM	F	112.8			F	116.2	F	87
EBT	AM	E	56.1			E	59.5	E	57.6
	PM	E	55.2			F	82.3	E	56.1
EBR	AM	C	26.3			E	74.1	E	61
	PM	C	31.3			F	87.1	E	57
EB Approach	AM	E	55.8			E	69.3	E	56.7
	PM	E	58.7			F	96.7	F	59.8
WBL	AM	F	164.1	[2]		E	56.9	F	190.8
	PM	F	92.4			F	89.3	D	50.5
WBT	AM	C	33.9			E	63.5	D	44.4
	PM	E	61.1			F	102.2	E	61.2
WBR	AM	C	22.4			E	64.1	D	42
	PM	C	26.3			F	104.9	D	50.9
WB Approach	AM	E	60.4	A	0	E	64.1	E	76.4
	PM	E	61.6	A	0	F	101.9	E	57.4
NBL	AM	F	152.7	[2]		F	85.9	F	109.2
	PM	F	165.2			F	88.9	F	117.3
NBT	AM	F	87			C	21.7	F	85.9
	PM	F	114.7			A	0.2	E	75.4
NBR	AM	F	83.9			C	21.9	F	97.8
	PM	E	70.3			A	0.3	F	83.9
NB Approach	AM	F	97.8	A	0	C	26.9	F	91.5
	PM	F	115	A	0	B	16.5	F	83.4
SBL	AM	F	136.1	D	25.8	B	17.3	F	109.6
	PM	F	109	C	23.6	B	10.5	F	103.7
SBT	AM	F	84	[2]		A	0.8	E	55.8
	PM	F	132.4			A	0.9	C	31.3
SBR	AM	D	48.3			A	1.6	E	58.3
	PM	E	69.8			A	1.7	C	34.7
SB Approach	AM	F	91.2	A	0.5	A	1.6	E	67.5
	PM	F	114.3	A	0.2	A	1.5	D	45.1
Overall	AM	E	72.3	A	0.2	C	26.6	E	72.3
	PM	F	80	A	0.1	C	21.7	E	61.5

[1] Delay is average delay per vehicle in seconds

[2] Approach operates under Free-flow conditions

Table 1.2 - 2020 Existing Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)							
		EBL		WBL		NBL		SBL	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
SW 137th Avenue & SW 88th Street	AM	300	140	240	#345	345	m#251	230	#253
	PM		#219		365		#407		239
SW 137th Avenue & Median Opening	AM							105	25
	PM								25
SW 137th Avenue & SW 96th Street	AM	175	#384	210	132	220	95	310	m17
	PM		280		45		m233		m16
SW 137th Avenue & SW 104th Street	AM	155	142	150	#560	255	#140	350	#317
	PM		#239		352		#230		#284

 # 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Kendall Baptist
1: SW 137th Avenue & SW 88th Street

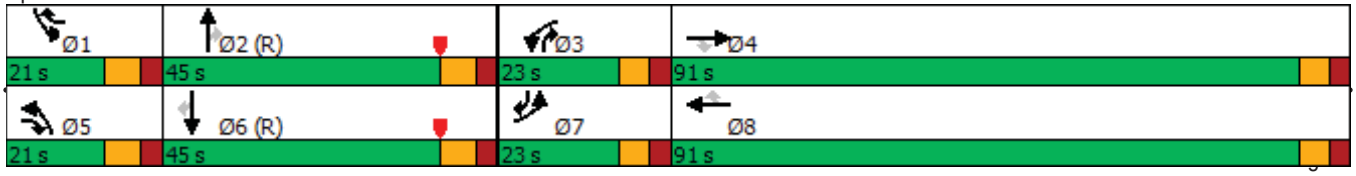
2020 Existing Conditions
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	1947	204	325	1048	158	247	687	440	236	783	116
Future Volume (vph)	156	1947	204	325	1048	158	247	687	440	236	783	116
Lane Group Flow (vph)	163	2028	213	339	1092	165	257	716	458	246	816	121
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	23.0	91.0	21.0	23.0	91.0	21.0	21.0	45.0	23.0	21.0	45.0	23.0
Total Split (%)	12.8%	50.6%	11.7%	12.8%	50.6%	11.7%	11.7%	25.0%	12.8%	11.7%	25.0%	12.8%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.65	0.90	0.23	1.11	0.47	0.17	0.83	0.95	0.77	0.82	1.10	0.21
Control Delay	93.3	52.2	12.5	155.5	34.0	9.8	99.9	101.3	63.5	100.6	127.6	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	52.2	12.5	155.5	34.0	9.8	99.9	101.3	63.5	100.6	127.6	18.7
Queue Length 50th (ft)	98	796	75	~235	319	46	159	466	403	150	~582	40
Queue Length 95th (ft)	140	835	124	#345	360	88	m#251	m#553	m587	#253	#720	93
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	305	2373	939	305	2377	959	310	751	594	299	740	590
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.85	0.23	1.11	0.46	0.17	0.83	0.95	0.77	0.82	1.10	0.21

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 118 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 140
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	1947	204	325	1048	158	247	687	440	236	783	116
Future Volume (veh/h)	156	1947	204	325	1048	158	247	687	440	236	783	116
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	162	2028	212	339	1092	165	257	716	458	246	816	121
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	202	2173	789	307	2329	837	250	876	532	250	876	483
Arrive On Green	0.06	0.43	0.43	0.09	0.46	0.46	0.02	0.08	0.08	0.07	0.25	0.25
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	162	2028	212	339	1092	165	257	716	458	246	816	121
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	8.3	68.1	14.0	16.0	26.6	9.9	13.0	35.7	44.4	12.8	40.4	10.3
Cycle Q Clear(g_c), s	8.3	68.1	14.0	16.0	26.6	9.9	13.0	35.7	44.4	12.8	40.4	10.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	202	2173	789	307	2329	837	250	876	532	250	876	483
V/C Ratio(X)	0.80	0.93	0.27	1.10	0.47	0.20	1.03	0.82	0.86	0.99	0.93	0.25
Avail Cap(c_a), veh/h	307	2383	854	307	2383	854	250	876	532	250	876	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.7	49.3	26.2	82.0	33.9	22.3	87.9	78.7	67.3	83.4	66.3	47.1
Incr Delay (d2), s/veh	7.0	6.8	0.1	82.1	0.1	0.0	64.9	8.3	16.6	52.7	17.7	1.2
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	4.0	30.3	5.4	10.7	11.3	3.8	8.4	18.3	22.5	7.6	20.6	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.7	56.1	26.3	164.1	33.9	22.4	152.7	87.0	83.9	136.1	84.0	48.3
LnGrp LOS	F	E	C	F	C	C	F	F	F	F	F	D
Approach Vol, veh/h		2402			1596			1431			1183	
Approach Delay, s/veh		55.8			60.4			97.8			91.2	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	52.4	23.0	83.6	21.0	52.4	17.5	89.1
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	13.0	37.0	16.0	84.0	13.0	37.0	16.0	84.0
Max Q Clear Time (g_c+I1), s	14.8	46.4	18.0	70.1	15.0	42.4	10.3	28.6
Green Ext Time (p_c), s	0.0	0.0	0.0	6.5	0.0	0.0	0.2	3.5

Intersection Summary	
HCM 6th Ctrl Delay	72.3
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1508	0	28	1364
Future Vol, veh/h	0	0	1508	0	28	1364
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1587	0	29	1436

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	794	0	0	1587	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	284	-	-	202	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	284	-	-	202	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	202	-
HCM Lane V/C Ratio	-	-	-	0.146	-
HCM Control Delay (s)	-	-	0	25.8	-
HCM Lane LOS	-	-	A	D	-
HCM 95th %tile Q(veh)	-	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	223	72	307	75	67	107	1180	44	1177
Future Volume (vph)	223	72	307	75	67	107	1180	44	1177
Lane Group Flow (vph)	232	75	320	78	143	111	1282	46	1341
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	48.0	19.0	21.0	48.0	19.0	92.0	19.0	92.0
Total Split (%)	11.7%	26.7%	10.6%	11.7%	26.7%	10.6%	51.1%	10.6%	51.1%
Yellow Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	6.0	8.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	1.18	0.54	0.77	0.43	0.53	0.37	0.36	0.16	0.42
Control Delay	179.9	94.7	52.7	71.2	46.0	79.3	12.1	10.3	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.9	94.7	52.7	71.2	46.0	79.3	12.1	10.3	17.2
Queue Length 50th (ft)	~260	88	230	81	42	64	218	15	181
Queue Length 95th (ft)	#384	146	326	132	81	95	282	m17	m183
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	196	424	428	202	800	326	3517	361	3158
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	0.18	0.75	0.39	0.18	0.34	0.36	0.13	0.42

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 75
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	72	307	75	67	70	107	1180	51	44	1177	110
Future Volume (veh/h)	223	72	307	75	67	70	107	1180	51	44	1177	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	232	75	320	78	70	73	111	1229	53	46	1226	115
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	341	383	392	291	317	282	149	2884	124	273	2643	248
Arrive On Green	0.07	0.20	0.20	0.05	0.18	0.18	0.04	0.57	0.57	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1777	1585	3456	5019	216	1781	4749	445
Grp Volume(v), veh/h	232	75	320	78	70	73	111	833	449	46	879	462
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1585	1728	1702	1831	1781	1702	1790
Q Serve(g_s), s	13.0	6.0	34.3	6.4	6.1	7.1	5.7	24.8	24.8	2.0	0.0	0.0
Cycle Q Clear(g_c), s	13.0	6.0	34.3	6.4	6.1	7.1	5.7	24.8	24.8	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	341	383	392	291	317	282	149	1956	1052	273	1894	996
V/C Ratio(X)	0.68	0.20	0.82	0.27	0.22	0.26	0.75	0.43	0.43	0.17	0.46	0.46
Avail Cap(c_a), veh/h	341	426	429	338	405	361	250	1956	1052	357	1894	996
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.25	0.25	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	59.3	63.8	56.7	63.3	63.7	85.1	21.6	21.6	17.2	0.0	0.0
Incr Delay (d2), s/veh	4.5	0.2	10.3	0.2	0.3	0.4	0.7	0.2	0.3	0.1	0.8	1.6
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	4.0	2.9	15.0	2.9	2.8	3.0	2.6	10.2	11.0	0.8	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.7	59.5	74.1	56.9	63.5	64.1	85.9	21.7	21.9	17.3	0.8	1.6
LnGrp LOS	E	E	E	E	E	E	F	C	C	B	A	A
Approach Vol, veh/h		627			221			1393			1387	
Approach Delay, s/veh		69.3			61.4			26.9			1.6	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	109.4	16.3	43.8	13.8	106.2	21.0	39.1
Change Period (Y+Rc), s	6.0	6.0	8.0	7.0	6.0	6.0	8.0	7.0
Max Green Setting (Gmax), s	13.0	86.0	13.0	41.0	13.0	86.0	13.0	41.0
Max Q Clear Time (g_c+I1), s	4.0	26.8	8.4	36.3	7.7	2.0	15.0	9.1
Green Ext Time (p_c), s	0.0	3.7	0.0	0.6	0.1	4.0	0.0	0.7

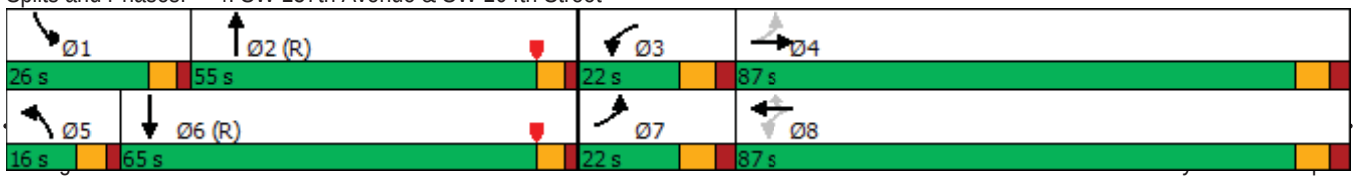
Intersection Summary	
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	147	1367	241	637	207	131	1037	325	1184
Future Volume (vph)	147	1367	241	637	207	131	1037	325	1184
Lane Group Flow (vph)	152	1590	248	657	213	135	1449	335	1308
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	22.0	87.0	22.0	87.0	87.0	16.0	55.0	26.0	65.0
Total Split (%)	11.6%	45.8%	11.6%	45.8%	45.8%	8.4%	28.9%	13.7%	34.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.43	0.79	1.43	0.45	0.27	0.73	1.08	0.91	0.80
Control Delay	28.0	52.2	261.3	41.4	4.5	110.5	109.4	110.1	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	52.2	261.3	41.4	4.5	110.5	109.4	110.1	63.7
Queue Length 50th (ft)	96	616	~358	306	0	87	~743	218	559
Queue Length 95th (ft)	142	674	#560	370	56	#140	#840	#317	620
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	366	2087	174	1475	784	186	1343	370	1626
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.76	1.43	0.45	0.27	0.73	1.08	0.91	0.80

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 129 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 140
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1367	176	241	637	207	131	1037	369	325	1184	84
Future Volume (veh/h)	147	1367	176	241	637	207	131	1037	369	325	1184	84
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	152	1409	181	248	657	213	135	1069	380	335	1221	87
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	307	1716	220	200	1369	611	170	1111	395	364	1727	123
Arrive On Green	0.06	0.37	0.37	0.07	0.39	0.39	0.05	0.30	0.30	0.11	0.36	0.36
Sat Flow, veh/h	1781	4580	588	1781	3554	1585	3456	3716	1321	3456	4865	347
Grp Volume(v), veh/h	152	1047	543	248	657	213	135	979	470	335	854	454
Grp Sat Flow(s),veh/h/ln	1781	1702	1764	1781	1777	1585	1728	1702	1633	1728	1702	1808
Q Serve(g_s), s	10.0	52.8	52.8	14.0	26.5	18.1	7.3	53.8	53.8	18.2	41.0	41.1
Cycle Q Clear(g_c), s	10.0	52.8	52.8	14.0	26.5	18.1	7.3	53.8	53.8	18.2	41.0	41.1
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.81	1.00		0.19
Lane Grp Cap(c), veh/h	307	1275	661	200	1369	611	170	1018	488	364	1209	642
V/C Ratio(X)	0.50	0.82	0.82	1.24	0.48	0.35	0.79	0.96	0.96	0.92	0.71	0.71
Avail Cap(c_a), veh/h	326	1415	734	200	1478	659	182	1018	488	364	1209	642
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	1.00	1.00	0.87	0.87	0.87
Uniform Delay (d), s/veh	34.9	53.7	53.7	48.1	44.1	41.5	89.4	65.5	65.5	84.2	52.8	52.8
Incr Delay (d2), s/veh	0.5	3.9	7.3	142.7	0.4	0.5	19.9	20.4	32.3	25.6	3.1	5.6
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	4.5	23.5	25.0	14.2	12.0	7.4	3.8	26.3	26.9	9.5	18.3	19.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.4	57.6	61.0	190.8	44.4	42.0	109.2	85.9	97.8	109.8	55.8	58.4
LnGrp LOS	D	E	E	F	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1742			1118			1584			1643	
Approach Delay, s/veh		56.7			76.4			91.5			67.5	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	62.8	22.0	79.2	15.4	73.5	20.0	81.2
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	20.0	49.0	14.0	79.0	10.0	59.0	14.0	79.0
Max Q Clear Time (g_c+I1), s	20.2	55.8	16.0	54.8	9.3	43.1	12.0	28.5
Green Ext Time (p_c), s	0.0	0.0	0.0	16.4	0.0	3.4	0.0	9.5

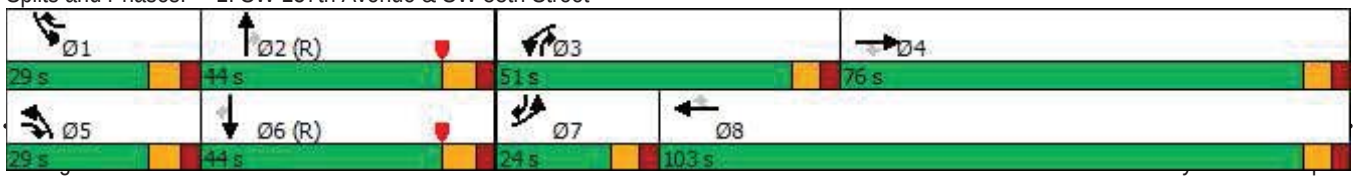
Intersection Summary	
HCM 6th Ctrl Delay	72.3
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	225	1468	256	468	2227	374	382	728	425	267	755	274
Future Volume (vph)	225	1468	256	468	2227	374	382	728	425	267	755	274
Lane Group Flow (vph)	230	1498	261	478	2272	382	390	743	434	272	770	280
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	24.0	76.0	29.0	51.0	103.0	29.0	29.0	44.0	51.0	29.0	44.0	24.0
Total Split (%)	12.0%	38.0%	14.5%	25.5%	51.5%	14.5%	14.5%	22.0%	25.5%	14.5%	22.0%	12.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.83	0.77	0.30	0.77	0.92	0.38	1.08	1.11	0.63	0.82	1.21	0.51
Control Delay	113.5	57.5	17.1	86.9	55.7	16.8	141.8	129.8	26.3	108.5	172.7	38.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.5	57.5	17.1	86.9	55.7	16.8	141.8	129.8	26.3	108.5	172.7	38.6
Queue Length 50th (ft)	156	630	111	314	1023	201	~289	~610	371	183	~646	192
Queue Length 95th (ft)	#219	735	194	365	1085	272	#407	#755	432	239	#787	296
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	291	1958	880	755	2459	1011	360	667	745	360	637	555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.77	0.30	0.63	0.92	0.38	1.08	1.11	0.58	0.76	1.21	0.50

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 107 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	225	1468	256	468	2227	374	382	728	425	267	755	274
Future Volume (veh/h)	225	1468	256	468	2227	374	382	728	425	267	755	274
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	230	1498	261	478	2272	382	390	743	434	272	770	280
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	1964	776	543	2377	879	363	778	596	308	722	443
Arrive On Green	0.08	0.38	0.38	0.16	0.47	0.47	0.03	0.07	0.07	0.09	0.20	0.20
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	230	1498	261	478	2272	382	390	743	434	272	770	280
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.2	51.1	20.1	27.1	85.7	28.3	21.0	41.7	43.8	15.6	40.6	30.9
Cycle Q Clear(g_c), s	13.2	51.1	20.1	27.1	85.7	28.3	21.0	41.7	43.8	15.6	40.6	30.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	1964	776	543	2377	879	363	778	596	308	722	443
V/C Ratio(X)	0.87	0.76	0.34	0.88	0.96	0.43	1.07	0.95	0.73	0.88	1.07	0.63
Avail Cap(c_a), veh/h	294	1964	776	760	2451	902	363	778	596	363	722	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.4	53.6	31.2	82.4	51.5	26.1	96.5	91.8	62.7	90.1	79.7	63.0
Incr Delay (d2), s/veh	21.4	1.6	0.1	10.0	9.6	0.1	68.6	22.9	7.6	18.9	52.8	6.7
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	6.8	22.4	8.0	12.9	38.7	11.0	13.4	22.7	20.4	7.9	24.0	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.8	55.2	31.3	92.4	61.1	26.3	165.2	114.7	70.3	109.0	132.4	69.8
LnGrp LOS	F	E	C	F	E	C	F	F	E	F	F	E
Approach Vol, veh/h		1989			3132			1567			1322	
Approach Delay, s/veh		58.7			61.6			115.0			114.3	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	51.8	38.4	83.9	29.0	48.6	22.3	100.1
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	21.0	36.0	44.0	69.0	21.0	36.0	17.0	96.0
Max Q Clear Time (g_c+I1), s	17.6	45.8	29.1	53.1	23.0	42.6	15.2	87.7
Green Ext Time (p_c), s	0.2	0.0	2.4	4.7	0.0	0.0	0.1	5.4

Intersection Summary	
HCM 6th Ctrl Delay	80.0
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1523	0	15	1725
Future Vol, veh/h	0	0	1523	0	15	1725
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1554	0	15	1760

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	777	0	0	1554	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	291	-	-	209	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	291	-	-	209	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.2
HCM LOS	A		

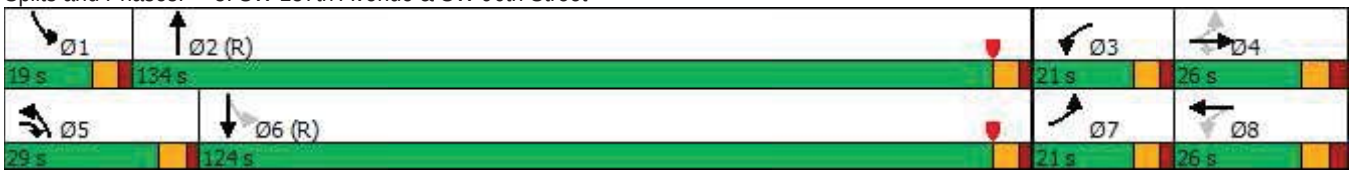
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	209	-
HCM Lane V/C Ratio	-	-	-	0.073	-
HCM Control Delay (s)	-	-	0	23.6	-
HCM Lane LOS	-	-	A	C	-
HCM 95th %tile Q(veh)	-	-	-	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	152	42	242	15	82	294	1266	70	1308
Future Volume (vph)	152	42	242	15	82	294	1266	70	1308
Lane Group Flow (vph)	160	44	255	16	117	309	1368	74	1725
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	26.0	29.0	21.0	26.0	29.0	134.0	19.0	124.0
Total Split (%)	10.5%	13.0%	14.5%	10.5%	13.0%	14.5%	67.0%	9.5%	62.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0	6.0	6.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.77	0.20	0.48	0.12	0.59	0.80	0.38	0.27	0.55
Control Delay	101.1	83.8	27.6	71.9	88.2	82.3	10.8	5.0	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.1	83.8	27.6	71.9	88.2	82.3	10.8	5.0	7.6
Queue Length 50th (ft)	197	55	119	18	66	217	199	10	130
Queue Length 95th (ft)	280	102	209	45	105	m233	m233	m16	m151
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	208	221	544	211	340	416	3622	334	3153
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.20	0.47	0.08	0.34	0.74	0.38	0.22	0.55

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	42	242	15	82	29	294	1266	33	70	1308	331
Future Volume (veh/h)	152	42	242	15	82	29	294	1266	33	70	1308	331
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	160	44	255	16	86	31	309	1333	35	74	1377	348
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	184	198	324	112	119	41	341	3733	98	340	2665	672
Arrive On Green	0.08	0.11	0.11	0.01	0.05	0.05	0.20	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	2594	892	3456	5116	134	1781	4065	1025
Grp Volume(v), veh/h	160	44	255	16	58	59	309	887	481	74	1152	573
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1710	1728	1702	1846	1781	1702	1686
Q Serve(g_s), s	15.0	4.3	21.2	1.7	6.4	6.9	17.5	0.0	0.0	2.8	0.0	0.0
Cycle Q Clear(g_c), s	15.0	4.3	21.2	1.7	6.4	6.9	17.5	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.52	1.00		0.07	1.00		0.61
Lane Grp Cap(c), veh/h	184	198	324	112	81	78	341	2484	1347	340	2232	1105
V/C Ratio(X)	0.87	0.22	0.79	0.14	0.71	0.76	0.91	0.36	0.36	0.22	0.52	0.52
Avail Cap(c_a), veh/h	184	198	324	219	169	162	397	2484	1347	412	2232	1105
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.38	0.38	0.38	1.00	1.00	1.00
Uniform Delay (d), s/veh	84.3	81.8	75.4	89.1	94.1	94.3	79.4	0.0	0.0	10.4	0.0	0.0
Incr Delay (d2), s/veh	31.8	0.4	11.7	0.2	8.1	10.6	9.5	0.2	0.3	0.1	0.9	1.7
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	2.6	2.1	13.6	0.8	3.2	3.3	7.8	0.1	0.1	1.1	0.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.2	82.3	87.1	89.3	102.2	104.9	88.9	0.2	0.3	10.5	0.9	1.7
LnGrp LOS	F	F	F	F	F	F	F	A	A	B	A	A
Approach Vol, veh/h		459			133			1677			1799	
Approach Delay, s/veh		96.7			101.9			16.5			1.5	
Approach LOS		F			F			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	151.9	8.9	28.2	25.7	137.1	21.0	16.2
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0
Max Green Setting (Gmax), s	13.0	128.0	15.0	19.0	23.0	118.0	15.0	19.0
Max Q Clear Time (g_c+I1), s	4.8	2.0	3.7	23.2	19.5	2.0	17.0	8.9
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.2	6.0	0.0	0.3

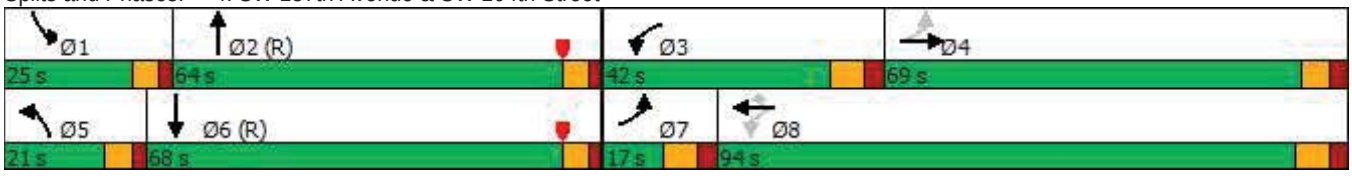
Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	116	790	296	1239	416	217	1111	280	1158
Future Volume (vph)	116	790	296	1239	416	217	1111	280	1158
Lane Group Flow (vph)	118	945	302	1264	424	221	1436	286	1329
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	17.0	69.0	42.0	94.0	94.0	21.0	64.0	25.0	68.0
Total Split (%)	8.5%	34.5%	21.0%	47.0%	47.0%	10.5%	32.0%	12.5%	34.0%
Yellow Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.90	0.55	0.87	0.85	0.53	0.87	0.96	0.89	0.83
Control Delay	95.2	54.3	58.2	58.1	22.1	120.9	82.1	104.3	81.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.2	54.3	58.2	58.1	22.1	120.9	82.1	104.3	81.7
Queue Length 50th (ft)	83	360	230	776	201	151	684	196	565
Queue Length 95th (ft)	#239	435	352	873	314	#230	#790	#284	617
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	131	1708	404	1521	803	257	1494	326	1597
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.55	0.75	0.83	0.53	0.86	0.96	0.88	0.83

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 165 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	790	136	296	1239	416	217	1111	296	280	1158	144
Future Volume (veh/h)	116	790	136	296	1239	416	217	1111	296	280	1158	144
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	118	806	139	302	1264	424	221	1134	302	286	1182	147
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	1439	246	357	1439	642	254	1279	341	316	1549	193
Arrive On Green	0.05	0.33	0.33	0.12	0.40	0.40	0.07	0.32	0.32	0.18	0.67	0.67
Sat Flow, veh/h	1781	4388	751	1781	3554	1585	3456	4013	1069	3456	4600	572
Grp Volume(v), veh/h	118	624	321	302	1264	424	221	962	474	286	875	454
Grp Sat Flow(s),veh/h/ln	1781	1702	1735	1781	1777	1585	1728	1702	1678	1728	1702	1767
Q Serve(g_s), s	8.9	30.2	30.5	22.1	65.7	43.5	12.7	53.7	53.7	16.2	34.5	34.6
Cycle Q Clear(g_c), s	8.9	30.2	30.5	22.1	65.7	43.5	12.7	53.7	53.7	16.2	34.5	34.6
Prop In Lane	1.00		0.43	1.00		1.00	1.00		0.64	1.00		0.32
Lane Grp Cap(c), veh/h	138	1116	569	357	1439	642	254	1085	535	316	1146	595
V/C Ratio(X)	0.85	0.56	0.56	0.85	0.88	0.66	0.87	0.89	0.89	0.90	0.76	0.76
Avail Cap(c_a), veh/h	138	1116	569	443	1528	682	259	1085	535	328	1146	595
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	51.4	55.3	55.4	40.5	55.0	48.4	91.7	64.7	64.7	80.9	27.3	27.3
Incr Delay (d2), s/veh	35.6	0.8	1.6	10.0	6.2	2.6	25.5	10.7	19.2	23.2	4.0	7.6
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	5.4	13.3	13.8	10.8	30.9	17.9	6.6	25.0	25.9	7.8	11.8	12.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	56.1	57.0	50.5	61.2	50.9	117.3	75.4	83.9	104.1	31.4	34.9
LnGrp LOS	F	E	E	D	E	D	F	E	F	F	C	C
Approach Vol, veh/h		1063			1990			1657			1615	
Approach Delay, s/veh		59.8			57.4			83.4			45.2	
Approach LOS		E			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	69.7	32.4	73.6	20.7	73.3	17.0	89.0
Change Period (Y+Rc), s	6.0	6.0	8.0	* 8	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	19.0	58.0	34.0	* 62	15.0	62.0	9.0	86.0
Max Q Clear Time (g_c+I1), s	18.2	55.7	24.1	32.5	14.7	36.6	10.9	67.7
Green Ext Time (p_c), s	0.1	1.2	0.3	10.3	0.0	3.8	0.0	13.3

Intersection Summary	
HCM 6th Ctrl Delay	61.5
HCM 6th LOS	E

Notes

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

FUTURE NO BUILD CONDITIONS

Table 2.1 - 2023 No Build Intersection Capacity Analysis

Movement/Approach	Time	Level of Service[1]							
		SW 137th Avenue & SW 88th Street		SW 137th Avenue & Median Opening		SW 137th Avenue & SW 96th Street		SW 137th Avenue & SW 104th Street	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM	F	91	N/A		E	66.1	D	35.5
	PM	F	112.9			F	117.4	F	90.1
EBT	AM	E	56.1			E	59.4	E	57.6
	PM	E	55.2			F	82.3	E	55.8
EBR	AM	C	26			E	74.1	E	61.1
	PM	C	31.2			F	87.4	E	56.7
EB Approach	AM	E	55.7			E	69.4	E	56.7
	PM	E	58.7			F	97.3	E	59.7
WBL	AM	F	165.2	[2]		E	56.7	F	198.9
	PM	F	92.4			F	89.3	D	51.9
WBT	AM	C	33.9			E	63.6	D	44.7
	PM	E	61.6			F	102.2	E	61.6
WBR	AM	C	22.7			E	64.1	D	41.6
	PM	C	26.1			F	104.9	D	50.2
WB Approach	AM	E	59.3	A	0	E	61.4	E	77.4
	PM	E	61.7	A	0	F	101.9	E	57.8
NBL	AM	F	153.9	[2]		F	85.7	F	109.2
	PM	F	166.9			F	88.7	F	117.4
NBT	AM	F	88.4			C	21.9	F	89.5
	PM	F	117.9			A	0.1	E	79.7
NBR	AM	F	86.3			C	22.1	F	101.8
	PM	E	70.8			A	0.3	F	89.3
NB Approach	AM	F	99.4	A	0	C	27.1	F	94.8
	PM	F	117	A	0	B	16.5	F	87.5
SBL	AM	F	146.2	D	26.2	B	17.5	F	110.1
	PM	F	109.1	C	23.7	B	10.6	F	109.4
SBT	AM	F	88.1	[2]		A	0.8	E	56.4
	PM	F	138			A	0.9	D	54.2
SBR	AM	D	48.7			A	1.6	E	59.1
	PM	E	70.3			A	1.8	E	58.1
SB Approach	AM	F	96.5	A	0.5	A	1.7	E	68.1
	PM	F	117.7	A	0.2	A	1.6	E	65
Overall	AM	E	73.2	A	0.2	C	26.8	E	73.5
	PM	F	81	A	0.1	C	21.8	E	67.7

[1] Delay is average delay per vehicle in seconds

[2] Approach operates under Free-flow conditions

Table 2.2 - 2023 No Build Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)							
		EBL		WBL		NBL		SBL	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
SW 137th Avenue & SW 88th Street	AM	300	140	240	#346	345	m#250	230	#265
	PM		#220		368		#409		240
SW 137th Avenue & Median Opening	AM							105	25
	PM								25
SW 137th Avenue & SW 96th Street	AM	175	#400	210	132	220	96	310	m19
	PM		#284		45		m234		m16
SW 137th Avenue & SW 104th Street	AM	155	142	150	#570	255	#140	350	#318
	PM		#252		369		#230		#287

 # 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Kendall Baptist
1: SW 137th Avenue & SW 88th Street

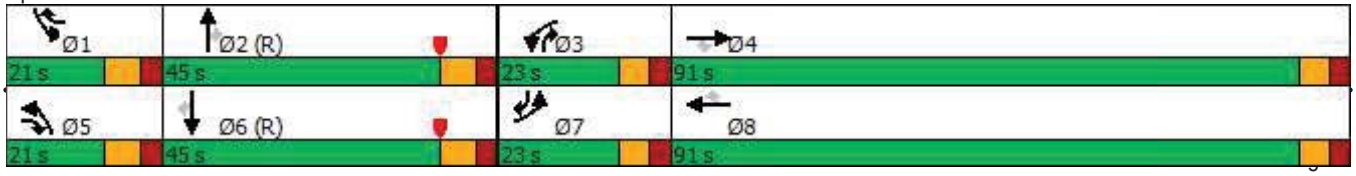
2023 No Build Conditions
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1965	207	326	1082	193	248	691	444	245	791	116
Future Volume (vph)	157	1965	207	326	1082	193	248	691	444	245	791	116
Lane Group Flow (vph)	164	2047	216	340	1127	201	258	720	463	255	824	121
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	23.0	91.0	21.0	23.0	91.0	21.0	21.0	45.0	23.0	21.0	45.0	23.0
Total Split (%)	12.8%	50.6%	11.7%	12.8%	50.6%	11.7%	11.7%	25.0%	12.8%	11.7%	25.0%	12.8%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.65	0.90	0.23	1.11	0.48	0.21	0.84	0.97	0.79	0.84	1.12	0.21
Control Delay	93.3	52.4	12.6	156.4	34.1	11.4	101.7	105.5	65.1	102.0	132.6	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	52.4	12.6	156.4	34.1	11.4	101.7	105.5	65.1	102.0	132.6	18.7
Queue Length 50th (ft)	98	804	77	~236	330	65	160	469	415	156	~592	40
Queue Length 95th (ft)	140	847	127	#346	374	115	m#250	m#555	m594	#265	#731	93
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	305	2373	941	305	2380	963	306	740	589	303	737	588
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.86	0.23	1.11	0.47	0.21	0.84	0.97	0.79	0.84	1.12	0.21

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 118 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	1965	207	326	1082	193	248	691	444	245	791	116
Future Volume (veh/h)	157	1965	207	326	1082	193	248	691	444	245	791	116
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	164	2047	216	340	1127	201	258	720	462	255	824	121
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	2190	794	307	2342	842	250	865	527	250	865	479
Arrive On Green	0.06	0.43	0.43	0.09	0.46	0.46	0.02	0.08	0.08	0.07	0.24	0.24
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	164	2047	216	340	1127	201	258	720	462	255	824	121
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	8.4	68.8	14.2	16.0	27.6	12.3	13.0	35.9	43.8	13.0	41.1	10.4
Cycle Q Clear(g_c), s	8.4	68.8	14.2	16.0	27.6	12.3	13.0	35.9	43.8	13.0	41.1	10.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	2190	794	307	2342	842	250	865	527	250	865	479
V/C Ratio(X)	0.80	0.93	0.27	1.11	0.48	0.24	1.03	0.83	0.88	1.02	0.95	0.25
Avail Cap(c_a), veh/h	307	2383	854	307	2383	854	250	865	527	250	865	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.7	49.0	25.9	82.0	33.8	22.7	87.9	79.2	67.9	83.5	67.1	47.4
Incr Delay (d2), s/veh	7.3	7.0	0.1	83.2	0.1	0.1	66.0	9.2	18.3	62.7	21.1	1.3
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	4.0	30.7	5.5	10.7	11.7	4.7	8.4	18.5	22.9	8.0	21.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	56.1	26.0	165.2	33.9	22.7	153.9	88.4	86.3	146.2	88.1	48.7
LnGrp LOS	F	E	C	F	C	C	F	F	F	F	F	D
Approach Vol, veh/h		2427			1668			1440			1200	
Approach Delay, s/veh		55.7			59.3			99.4			96.5	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	51.8	23.0	84.2	21.0	51.8	17.6	89.6
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	13.0	37.0	16.0	84.0	13.0	37.0	16.0	84.0
Max Q Clear Time (g_c+I1), s	15.0	45.8	18.0	70.8	15.0	43.1	10.4	29.6
Green Ext Time (p_c), s	0.0	0.0	0.0	6.4	0.0	0.0	0.2	3.7

Intersection Summary	
HCM 6th Ctrl Delay	73.2
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1517	0	28	1376
Future Vol, veh/h	0	0	1517	0	28	1376
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1597	0	29	1448

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	799	0	0	1597	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	282	-	-	199	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	282	-	-	199	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	199	-
HCM Lane V/C Ratio	-	-	-	0.148	-
HCM Control Delay (s)	-	-	0	26.2	-
HCM Lane LOS	-	-	A	D	-
HCM 95th %tile Q(veh)	-	-	-	0.5	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	224	72	309	75	76	108	1187	49	1183
Future Volume (vph)	224	72	309	75	76	108	1187	49	1183
Lane Group Flow (vph)	233	75	322	78	153	113	1291	51	1347
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	48.0	19.0	21.0	48.0	19.0	92.0	19.0	92.0
Total Split (%)	11.7%	26.7%	10.6%	11.7%	26.7%	10.6%	51.1%	10.6%	51.1%
Yellow Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	6.0	8.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	1.21	0.54	0.77	0.43	0.56	0.37	0.37	0.18	0.43
Control Delay	190.1	94.4	53.1	71.1	49.1	79.1	12.3	10.4	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	190.1	94.4	53.1	71.1	49.1	79.1	12.3	10.4	17.2
Queue Length 50th (ft)	~272	88	234	81	48	65	221	16	182
Queue Length 95th (ft)	#400	146	329	132	87	96	285	m19	m182
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	192	424	430	202	804	330	3511	357	3150
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.18	0.75	0.39	0.19	0.34	0.37	0.14	0.43

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 75
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	72	309	75	76	71	108	1187	53	49	1183	110
Future Volume (veh/h)	224	72	309	75	76	71	108	1187	53	49	1183	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	233	75	322	78	79	74	112	1236	55	51	1232	115
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	385	395	292	328	276	150	2871	128	271	2638	246
Arrive On Green	0.07	0.21	0.21	0.05	0.18	0.18	0.04	0.57	0.57	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1831	1540	3456	5011	223	1781	4751	443
Grp Volume(v), veh/h	233	75	322	78	76	77	112	840	451	51	883	464
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1593	1728	1702	1830	1781	1702	1791
Q Serve(g_s), s	13.0	6.0	34.5	6.4	6.6	7.5	5.8	25.2	25.2	2.2	0.0	0.0
Cycle Q Clear(g_c), s	13.0	6.0	34.5	6.4	6.6	7.5	5.8	25.2	25.2	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.97	1.00		0.12	1.00		0.25
Lane Grp Cap(c), veh/h	339	385	395	292	318	285	150	1950	1049	271	1890	994
V/C Ratio(X)	0.69	0.20	0.82	0.27	0.24	0.27	0.75	0.43	0.43	0.19	0.47	0.47
Avail Cap(c_a), veh/h	339	426	430	339	405	363	250	1950	1049	354	1890	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.22	0.22	0.22	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.2	59.2	63.7	56.5	63.4	63.7	85.1	21.8	21.8	17.3	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.2	10.4	0.2	0.3	0.4	0.6	0.2	0.3	0.1	0.8	1.6
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	4.1	2.9	15.1	2.9	3.1	3.1	2.6	10.3	11.1	0.9	0.2	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.1	59.4	74.1	56.7	63.6	64.1	85.7	21.9	22.1	17.5	0.8	1.6
LnGrp LOS	E	E	E	E	E	E	F	C	C	B	A	A
Approach Vol, veh/h		630			231			1403			1398	
Approach Delay, s/veh		69.4			61.4			27.1			1.7	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	109.1	16.2	44.0	13.8	105.9	21.0	39.3
Change Period (Y+Rc), s	6.0	6.0	8.0	7.0	6.0	6.0	8.0	7.0
Max Green Setting (Gmax), s	13.0	86.0	13.0	41.0	13.0	86.0	13.0	41.0
Max Q Clear Time (g_c+I1), s	4.2	27.2	8.4	36.5	7.8	2.0	15.0	9.5
Green Ext Time (p_c), s	0.0	3.7	0.0	0.5	0.1	4.0	0.0	0.7

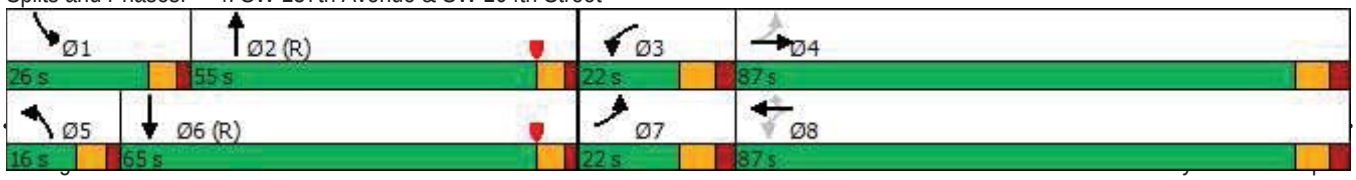
Intersection Summary	
HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	147	1383	243	677	208	131	1047	326	1190
Future Volume (vph)	147	1383	243	677	208	131	1047	326	1190
Lane Group Flow (vph)	152	1607	251	698	214	135	1460	336	1314
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	22.0	87.0	22.0	87.0	87.0	16.0	55.0	26.0	65.0
Total Split (%)	11.6%	45.8%	11.6%	45.8%	45.8%	8.4%	28.9%	13.7%	34.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.46	0.79	1.45	0.48	0.28	0.73	1.09	0.92	0.81
Control Delay	28.3	52.2	270.4	41.8	5.1	110.8	114.2	112.3	64.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	52.2	270.4	41.8	5.1	110.8	114.2	112.3	64.4
Queue Length 50th (ft)	96	627	~368	329	4	87	~755	218	562
Queue Length 95th (ft)	142	684	#570	395	61	#140	#851	#318	624
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	350	2086	173	1480	783	185	1335	367	1614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.77	1.45	0.47	0.27	0.73	1.09	0.92	0.81

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 129 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	1383	176	243	677	208	131	1047	370	326	1190	84
Future Volume (veh/h)	147	1383	176	243	677	208	131	1047	370	326	1190	84
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	152	1426	181	251	698	214	135	1079	381	336	1227	87
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	1730	219	199	1378	615	170	1104	390	364	1716	122
Arrive On Green	0.06	0.38	0.38	0.07	0.39	0.39	0.05	0.30	0.30	0.11	0.35	0.35
Sat Flow, veh/h	1781	4588	582	1781	3554	1585	3456	3723	1315	3456	4867	345
Grp Volume(v), veh/h	152	1058	549	251	698	214	135	987	473	336	858	456
Grp Sat Flow(s),veh/h/ln	1781	1702	1766	1781	1777	1585	1728	1702	1634	1728	1702	1808
Q Serve(g_s), s	9.9	53.4	53.4	14.0	28.4	18.2	7.3	54.5	54.5	18.3	41.5	41.5
Cycle Q Clear(g_c), s	9.9	53.4	53.4	14.0	28.4	18.2	7.3	54.5	54.5	18.3	41.5	41.5
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.80	1.00		0.19
Lane Grp Cap(c), veh/h	296	1284	666	199	1378	615	170	1010	485	364	1200	638
V/C Ratio(X)	0.51	0.82	0.82	1.26	0.51	0.35	0.79	0.98	0.98	0.92	0.71	0.72
Avail Cap(c_a), veh/h	315	1415	734	199	1478	659	182	1010	485	364	1200	638
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	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	35.0	53.5	53.5	48.5	44.3	41.2	89.4	66.2	66.2	84.2	53.2	53.2
Incr Delay (d2), s/veh	0.5	4.1	7.6	150.4	0.4	0.5	19.9	23.3	35.6	25.9	3.2	5.8
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	4.5	23.8	25.3	14.6	12.9	7.4	3.8	27.1	27.6	9.6	18.5	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	57.6	61.1	198.9	44.7	41.6	109.2	89.5	101.8	110.1	56.4	59.1
LnGrp LOS	D	E	E	F	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1759			1163			1595			1650	
Approach Delay, s/veh		56.7			77.4			94.8			68.1	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	62.4	22.0	79.6	15.4	73.0	20.0	81.7
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	20.0	49.0	14.0	79.0	10.0	59.0	14.0	79.0
Max Q Clear Time (g_c+I1), s	20.3	56.5	16.0	55.4	9.3	43.5	11.9	30.4
Green Ext Time (p_c), s	0.0	0.0	0.0	16.2	0.0	3.4	0.0	10.1

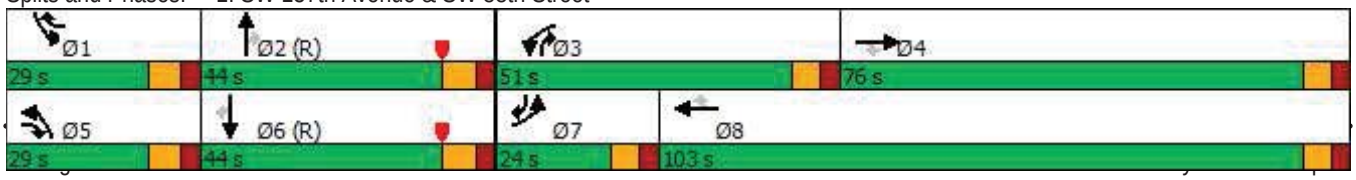
Intersection Summary	
HCM 6th Ctrl Delay	73.5
HCM 6th LOS	E

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	1476	258	471	2238	375	384	732	427	268	759	275
Future Volume (vph)	226	1476	258	471	2238	375	384	732	427	268	759	275
Lane Group Flow (vph)	231	1506	263	481	2284	383	392	747	436	273	774	281
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	24.0	76.0	29.0	51.0	103.0	29.0	29.0	44.0	51.0	29.0	44.0	24.0
Total Split (%)	12.0%	38.0%	14.5%	25.5%	51.5%	14.5%	14.5%	22.0%	25.5%	14.5%	22.0%	12.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.83	0.77	0.30	0.78	0.93	0.38	1.09	1.12	0.64	0.82	1.22	0.51
Control Delay	113.7	57.9	17.3	86.8	56.3	16.8	143.6	132.0	26.1	108.5	174.9	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.7	57.9	17.3	86.8	56.3	16.8	143.6	132.0	26.1	108.5	174.9	38.8
Queue Length 50th (ft)	157	636	113	316	1034	201	~291	~617	368	184	~652	193
Queue Length 95th (ft)	#220	741	195	368	1094	274	#409	#760	438	240	#791	298
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	291	1954	879	755	2458	1011	360	666	745	360	637	555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.77	0.30	0.64	0.93	0.38	1.09	1.12	0.59	0.76	1.22	0.51

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 107 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	1476	258	471	2238	375	384	732	427	268	759	275
Future Volume (veh/h)	226	1476	258	471	2238	375	384	732	427	268	759	275
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	231	1506	263	481	2284	383	392	747	436	273	774	281
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	1969	778	546	2385	882	363	771	594	309	715	441
Arrive On Green	0.08	0.39	0.39	0.16	0.47	0.47	0.03	0.07	0.07	0.09	0.20	0.20
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	231	1506	263	481	2284	383	392	747	436	273	774	281
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.2	51.4	20.3	27.2	86.3	28.3	21.0	41.9	43.4	15.6	40.3	31.1
Cycle Q Clear(g_c), s	13.2	51.4	20.3	27.2	86.3	28.3	21.0	41.9	43.4	15.6	40.3	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265	1969	778	546	2385	882	363	771	594	309	715	441
V/C Ratio(X)	0.87	0.76	0.34	0.88	0.96	0.43	1.08	0.97	0.73	0.88	1.08	0.64
Avail Cap(c_a), veh/h	294	1969	778	760	2451	902	363	771	594	363	715	441
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.4	53.5	31.1	82.3	51.4	26.0	96.5	92.2	62.9	90.0	79.9	63.4
Incr Delay (d2), s/veh	21.5	1.7	0.1	10.1	9.9	0.1	70.4	25.7	7.8	19.1	58.1	6.9
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	6.8	22.5	8.0	13.0	39.0	11.0	13.4	23.1	20.6	7.9	24.3	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.9	55.2	31.2	92.4	61.2	26.1	166.9	117.9	70.8	109.1	138.0	70.3
LnGrp LOS	F	E	C	F	E	C	F	F	E	F	F	E
Approach Vol, veh/h		2000			3148			1575			1328	
Approach Delay, s/veh		58.7			61.7			117.0			117.7	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	51.4	38.6	84.1	29.0	48.3	22.3	100.4
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	21.0	36.0	44.0	69.0	21.0	36.0	17.0	96.0
Max Q Clear Time (g_c+I1), s	17.6	45.4	29.2	53.4	23.0	42.3	15.2	88.3
Green Ext Time (p_c), s	0.2	0.0	2.4	4.7	0.0	0.0	0.1	5.1

Intersection Summary	
HCM 6th Ctrl Delay	81.0
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1531	0	15	1733
Future Vol, veh/h	0	0	1531	0	15	1733
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1562	0	15	1768

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	781	0	0	1562	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	290	-	-	208	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	290	-	-	208	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.2
HCM LOS	A		

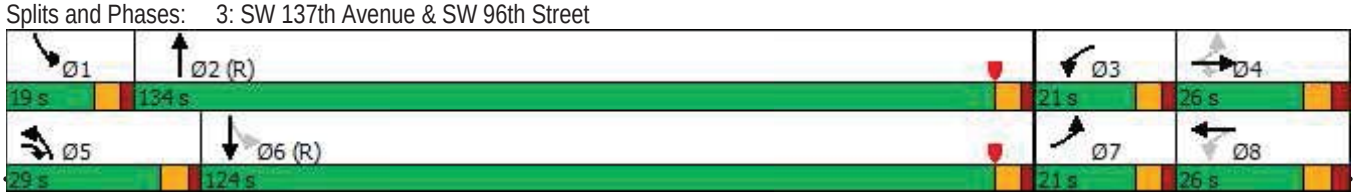
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	208	-
HCM Lane V/C Ratio	-	-	-	0.074	-
HCM Control Delay (s)	-	-	0	23.7	-
HCM Lane LOS	-	-	A	C	-
HCM 95th %tile Q(veh)	-	-	-	0.2	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	153	42	244	15	82	295	1272	71	1314
Future Volume (vph)	153	42	244	15	82	295	1272	71	1314
Lane Group Flow (vph)	161	44	257	16	117	311	1374	75	1734
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	26.0	29.0	21.0	26.0	29.0	134.0	19.0	124.0
Total Split (%)	10.5%	13.0%	14.5%	10.5%	13.0%	14.5%	67.0%	9.5%	62.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0	6.0	6.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.77	0.20	0.48	0.12	0.59	0.80	0.38	0.27	0.55
Control Delay	101.6	83.8	28.1	71.9	88.2	81.4	11.0	5.1	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.6	83.8	28.1	71.9	88.2	81.4	11.0	5.1	7.7
Queue Length 50th (ft)	199	55	122	18	66	218	206	11	131
Queue Length 95th (ft)	#284	102	214	45	105	m230	m231	m16	m152
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	208	221	544	211	340	417	3621	332	3148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.20	0.47	0.08	0.34	0.75	0.38	0.23	0.55

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	42	244	15	82	29	295	1272	33	71	1314	333
Future Volume (veh/h)	153	42	244	15	82	29	295	1272	33	71	1314	333
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	161	44	257	16	86	31	311	1339	35	75	1383	351
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	184	198	325	112	119	41	342	3733	98	339	2661	673
Arrive On Green	0.08	0.11	0.11	0.01	0.05	0.05	0.20	1.00	1.00	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	2594	892	3456	5117	134	1781	4062	1028
Grp Volume(v), veh/h	161	44	257	16	58	59	311	891	483	75	1158	576
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1710	1728	1702	1846	1781	1702	1685
Q Serve(g_s), s	15.0	4.3	21.2	1.7	6.4	6.9	17.6	0.0	0.0	2.9	0.0	0.0
Cycle Q Clear(g_c), s	15.0	4.3	21.2	1.7	6.4	6.9	17.6	0.0	0.0	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.52	1.00		0.07	1.00		0.61
Lane Grp Cap(c), veh/h	184	198	325	112	81	78	342	2484	1347	339	2230	1104
V/C Ratio(X)	0.87	0.22	0.79	0.14	0.71	0.76	0.91	0.36	0.36	0.22	0.52	0.52
Avail Cap(c_a), veh/h	184	198	325	219	169	162	397	2484	1347	410	2230	1104
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.35	0.35	0.35	1.00	1.00	1.00
Uniform Delay (d), s/veh	84.4	81.8	75.4	89.1	94.1	94.3	79.3	0.0	0.0	10.4	0.0	0.0
Incr Delay (d2), s/veh	33.0	0.4	12.0	0.2	8.1	10.6	9.0	0.1	0.3	0.1	0.9	1.8
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	2.7	2.1	13.7	0.8	3.2	3.3	7.8	0.0	0.1	1.1	0.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	117.4	82.3	87.4	89.3	102.2	104.9	88.3	0.1	0.3	10.6	0.9	1.8
LnGrp LOS	F	F	F	F	F	F	F	A	A	B	A	A
Approach Vol, veh/h		462			133			1685			1809	
Approach Delay, s/veh		97.3			101.9			16.4			1.6	
Approach LOS		F			F			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	151.9	8.9	28.2	25.8	137.0	21.0	16.2
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0
Max Green Setting (Gmax), s	13.0	128.0	15.0	19.0	23.0	118.0	15.0	19.0
Max Q Clear Time (g_c+I1), s	4.9	2.0	3.7	23.2	19.6	2.0	17.0	8.9
Green Ext Time (p_c), s	0.0	4.0	0.0	0.0	0.2	6.1	0.0	0.3

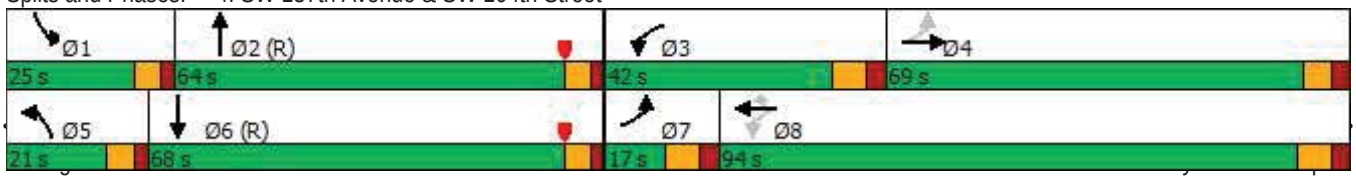
Intersection Summary	
HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	116	823	298	1269	418	218	1129	281	1164
Future Volume (vph)	116	823	298	1269	418	218	1129	281	1164
Lane Group Flow (vph)	118	980	304	1295	427	222	1456	287	1336
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	17.0	69.0	42.0	94.0	94.0	21.0	64.0	25.0	68.0
Total Split (%)	8.5%	34.5%	21.0%	47.0%	47.0%	10.5%	32.0%	12.5%	34.0%
Yellow Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.94	0.58	0.88	0.86	0.54	0.87	0.98	0.89	0.84
Control Delay	108.4	55.6	61.5	59.3	22.4	121.2	85.8	104.8	82.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	108.4	55.6	61.5	59.3	22.4	121.2	85.8	104.8	82.4
Queue Length 50th (ft)	92	383	244	806	206	152	~699	196	568
Queue Length 95th (ft)	#252	454	369	905	319	#230	#809	#287	622
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	126	1696	397	1521	803	257	1486	326	1587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.58	0.77	0.85	0.53	0.86	0.98	0.88	0.84

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 165 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 130
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	823	137	298	1269	418	218	1129	298	281	1164	145
Future Volume (veh/h)	116	823	137	298	1269	418	218	1129	298	281	1164	145
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	118	840	140	304	1295	427	222	1152	304	287	1188	148
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1470	244	354	1457	650	255	1258	332	319	1524	190
Arrive On Green	0.05	0.33	0.33	0.12	0.41	0.41	0.07	0.31	0.31	0.12	0.44	0.44
Sat Flow, veh/h	1781	4412	731	1781	3554	1585	3456	4022	1061	3456	4599	573
Grp Volume(v), veh/h	118	647	333	304	1295	427	222	975	481	287	879	457
Grp Sat Flow(s),veh/h/ln	1781	1702	1739	1781	1777	1585	1728	1702	1679	1728	1702	1767
Q Serve(g_s), s	8.8	31.3	31.6	22.0	67.7	43.5	12.7	55.2	55.2	16.4	44.0	44.0
Cycle Q Clear(g_c), s	8.8	31.3	31.6	22.0	67.7	43.5	12.7	55.2	55.2	16.4	44.0	44.0
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.63	1.00		0.32
Lane Grp Cap(c), veh/h	136	1134	579	354	1457	650	255	1065	525	319	1128	586
V/C Ratio(X)	0.87	0.57	0.57	0.86	0.89	0.66	0.87	0.92	0.92	0.90	0.78	0.78
Avail Cap(c_a), veh/h	136	1134	579	439	1528	682	259	1065	525	328	1128	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	51.3	54.9	55.0	40.5	54.8	47.6	91.7	66.2	66.2	86.8	49.7	49.7
Incr Delay (d2), s/veh	38.8	0.9	1.7	11.5	6.9	2.5	25.7	13.5	23.1	22.6	4.5	8.3
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	5.5	13.8	14.3	10.9	31.9	17.9	6.7	26.1	27.2	8.2	18.9	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.1	55.8	56.7	51.9	61.6	50.2	117.4	79.7	89.3	109.4	54.2	58.1
LnGrp LOS	F	E	E	D	E	D	F	E	F	F	D	E
Approach Vol, veh/h		1098			2026			1678			1623	
Approach Delay, s/veh		59.7			57.8			87.5			65.0	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.5	68.6	32.4	74.6	20.7	72.3	17.0	90.0
Change Period (Y+Rc), s	6.0	6.0	8.0	* 8	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	19.0	58.0	34.0	* 62	15.0	62.0	9.0	86.0
Max Q Clear Time (g_c+I1), s	18.4	57.2	24.0	33.6	14.7	46.0	10.8	69.7
Green Ext Time (p_c), s	0.1	0.5	0.3	10.6	0.0	3.6	0.0	12.3

Intersection Summary	
HCM 6th Ctrl Delay	67.7
HCM 6th LOS	E

Notes

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

FUTURE BUILD CONDITIONS

Table 5.1 - 2023 Build Intersection Capacity Analysis Summary

Movement/Approach	Time	Level of Service[1]													
		SW 137th Avenue & SW 88th Street		SW 137th Avenue & SW 88th Street[3]		SW 137th Avenue & Median Opening		SW 137th Avenue & SW 96th Street		SW 137th Avenue & SW 96th Street[3]		SW 137th Avenue & SW 104th Street		SW 137th Avenue & SW 104th Street[3]	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
EBL	AM	F	91	F	95.2	N/A		E	72	E	57.6	D	36.1	D	36.8
	PM	F	112.9	F	96.7			F	154.6	E	78.6	F	128.1	E	57.7
EBT	AM	E	56	E	67			E	59.5	E	59	E	57.6	E	58.8
	PM	E	58.1	E	63.1			F	82.1	E	73.3	E	55.7	E	58.3
EBR	AM	C	26.2	C	27.6			E	74.1	E	66	E	61.1	E	62.7
	PM	C	32.8	C	34.8			F	85.1	E	66.9	E	56.7	E	59.5
EB Approach	AM	E	55.6	E	65.2			E	71.5	E	61.9	E	56.6	E	57.9
	PM	E	60.8	E	63.1			F	110.8	E	72	E	64.7	E	58.6
WBL	AM	F	214.8	F	139.7	[2]		E	56.7	E	65.3	F	198.9	F	204.9
	PM	F	92.6	F	88			F	88.5	F	85.3	D	51.9	D	46.2
WBT	AM	C	33.9	C	34.1			E	63.8	E	73.6	D	45.4	D	46.2
	PM	E	61.6	F	74.3			F	101.6	F	93.3	E	61.6	E	74.7
WBR	AM	C	22.7	C	21.8			E	64.2	E	74.3	D	42.8	D	43.5
	PM	C	25.4	C	28.6			F	104.6	F	94.1	D	51.1	E	57.5
WB Approach	AM	E	72.9	E	56.2	D	26.8	E	61.6	E	71.1	E	77.6	E	79.5
	PM	E	62.1	E	70.8	D	33.1	F	101.5	F	92.8	E	57.9	E	66.7
NBL	AM	F	165.8	F	141.7	[2]		F	85.7	F	85.7	F	109.2	F	96.2
	PM	F	181	F	162.6			F	87.1	F	82.4	F	117.4	F	104.4
NBT	AM	F	89.4	F	93.1			C	22.2	C	22.8	F	91.6	F	87.6
	PM	F	136.1	F	108.9			A	0.1	A	0.2	E	82.7	E	77.4
NBR	AM	F	98.3	F	92			C	22.3	C	23	F	104	F	99.6
	PM	E	77.7	E	69.9			A	0.2	A	0.3	F	92.9	F	86.5
NB Approach	AM	F	106	F	101.4	A	0	C	27.2	C	27.7	F	96.8	F	91.9
	PM	F	129.5	F	110.3	A	0	B	15.7	B	14.9	F	90.2	F	83.6
SBL	AM	F	146.2	F	107.6	[2]		B	17.7	B	18.2	F	117	F	117
	PM	F	111.8	F	131.1			B	10.7	B	13.9	F	114.8	F	102.8
SBT	AM	F	90.9	F	94.3			A	0.9	A	0.9	E	57	E	56.3
	PM	F	157.1	F	130.5			A	1	A	1.3	E	55.4	C	31
SBR	AM	D	48.7	D	49.2			A	1.7	A	1.8	E	59.8	E	59
	PM	E	70.9	E	67.2			A	2	A	2.6	E	59.6	D	34.7
SB Approach	AM	F	98.3	F	92.6	A	2.6	A	1.8	A	1.9	E	70.1	E	69.6
	PM	F	129.7	F	117.8	A	1.6	A	1.8	A	2.4	E	67.4	D	45.1
Overall	AM	E	78.5	E	75.7	A	2.2	C	27.2	C	26.4	E	74.6	E	73.9
	PM	F	86.5	F	84.6	A	2.3	C	23.4	B	18.5	E	69.9	E	64.1

[1] Delay is average delay per vehicle in seconds
[2] Approach operates under Free-flow conditions
[3] Optimized signal timing without changing cycle length

Table 5.2 - 2023 Build Intersection Queue Lengths Summary

Location	Time	95th Percentile Queue Lenghts (ft)							
		EBL		WBL		NBL		SBL	
		Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile	Storage (ft)	95th %tile
SW 137th Avenue & SW 88th Street	AM	300	140	240	#403	345	m#258	230	#265
	AM[3]		142		#368		#273		#241
	PM		#220		403		m#428		#277
	PM[3]		203		390		#423		#313
SW 137th Avenue & Median Opening	AM							105	65
	PM								53
SW 137th Avenue & SW 96th Street	AM	175	#464	210	132	220	96	310	m21
	AM[3]		328		110		104		m27
	PM		#367		45		m225		m24
	PM[3]		296		41		m230		m26
SW 137th Avenue & SW 104th Street	AM	155	154	150	#570	255	#140	350	#337
	AM[3]		158		#579		124		#337
	PM		#304		369		#230		#315
	PM[3]		199		331		198		#303

 # 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.
[3] Optimized signal timing without changing cycle length

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

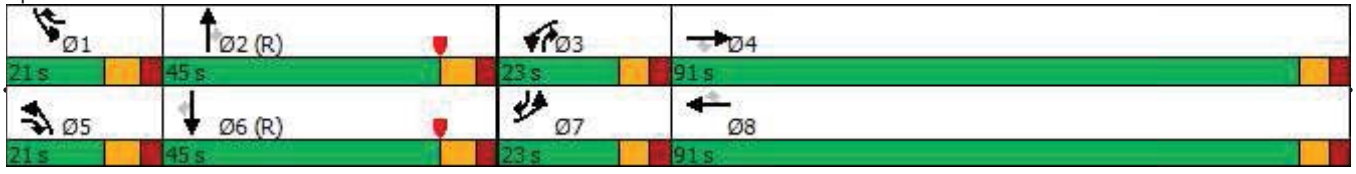
Kendall Baptist
1: SW 137th Avenue & SW 88th Street
AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1965	217	366	1082	193	257	702	480	245	803	116
Future Volume (vph)	157	1965	217	366	1082	193	257	702	480	245	803	116
Lane Group Flow (vph)	164	2047	226	381	1127	201	268	731	500	255	836	121
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	23.0	91.0	21.0	23.0	91.0	21.0	21.0	45.0	23.0	21.0	45.0	23.0
Total Split (%)	12.8%	50.6%	11.7%	12.8%	50.6%	11.7%	11.7%	25.0%	12.8%	11.7%	25.0%	12.8%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.65	0.90	0.24	1.25	0.48	0.21	0.85	0.99	0.85	0.84	1.15	0.22
Control Delay	93.3	52.4	12.9	198.1	34.1	11.4	101.5	107.1	69.9	102.0	143.4	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.3	52.4	12.9	198.1	34.1	11.4	101.5	107.1	69.9	102.0	143.4	18.7
Queue Length 50th (ft)	98	804	83	~288	330	65	166	~482	472	156	~607	40
Queue Length 95th (ft)	140	847	135	#403	374	115	m#258	m#559	m639	#265	#746	93
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	305	2373	945	305	2380	963	315	740	589	303	727	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.86	0.24	1.25	0.47	0.21	0.85	0.99	0.85	0.84	1.15	0.21

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 118 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: SW 137th Avenue & SW 88th Street



Kendall Baptist
1: SW 137th Avenue & SW 88th Street
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	1965	217	366	1082	193	257	702	480	245	803	116
Future Volume (veh/h)	157	1965	217	366	1082	193	257	702	480	245	803	116
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	164	2047	226	381	1127	201	268	731	500	255	836	121
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	204	2190	794	307	2343	842	250	865	527	250	865	479
Arrive On Green	0.06	0.43	0.43	0.09	0.46	0.46	0.02	0.08	0.08	0.07	0.24	0.24
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	164	2047	226	381	1127	201	268	731	500	255	836	121
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	8.4	68.8	14.9	16.0	27.6	12.3	13.0	36.5	43.8	13.0	41.9	10.4
Cycle Q Clear(g_c), s	8.4	68.8	14.9	16.0	27.6	12.3	13.0	36.5	43.8	13.0	41.9	10.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	204	2190	794	307	2343	842	250	865	527	250	865	479
V/C Ratio(X)	0.80	0.93	0.28	1.24	0.48	0.24	1.07	0.85	0.95	1.02	0.97	0.25
Avail Cap(c_a), veh/h	307	2383	854	307	2383	854	250	865	527	250	865	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.7	49.0	26.1	82.0	33.8	22.7	87.9	79.4	69.9	83.5	67.4	47.4
Incr Delay (d2), s/veh	7.3	7.0	0.1	132.8	0.1	0.1	77.9	9.9	28.5	62.7	23.5	1.3
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	4.0	30.7	5.8	12.9	11.7	4.7	8.8	18.9	26.3	8.0	21.9	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.0	56.0	26.2	214.8	33.9	22.7	165.8	89.4	98.3	146.2	90.9	48.7
LnGrp LOS	F	E	C	F	C	C	F	F	F	F	F	D
Approach Vol, veh/h		2437			1709			1499			1212	
Approach Delay, s/veh		55.6			72.9			106.0			98.3	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	51.8	23.0	84.2	21.0	51.8	17.6	89.6
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	13.0	37.0	16.0	84.0	13.0	37.0	16.0	84.0
Max Q Clear Time (g_c+I1), s	15.0	45.8	18.0	70.8	15.0	43.9	10.4	29.6
Green Ext Time (p_c), s	0.0	0.0	0.0	6.4	0.0	0.0	0.2	3.7

Intersection Summary	
HCM 6th Ctrl Delay	78.5
HCM 6th LOS	E

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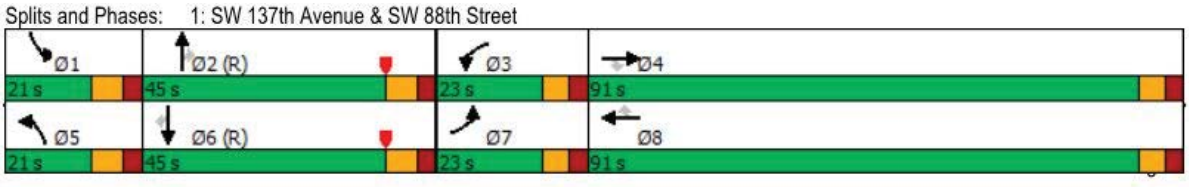
Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

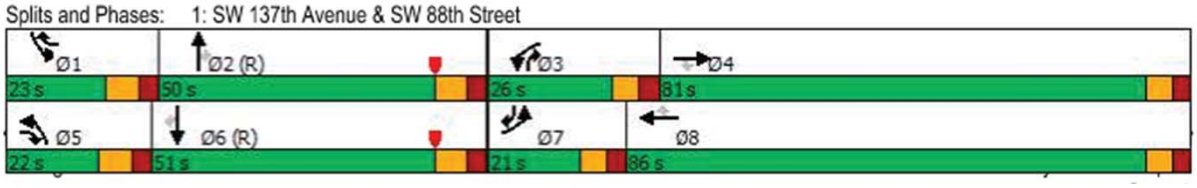
SW 137th Avenue & SW 88th Street

Morning Peak Hour

Existing Timing



Optimized Timing

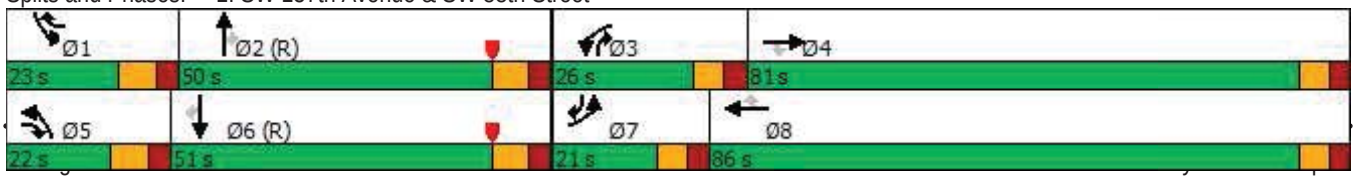


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	157	1965	217	366	1082	193	257	702	480	245	803	116
Future Volume (vph)	157	1965	217	366	1082	193	257	702	480	245	803	116
Lane Group Flow (vph)	164	2047	226	381	1127	201	268	731	500	255	836	121
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	21.0	81.0	22.0	26.0	86.0	23.0	22.0	50.0	26.0	23.0	51.0	21.0
Total Split (%)	11.7%	45.0%	12.2%	14.4%	47.8%	12.8%	12.2%	27.8%	14.4%	12.8%	28.3%	11.7%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.68	0.98	0.26	1.05	0.50	0.22	1.00	0.88	0.77	0.90	0.99	0.20
Control Delay	96.3	67.2	16.1	135.6	36.5	12.6	128.8	86.4	67.2	112.8	95.5	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.3	67.2	16.1	135.6	36.5	12.6	128.8	86.4	67.2	112.8	95.5	17.2
Queue Length 50th (ft)	98	871	94	~252	347	70	~169	473	540	156	524	38
Queue Length 95th (ft)	142	#982	152	#368	395	121	#273	#557	654	#241	#671	90
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	267	2090	869	362	2270	931	267	827	652	286	845	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.98	0.26	1.05	0.50	0.22	1.00	0.88	0.77	0.89	0.99	0.20

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 118 (66%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	157	1965	217	366	1082	193	257	702	480	245	803	116
Future Volume (veh/h)	157	1965	217	366	1082	193	257	702	480	245	803	116
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	164	2047	226	381	1127	201	268	731	500	255	836	121
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	203	2093	773	365	2333	856	269	833	539	288	853	473
Arrive On Green	0.06	0.41	0.41	0.11	0.46	0.46	0.03	0.08	0.08	0.08	0.24	0.24
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	164	2047	226	381	1127	201	268	731	500	255	836	121
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	8.4	71.1	15.3	19.0	27.7	12.0	14.0	36.6	42.2	13.1	42.1	10.4
Cycle Q Clear(g_c), s	8.4	71.1	15.3	19.0	27.7	12.0	14.0	36.6	42.2	13.1	42.1	10.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	2093	773	365	2333	856	269	833	539	288	853	473
V/C Ratio(X)	0.81	0.98	0.29	1.04	0.48	0.23	1.00	0.88	0.93	0.89	0.98	0.26
Avail Cap(c_a), veh/h	269	2099	775	365	2333	856	269	833	539	288	853	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	83.7	52.3	27.5	80.5	34.1	21.8	87.7	80.5	67.5	81.7	68.0	47.9
Incr Delay (d2), s/veh	11.4	14.7	0.1	59.2	0.1	0.1	54.0	12.6	24.5	26.0	26.4	1.3
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	4.1	33.2	6.0	11.5	11.7	4.6	8.6	19.2	25.3	6.9	22.3	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	95.2	67.0	27.6	139.7	34.1	21.8	141.7	93.1	92.0	107.6	94.3	49.2
LnGrp LOS	F	E	C	F	C	C	F	F	F	F	F	D
Approach Vol, veh/h		2437			1709			1499			1212	
Approach Delay, s/veh		65.2			56.2			101.4			92.6	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	50.2	26.0	80.8	22.0	51.2	17.6	89.2
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	15.0	42.0	19.0	74.0	14.0	43.0	14.0	79.0
Max Q Clear Time (g_c+I1), s	15.1	44.2	21.0	73.1	16.0	44.1	10.4	29.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.0	0.0	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	75.7
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	2.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	111	1527	57	90	1437
Future Vol, veh/h	0	111	1527	57	90	1437
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	117	1607	60	95	1513

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	804	0	0	1667	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	280	-	-	184	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	280	-	-	184	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.8	0	2.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	280	184	-
HCM Lane V/C Ratio	-	-	0.417	0.515	-
HCM Control Delay (s)	-	-	26.8	43.7	-
HCM Lane LOS	-	-	D	E	-
HCM 95th %tile Q(veh)	-	-	2	2.6	-

Kendall Baptist
3: SW 137th Avenue & SW 96th Street

AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	246	75	309	75	76	108	1227	54	1219
Future Volume (vph)	246	75	309	75	76	108	1227	54	1219
Lane Group Flow (vph)	256	78	322	78	158	113	1333	56	1405
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	48.0	19.0	21.0	48.0	19.0	92.0	19.0	92.0
Total Split (%)	11.7%	26.7%	10.6%	11.7%	26.7%	10.6%	51.1%	10.6%	51.1%
Yellow Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	6.0	8.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	1.33	0.55	0.77	0.43	0.56	0.37	0.38	0.20	0.45
Control Delay	232.5	94.6	53.7	70.7	47.5	79.1	12.6	11.0	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	232.5	94.6	53.7	70.7	47.5	79.1	12.6	11.0	18.5
Queue Length 50th (ft)	~328	91	237	81	48	65	232	19	202
Queue Length 95th (ft)	#464	151	332	132	87	96	301	m21	m195
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	192	424	429	204	806	329	3501	344	3141
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.18	0.75	0.38	0.20	0.34	0.38	0.16	0.45

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 75
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street

Kendall Baptist
3: SW 137th Avenue & SW 96th Street

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	75	309	75	76	76	108	1227	53	54	1219	130
Future Volume (veh/h)	246	75	309	75	76	76	108	1227	53	54	1219	130
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	256	78	322	78	79	79	112	1278	55	56	1270	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	385	395	290	318	284	150	2874	124	262	2602	277
Arrive On Green	0.07	0.21	0.21	0.05	0.18	0.18	0.04	0.57	0.57	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1777	1585	3456	5020	216	1781	4687	498
Grp Volume(v), veh/h	256	78	322	78	79	79	112	867	466	56	922	483
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1585	1728	1702	1831	1781	1702	1781
Q Serve(g_s), s	13.0	6.2	34.5	6.4	6.9	7.7	5.8	26.3	26.3	2.5	0.0	0.0
Cycle Q Clear(g_c), s	13.0	6.2	34.5	6.4	6.9	7.7	5.8	26.3	26.3	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.28
Lane Grp Cap(c), veh/h	336	385	395	290	318	284	150	1949	1048	262	1890	989
V/C Ratio(X)	0.76	0.20	0.82	0.27	0.25	0.28	0.75	0.44	0.44	0.21	0.49	0.49
Avail Cap(c_a), veh/h	336	426	430	337	405	361	250	1949	1048	344	1890	989
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.19	0.19	0.19	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	59.3	63.7	56.5	63.5	63.8	85.1	22.1	22.1	17.5	0.0	0.0
Incr Delay (d2), s/veh	8.9	0.2	10.4	0.2	0.3	0.4	0.5	0.1	0.3	0.2	0.9	1.7
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	5.7	3.0	15.1	2.9	3.2	3.2	2.6	10.8	11.6	1.0	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.0	59.5	74.1	56.7	63.8	64.2	85.7	22.2	22.3	17.7	0.9	1.7
LnGrp LOS	E	E	E	E	E	E	F	C	C	B	A	A
Approach Vol, veh/h		656			236			1445			1461	
Approach Delay, s/veh		71.5			61.6			27.2			1.8	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	109.0	16.2	44.0	13.8	105.9	21.0	39.3
Change Period (Y+Rc), s	6.0	6.0	8.0	7.0	6.0	6.0	8.0	7.0
Max Green Setting (Gmax), s	13.0	86.0	13.0	41.0	13.0	86.0	13.0	41.0
Max Q Clear Time (g_c+I1), s	4.5	28.3	8.4	36.5	7.8	2.0	15.0	9.7
Green Ext Time (p_c), s	0.0	3.9	0.0	0.5	0.1	4.3	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

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DATE: SEP 30 2021
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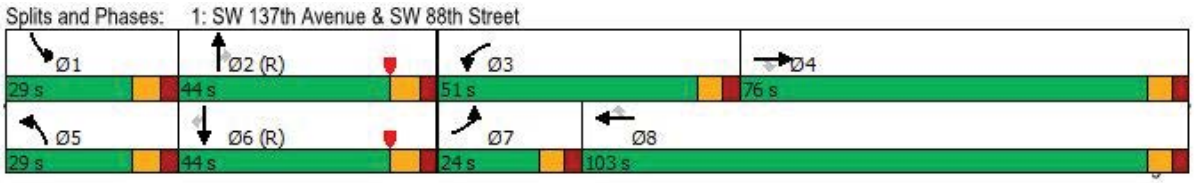
Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

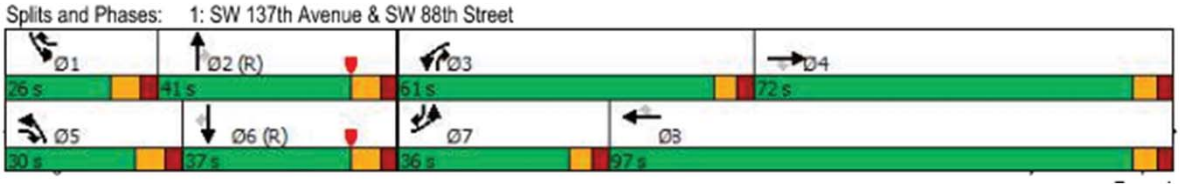
SW 137th Avenue & SW 88th Street

Afternoon Peak Hour

Existing Timing



Optimized Timing

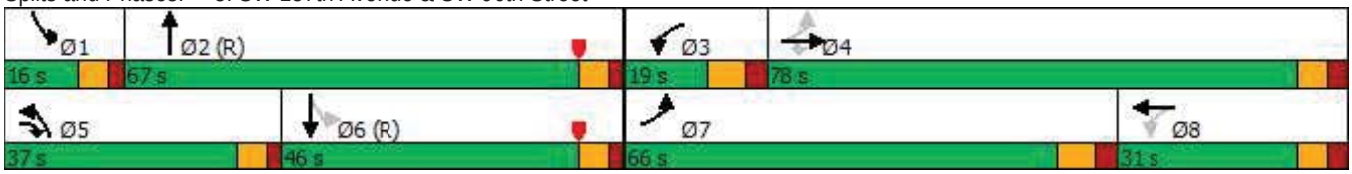


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	246	75	309	75	76	108	1227	54	1220
Future Volume (vph)	246	75	309	75	76	108	1227	54	1220
Lane Group Flow (vph)	256	78	322	78	158	113	1333	56	1406
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	66.0	78.0	37.0	19.0	31.0	37.0	67.0	16.0	46.0
Total Split (%)	36.7%	43.3%	20.6%	10.6%	17.2%	20.6%	37.2%	8.9%	25.6%
Yellow Time (s)	5.0	4.0	4.0	5.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	6.0	8.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.73	0.25	0.64	0.49	0.63	0.58	0.44	0.23	0.49
Control Delay	69.2	65.0	39.7	62.3	52.5	94.0	21.5	17.1	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	65.0	39.7	62.3	52.5	94.0	21.5	17.1	22.5
Queue Length 50th (ft)	266	83	216	72	48	68	305	21	220
Queue Length 95th (ft)	328	127	289	110	90	104	431	m27	m243
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	572	734	674	171	505	591	3050	271	2870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.11	0.48	0.46	0.31	0.19	0.44	0.21	0.49

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	75	309	75	76	76	108	1227	53	54	1220	130
Future Volume (veh/h)	246	75	309	75	76	76	108	1227	53	54	1220	130
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	256	78	322	78	79	79	112	1278	55	56	1271	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	374	390	400	245	214	191	152	2847	123	259	2575	273
Arrive On Green	0.14	0.21	0.21	0.05	0.12	0.12	0.04	0.57	0.57	0.05	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	1777	1585	3456	5020	216	1781	4687	498
Grp Volume(v), veh/h	256	78	322	78	79	79	112	867	466	56	923	483
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1585	1728	1702	1831	1781	1702	1781
Q Serve(g_s), s	22.1	6.2	34.3	6.9	7.4	8.3	5.8	26.6	26.6	2.5	0.0	0.0
Cycle Q Clear(g_c), s	22.1	6.2	34.3	6.9	7.4	8.3	5.8	26.6	26.6	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.28
Lane Grp Cap(c), veh/h	374	390	400	245	214	191	152	1931	1039	259	1870	978
V/C Ratio(X)	0.68	0.20	0.80	0.32	0.37	0.41	0.74	0.45	0.45	0.22	0.49	0.49
Avail Cap(c_a), veh/h	706	738	695	268	237	211	595	1931	1039	311	1870	978
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.25	0.25	0.25	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.7	58.8	63.1	65.0	72.8	73.2	85.0	22.6	22.6	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.2	2.9	0.3	0.8	1.1	0.7	0.2	0.4	0.2	0.9	1.8
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	10.2	3.0	14.3	3.2	3.4	3.5	2.6	11.0	11.8	1.0	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.6	59.0	66.0	65.3	73.6	74.3	85.7	22.8	23.0	18.2	0.9	1.8
LnGrp LOS	E	E	E	E	E	E	F	C	C	B	A	A
Approach Vol, veh/h		656			236			1445			1462	
Approach Delay, s/veh		61.9			71.1			27.7			1.9	
Approach LOS		E			E			C			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	108.1	16.7	44.5	13.9	104.9	32.5	28.7
Change Period (Y+Rc), s	6.0	6.0	8.0	7.0	6.0	6.0	8.0	7.0
Max Green Setting (Gmax), s	10.0	61.0	11.0	71.0	31.0	40.0	58.0	24.0
Max Q Clear Time (g_c+I1), s	4.5	28.6	8.9	36.3	7.8	2.0	24.1	10.3
Green Ext Time (p_c), s	0.0	3.9	0.0	1.2	0.2	4.2	0.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	26.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Kendall Baptist
4: SW 137th Avenue & SW 104th Street

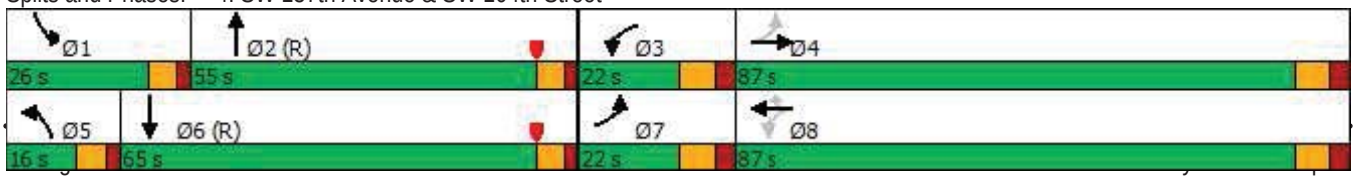
AM Peak Hour

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	161	1383	243	677	221	131	1060	338	1202
Future Volume (vph)	161	1383	243	677	221	131	1060	338	1202
Lane Group Flow (vph)	166	1607	251	698	228	135	1474	348	1339
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	22.0	87.0	22.0	87.0	87.0	16.0	55.0	26.0	65.0
Total Split (%)	11.6%	45.8%	11.6%	45.8%	45.8%	8.4%	28.9%	13.7%	34.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.49	0.79	1.45	0.48	0.29	0.73	1.11	0.93	0.83
Control Delay	29.3	52.2	271.9	42.1	5.1	110.8	120.2	114.6	65.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	52.2	271.9	42.1	5.1	110.8	120.2	114.6	65.3
Queue Length 50th (ft)	106	627	~369	332	4	87	~768	227	577
Queue Length 95th (ft)	154	684	#570	395	61	#140	#864	#337	638
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	348	2086	173	1474	788	185	1327	373	1613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.77	1.45	0.47	0.29	0.73	1.11	0.93	0.83

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 129 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 4: SW 137th Avenue & SW 104th Street



Kendall Baptist
4: SW 137th Avenue & SW 104th Street

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1383	176	243	677	221	131	1060	370	338	1202	97
Future Volume (veh/h)	161	1383	176	243	677	221	131	1060	370	338	1202	97
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	1426	181	251	698	228	135	1093	381	348	1239	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	1730	219	199	1361	607	170	1108	386	364	1698	137
Arrive On Green	0.07	0.38	0.38	0.07	0.38	0.38	0.05	0.30	0.30	0.11	0.35	0.35
Sat Flow, veh/h	1781	4588	582	1781	3554	1585	3456	3737	1303	3456	4816	389
Grp Volume(v), veh/h	166	1058	549	251	698	228	135	996	478	348	876	463
Grp Sat Flow(s),veh/h/ln	1781	1702	1766	1781	1777	1585	1728	1702	1636	1728	1702	1800
Q Serve(g_s), s	10.8	53.4	53.4	14.0	28.7	19.7	7.3	55.2	55.2	19.0	42.6	42.6
Cycle Q Clear(g_c), s	10.8	53.4	53.4	14.0	28.7	19.7	7.3	55.2	55.2	19.0	42.6	42.6
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.80	1.00		0.22
Lane Grp Cap(c), veh/h	299	1284	666	199	1361	607	170	1010	485	364	1200	635
V/C Ratio(X)	0.56	0.82	0.82	1.26	0.51	0.38	0.79	0.99	0.99	0.96	0.73	0.73
Avail Cap(c_a), veh/h	309	1415	734	199	1478	659	182	1010	485	364	1200	635
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	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	35.0	53.5	53.5	48.5	45.0	42.2	89.4	66.4	66.4	84.6	53.6	53.6
Incr Delay (d2), s/veh	1.1	4.1	7.6	150.4	0.4	0.5	19.9	25.2	37.6	32.5	3.3	6.2
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	4.9	23.8	25.3	14.6	13.0	8.0	3.8	27.6	28.2	10.2	19.0	20.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	57.6	61.1	198.9	45.4	42.8	109.2	91.6	104.0	117.0	57.0	59.8
LnGrp LOS	D	E	E	F	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1773			1177			1609			1687	
Approach Delay, s/veh		56.6			77.6			96.8			70.1	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	62.4	22.0	79.6	15.4	73.0	20.9	80.8
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	20.0	49.0	14.0	79.0	10.0	59.0	14.0	79.0
Max Q Clear Time (g_c+I1), s	21.0	57.2	16.0	55.4	9.3	44.6	12.8	30.7
Green Ext Time (p_c), s	0.0	0.0	0.0	16.2	0.0	3.4	0.0	10.3

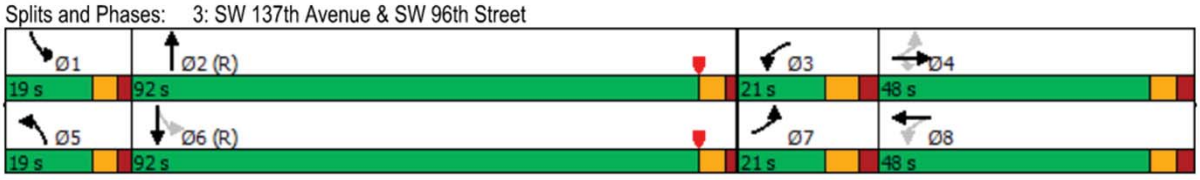
Intersection Summary	
HCM 6th Ctrl Delay	74.6
HCM 6th LOS	E

Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

SW 137th Avenue & SW 96th Street

Morning Peak Hour

Existing Timing



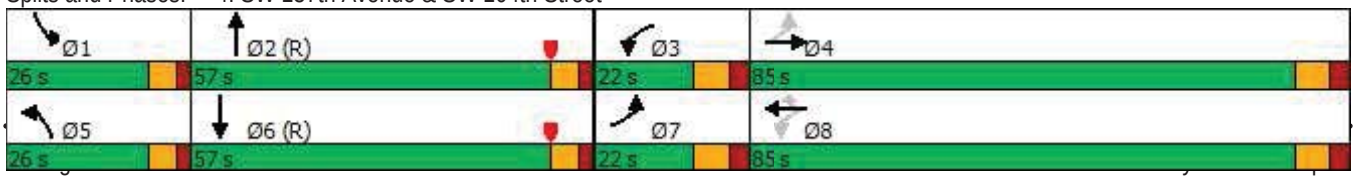
Optimized Timing

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	161	1383	243	677	221	131	1060	338	1202
Future Volume (vph)	161	1383	243	677	221	131	1060	338	1202
Lane Group Flow (vph)	166	1607	251	698	228	135	1474	348	1339
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	22.0	85.0	22.0	85.0	85.0	26.0	57.0	26.0	57.0
Total Split (%)	11.6%	44.7%	11.6%	44.7%	44.7%	13.7%	30.0%	13.7%	30.0%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.50	0.80	1.48	0.49	0.30	0.58	1.08	0.95	0.85
Control Delay	30.4	53.8	281.8	43.3	5.6	95.9	108.4	117.7	66.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	53.8	281.8	43.3	5.6	95.9	108.4	117.7	66.9
Queue Length 50th (ft)	108	638	~377	339	8	86	~744	227	580
Queue Length 95th (ft)	158	698	#579	403	66	124	#839	#337	661
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	341	2034	170	1441	774	361	1370	367	1580
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.79	1.48	0.48	0.29	0.37	1.08	0.95	0.85

Intersection Summary

Cycle Length: 190
Actuated Cycle Length: 190
Offset: 129 (68%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1383	176	243	677	221	131	1060	370	338	1202	97
Future Volume (veh/h)	161	1383	176	243	677	221	131	1060	370	338	1202	97
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	1426	181	251	698	228	135	1093	381	348	1239	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	1709	217	197	1344	599	175	1125	392	364	1714	138
Arrive On Green	0.07	0.37	0.37	0.07	0.38	0.38	0.05	0.30	0.30	0.11	0.36	0.36
Sat Flow, veh/h	1781	4588	582	1781	3554	1585	3456	3737	1303	3456	4816	389
Grp Volume(v), veh/h	166	1058	549	251	698	228	135	996	478	348	876	463
Grp Sat Flow(s),veh/h/ln	1781	1702	1766	1781	1777	1585	1728	1702	1636	1728	1702	1800
Q Serve(g_s), s	10.9	53.8	53.8	14.0	28.9	19.8	7.3	54.9	54.9	19.0	42.4	42.4
Cycle Q Clear(g_c), s	10.9	53.8	53.8	14.0	28.9	19.8	7.3	54.9	54.9	19.0	42.4	42.4
Prop In Lane	1.00		0.33	1.00		1.00	1.00		0.80	1.00		0.22
Lane Grp Cap(c), veh/h	296	1268	658	197	1344	599	175	1025	493	364	1211	641
V/C Ratio(X)	0.56	0.83	0.83	1.27	0.52	0.38	0.77	0.97	0.97	0.96	0.72	0.72
Avail Cap(c_a), veh/h	306	1380	716	197	1440	642	364	1025	493	364	1211	641
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	1.00	1.00	0.85	0.85	0.85
Uniform Delay (d), s/veh	35.6	54.3	54.3	49.2	45.7	42.9	89.1	65.6	65.6	84.6	53.1	53.1
Incr Delay (d2), s/veh	1.2	4.6	8.4	155.7	0.4	0.6	7.1	22.0	34.1	32.5	3.2	6.0
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	5.0	24.0	25.6	14.8	13.1	8.1	3.5	27.0	27.6	10.2	18.9	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	58.8	62.7	204.9	46.2	43.5	96.2	87.6	99.6	117.0	56.3	59.0
LnGrp LOS	D	E	E	F	D	D	F	F	F	F	E	E
Approach Vol, veh/h		1773			1177			1609			1687	
Approach Delay, s/veh		57.9			79.5			91.9			69.6	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	63.2	22.0	78.8	15.6	73.6	20.9	79.9
Change Period (Y+Rc), s	6.0	6.0	8.0	8.0	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	20.0	51.0	14.0	77.0	20.0	51.0	14.0	77.0
Max Q Clear Time (g_c+I1), s	21.0	56.9	16.0	55.8	9.3	44.4	12.9	30.9
Green Ext Time (p_c), s	0.0	0.0	0.0	15.0	0.3	2.4	0.0	10.2

Intersection Summary	
HCM 6th Ctrl Delay	73.9
HCM 6th LOS	E

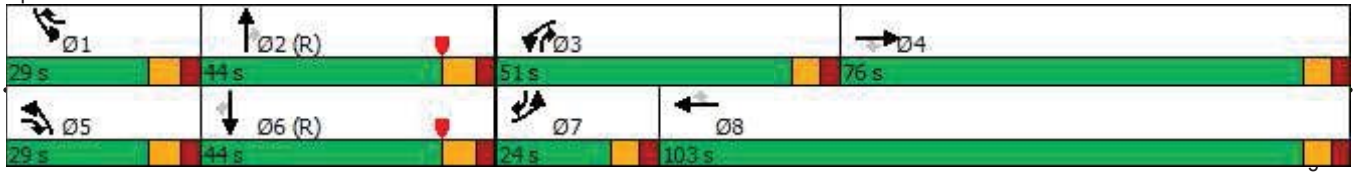
Kendall Baptist
1: SW 137th Avenue & SW 88th Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	1505	272	514	2257	397	399	749	491	293	785	275
Future Volume (vph)	226	1505	272	514	2257	397	399	749	491	293	785	275
Lane Group Flow (vph)	231	1536	278	524	2303	405	407	764	501	299	801	281
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	24.0	76.0	29.0	51.0	103.0	29.0	29.0	44.0	51.0	29.0	44.0	24.0
Total Split (%)	12.0%	38.0%	14.5%	25.5%	51.5%	14.5%	14.5%	22.0%	25.5%	14.5%	22.0%	12.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.83	0.81	0.32	0.79	0.94	0.40	1.13	1.17	0.72	0.87	1.26	0.51
Control Delay	113.7	61.4	18.9	85.8	57.2	17.1	156.8	150.1	32.7	112.0	189.9	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.7	61.4	18.9	85.8	57.2	17.1	156.8	150.1	32.7	112.0	189.9	38.8
Queue Length 50th (ft)	157	672	130	342	1049	218	~314	~641	432	202	~691	193
Queue Length 95th (ft)	#220	762	212	403	1110	296	m#428	m#785	m562	#277	#832	298
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	291	1890	860	755	2458	1011	360	652	739	360	637	555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.81	0.32	0.69	0.94	0.40	1.13	1.17	0.68	0.83	1.26	0.51

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 107 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	1505	272	514	2257	397	399	749	491	293	785	275
Future Volume (veh/h)	226	1505	272	514	2257	397	399	749	491	293	785	275
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	231	1536	278	524	2303	405	407	764	501	299	801	281
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	1919	762	589	2397	897	363	737	599	333	707	437
Arrive On Green	0.08	0.38	0.38	0.17	0.47	0.47	0.03	0.07	0.07	0.10	0.20	0.20
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	231	1536	278	524	2303	405	407	764	501	299	801	281
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.2	53.7	22.1	29.7	87.2	29.8	21.0	41.5	41.5	17.1	39.8	31.2
Cycle Q Clear(g_c), s	13.2	53.7	22.1	29.7	87.2	29.8	21.0	41.5	41.5	17.1	39.8	31.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	265	1919	762	589	2397	897	363	737	599	333	707	437
V/C Ratio(X)	0.87	0.80	0.36	0.89	0.96	0.45	1.12	1.04	0.84	0.90	1.13	0.64
Avail Cap(c_a), veh/h	294	1919	762	760	2451	914	363	737	599	363	707	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.4	55.7	32.7	81.1	51.3	25.3	96.5	93.2	64.7	89.4	80.1	63.8
Incr Delay (d2), s/veh	21.5	2.3	0.1	11.4	10.3	0.1	84.4	42.9	13.1	22.4	77.0	7.1
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	6.8	23.7	8.8	14.3	39.5	11.6	14.2	24.5	24.4	8.8	25.9	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.9	58.1	32.8	92.6	61.6	25.4	181.0	136.1	77.7	111.8	157.1	70.9
LnGrp LOS	F	E	C	F	E	C	F	F	E	F	F	E
Approach Vol, veh/h		2045			3232			1672			1381	
Approach Delay, s/veh		60.8			62.1			129.5			129.7	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.3	49.5	41.1	82.2	29.0	47.8	22.3	100.9
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	21.0	36.0	44.0	69.0	21.0	36.0	17.0	96.0
Max Q Clear Time (g_c+I1), s	19.1	43.5	31.7	55.7	23.0	41.8	15.2	89.2
Green Ext Time (p_c), s	0.2	0.0	2.4	4.6	0.0	0.0	0.1	4.7

Intersection Summary	
HCM 6th Ctrl Delay	86.5
HCM 6th LOS	F

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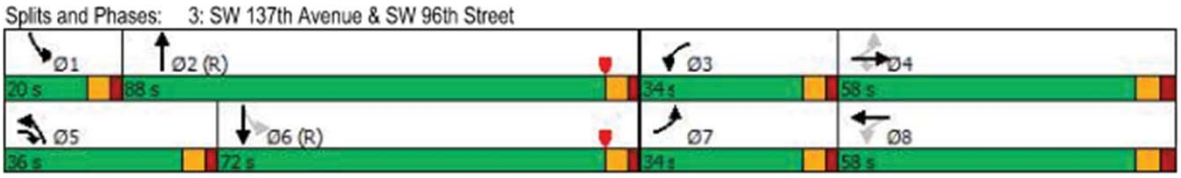
Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

SW 137th Avenue & SW 96th Street

Afternoon Peak Hour

Existing Timing

Optimized Timing

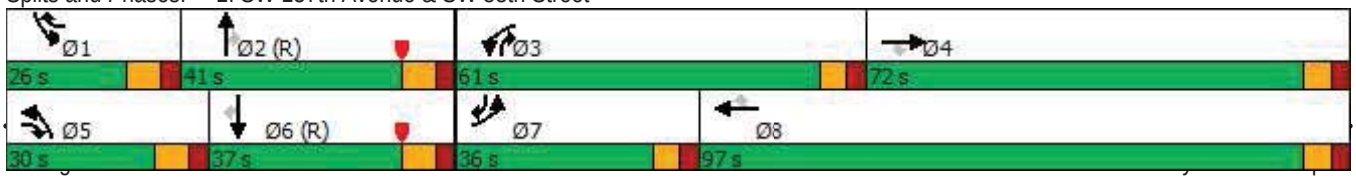


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	1505	272	514	2257	397	399	749	491	293	785	275
Future Volume (vph)	226	1505	272	514	2257	397	399	749	491	293	785	275
Lane Group Flow (vph)	231	1536	278	524	2303	405	407	764	501	299	801	281
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	5	3	8	1	5	2	3	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	18.0	5.0	5.0	18.0	5.0	5.0	7.0	5.0	5.0	7.0	5.0
Minimum Split (s)	12.0	25.0	13.0	12.0	25.0	13.0	13.0	26.0	12.0	13.0	26.0	12.0
Total Split (s)	36.0	72.0	30.0	61.0	97.0	26.0	30.0	41.0	61.0	26.0	37.0	36.0
Total Split (%)	18.0%	36.0%	15.0%	30.5%	48.5%	13.0%	15.0%	20.5%	30.5%	13.0%	18.5%	18.0%
Yellow Time (s)	4.0	4.0	5.0	4.0	4.0	5.0	5.0	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0	8.0	8.0	8.0	7.0	8.0	8.0	7.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	None	None	C-Max	None
v/c Ratio	0.74	0.79	0.31	0.77	0.92	0.40	0.98	1.27	0.73	0.91	1.56	0.55
Control Delay	102.4	58.2	16.9	83.2	54.1	16.9	107.3	186.1	53.4	118.4	310.9	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.4	58.2	16.9	83.2	54.1	16.9	107.3	186.1	53.4	118.4	310.9	41.7
Queue Length 50th (ft)	155	640	120	342	999	212	~302	~689	539	206	~780	202
Queue Length 95th (ft)	203	753	207	390	1111	308	#423	#824	706	#313	#920	300
Internal Link Dist (ft)		1453			1779			1913			527	
Turn Bay Length (ft)	300			240			345			230		
Base Capacity (vph)	497	1956	904	926	2503	1011	416	602	794	328	513	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.79	0.31	0.57	0.92	0.40	0.98	1.27	0.63	0.91	1.56	0.47

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 107 (54%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 150
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: 1: SW 137th Avenue & SW 88th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	1505	272	514	2257	397	399	749	491	293	785	275
Future Volume (veh/h)	226	1505	272	514	2257	397	399	749	491	293	785	275
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	231	1536	278	524	2303	405	407	764	501	299	801	281
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	271	1815	738	598	2298	856	380	823	641	311	752	460
Arrive On Green	0.08	0.36	0.36	0.17	0.45	0.45	0.04	0.08	0.08	0.09	0.21	0.21
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	231	1536	278	524	2303	405	407	764	501	299	801	281
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	13.2	55.5	22.7	29.6	90.0	31.6	22.0	42.7	46.3	17.2	42.3	30.6
Cycle Q Clear(g_c), s	13.2	55.5	22.7	29.6	90.0	31.6	22.0	42.7	46.3	17.2	42.3	30.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	271	1815	738	598	2298	856	380	823	641	311	752	460
V/C Ratio(X)	0.85	0.85	0.38	0.88	1.00	0.47	1.07	0.93	0.78	0.96	1.07	0.61
Avail Cap(c_a), veh/h	501	1815	738	933	2298	856	380	823	641	311	752	460
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	91.0	59.4	34.7	80.6	55.0	28.4	96.4	90.7	60.7	90.7	78.8	61.3
Incr Delay (d2), s/veh	5.7	3.7	0.1	7.4	19.3	0.2	66.2	18.1	9.2	40.5	51.7	6.0
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	6.2	24.7	9.1	13.9	42.6	12.4	13.9	22.8	23.3	9.5	24.9	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.7	63.1	34.8	88.0	74.3	28.6	162.6	108.9	69.9	131.1	130.5	67.2
LnGrp LOS	F	E	C	F	F	C	F	F	E	F	F	E
Approach Vol, veh/h		2045			3232			1672			1381	
Approach Delay, s/veh		63.1			70.8			110.3			117.8	
Approach LOS		E			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.0	54.3	41.6	78.1	30.0	50.3	22.7	97.0
Change Period (Y+Rc), s	8.0	8.0	7.0	7.0	8.0	8.0	7.0	7.0
Max Green Setting (Gmax), s	18.0	33.0	54.0	65.0	22.0	29.0	29.0	90.0
Max Q Clear Time (g_c+I1), s	19.2	48.3	31.6	57.5	24.0	44.3	15.2	92.0
Green Ext Time (p_c), s	0.0	0.0	3.0	3.4	0.0	0.0	0.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	84.6
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	161	1542	68	82	1846
Future Vol, veh/h	0	161	1542	68	82	1846
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	100	105	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	164	1573	69	84	1884

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	787	0	0	1642	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	5.34	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	0	287	-	-	189	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	287	-	-	189	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	33.1	0	1.6
HCM LOS	D		

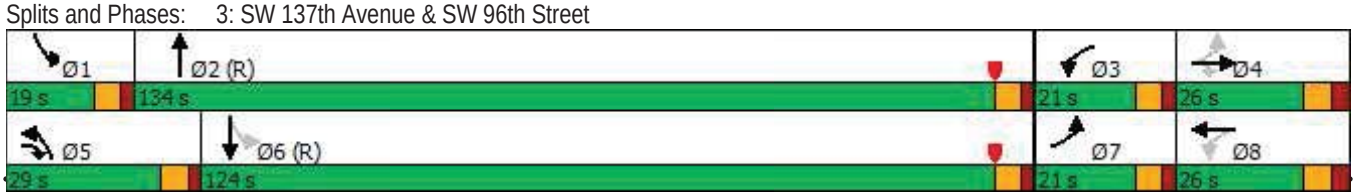
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	287	189	-
HCM Lane V/C Ratio	-	-	0.572	0.443	-
HCM Control Delay (s)	-	-	33.1	38.4	-
HCM Lane LOS	-	-	D	E	-
HCM 95th %tile Q(veh)	-	-	3.3	2.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	177	52	244	15	88	295	1321	94	1372
Future Volume (vph)	177	52	244	15	88	295	1321	94	1372
Lane Group Flow (vph)	186	55	257	16	130	311	1432	99	1828
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	21.0	26.0	29.0	21.0	26.0	29.0	134.0	19.0	124.0
Total Split (%)	10.5%	13.0%	14.5%	10.5%	13.0%	14.5%	67.0%	9.5%	62.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0	6.0	6.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.89	0.24	0.48	0.12	0.61	0.81	0.40	0.38	0.58
Control Delay	116.8	84.0	29.5	71.3	87.2	80.9	11.8	7.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.8	84.0	29.5	71.3	87.2	80.9	11.8	7.0	8.7
Queue Length 50th (ft)	232	68	129	18	73	218	225	15	156
Queue Length 95th (ft)	#367	121	222	45	113	m225	m245	m24	m181
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	209	227	543	214	343	415	3587	313	3133
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.24	0.47	0.07	0.38	0.75	0.40	0.32	0.58

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	52	244	15	88	35	295	1321	39	94	1372	365
Future Volume (veh/h)	177	52	244	15	88	35	295	1321	39	94	1372	365
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	186	55	257	16	93	37	311	1391	41	99	1444	384
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	184	206	332	116	126	48	342	3673	108	332	2617	692
Arrive On Green	0.08	0.11	0.11	0.01	0.05	0.05	0.20	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	2521	954	3456	5097	150	1781	4020	1063
Grp Volume(v), veh/h	186	55	257	16	64	66	311	929	503	99	1222	606
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1699	1728	1702	1843	1781	1702	1679
Q Serve(g_s), s	15.0	5.4	22.0	1.7	7.1	7.7	17.6	0.0	0.0	3.9	0.0	0.0
Cycle Q Clear(g_c), s	15.0	5.4	22.0	1.7	7.1	7.7	17.6	0.0	0.0	3.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.56	1.00		0.08	1.00		0.63
Lane Grp Cap(c), veh/h	184	206	332	116	89	85	342	2453	1328	332	2216	1093
V/C Ratio(X)	1.01	0.27	0.77	0.14	0.72	0.78	0.91	0.38	0.38	0.30	0.55	0.55
Avail Cap(c_a), veh/h	184	206	332	223	169	161	397	2453	1328	395	2216	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.30	0.30	0.30	1.00	1.00	1.00
Uniform Delay (d), s/veh	85.8	81.6	74.6	88.3	93.6	93.9	79.3	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	68.9	0.5	10.5	0.2	8.0	10.7	7.9	0.1	0.2	0.2	1.0	2.0
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	5.8	2.7	13.6	0.8	3.5	3.7	7.7	0.0	0.1	1.5	0.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	154.6	82.1	85.1	88.5	101.6	104.6	87.1	0.1	0.2	10.7	1.0	2.0
LnGrp LOS	F	F	F	F	F	F	F	A	A	B	A	A
Approach Vol, veh/h		498			146			1743			1927	
Approach Delay, s/veh		110.8			101.5			15.7			1.8	
Approach LOS		F			F			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	150.1	8.9	29.0	25.8	136.2	21.0	17.0
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0
Max Green Setting (Gmax), s	13.0	128.0	15.0	19.0	23.0	118.0	15.0	19.0
Max Q Clear Time (g_c+I1), s	5.9	2.0	3.7	24.0	19.6	2.0	17.0	9.7
Green Ext Time (p_c), s	0.1	4.3	0.0	0.0	0.2	6.6	0.0	0.3

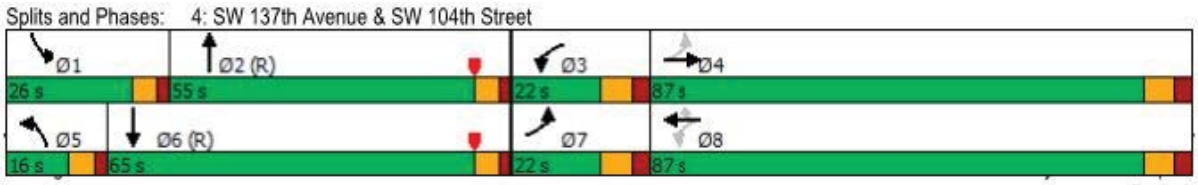
Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

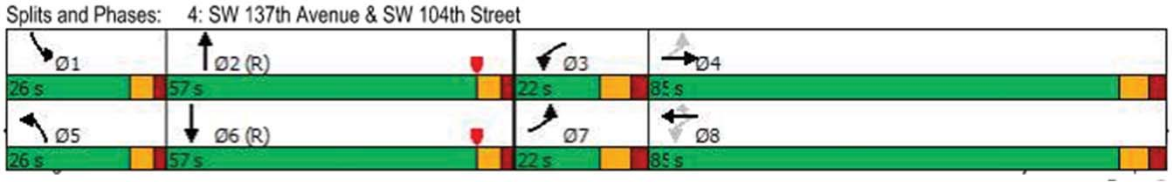
SW 137th Avenue & SW 104th Street

Morning Peak Hour

Existing Timing



Optimized Timing

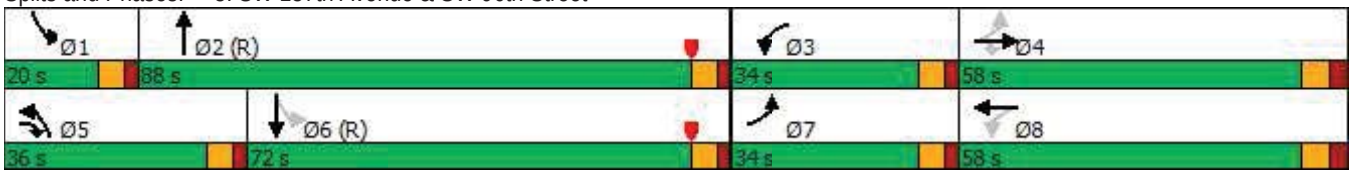


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	177	52	244	15	88	295	1321	94	1372
Future Volume (vph)	177	52	244	15	88	295	1321	94	1372
Lane Group Flow (vph)	186	55	257	16	130	311	1432	99	1828
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases	4		4	8				6	
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	5.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	25.0	12.0	13.0	25.0	12.0	25.0	12.0	25.0
Total Split (s)	34.0	58.0	36.0	34.0	58.0	36.0	88.0	20.0	72.0
Total Split (%)	17.0%	29.0%	18.0%	17.0%	29.0%	18.0%	44.0%	10.0%	36.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	7.0	6.0	6.0	7.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.65	0.18	0.38	0.12	0.61	0.81	0.43	0.39	0.63
Control Delay	79.4	73.0	6.0	63.1	83.8	87.0	15.7	10.1	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.4	73.0	6.0	63.1	83.8	87.0	15.7	10.1	11.4
Queue Length 50th (ft)	218	65	0	17	69	218	241	17	175
Queue Length 95th (ft)	296	112	68	41	110	m230	m271	m26	m189
Internal Link Dist (ft)		712			811		2444		720
Turn Bay Length (ft)	175			210		220		310	
Base Capacity (vph)	306	475	723	321	885	514	3312	298	2905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.12	0.36	0.05	0.15	0.61	0.43	0.33	0.63

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: SW 137th Avenue & SW 96th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	177	52	244	15	88	35	295	1321	39	94	1372	365
Future Volume (veh/h)	177	52	244	15	88	35	295	1321	39	94	1372	365
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	186	55	257	16	93	37	311	1391	41	99	1444	384
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	261	295	409	133	168	63	346	3416	101	318	2422	640
Arrive On Green	0.11	0.16	0.16	0.01	0.07	0.07	0.20	1.00	1.00	0.06	1.00	1.00
Sat Flow, veh/h	1781	1870	1585	1781	2521	954	3456	5097	150	1781	4020	1063
Grp Volume(v), veh/h	186	55	257	16	64	66	311	929	503	99	1222	606
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1777	1699	1728	1702	1843	1781	1702	1679
Q Serve(g_s), s	19.1	5.1	28.7	1.7	7.0	7.5	17.6	0.0	0.0	4.4	0.0	0.0
Cycle Q Clear(g_c), s	19.1	5.1	28.7	1.7	7.0	7.5	17.6	0.0	0.0	4.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.56	1.00		0.08	1.00		0.63
Lane Grp Cap(c), veh/h	261	295	409	133	118	113	346	2281	1235	318	2051	1011
V/C Ratio(X)	0.71	0.19	0.63	0.12	0.54	0.58	0.90	0.41	0.41	0.31	0.60	0.60
Avail Cap(c_a), veh/h	322	477	563	356	453	433	518	2281	1235	386	2051	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.30	0.30	0.30	1.00	1.00	1.00
Uniform Delay (d), s/veh	74.9	73.1	65.7	85.2	90.4	90.6	79.0	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	3.7	0.2	1.2	0.1	2.9	3.5	3.4	0.2	0.3	0.2	1.3	2.6
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	9.1	2.5	11.9	0.8	3.4	3.5	7.5	0.1	0.1	1.8	0.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.6	73.3	66.9	85.3	93.3	94.1	82.4	0.2	0.3	13.9	1.3	2.6
LnGrp LOS	E	E	E	F	F	F	F	A	A	B	A	A
Approach Vol, veh/h		498			146			1743			1927	
Approach Delay, s/veh		72.0			92.8			14.9			2.4	
Approach LOS		E			F			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	140.0	8.9	38.6	26.0	126.5	27.2	20.3
Change Period (Y+Rc), s	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0
Max Green Setting (Gmax), s	14.0	82.0	28.0	51.0	30.0	66.0	28.0	51.0
Max Q Clear Time (g_c+I1), s	6.4	2.0	3.7	30.7	19.6	2.0	21.1	9.5
Green Ext Time (p_c), s	0.1	4.3	0.0	0.8	0.5	6.6	0.1	0.6

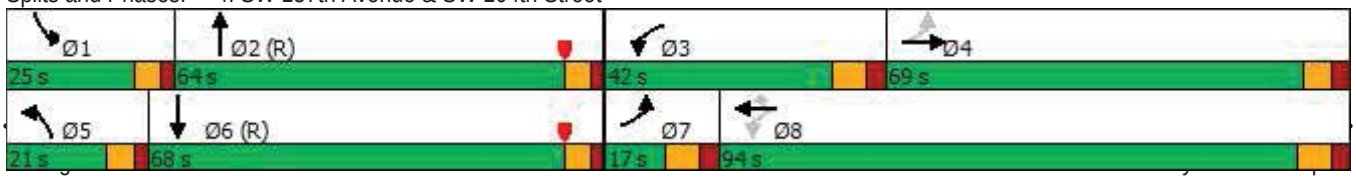
Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	131	823	298	1269	432	218	1143	300	1183
Future Volume (vph)	131	823	298	1269	432	218	1143	300	1183
Lane Group Flow (vph)	134	980	304	1295	441	222	1470	306	1376
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	17.0	69.0	42.0	94.0	94.0	21.0	64.0	25.0	68.0
Total Split (%)	8.5%	34.5%	21.0%	47.0%	47.0%	10.5%	32.0%	12.5%	34.0%
Yellow Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	1.06	0.58	0.88	0.86	0.56	0.87	1.00	0.93	0.87
Control Delay	141.0	55.6	61.5	59.3	23.9	121.2	89.8	110.2	82.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	141.0	55.6	61.5	59.3	23.9	121.2	89.8	110.2	82.5
Queue Length 50th (ft)	~126	383	244	806	227	152	~730	211	574
Queue Length 95th (ft)	#304	454	369	905	345	#230	#824	#315	645
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	126	1696	397	1521	800	257	1476	328	1587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.58	0.77	0.85	0.55	0.86	1.00	0.93	0.87

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 165 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 140
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	823	137	298	1269	432	218	1143	298	300	1183	166
Future Volume (veh/h)	131	823	137	298	1269	432	218	1143	298	300	1183	166
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	134	840	140	304	1295	441	222	1166	304	306	1207	169
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1471	244	354	1458	650	255	1250	326	328	1499	210
Arrive On Green	0.05	0.33	0.33	0.12	0.41	0.41	0.07	0.31	0.31	0.13	0.44	0.44
Sat Flow, veh/h	1781	4412	731	1781	3554	1585	3456	4034	1052	3456	4527	634
Grp Volume(v), veh/h	134	647	333	304	1295	441	222	984	486	306	908	468
Grp Sat Flow(s),veh/h/ln	1781	1702	1739	1781	1777	1585	1728	1702	1681	1728	1702	1756
Q Serve(g_s), s	9.0	31.3	31.6	22.0	67.6	45.5	12.7	56.1	56.1	17.5	46.2	46.3
Cycle Q Clear(g_c), s	9.0	31.3	31.6	22.0	67.6	45.5	12.7	56.1	56.1	17.5	46.2	46.3
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.63	1.00		0.36
Lane Grp Cap(c), veh/h	136	1135	580	354	1458	650	255	1055	521	328	1127	582
V/C Ratio(X)	0.98	0.57	0.57	0.86	0.89	0.68	0.87	0.93	0.93	0.93	0.81	0.81
Avail Cap(c_a), veh/h	136	1135	580	440	1528	682	259	1055	521	328	1127	582
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	56.3	54.9	55.0	40.5	54.7	48.2	91.7	67.0	67.0	86.7	50.4	50.4
Incr Delay (d2), s/veh	71.7	0.8	1.7	11.4	6.8	2.9	25.7	15.7	25.9	28.0	5.0	9.3
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	5.3	13.8	14.3	10.9	31.8	18.8	6.7	26.8	28.0	9.0	19.9	21.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.1	55.7	56.7	51.9	61.6	51.1	117.4	82.7	92.9	114.8	55.4	59.6
LnGrp LOS	F	E	E	D	E	D	F	F	F	F	E	E
Approach Vol, veh/h		1114			2040			1692			1682	
Approach Delay, s/veh		64.7			57.9			90.2			67.4	
Approach LOS		E			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	68.0	32.4	74.7	20.7	72.2	17.0	90.0
Change Period (Y+Rc), s	6.0	6.0	8.0	* 8	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	19.0	58.0	34.0	* 62	15.0	62.0	9.0	86.0
Max Q Clear Time (g_c+I1), s	19.5	58.1	24.0	33.6	14.7	48.3	11.0	69.6
Green Ext Time (p_c), s	0.0	0.0	0.3	10.6	0.0	3.5	0.0	12.4

Intersection Summary	
HCM 6th Ctrl Delay	69.9
HCM 6th LOS	E

Notes

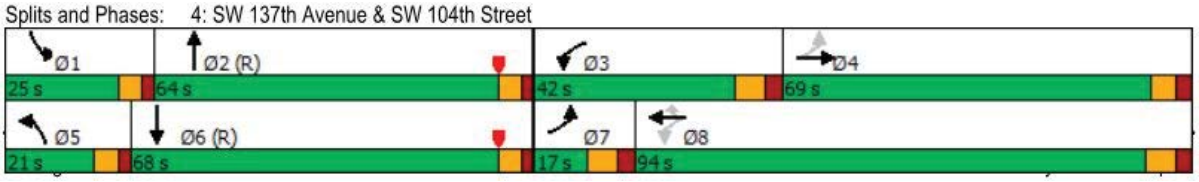
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Kendall Baptist
Signal Timing Optimization Modifications
27th September 2021
330074001

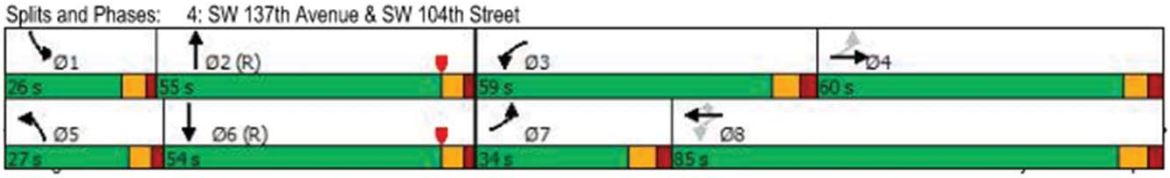
SW 137th Avenue & SW 104th Street

Afternoon Peak Hour

Existing Timing



Optimized Timing

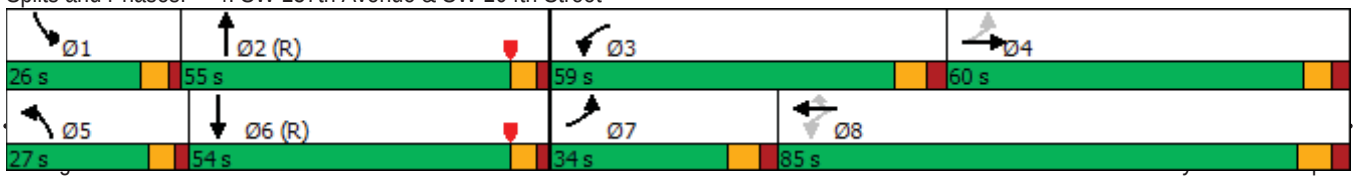


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	131	823	298	1269	432	218	1143	300	1183
Future Volume (vph)	131	823	298	1269	432	218	1143	300	1183
Lane Group Flow (vph)	134	980	304	1295	441	222	1470	306	1376
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Prot	NA	Prot	NA
Protected Phases	7	4	3	8		5	2	1	6
Permitted Phases	4		8		8				
Detector Phase	7	4	3	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	7.0	5.0	7.0	7.0	5.0	7.0	5.0	7.0
Minimum Split (s)	13.0	26.0	13.0	26.0	26.0	11.0	24.0	11.0	24.0
Total Split (s)	34.0	60.0	59.0	85.0	85.0	27.0	55.0	26.0	54.0
Total Split (%)	17.0%	30.0%	29.5%	42.5%	42.5%	13.5%	27.5%	13.0%	27.0%
Yellow Time (s)	5.0	4.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	7.0	8.0	8.0	8.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.71	0.54	0.80	0.87	0.56	0.73	1.14	0.91	1.02
Control Delay	67.6	52.1	45.5	60.0	24.8	102.4	131.9	109.5	107.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	52.1	45.5	60.0	24.8	102.4	131.9	109.5	107.6
Queue Length 50th (ft)	109	364	212	800	228	149	~842	218	~741
Queue Length 95th (ft)	199	453	331	946	365	198	#937	#303	#848
Internal Link Dist (ft)		1217		1472			720		2444
Turn Bay Length (ft)	155		150			255		350	
Base Capacity (vph)	275	1800	538	1493	788	360	1295	343	1346
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.54	0.57	0.87	0.56	0.62	1.14	0.89	1.02

Intersection Summary

Cycle Length: 200
Actuated Cycle Length: 200
Offset: 165 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 140
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: 4: SW 137th Avenue & SW 104th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	823	137	298	1269	432	218	1143	298	300	1183	166
Future Volume (veh/h)	131	823	137	298	1269	432	218	1143	298	300	1183	166
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	134	840	140	304	1295	441	222	1166	304	306	1207	169
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	1407	233	348	1359	606	260	1288	336	336	1544	216
Arrive On Green	0.06	0.32	0.32	0.12	0.38	0.38	0.08	0.32	0.32	0.19	0.68	0.68
Sat Flow, veh/h	1781	4412	731	1781	3554	1585	3456	4034	1052	3456	4527	634
Grp Volume(v), veh/h	134	647	333	304	1295	441	222	984	486	306	908	468
Grp Sat Flow(s),veh/h/ln	1781	1702	1739	1781	1777	1585	1728	1702	1681	1728	1702	1756
Q Serve(g_s), s	10.1	32.0	32.3	22.5	70.8	47.6	12.7	55.4	55.4	17.3	36.3	36.3
Cycle Q Clear(g_c), s	10.1	32.0	32.3	22.5	70.8	47.6	12.7	55.4	55.4	17.3	36.3	36.3
Prop In Lane	1.00		0.42	1.00		1.00	1.00		0.63	1.00		0.36
Lane Grp Cap(c), veh/h	153	1086	554	348	1359	606	260	1087	537	336	1161	599
V/C Ratio(X)	0.88	0.60	0.60	0.87	0.95	0.73	0.85	0.91	0.91	0.91	0.78	0.78
Avail Cap(c_a), veh/h	275	1086	554	581	1368	610	363	1087	537	346	1161	599
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	51.6	57.3	57.4	42.1	60.0	52.8	91.4	65.2	65.2	79.7	26.7	26.7
Incr Delay (d2), s/veh	6.1	1.1	2.2	4.1	14.7	4.7	13.1	12.3	21.3	23.0	4.3	8.0
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	4.8	14.1	14.7	10.5	34.8	20.0	6.2	26.0	27.1	8.3	12.2	13.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	58.3	59.5	46.2	74.7	57.5	104.4	77.4	86.5	102.8	31.0	34.7
LnGrp LOS	E	E	E	D	E	E	F	E	F	F	C	C
Approach Vol, veh/h		1114			2040			1692			1682	
Approach Delay, s/veh		58.6			66.7			83.6			45.1	
Approach LOS		E			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.4	69.9	32.9	71.8	21.1	74.2	20.2	84.5
Change Period (Y+Rc), s	6.0	6.0	8.0	* 8	6.0	6.0	8.0	8.0
Max Green Setting (Gmax), s	20.0	49.0	51.0	* 53	21.0	48.0	26.0	77.0
Max Q Clear Time (g_c+I1), s	19.3	57.4	24.5	34.3	14.7	38.3	12.1	72.8
Green Ext Time (p_c), s	0.1	0.0	0.4	8.6	0.4	3.1	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	64.1
HCM 6th LOS	E

Notes

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

DRIVEWAYS

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	6	1619	19	0	1529
Future Vol, veh/h	0	6	1619	19	0	1529
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	7	1760	21	0	1662

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	891	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	245	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	245	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	245	-
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	20.1	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	1693	10	0	1932
Future Vol, veh/h	0	26	1693	10	0	1932
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	27	1728	10	0	1971

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	869	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	253	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	253	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	253	-
HCM Lane V/C Ratio	-	-	0.105	-
HCM Control Delay (s)	-	-	20.9	-
HCM Lane LOS	-	-	C	-
HCM 95th %tile Q(veh)	-	-	0.3	-

APPENDIX G
COMMITTED DEVELOPMENTS

CALUSA
TRAFFIC STUDY

dpa
Since 1978

EXECUTIVE SUMMARY

The Calusa project is proposing to convert a former golf course site into a residential development consisting of 550 single family dwelling units. The project is generally located between SW 127th Avenue and SW 137th Avenue and between SW 88th Street (Kendall Drive) and SW 104th Street in Miami-Dade County (MDC), Florida. Project access is mainly provided through a proposed driveway aligned with SW 97th Street with ultimate access to SW 127th Avenue. Secondary access will be provided via SW 130th Avenue with access to the external roadway network. Project buildout is anticipated by 2026. The site is within Miami-Dade County's Urban Development Boundary (UDB). The purpose of the study is to assess the impacts of this project on the external roadway network.

An assessment of the AM and PM peak hour traffic associated with the Calusa development was performed consistent with the methodology approved by MDC. Intersection capacity analysis was performed for the following ten intersections:

- SW 88th Street / SW 122nd Avenue
- SW 88th Street / SW 127th Avenue
- SW 88th Street / SW 133rd Avenue
- SW 88th Street / SW 137th Avenue
- SW 104th Street / SW 132nd Avenue
- SW 104th Street / SW 127th Avenue
- SW 104th Street / SW 122nd Avenue
- SW 96th Street / SW 127th Avenue
- SW 96th Street / SW 137th Avenue

In order to improve capacity and create better flow of traffic on the surrounding roadway network, the project is committed to the following intersection improvements:

- SW 88th Street / SW 133rd Avenue – Extend the existing northbound turning lanes
- SW 104th Street / SW 132nd Avenue – Construct a turbo lane on the eastbound approach of the intersection

- SW 104th Street / SW 127th Avenue – Extend the existing eastbound left turning lane
- SW 104th Street / SW 122nd Avenue – Extend the existing eastbound left turning lane
- SW 97th Street / SW 127th Avenue – Install a traffic signal

The project is also committed to contribute towards an adaptive signal program for SW 104th Street between SW 137th Avenue and SW 127th Avenue once MDC implements this system.

Intersection capacity analysis was performed for all study intersections. The analysis included the committed intersection improvements mentioned above. The results of the analysis show that the overall level of service (LOS) for the following intersections analyzed currently operate and will continue operating within the MDC adopted level of service (LOS) standards:

- SW 88th Street / SW 133rd Avenue
- SW 88th Street (Kendall Drive) / SW 127th Avenue
- SW 88th Street (Kendall Drive) / SW 122nd Avenue
- SW 88th Street (Kendall Drive) / SW 137th Avenue
- SW 96th Street / SW 137th Avenue
- SW 96th Street / SW 127th Avenue
- SW 104th Street / SW 132nd Avenue
- SW 104th Street / SW 127th Avenue
- SW 97th Street / SW 127th Avenue
- SW 104th Street / SW 122nd Avenue

Signal timing adjustments are recommended to reduce delays at the following approaches:

- SW 88th Street / SW 122nd Avenue – NB (AM)
- SW 88th Street / SW 127th Avenue – NB (PM) and SB (AM and PM)

Signal timing adjustments are recommended to reduce the 95th percentile back of queues at the following approach movements:

- SW 88th Street / SW 127th Avenue – SBL (AM and PM)

- SW 96th Street / SW 137th Avenue – EBL (PM), EBR (PM), WBL (PM)
- SW 104th Street / SW 132nd Avenue – EBL (AM)
- SW 104th Street / SW 127th Avenue – WBL (AM)
- SW 104th Street / SW 122nd Avenue – WBL (AM), SBL (AM)
- SW 96th Street / SW 127th Avenue – EBL (AM)

As with existing and future without project conditions, the unsignalized intersection of SW 127th Avenue and SW 97th Street also continues to experience delay during the AM peak hour. The project is proposing to install a traffic signal which will significantly improve the delays at this intersection. With the proposed traffic signal, the SW 97th Street / SW 127th Avenue intersection will operate within the adopted LOS standard.

To justify a traffic signal at the SW 97th Street / SW 127th Avenue intersection, a signal warrant analysis was performed. The signal warrant study was performed using the Manual on Uniform Traffic Control Devices (MUTCD) published by the Federal Highway Administration (FHWA) and the Florida Department of Transportation (FDOT) Manual on Uniform Traffic Studies (MUTS). Meeting at least one of the signal warrants is a requirement before a signal can be installed. MDC must agree with the need and consider other issues and concerns before approving any new traffic signal. Results of the signal warrant analysis shows that for future conditions with project traffic, Warrants 1, 2, and 3 are satisfied at this intersection. Therefore, the proposed traffic signal at the intersection of SW 97th Street / SW 127th Avenue is warranted.

An assessment of queuing at the main and secondary entrances during the PM peak period of the generator (worst case scenario) was performed based on the ITE's Transportation and Land Development publication. The results of the queuing analysis at the main entrance shows that there will be a queue of one vehicle expected at the residential lane and a queue of six vehicles at the visitors' lane during the peak hour. The main gate provides a storage of 225 feet (13 vehicles) at the residential lane and 190 feet (9 vehicles) at the visitors' lane. These storage lengths are sufficient to accommodate the expected queue. The results of the queuing analysis at the secondary entrance (residents only) shows that there will be a queue of one vehicle expected during

the PM peak hour of generator. The residents lane provides 40 feet of storage (two 2 vehicles). Therefore, the expected queues will be accommodated within the project limits.

As part of the study, the mobility and circulation within the study area was evaluated. The study shows that the project area is currently served by Miami-Dade Transit bus routes 288 (Kendall Cruiser), 137, 204 (Killian Kat), 88, and 104. Existing retail, and restaurants along SW 88th Street, SW 127th Avenue and SW 137th Avenue are in close proximity to the project and contribute to pedestrian and bicycle activity. All major intersections and major roadways in the project area have sidewalks and clearly marked crosswalks to facilitate pedestrian and bicycle activity. These conditions encourage the use of other modes of transportation, therefore, reducing the vehicular impact on the roadway network.

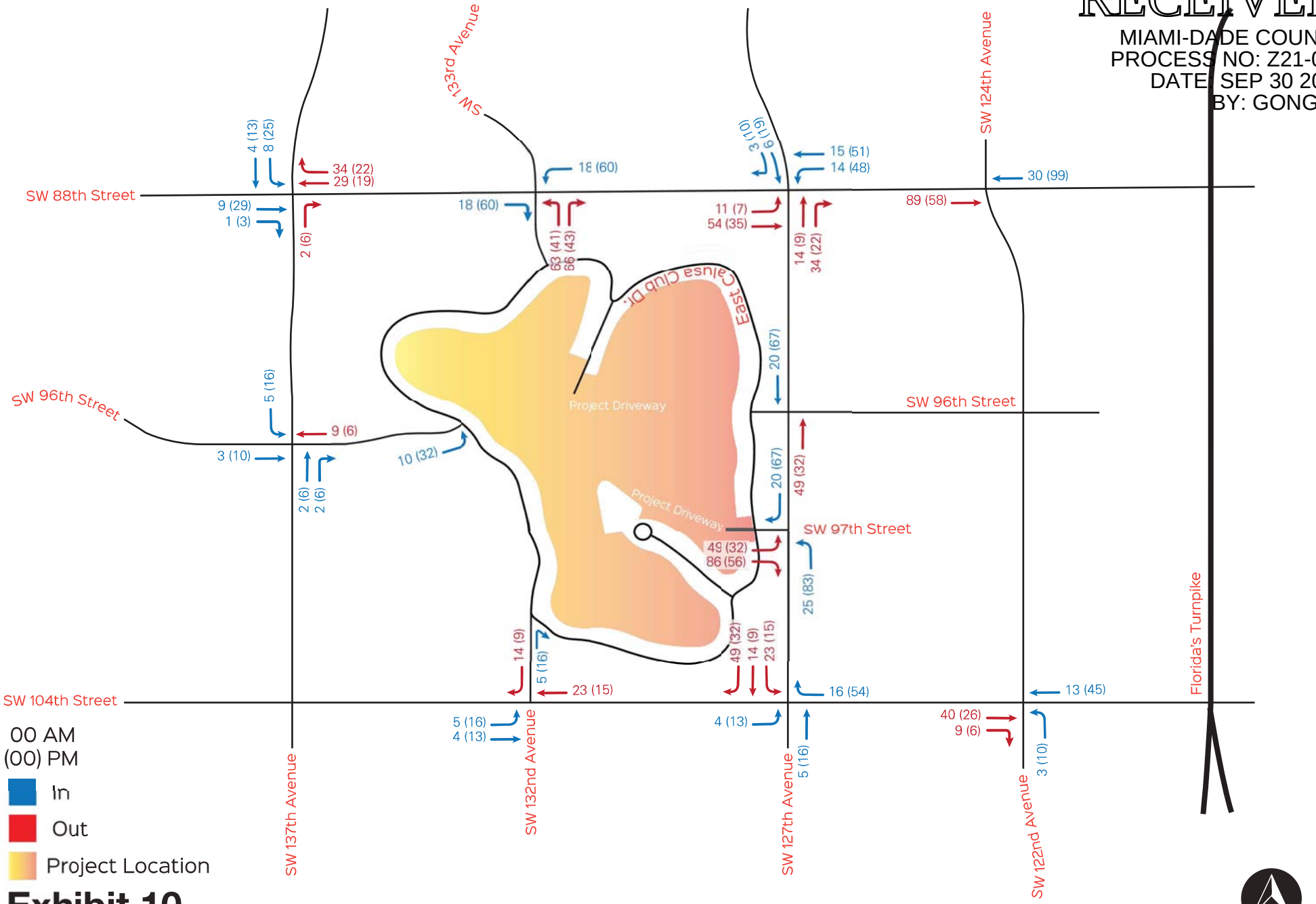


Exhibit 10

Project Trip Assignment

NORTH
MAP NOT TO SCALE

APPENDIX H
TRIP GENERATION DATA

TRIP GENERATION ANALYSIS
KENDALL BAPTIST

DAILY

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Proposed Uses								
Medical-Dental Office	720	52,600 SF	T = 38.42 (X) - 87.62	50%	50%	967	966	1,933
Multifamily Housing (Mid-Rise)	221	342 DU	T = 5.45 (X) - 1.75	50%	50%	931	931	1,862
			Total			1,898	1,897	3,795
			Non-Vehicular Reduction (2.3%)			21	21	43
			Net New Trips			**1,877**	**1,876**	**3,752**

MORNING PEAK HOUR

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Proposed Uses								
Medical-Dental Office	720	52,600 SF	Ln (T) = 0.89 Ln(X) + 1.31	78%	22%	98	28	126
Multifamily Housing (Mid-Rise)	221	342 DU	T = 0.36 (X) 0.00	26%	74%	32	91	123
			Total			130	119	249
			Non-Vehicular Reduction (2.3%)			1	2	3
			Net New Trips			**129**	**117**	**246**

AFTERNOON PEAK HOUR

Land Use	ITE Code	Size	Trip Generation Rate	In	Out	Total Trips		
						In	Out	Total
Proposed Uses								
Medical-Dental Office	720	52,600 SF	T = 3.39 (X) + 2.02	28%	72%	50	130	180
Multifamily Housing (Mid-Rise)	221	342 DU	T = 0.44 (X) 0.00	61%	39%	92	58	150
			Total			142	188	330
			Non-Vehicular Reduction (2.3%)			2	1	3
			Net New Trips			**140**	**187**	**327**

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Medical-Dental Office Building
(720)

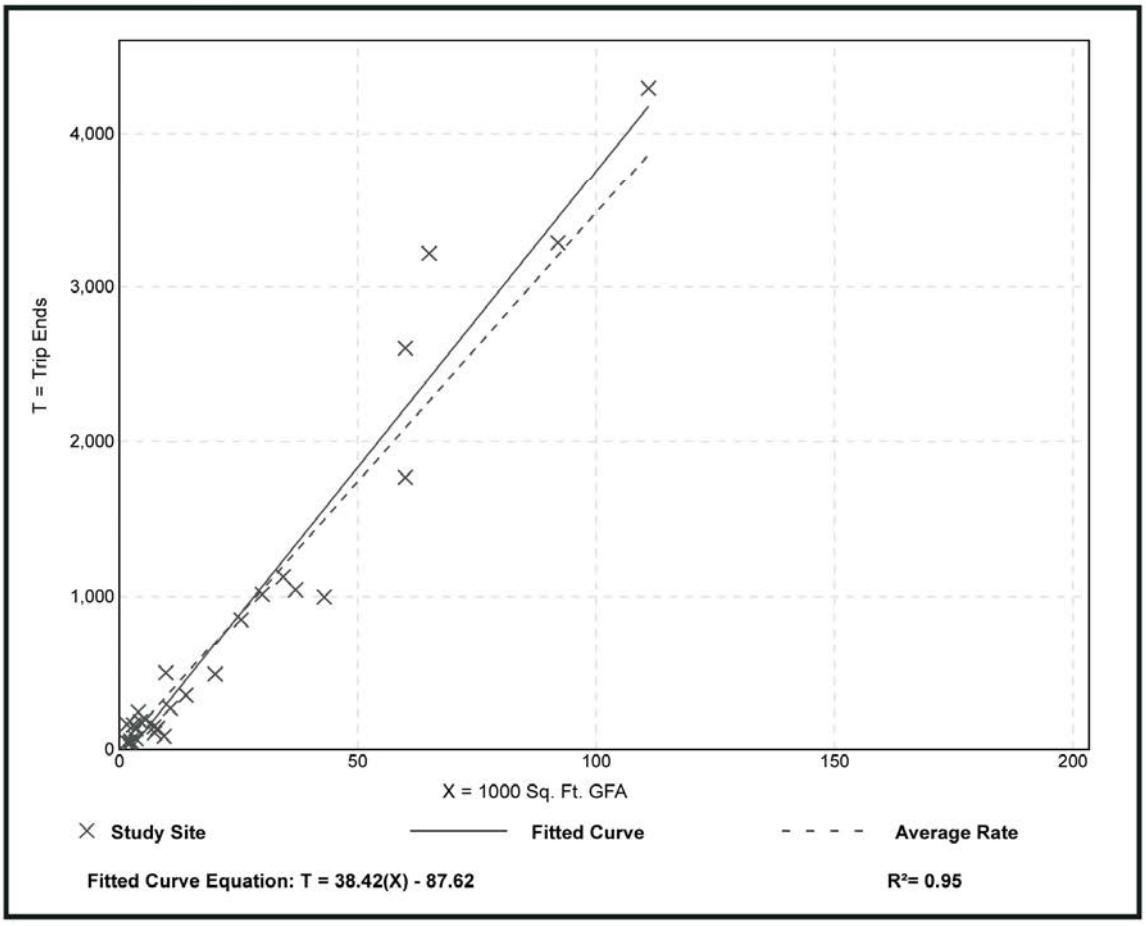
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
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



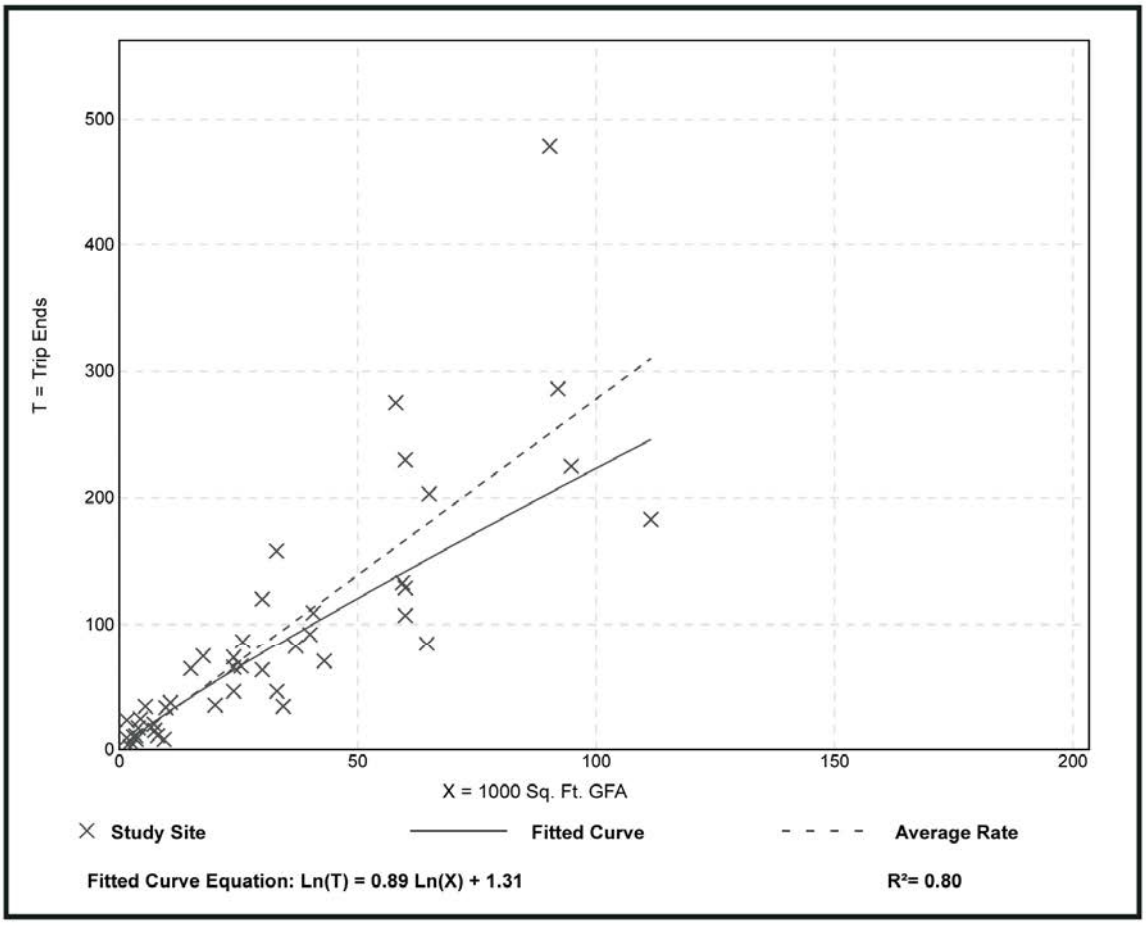
Medical-Dental Office Building
(720)

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
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



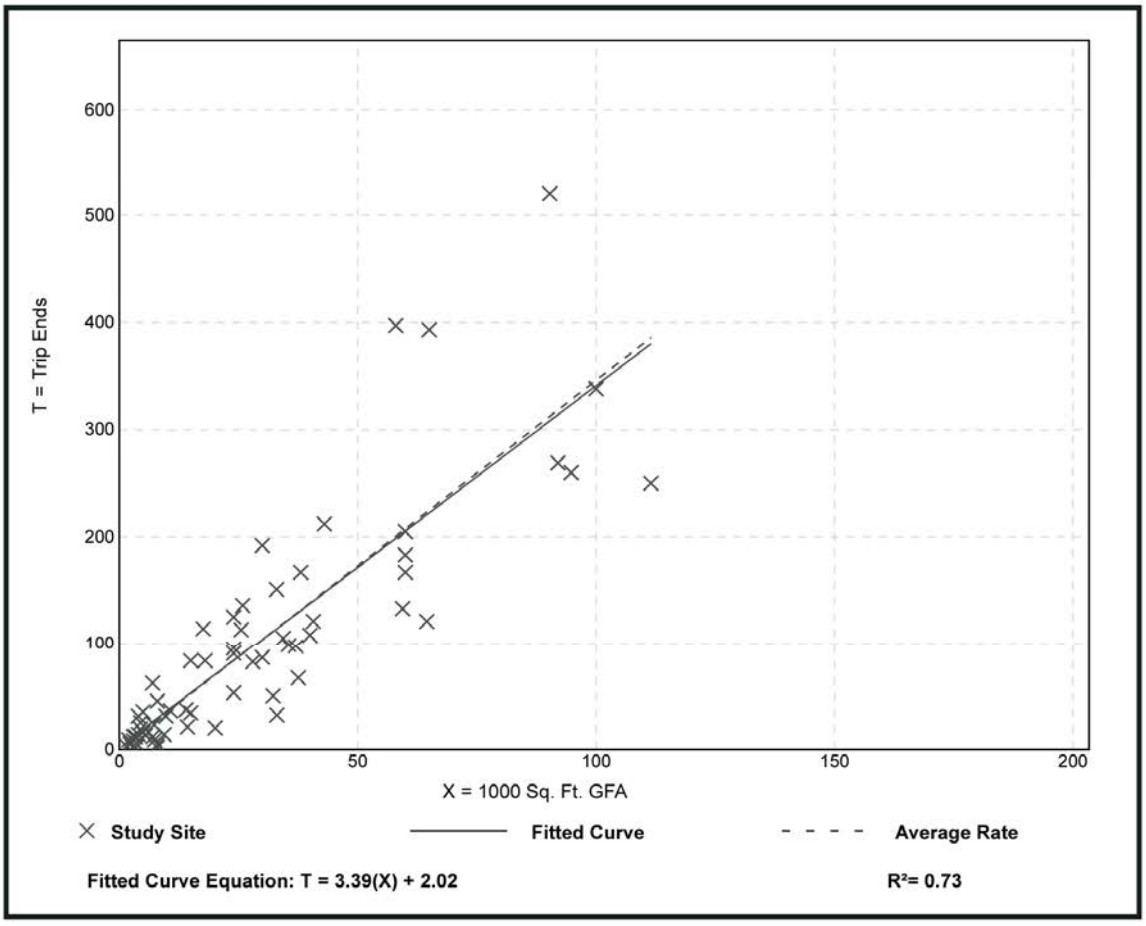
Medical-Dental Office Building
(720)

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
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



Multifamily Housing (Mid-Rise)
(221)

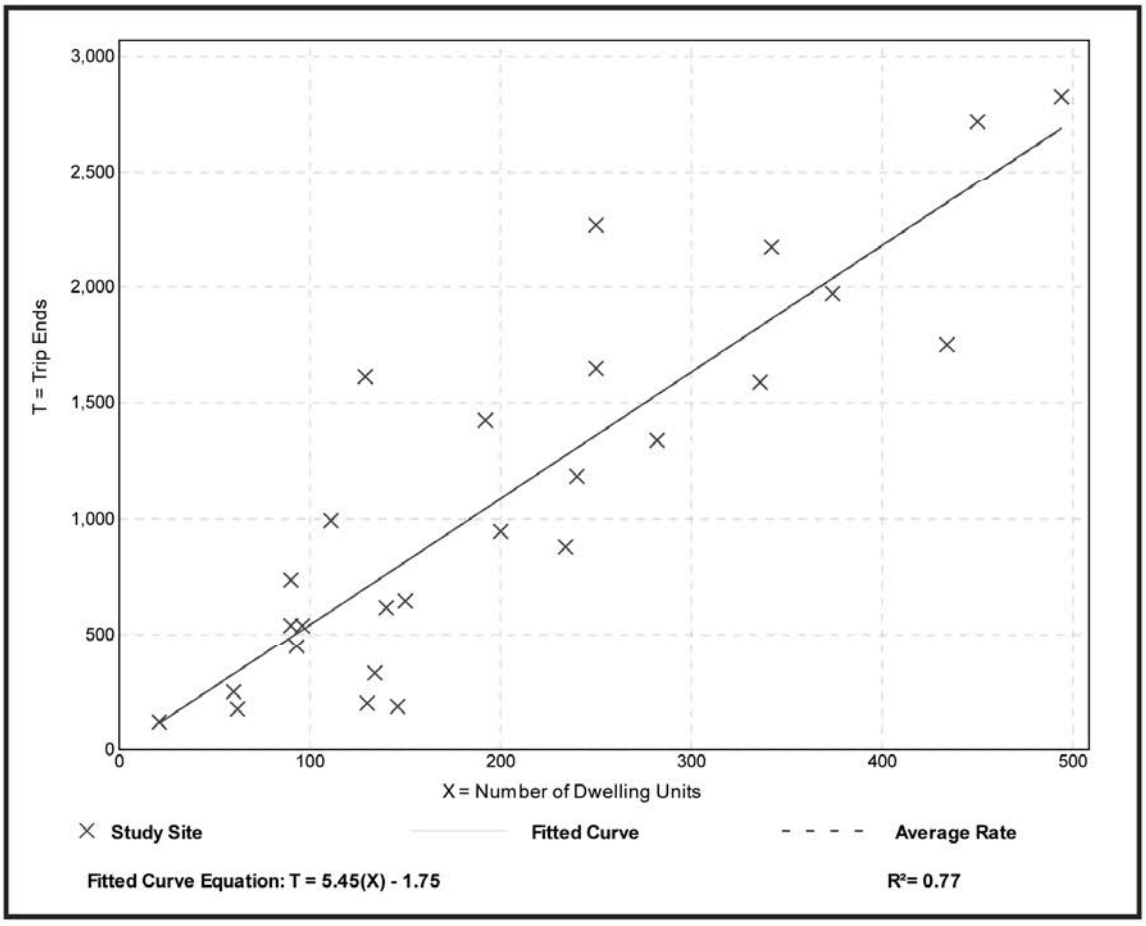
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 27
Avg. Num. of Dwelling Units: 205
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
5.44	1.27 - 12.50	2.03

Data Plot and Equation



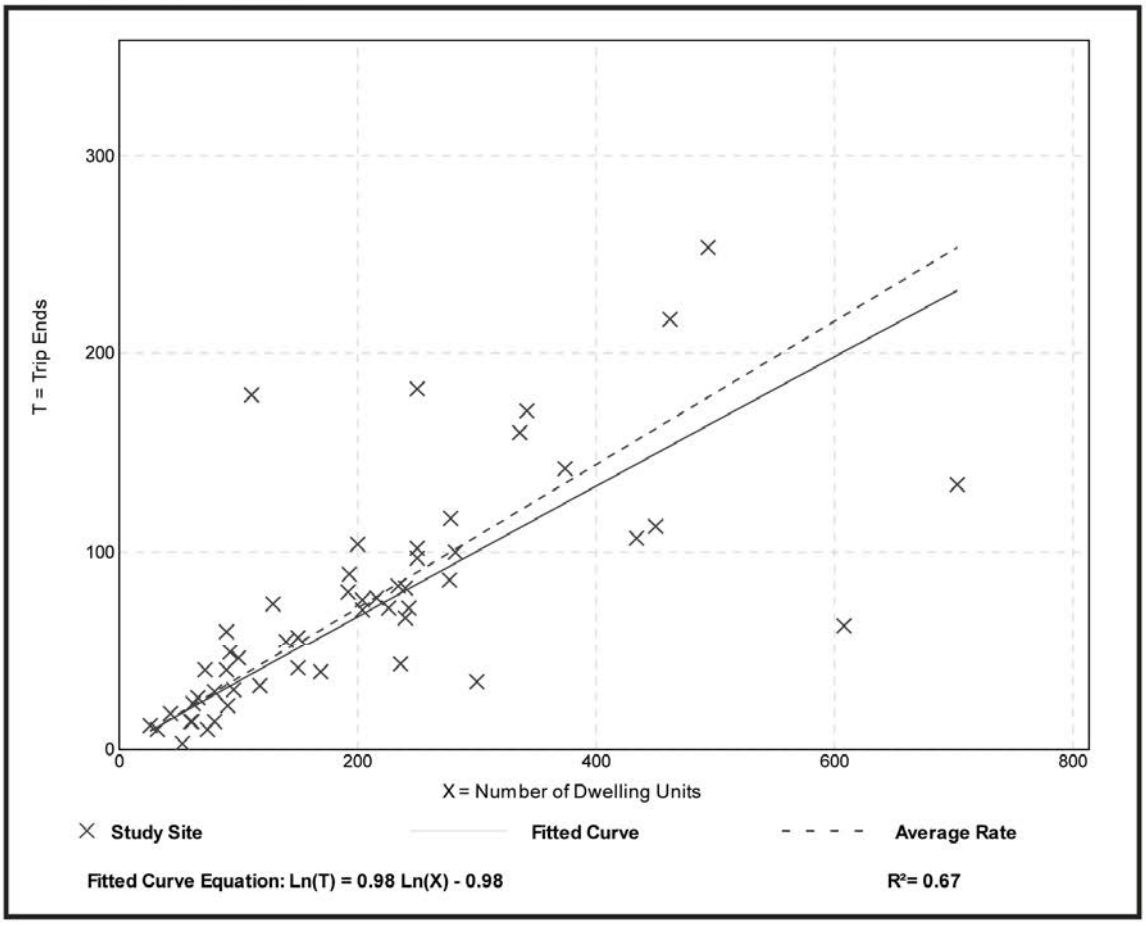
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 53
Avg. Num. of Dwelling Units: 207
Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

Data Plot and Equation



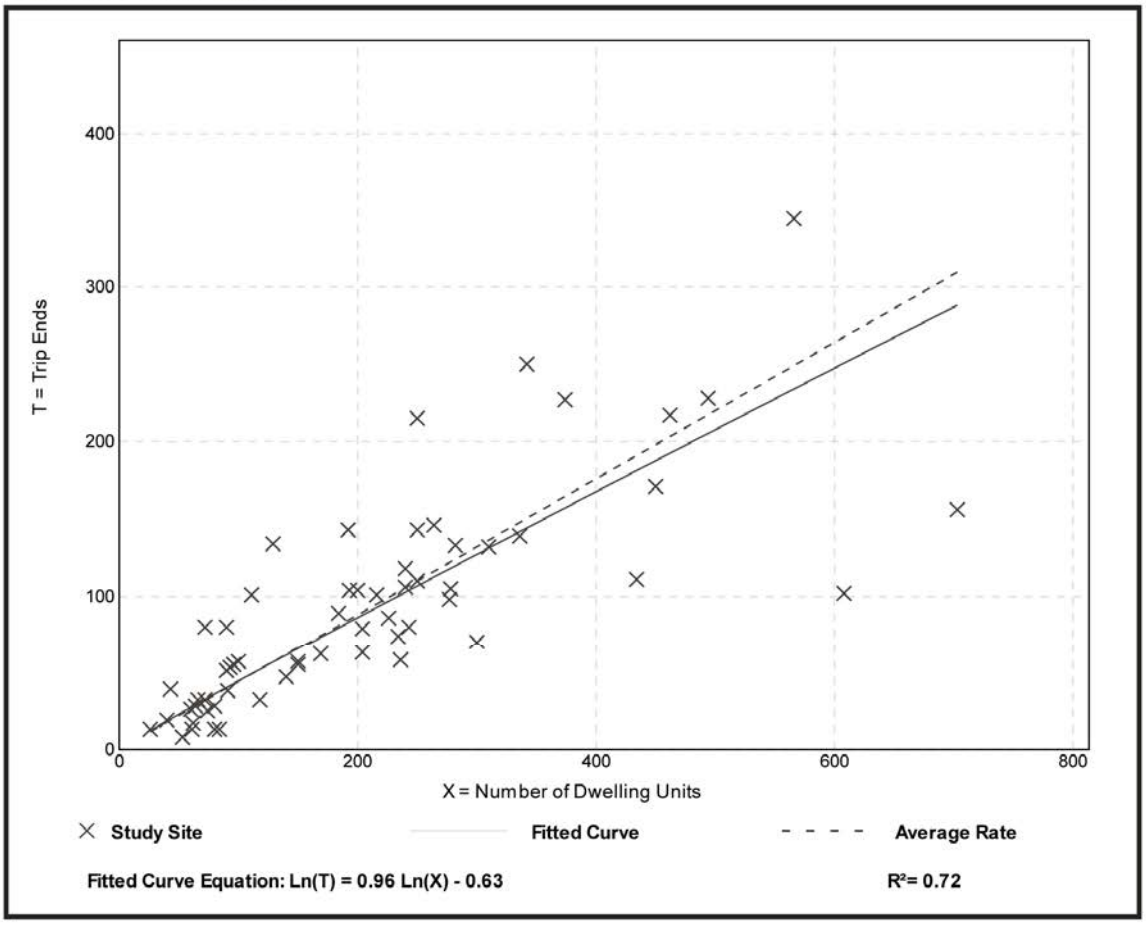
Multifamily Housing (Mid-Rise)
(221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 60
Avg. Num. of Dwelling Units: 208
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

Data Plot and Equation



APPENDIX I
REPORT EXCERPT

RECEIVED
MIAMI-DADE COUNTY
PROCESS NO: Z21-047
DATE: SEP 30 2021
BY: GONGOL

TABLE 2 Results of SYNCHRO Dunwoody Lakes			
	Level of Service – AM Peak (PM Peak)		
Intersection/Movement	**Existing**	**Background**	**Total**
NW 87th Ave/NW 154th Street	C (C)	D (C)	D (C)
- Northbound	C (C)	C (C)	C (C)
- Southbound	C (B)	C (B)	C (B)
- Eastbound	E (E)	E (E)	D (D)
- Westbound	D (D)	D (D)	D (D)
NW 87th Ave/Project Driveway			
- EB Left	-	-	E (C)
- EB Right	-	-	B (B)
- NB Left	-	-	B (A)
NW 154th Street/Project Driveway			
- NB Approach	-	-	A (A)
- SB Approach	-	-	C (B)
- EB Left	-	-	A (A)

SOURCE: SYNCHRO

6) Stacking for the Visitor's Lane and Resident's Lane

In order to determine the stacking requirements associated with the visitor's lane (critical lane from a queuing standpoint), a queuing analysis was undertaken. As indicated in Table 1, the maximum number of inbound vehicles associated with this project, during a one-hour period, is approximately 233 vehicles. Based on ULI *Shared Parking* document, visitors account for approximately eight percent (8%) of the total residential traffic. Hence, 8% of the peak inbound traffic flow is approximately 19 vehicles. A queuing analysis was conducted in order to ensure that the on-site stacking is sufficient to accommodate the maximum inbound vehicular demand anticipated at this facility. The length of queue anticipated was determined using information contained in ITE's *Transportation and Land Development*, Chapter 8 – Drive-In Facilities[1]. For this analysis, the following input variables were used:

- Service Rate: Based on wait-time studies conducted by Traf Tech Engineering at residential developments, the average wait time is approximately two (2) minutes per vehicle for the visitor's lane.

- Demand Rate: As indicated above, a maximum of 19 inbound vehicles will arrive during the highest hour at the visitor's lane.

[1] By Vergil G. Stover and Frank J. Koepke.

APPENDIX J
SERVICE TIME DATA

Langan Engineering and Environmental Services, Inc.
110 E. Broward Boulevard, Suite 1500
Fort Lauderdale, Florida 33301

Fiji at the Oasis (Homestead, Florida)
Resident Entrance Gate - Remote Control
Afternoon Peak Hour

File Name : 2019-09-18 fiji visitor data
Site Code : 00000222
Start Date : 9/18/2019

Ln.	No.	Joined Queue	Released From Queue	Delay
1	4	3:30:52 PM	3:30:53 PM	1
1	5	3:32:26 PM	3:32:28 PM	2
1	6	3:32:38 PM	3:32:39 PM	1
1	7	3:34:09 PM	3:34:11 PM	2
1	8	3:35:11 PM	3:35:12 PM	1
1	9	3:40:46 PM	3:40:48 PM	2
1	10	3:43:04 PM	3:43:06 PM	2
1	11	3:43:42 PM	3:43:43 PM	1
1	12	3:44:30 PM	3:44:33 PM	3
1	13	3:45:17 PM	3:45:19 PM	2
1	14	3:47:18 PM	3:47:20 PM	2
1	15	3:50:58 PM	3:50:59 PM	1
1	16	3:52:00 PM	3:52:02 PM	2
1	17	3:52:40 PM	3:52:41 PM	1
1	18	3:52:59 PM	3:53:01 PM	2
1	19	3:54:52 PM	3:54:55 PM	3
1	20	3:58:18 PM	3:58:20 PM	2
1	21	3:59:03 PM	3:59:07 PM	4
1	22	3:59:22 PM	3:59:25 PM	3
1	23	3:59:56 PM	3:59:59 PM	3
1	24	4:00:38 PM	4:00:40 PM	2
1	25	4:01:15 PM	4:01:18 PM	3
1	26	4:01:29 PM	4:01:32 PM	3
1	27	4:01:51 PM	4:01:55 PM	4
1	28	4:03:34 PM	4:03:37 PM	3
1	29	4:04:47 PM	4:04:51 PM	4
1	30	4:05:38 PM	4:05:41 PM	3
1	31	4:07:59 PM	4:08:02 PM	3
1	32	4:10:42 PM	4:10:45 PM	3
1	33	4:11:48 PM	4:11:51 PM	3
1	34	4:12:04 PM	4:12:07 PM	3
1	35	4:13:02 PM	4:13:06 PM	4
1	36	4:13:23 PM	4:13:27 PM	4
1	37	4:14:18 PM	4:14:22 PM	4
1	38	4:14:50 PM	4:14:53 PM	3
1	39	4:16:01 PM	4:16:05 PM	4
1	40	4:16:18 PM	4:16:23 PM	5
1	41	4:16:25 PM	4:16:27 PM	2
1	42	4:16:32 PM	4:16:36 PM	4
1	43	4:18:49 PM	4:18:51 PM	2
1	44	4:19:14 PM	4:19:17 PM	3
1	45	4:20:19 PM	4:20:23 PM	4
1	46	4:20:28 PM	4:20:32 PM	4
1	47	4:20:52 PM	4:20:55 PM	3
1	48	4:21:16 PM	4:21:20 PM	4
1	49	4:21:58 PM	4:22:02 PM	4
1	50	4:22:08 PM	4:22:11 PM	3
1	51	4:22:23 PM	4:22:28 PM	5
1	52	4:22:45 PM	4:22:48 PM	3
1	53	4:23:02 PM	4:23:05 PM	3
1	54	4:23:10 PM	4:23:14 PM	4
1	55	4:23:42 PM	4:23:45 PM	3
1	56	4:23:50 PM	4:23:53 PM	3
1	57	4:26:25 PM	4:26:28 PM	3
1	58	4:26:31 PM	4:26:33 PM	2
1	59	4:27:33 PM	4:27:36 PM	3
1	60	4:27:37 PM	4:27:40 PM	3
1	61	4:29:54 PM	4:29:58 PM	4
1	62	4:30:41 PM	4:30:44 PM	3

Langan Engineering and Environmental Services, Inc.
110 E. Broward Boulevard, Suite 1500
Fort Lauderdale, Florida 33301

File Name : 2019-09-18 fiji visitor data
Site Code : 00000222
Start Date : 9/18/2019

Ln.	No.	Joined Queue	Released From Queue	Delay
1	63	4:30:46 PM	4:30:49 PM	3
1	64	4:32:37 PM	4:32:39 PM	2
1	65	4:33:41 PM	4:33:44 PM	3
1	66	4:34:43 PM	4:34:46 PM	3
1	67	4:36:57 PM	4:36:59 PM	2
1	68	4:37:07 PM	4:37:10 PM	3
1	69	4:40:33 PM	4:40:35 PM	2
1	70	4:42:14 PM	4:42:17 PM	3
1	71	4:46:14 PM	4:46:17 PM	3
1	72	4:47:50 PM	4:47:54 PM	4
1	73	4:47:56 PM	4:47:58 PM	2
1	74	4:48:15 PM	4:48:18 PM	3
1	75	4:48:28 PM	4:48:30 PM	2
1	76	4:49:27 PM	4:49:29 PM	2
1	77	4:49:31 PM	4:49:33 PM	2
1	78	4:51:53 PM	4:51:55 PM	2
1	79	4:53:00 PM	4:53:03 PM	3
1	80	4:53:11 PM	4:53:14 PM	3
1	81	4:53:53 PM	4:53:56 PM	3
1	82	4:54:42 PM	4:54:45 PM	3
1	83	4:55:13 PM	4:55:17 PM	4
1	84	4:55:45 PM	4:55:48 PM	3
1	85	4:57:01 PM	4:57:03 PM	2
1	86	4:59:20 PM	4:59:23 PM	3
1	87	5:04:54 PM	5:04:56 PM	2
1	88	5:05:01 PM	5:05:04 PM	3
1	89	5:05:44 PM	5:05:47 PM	3
1	90	5:05:59 PM	5:06:02 PM	3
1	91	5:07:57 PM	5:08:00 PM	3
1	92	5:08:27 PM	5:08:30 PM	3
1	93	5:09:34 PM	5:09:37 PM	3
1	94	5:09:56 PM	5:09:59 PM	3
1	95	5:11:14 PM	5:11:17 PM	3
1	96	5:11:20 PM	5:11:23 PM	3
1	97	5:11:53 PM	5:11:55 PM	2
1	98	5:13:07 PM	5:13:10 PM	3
1	99	5:13:13 PM	5:13:15 PM	2
1	100	5:13:20 PM	5:13:23 PM	3
1	101	5:14:32 PM	5:14:34 PM	2
1	102	5:14:57 PM	5:15:01 PM	4
1	103	5:16:49 PM	5:16:51 PM	2
1	104	5:16:56 PM	5:16:59 PM	3
1	105	5:17:38 PM	5:17:41 PM	3
1	106	5:18:04 PM	5:18:07 PM	3
1	107	5:18:10 PM	5:18:12 PM	2
1	108	5:18:15 PM	5:18:17 PM	2
1	109	5:19:04 PM	5:19:06 PM	2
1	110	5:21:28 PM	5:21:31 PM	3
1	111	5:21:45 PM	5:21:48 PM	3
1	112	5:23:12 PM	5:23:16 PM	4
1	113	5:25:16 PM	5:25:18 PM	2
1	114	5:25:22 PM	5:25:24 PM	2
1	115	5:28:34 PM	5:28:37 PM	3
1	116	5:31:28 PM	5:31:31 PM	3
1	117	5:31:48 PM	5:31:51 PM	3
1	118	5:32:17 PM	5:32:20 PM	3
1	119	5:33:06 PM	5:33:11 PM	5
1	120	5:33:19 PM	5:33:21 PM	2
1	121	5:33:27 PM	5:33:31 PM	4
1	122	5:34:39 PM	5:34:42 PM	3
1	123	5:34:46 PM	5:34:50 PM	4

Langan Engineering and Environmental Services, Inc.
110 E. Broward Boulevard, Suite 1500
Fort Lauderdale, Florida 33301

File Name : 2019-09-18 fiji visitor data
Site Code : 00000222
Start Date : 9/18/2019

Ln.	No.	Joined Queue	Released From Queue	Delay
1	124	5:34:59 PM	5:35:01 PM	2
1	125	5:35:07 PM	5:35:09 PM	2
1	126	5:36:00 PM	5:36:02 PM	2
1	127	5:37:06 PM	5:37:09 PM	3
1	128	5:37:28 PM	5:37:31 PM	3
1	129	5:38:20 PM	5:38:23 PM	3
1	130	5:40:10 PM	5:40:13 PM	3
1	131	5:41:05 PM	5:41:08 PM	3
1	132	5:41:56 PM	5:41:58 PM	2
1	133	5:42:00 PM	5:42:02 PM	2
1	134	5:42:05 PM	5:42:07 PM	2
1	135	5:42:10 PM	5:42:12 PM	2
1	136	5:43:36 PM	5:43:38 PM	2
1	137	5:44:08 PM	5:44:13 PM	5
1	138	5:45:45 PM	5:45:47 PM	2
1	139	5:46:44 PM	5:46:47 PM	3
1	140	5:46:54 PM	5:46:57 PM	3
1	141	5:48:51 PM	5:48:53 PM	2
1	142	5:48:56 PM	5:48:59 PM	3
1	143	5:49:06 PM	5:49:09 PM	3
1	144	5:49:47 PM	5:49:50 PM	3
1	145	5:50:20 PM	5:50:23 PM	3
1	146	5:50:31 PM	5:50:33 PM	2
1	147	5:50:35 PM	5:50:38 PM	3
1	148	5:50:40 PM	5:50:43 PM	3
1	149	5:50:49 PM	5:50:51 PM	2
1	150	5:50:56 PM	5:51:00 PM	4
1	151	5:51:12 PM	5:51:15 PM	3
1	152	5:52:01 PM	5:52:03 PM	2
1	153	5:52:44 PM	5:52:46 PM	2
1	154	5:52:49 PM	5:52:51 PM	2
1	155	5:53:00 PM	5:53:02 PM	2
1	156	5:53:09 PM	5:53:11 PM	2
1	157	5:53:41 PM	5:53:43 PM	2
1	158	5:53:45 PM	5:53:47 PM	2
1	159	5:54:33 PM	5:54:34 PM	1
1	160	5:54:43 PM	5:54:45 PM	2
1	161	5:55:38 PM	5:55:41 PM	3
1	162	5:55:48 PM	5:55:52 PM	4
1	163	5:55:59 PM	5:56:03 PM	4
1	164	5:56:22 PM	5:56:25 PM	3
1	165	5:56:28 PM	5:56:31 PM	3
1	166	5:59:04 PM	5:59:07 PM	3
1	167	5:59:10 PM	5:59:13 PM	3
1	168	5:59:55 PM	5:59:57 PM	2
1	169	6:01:22 PM	6:01:23 PM	1
1	170	6:01:26 PM	6:01:28 PM	2
1	171	6:02:46 PM	6:02:49 PM	3

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Fort Lauderdale, Florida 33301

File Name : 2019-09-18 fiji visitor data
Site Code : 00000222
Start Date : 9/18/2019
Page No : 4

Summary Information:

3:30:00 PM - 6:03:00 PM	Resident Entrance
Total Vehicle Count:	168
Delayed Vehicle Count:	168
Through Vehicle Count:	0
Average Stopped Time:	2.76
Maximum Stopped Time:	5
Min. Secs. for Delay:	0
Average Queue:	0.05
Queue Density:	1.00
Maximum Queue:	1
Delay in Vehicle Hour:	0.05
Total Delay:	464

Langan Engineering and Environmental Services, Inc.
110 E. Broward Boulevard, Suite 1500
Fort Lauderdale, Florida 33301

Fiji at the Oasis (Homestead, Florida)
Call Box Visitor Entrance
Afternoon Peak Hour

File Name : 2019-09-18 fiji visitor data
Site Code : 00000222
Start Date : 9/18/2019

Ln.	No.	Joined Queue	Released From Queue	Delay
2	1	3:30:32 PM	3:31:34 PM	62
2	2	3:33:14 PM	3:33:59 PM	45
2	3	3:34:17 PM	3:34:23 PM	14
2	4	3:36:21 PM	3:36:37 PM	16
2	5	3:41:05 PM	3:41:07 PM	18
2	6	3:44:35 PM	3:44:42 PM	21
2	7	3:44:50 PM	3:44:58 PM	16
2	8	3:50:28 PM	3:50:51 PM	23
2	9	3:58:42 PM	3:58:56 PM	14
2	10	3:59:51 PM	4:00:36 PM	45
2	11	4:01:49 PM	4:02:07 PM	18
2	12	4:02:15 PM	4:02:30 PM	15
2	13	4:04:32 PM	4:04:45 PM	13
2	14	4:04:55 PM	4:05:04 PM	16
2	15	4:05:08 PM	4:05:32 PM	24
2	16	4:05:51 PM	4:06:06 PM	15
2	17	4:07:39 PM	4:07:52 PM	13
2	18	4:09:12 PM	4:09:47 PM	35
2	19	4:14:33 PM	4:14:45 PM	12
2	20	4:18:09 PM	4:18:19 PM	14
2	21	4:25:44 PM	4:26:10 PM	26
2	22	4:27:17 PM	4:27:32 PM	15
2	23	4:27:42 PM	4:28:02 PM	20
2	24	4:28:48 PM	4:29:04 PM	16
2	25	4:32:21 PM	4:32:34 PM	13
2	26	4:35:47 PM	4:36:05 PM	18
2	27	4:37:59 PM	4:38:55 PM	56
2	28	4:40:47 PM	4:41:01 PM	14
2	29	4:55:52 PM	4:56:06 PM	14
2	30	5:09:46 PM	5:10:02 PM	16
2	31	5:14:55 PM	5:15:24 PM	29
2	32	5:20:01 PM	5:20:15 PM	14
2	33	5:22:05 PM	5:22:35 PM	30
2	34	5:25:25 PM	5:25:38 PM	13
2	35	5:27:26 PM	5:27:52 PM	26
2	36	5:28:31 PM	5:28:59 PM	28
2	37	5:31:33 PM	5:31:56 PM	23
2	38	5:34:05 PM	5:34:23 PM	18
2	39	5:36:41 PM	5:37:13 PM	32
2	40	5:40:24 PM	5:40:38 PM	14
2	41	5:40:44 PM	5:41:01 PM	17
2	42	5:46:41 PM	5:46:52 PM	11

Summary Information:

3:30:00 PM - 6:00:00 PM	Visitor Entrance
Total Vehicle Count:	42
Delayed Vehicle Count:	42
Through Vehicle Count:	0
Average Stopped Time:	21.71
Maximum Stopped Time:	62
Min. Secs. for Delay:	0
Average Queue:	0.10
Queue Density:	1.00
Maximum Queue:	1
Delay in Vehicle Hour:	0.11
Total Delay:	912

APPENDIX K
ITE EXCERPTS & QUEUING ANALYSIS CALCULATIONS

QUEUING ANALYSIS KENDALL BAPTIST

Estimated Service Time

Entrance Type	Time (min)
Visitor/Resident	2.00
Resident Only	0.15

Peak Hour Trip Generation

Ingress Type	Inbound
Residents	83
Visitors	7
Total	90

Visitor versus Resident Trip Generation Calculation	
Highest Ingress	90
Percent Visitors	8%
Number of Total Visitor Peak Hour Inbound	7
Number of Total Residents Peak Hour Inbound	83

Afternoon Peak Hour Visitor Lane Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **7**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **2.00**

N	Q	q	r	Q_m	M
1	30	7	0.2333	0.2333	**0.1**

Afternoon Peak Hour Resident Lane Queuing Analysis

Peak Hour Arrival Rate (veh/hr): **83**
Probablity of Back-up on Adjacent Street: **5%**
Service Time (min): **0.15**

N	Q	q	r	Q_m	M
1	400	82.884	0.2072	0.2072	**0.0**

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 length, number of attendants and utilization factor (ITE Transportation and Land
- **M** = Queue length which is exceeded 5% of the time (veh)

Table of Q_m Values

r	N=1	2	3	4	6	8	10
0.1	0.1000	0.0182	0.0037	0.0008	0.0000	0.0000	0.0000
0.2	0.2000	0.0666	0.0247	0.0093	0.0015	0.0002	0.0000
0.3	0.3000	0.1385	0.0700	0.0370	0.0111	0.0036	0.0011
0.4	0.4000	0.2286	0.1411	0.0907	0.0400	0.0185	0.0088
0.5	0.5000	0.3333	0.2368	0.1739	0.0991	0.0591	0.0360
0.6	0.6000	0.4501	0.3548	0.2870	0.1965	0.1395	0.1013
0.7	0.7000	0.5766	0.4923	0.4286	0.3359	0.2706	0.2218
0.8	0.8000	0.7111	0.6472	0.5964	0.5178	0.4576	0.4093
0.9	0.9000	0.8526	0.8172	0.7878	0.7401	0.7014	0.6687
1.0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

* ITE Transportation and Development Table 8.11

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OF
TRANSPORTATION ENGINEERS

Transportation and Land Development

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

*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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