

340 W 42nd Street
Transportation Impact Study



Prepared By:
David Plummer & Associates

Prepared For:
JP Roosevelt, LLC
Prepared In:
February 2018

DPA Job #:
15231

Responses to City of Miami Beach Comments February (*February 7, 2018*)

Re: 340 W 42 Street Traffic Impact Analysis Review

- 1. Traffic counts used, for the existing analysis, were collected in 2016. The counts should be adjusted with the annual growth rate.**

Response: As request the existing counts have been grown two years for existing conditions (2018). Intersection analysis, tables and exhibits have been revised as necessary.

- 2. The most recent signal timing sheets should be obtained by MDC traffic operations. The print date on the signal times are from 2016 on some intersections.**

Response: Signal timing sheets dated 2016 were removed from the appendix as they were no longer used for synchro analyses. The most current signal timing sheets available (dated Dec 2017) were downloaded and used for synchro analysis for existing and future conditions. These were included in Appendix C.

- 3. Trip generation figures are based on the ITE Trip Generation Manual 9th Edition. Trip generation rates should be updated with the information contained in the latest ITE Trip Generation Manual 10th Edition. Based on the new trip generation figures the traffic should be modified to reflect the new trips. Upon determination of the new land uses please inform us to approve the selection.**

Response: As requested, trip generation calculation has been updated based on the ITE Trip Generation Manual 10th Edition. Land use selection has been approved by the city.

- 4. Please elaborate the volume redistribution due to the proposed reconfiguration of w 42nd street, what assumptions have been made.**

Response: Current movements that drivers make based on existing roadway restrictions that after the two-way conversion drivers might choose an alternate route were used to determine diversions. An initial percentage of these movements volume was deducted and diverted to the new routes. For example 10% of the southbound through volume at the Sheridan Avenue / 42nd Street intersection was diverted to the southbound left movement. Diversions also account for the illegal U-turns and left turns at the Pine Tree Drive / 42nd Street intersection (see Attachment A).

- 5. Pass-by trip reduction is mentioned in the report however it is not clear if the pass-by trips were reflected in the trip generation figures. The HSBC bank is an existing development. Therefore there should not be any pass-by trip reduction applied to the trip generation of the bank.**

Response: As previously mentioned generation calculation has been updated based on the ITE Trip Generation Manual 10th Edition. Land use selection has been approved by the city. ITE provides pass-by for two of the land uses selected. Therefore the text was updated to reflect the revisions.

6. There are discrepancies with the number of project trips and number of project trips displayed on the exhibits.

Response: Exhibits have been revised based on other comments.

7. Loading zone maneuverability is performed using a passenger vehicle. Please perform a new maneuverability study by utilizing a design vehicle DL-23. Please explain how garbage trucks will collect garbage and provide maneuverability analysis diagrams for this operation as well.

Response: The loading space is only 10 x 20, therefore only passenger van-sized delivery vehicles are allowed in the loading area. Trash pick-up will occur on-street; trash bins will be wheeled out to the curb on Sheridan Street for pick up.

8. Please show all valet locations and please confirm that retail and restaurant will definitely not utilize valet service.

Response: Only the residential component can use valet services.

9. On the site plan it is displayed that there will be a restaurant use. The trip generation only accounts for retail and residential land uses. Can you clarify if the developer's intent is to utilize this area as a restaurant or retail.

Response: Revised traffic study includes the restaurant land use.

10. For the roadway LOS analysis, approved committed development trips will need to be incorporated to the traffic volumes. The committed development within close vicinity is the 4000 Collins project. I will provide this study to you.

Response: As requested the committed development has been included in the revised traffic analysis.

PROFESSIONAL ENGINEER CERTIFICATE

I hereby certify that I am a registered professional engineer in the State of Florida practicing with David Plummer and Associates, Inc., a corporation authorized to operate as an engineering business by the State of Florida Department of Professional Regulations, Board of Professional Engineers and that I have prepared or approved the evaluation, findings, conclusions, or technical advice hereby for:

Project: 340 W 42nd Street Site – Traffic Study
Location: Miami Beach
Client: JP Roosevelt, LLC

I acknowledge that the procedures and references used to develop the results contained in these computations are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

Name: Sarah Fiol, P.E.
P.E. Number: 82340
Date: February 15, 2018

Signature:

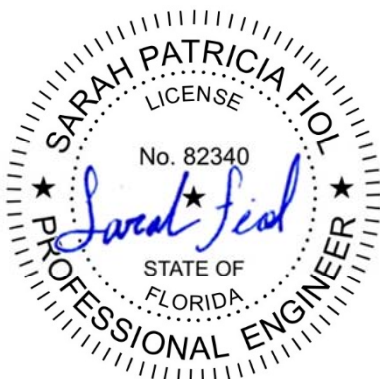


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EXECUTIVE SUMMARY

The 340 W 42nd Street Site (aka HSBC Site) is located on the south side of W 42nd Street between Sheridan Avenue and Pine Tree Drive in Miami Beach, Florida. The project is proposing a new residential building with 55 units, 3,030 square feet of retail space and 2,115 square feet of restaurant. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building. Access to the project will be via a two-way driveway on Sheridan Avenue. A second driveway accessing Pine Tree Drive will be provided for bank teller circulation only. For the purpose of this traffic study, project build-out is anticipated by 2020.

An assessment of the traffic impacts associated with the proposed HSBC Site project was performed in accordance with the requirements of the City of Miami Beach. As with existing and future without project conditions, the minor approaches at the Pine Tree Drive / 41st Street intersection and at the Sheridan Avenue / 41st Street intersection continue to experience delays. This condition may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. However, in order to improve the operations of this intersection, the project is recommending the following improvements:

- Pine Tree Drive and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.
- Sheridan Avenue and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.

The results of the analysis show that with the signal timing improvements the overall LOS for all intersections is projected to be within the City's LOS standards.

In addition, a mobility and circulation plan was completed as part of the study. The plan shows that the project area is currently served by various Miami-Dade Transit bus routes. The project is located in an area that is conducive for pedestrian and bicycle activities providing shared bike lanes, ample sidewalks, and crosswalks.

1.0 INTRODUCTION

1.1 Project Background

The 340 W 42nd Street Site (aka HSBC Site) is located on the south side of W 42nd Street between Sheridan Avenue and Pine Tree Drive in Miami Beach, Florida (See Exhibit 1). The project is proposing a new residential building with 55 units, 3,030 square feet of retail space and 2,115 square feet of restaurant. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building. Access to the project will be via a two-way driveway on Sheridan Avenue. A second driveway accessing Pine Tree Drive will be provided for bank teller circulation only. The proposed site plan is included in Appendix A. For the purpose of this traffic study, project build-out is anticipated by 2020.

1.2 Study Objective

The project will be applying for permits from the City. As part of this permit, the City of Miami Beach will require traffic related studies. The purpose of this study is to assess the traffic impacts associated with the proposed project and to conduct a mobility and circulation analysis.



 Project Location

Exhibit 1

Location Map



1.3 Study Area and Methodology

The approved methodology is included in Appendix B. The following is a brief description of the study components and analysis undertaken:

- Traffic Counts (Intersections) – Two-hour turning movement counts were collected on Tuesday February 9th, 2016 during the AM (7-9 AM) and PM (4-6 PM) peak hours at the following intersections:
 - Pine Tree Drive / 41st Street (S)
 - Pine Tree Drive / 42nd Street (S)
 - Sheridan Avenue / 41st Street (S)
 - Sheridan Avenue / 42nd Street (U)

S = Signalized
U = Un-signalized
- Signal Location and Timing – Existing signal phasing and timing for the signalized intersections were obtained from Miami-Dade County. Signal timing plans are included in ***Appendix C, Traffic Data.***
- Future Transportation Projects – The 2017 Transportation Improvement Program (TIP) and the 2040 Long Range Transportation Plan (LRTP) were reviewed to include future transportation projects which add capacity to the network.
- Background Traffic – Available Florida Department of Transportation (FDOT) and Miami-Dade County (MDC) traffic counts were consulted to determine a growth factor consistent with historical annual growth in the area. The growth factor was applied to the existing traffic volumes to establish background traffic.
- Committed Developments – Future traffic associated with the committed developments in the vicinity of the project site was considered in the analysis.
- Project Trip Generation – Trip generation for the project was estimated using trip generation information published by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th edition and site-specific data.

- Project Trip Distribution / Trip Assignment – Net new external project vehicular trips were assigned to the adjacent street network using the appropriate cardinal distribution from the *Miami-Dade 2040 Long Range Transportation Plan*, published by the Metropolitan Planning Organization. Area traffic patterns were considered when assigning project trips. A figure showing all of the assigned project trips to the adjacent transportation network was provided as part of the study.
- Future Traffic Conditions – Project traffic was combined with background traffic and committed development traffic to obtain future conditions with project. Intersection capacity analyses were performed for existing and future with project conditions.
- Circulation Analysis/Plan – A circulation plan is provided depicting the project site, driveways, location of street signs/signals, crosswalks, sidewalks, location of bus facilities, and bike facilities in the vicinity of this project.

1.4 Project Site Information

The 340 W 42nd Street Site (aka HSBC Site) is located on the south side of W 42nd Street between Sheridan Avenue and Pine Tree Drive in Miami Beach, Florida. The project is proposing a new residential building with 55 units, 3,030 square feet of retail space and 2,115 square feet of restaurant. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building. Access to the project will be via a two-way driveway on Sheridan Avenue. A second driveway accessing Pine Tree Drive will be provided for bank teller circulation only.

The proposed project will provide 134 parking spaces and a total of 72 bike racks. Proposed parking garage will be provide valet for the residential component. The commercial/office component will be self-parking. The first and second floor of the parking garage will provide 21 and 30 parking spaces respectively. The third floor will provide 39 mechanical parking lifts (78 spaces) and 5 standard parking spaces. The proposed drop-off and pick-up areas are located on the first level. The 25 parking spaces for the Existing Office Building will be provided first floor and second floor of the parking garage. For the purpose of this traffic study, project build-out is anticipated by 2020.

2.0 EXISTING CONDITIONS

Data collection for this study included roadway characteristics, intersection traffic counts, signal timing, and seasonal adjustment factors. The data collection effort is described in the following sections.

2.1 Roadway Characteristics

Pine Tree Drive

Within the study area, Pine Tree Drive is a county collector roadway that provides north/south access. Between 41st Street and 42nd Street, Pine Tree Drive is a two-way, four-lane roadway divided road. On-street parking is not permitted along the roadway. The Miami-Dade County has jurisdiction over Pine Tree Drive. The speed limit is not posted on this segment of Pine Tree Drive, however, if not posted, the City's speed limit is 30 mph.

41st Street /Arthur Godfrey Road/ SR 112

Within the study area, 41st Street is a state principal arterial roadway that provides east/west access all along the City of Miami Beach. West of Indian Creek Drive, 41st Street is a two-way, four-lane divided roadway. There is on-street parking provided on portions of the roadway. FDOT has jurisdiction over this portion of 41st Street. The posted speed limit is 30 mph.

42nd Street

42nd Street is a local roadway that runs east/west between Pine Tree Drive and Prairie Avenue. It is a one-way, two-lane undivided road. There is on-street parking provided on both side of the roadway. The City of Miami Beach has jurisdiction over 42nd Street. The speed limit is not posted on this segment of 42nd Street, however, if not posted, the City's speed limit is 30 mph. It should be noted that the City is proposing to convert 42nd Street between Sheridan Avenue and Pine Tree Drive from a one-way roadway (westbound) into a two-way roadway.

Sheridan Avenue

Sheridan Avenue is a local roadway that runs north/south between 41st Street and 42nd Street. It is a two-way, two-lane undivided road. There is on-street parking provided on both side of the

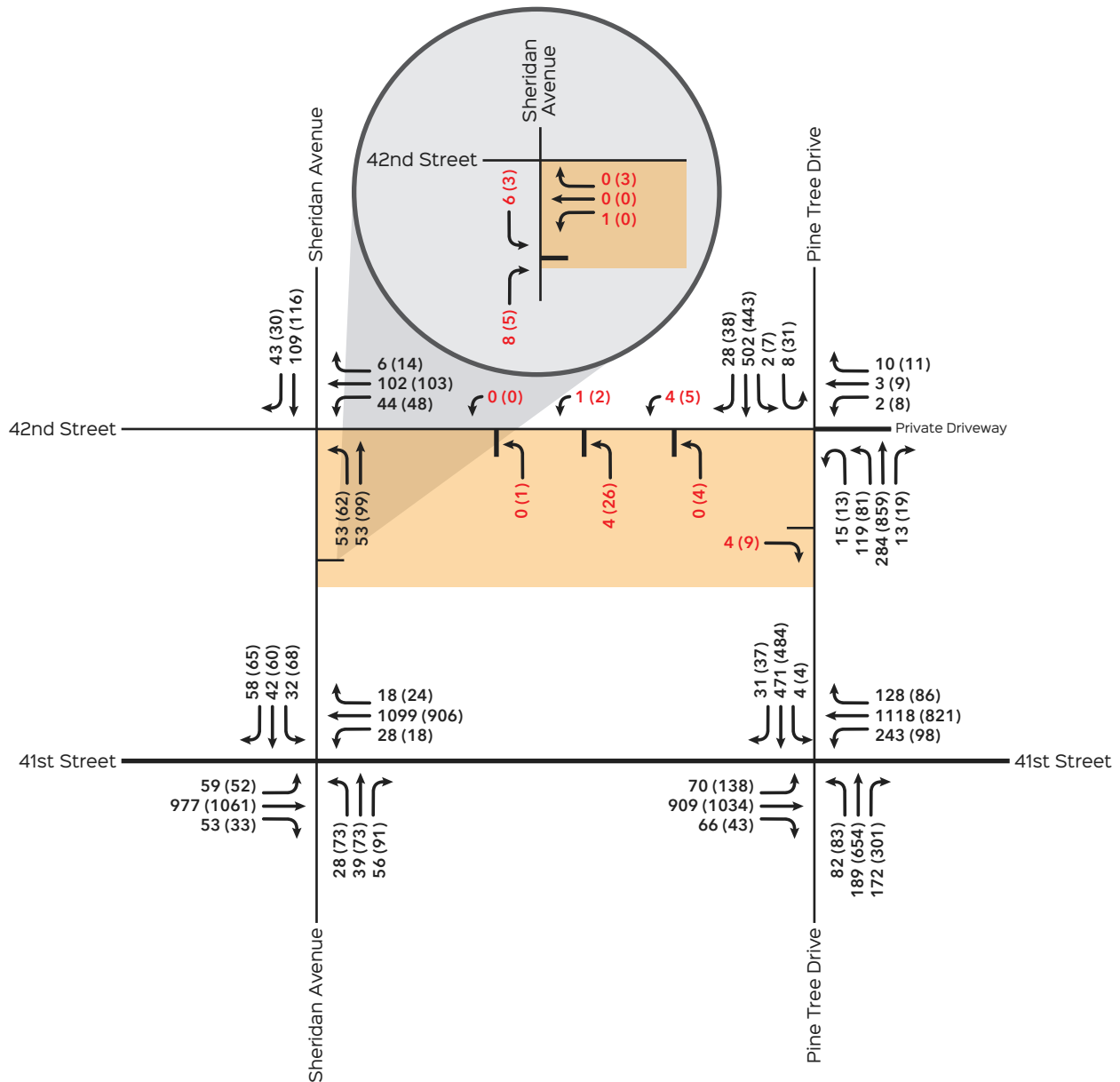
roadway. The City of Miami Beach has jurisdiction over Sheridan Avenue. The speed limit is not posted on this segment of Sheridan Avenue, however, if not posted; the City's speed limit is 30 mph.

2.2 Traffic Counts

Peak hour vehicle turning movement counts were collected on February 9th, 2016 at the study intersections during the AM and PM peak periods. In addition turning movement counts were collected at the existing surface parking driveways. A peak season conversion factor of 1.01 (for Miami-Dade County North) corresponding to the dates of the counts was used to adjust the raw traffic counts to peak season conditions. The weekly factor was obtained from FDOT. Counts collected were grown by two years to existing conditions (2018) by applying the annual growth rate discussed in section 4.1 of this report. Existing volumes at the intersection are graphically portrayed in Exhibit 2.

2.3 Intersection Data

Existing signal phasing and timing for all the intersections were obtained from Miami-Dade County. This information was used for the signal phasing and timing required for the intersection capacity analysis and can be seen in Appendix C. A field survey was conducted to obtain the intersection lane configurations to be used in the intersection analysis. Exhibit 3 shows the existing lane configurations at the analyzed intersections.



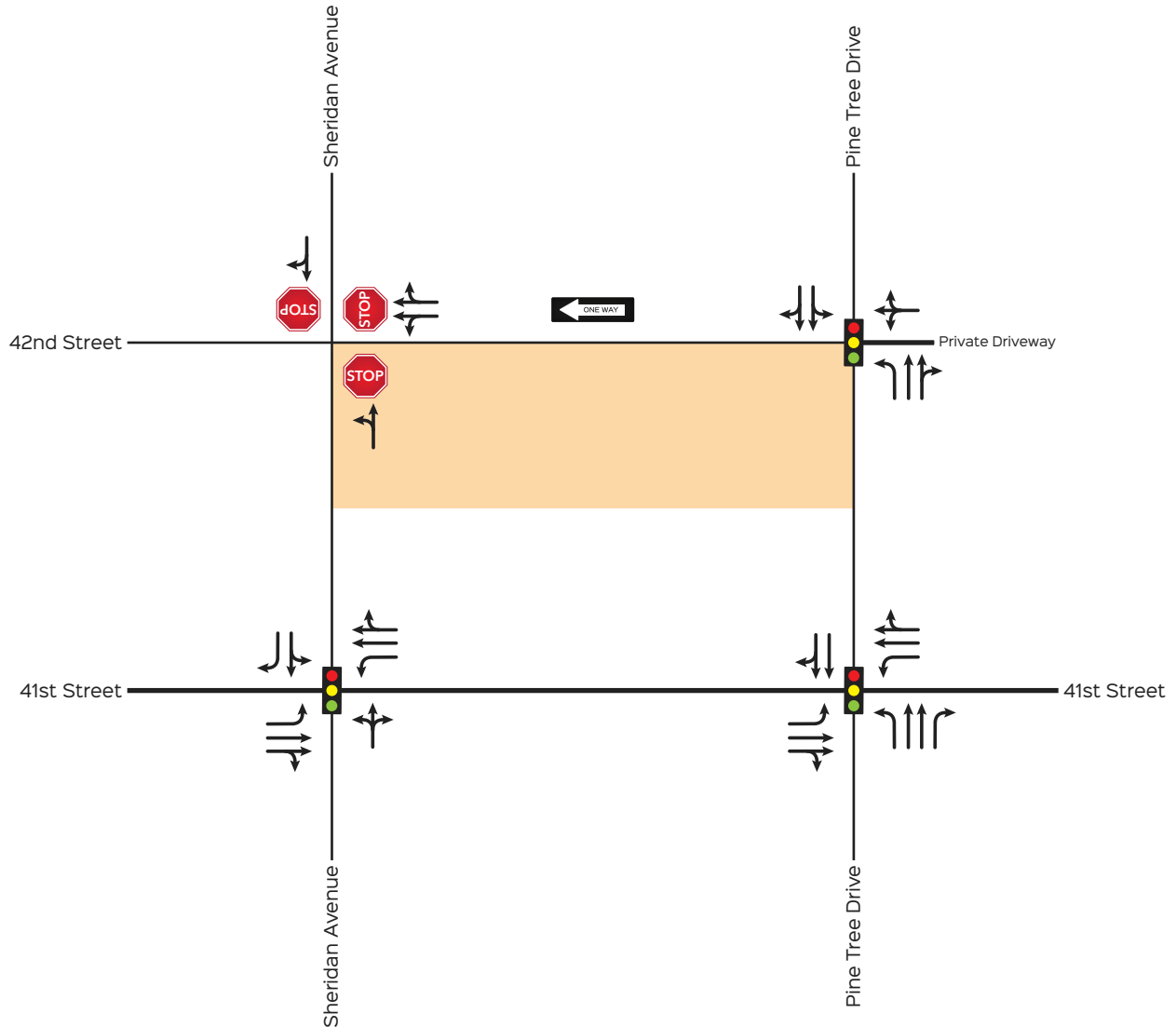
00 AM
(00) PM
00 (00) Existing Driveway Volume

Project Location

Exhibit 2

Existing AM and PM Peak Hour Traffic Volumes





Project Location

Exhibit 3

Existing Lane Configurations



2.4 Intersection Capacity Analysis

The Synchro Software, based on procedures of the Highway Capacity Manual 6th Edition, was used to perform intersection capacity analysis at the analyzed intersections. Synchro is a macroscopic analysis and optimization software application that implements the intersection capacity utilization method for determining intersection capacity. The minor approaches at the Pine Tree Drive / 41st Street intersection is experiencing minor delays. Similarly, minor approaches at the signalized intersections of Sheridan Avenue and 41st Street are experiencing delays. This condition may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. The results of the analysis show that the overall LOS for all other intersections is within the City's LOS standards. Exhibit 4 shows the resulting LOS for the existing weekday AM and PM peak hour conditions. Analysis worksheets are included in Appendix D.

**Exhibit 4: Existing Intersection Capacity Analysis
Weekday AM and PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	AM Peak LOS	Delay (Sec)	PM Peak LOS	Delay (Sec)
Pine Tree Drive / 41 st Street	S	NB SB EB WB Overall	D E C C C	37.8 60.7 26.3 25.0 32.2	E F B B D	60.6 96.6 19.6 19.1 41.5
Pine Tree Drive / 42 nd Street	S	NB SB WB Overall	A A D A	1.5 4.0 42.6 3.5	A A D A	2.0 3.3 49.6 3.3
Sheridan Avenue / 41 st Street	S	NB SB EB WB Overall	D D B A B	42.5 39.0 13.7 1.4 10.9	F E A A E	627.9 65.7 8.2 0.8 68
Sheridan Avenue / 42 nd Street	U	NB SB WB Overall	A A A A	8.8 8.7 9.1 9.1	A A A A	9.3 8.8 9.2 9.1

Source: David Plummer & Associates

3.0 PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS

The 2017 Miami-Dade County Transportation Improvement Program (TIP) and the 2040 Long Range Transportation Program (LRTP) were reviewed to identify any programmed project within the limits of the study area established. Project within the roadway segments under study are listed below. However, these documents show no officially programmed or planned capacity improvement projects within the study area prior to completion of the proposed project.

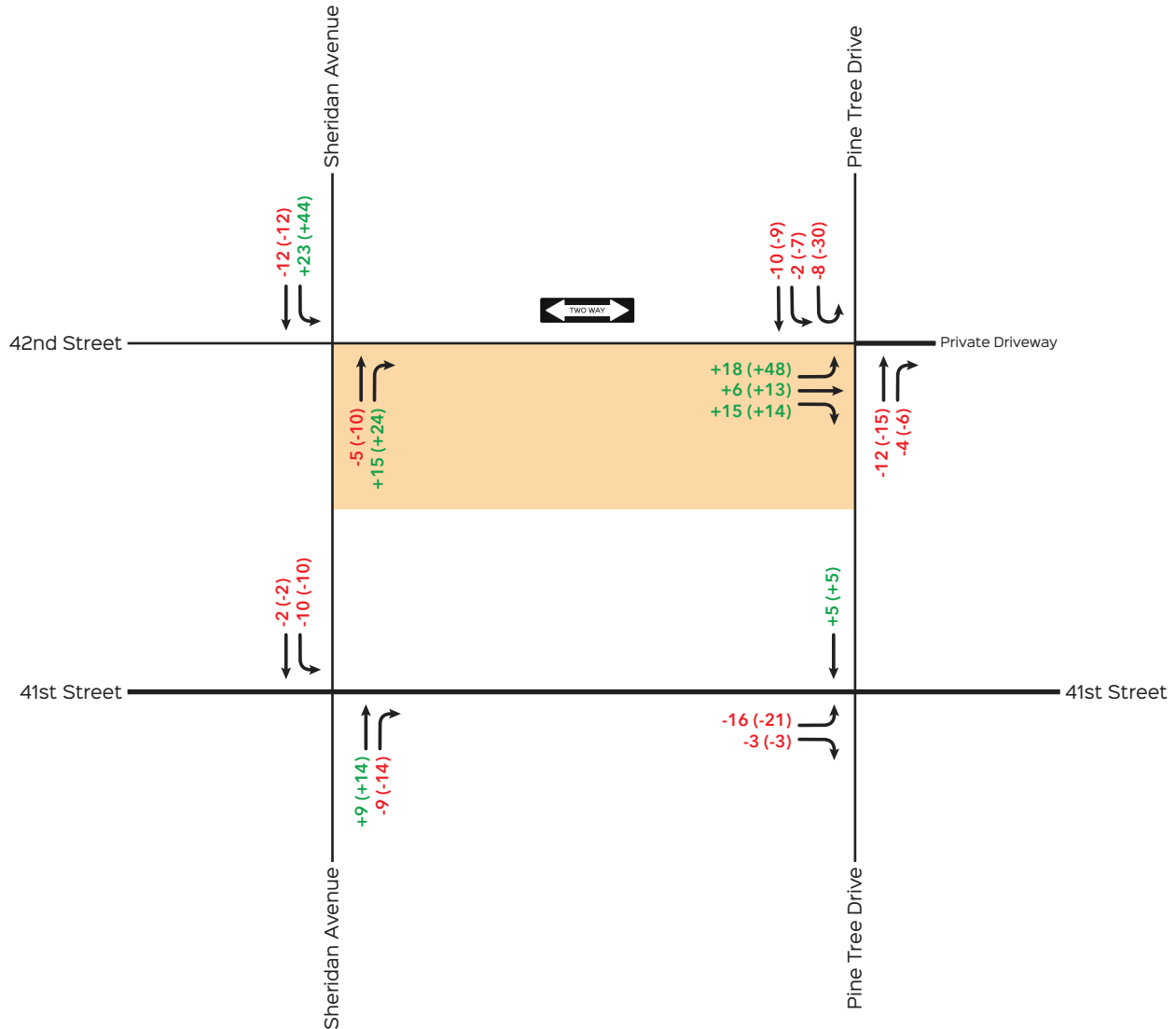
SR 112 / Arthur Godfry / 41st Street

- **DT4347781** from Alton Road to west of Pine Tree Drive
- **MU000055** from Alton Road to Collins Avenue

Pine Tree Drive from 23rd Street to 63rd Street

- **NM156** Bicycle/ Pedestrian Improvements

Furthermore, the city is proposing to convert 42nd Street between Sheridan Avenue and Pine Tree Drive from a one-way roadway (westbound) into a two-way roadway. The traffic signal at Pine Tree Drive / 42nd Street will have an eastbound phase. The proposed improvements and new traffic patterns were considered for the future conditions. Current movements that drivers make based on existing roadway restrictions that after the two-way conversion drivers might choose an alternate route were used to determine diversions. An initial percentage of these movements volume was deducted and diverted to the new routes. For example 10% of the southbound through volume at the Sheridan Avenue / 42nd Street intersection was diverted to the southbound left movement. Diversions also account for the illegal u-turns and left turns at the Pine Tree Drive / 42nd Street intersection. Traffic diversions taken for the AM and PM peak hour future without project conditions are shown in Exhibit 5. Proposed concept and lane configurations are shown on documentation included in Appendix C.



00 AM
(00) PM

Project Location

Exhibit 5

Volume Diversions - 42nd Street Two-Way Conversion



4.0 FUTURE TRAFFIC CONDITIONS

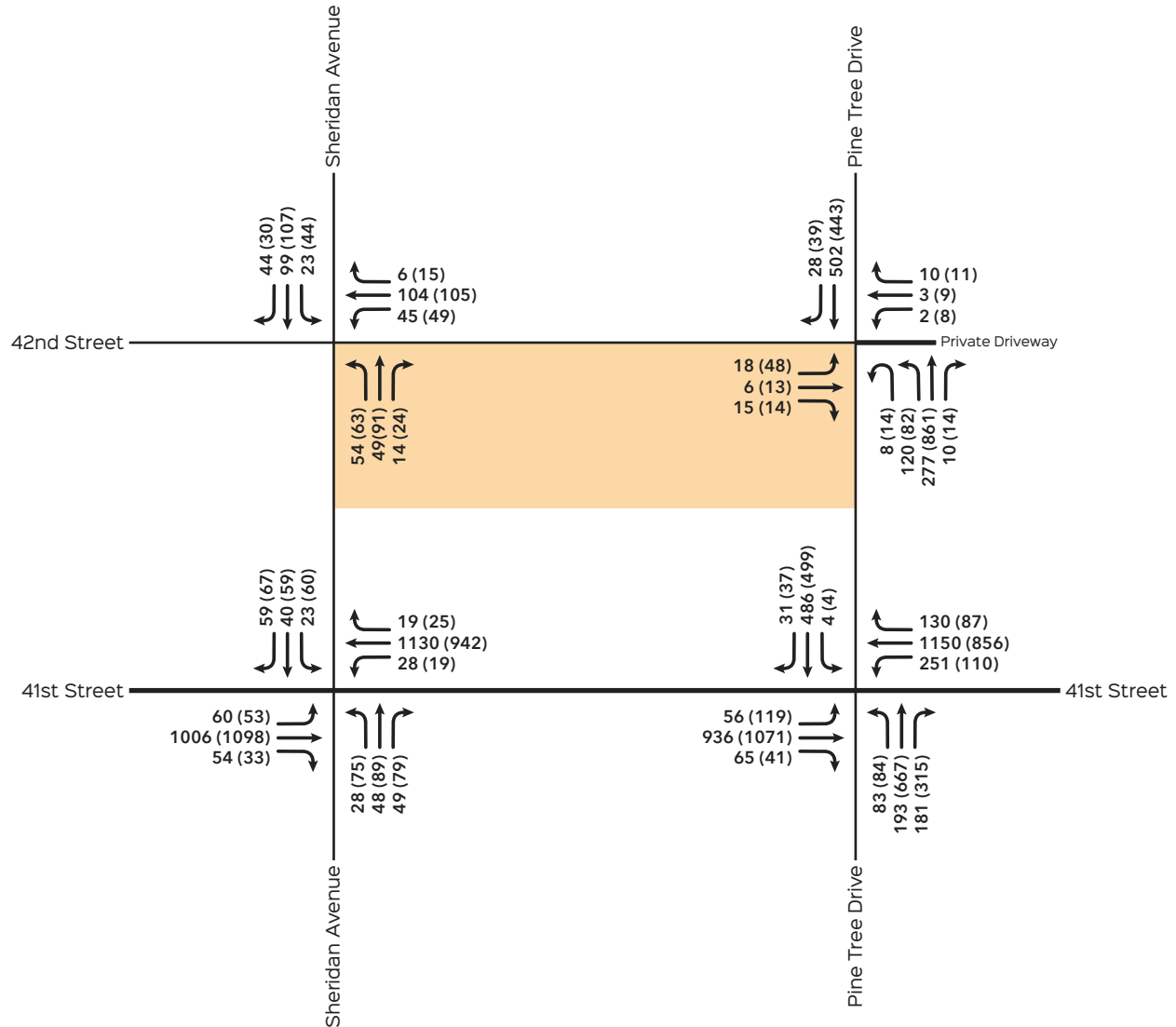
4.1 Background Traffic and Committed Developments

Average Daily Traffic (ADT) counts published by FDOT were reviewed to determine historic growth in the area. This analysis indicated that the annual growth rate is negative during the past five years. However for a conservative analysis a 0.5% growth rate was applied. Traffic associated with the 4000 Collins project was included as committed. It should be noted that the documented traffic study only provides PM peak analysis. In order to account for committed development trips during the AM peak, ITE Trip Generation was completed. An additional 0.5% was used to account for growth associated with other future development in the vicinity of the project site. Committed development documentation is provided in Appendix E.

4.2 Future without Project Intersection Capacity Analysis

Future without project turning movement volumes were obtained by applying two additional years of background growth. Exhibits 6 show the projected AM and PM peak hour turning movements for weekday for future without project with the diversions for the 42nd Street conversion.

As with existing conditions the minor approaches at the Pine Tree Drive / 41st Street intersection and at the Sheridan Avenue / 41st Street intersection continue to experience delays. The results of the analysis show that the overall LOS for all other intersections continues to be within the City's LOS standards. Exhibit 7 shows the resulting LOS for weekday morning and afternoon peak hour conditions for future without project. Intersection capacity worksheets are included in Appendix D.



00 AM
(00) PM

Project Location

Exhibit 6

Future Without Project AM and PM Peak Hour Traffic Volumes



**Exhibit 7: Future without Project Intersection Capacity Analysis
Weekday AM and PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	AM Peak LOS	Delay (Sec)	PM Peak LOS	Delay (Sec)
Pine Tree Drive / 41 st Street	S	NB	D	37.9	E	62.1
		SB	E	62.5	F	104.6
		EB	C	27.0	C	20.3
		WB	C	25.5	B	19.3
		Overall	C	32.9	D	43.2
Pine Tree Drive / 42 nd Street	S	NB	A	1.8	A	2.9
		SB	A	4.8	A	4.5
		EB	D	42.7	D	54.5
		WB	D	40.3	D	45.0
		Overall	A	5.8	A	6.7
Sheridan Avenue / 41 st Street	S	NB	D	42.5	F	475.8
		SB	D	38.7	E	62.7
		EB	B	13.9	A	8.3
		WB	A	1.5	A	0.8
		Overall	B	10.7	D	53.1
Sheridan Avenue / 42 nd Street	U	NB	A	8.8	A	9.5
		SB	A	9.0	A	9.4
		WB	A	9.4	A	9.8
		Overall	A	9.1	A	9.6

Source: David Plummer & Associates

4.3 Project Trip Generation

Trip generation for the proposed project was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition and data collected at local sites with similar land uses within the study area. The ITE manual provides gross trip generation rates and/or equations by land use type. These rates and equations estimate vehicle trip ends at a free-standing site's driveways.

The proposed development plan incorporates residential, retail, and restaurant land uses, which can satisfy the dining, and retail needs for some residence, employees, and visitors without making a trip off-site. An internalization matrix was developed to establish the appropriate number of internal project trip. Internal capture rates used are also included in Appendix F.

ITE research shows that a certain percent of the retail and restaurant trips are “pass-by” trips. These are described as trips “attracted from the traffic passing the site on an adjacent street”. These are not new trips, but trips already using the existing roadway network that stop at the proposed use and go back to their original path. Pass-by trips for this use were established based on guidelines provided in ITE's *Trip Generation Manual*, 10th Edition, Trip Generation Handbook 3rd Edition. The average pass-by rate published by ITE for Shopping Center and High Turnover Sit-down Restaurant and the existing volume of the adjacent street were used to establish the pass-by component.

The study area is pedestrian friendly and mass transit is available (see Section 5) of this report for additional pedestrian and transit information). For a conservative analysis, a 10% deduction was used for pedestrian/transit. The project trip generation summary is provided in Exhibit 8.

Exhibit 8: Project Trip Generation Summary

Proposed ITE Land Use Designation ¹	Number of Units	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
		In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) <i>Land Use Code: 221</i>	55 DU	5	20	25	24	12	36
		$Ln(T) = 0.98Ln(X) - 0.98$			$Ln(T) = 0.96Ln(X) - 0.63$		
		26% in		74% out	61% in		39% out
Shopping Center <i>Land Use Code: 820</i>	3,030 SF	2	1	3	20	21	41
		$Rate = \frac{0.94}{1,000\ SF}$			$Ln(T) = 0.74\ Ln(X) + 2.89$		
		62% in		38% out	48% in		52% out
High-turnover (Sit-down) Restaurant <i>Land Use Code: 932</i>	2,115 SF	12	9	21	13	8	21
		$Rate = \frac{9.94}{1,000\ SF}$			$Rate = \frac{9.77}{1,000\ SF}$		
		55% in		45% out	62% in		38% out
Gross Trip Generation (ITE)		19	30	49	57	41	98
Internalization	8.2% AM 34.7% PM	-2	-2	-4	-17	-17	-34
Pass-By Trips (Shopping)	0% AM -34%PM	-	-	-	-5	-5	-10
Pass-By (Restaurant)	0% AM -43% PM	-	-	-	-3	-2	-5
Transit/Pedestrian Trips	10%	-2	-3	-5	-3	-2	-5
Net External Trips (Proposed)		15	25	40	29	15	44

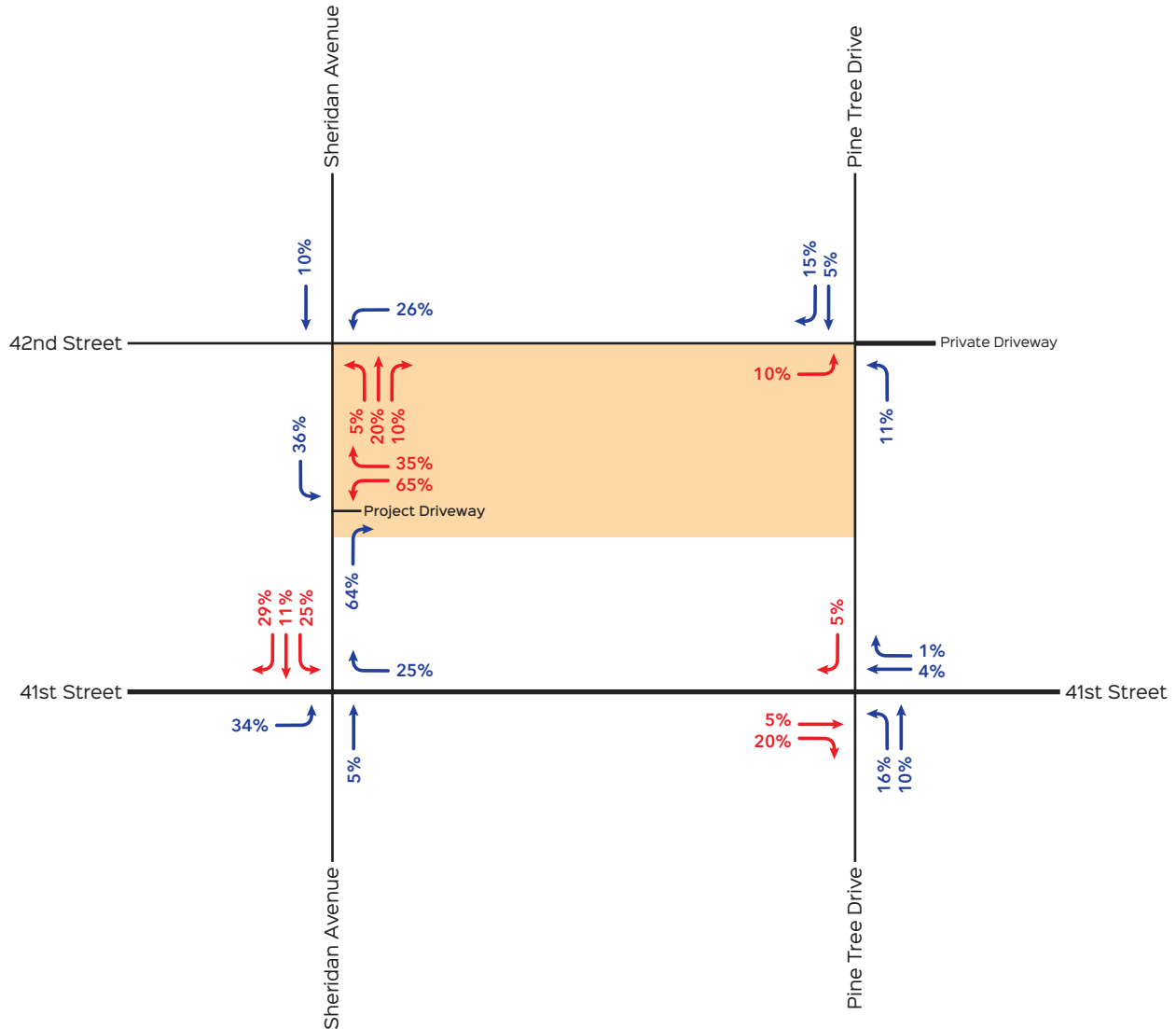
4.4 Project Trip Assignment

Project traffic was distributed and assigned to the study area using the Cardinal Distribution for TAZ 630 shown in Exhibit 9. The Cardinal Distribution gives a generalized distribution of trips from a TAZ to other parts of Miami-Dade County (see Appendix C). For estimating trip distribution for the project traffic, consideration was given to conditions such as the roadway network accessed by the project traffic, roadways available to travel in the desired direction, and attractiveness of traveling on a specific roadway. Project trip distribution and trip assignment for project trips is shown in Exhibit 10 and Exhibit 10A respectively.

**Exhibit 9: Cardinal Distribution
(TAZ 630)**

Direction	Distribution
NNE	13.77%
ENE	0.00%
ESE	1.70%
SSE	3.33%
SSW	20.93%
WSW	33.03%
WNW	14.20%
NNW	13.17%
Total	100.00%

Source: Long Range Transportation Plan

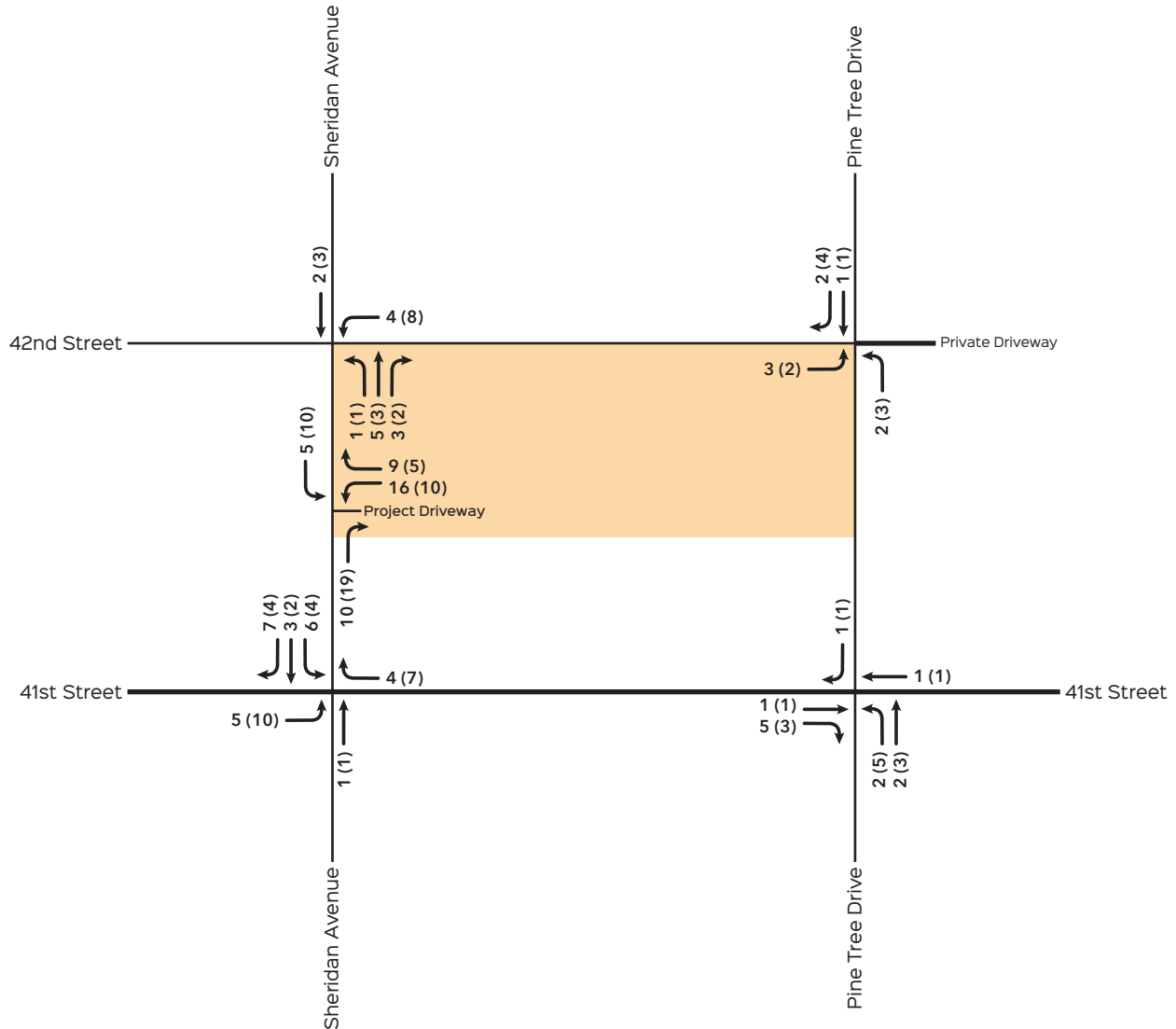


- % Inbound
- % Outbound
- Project Location

Exhibit 10

Project Trip Distribution





00 AM
(00) PM

Project Location

Exhibit 10A

Project Trip Assignment



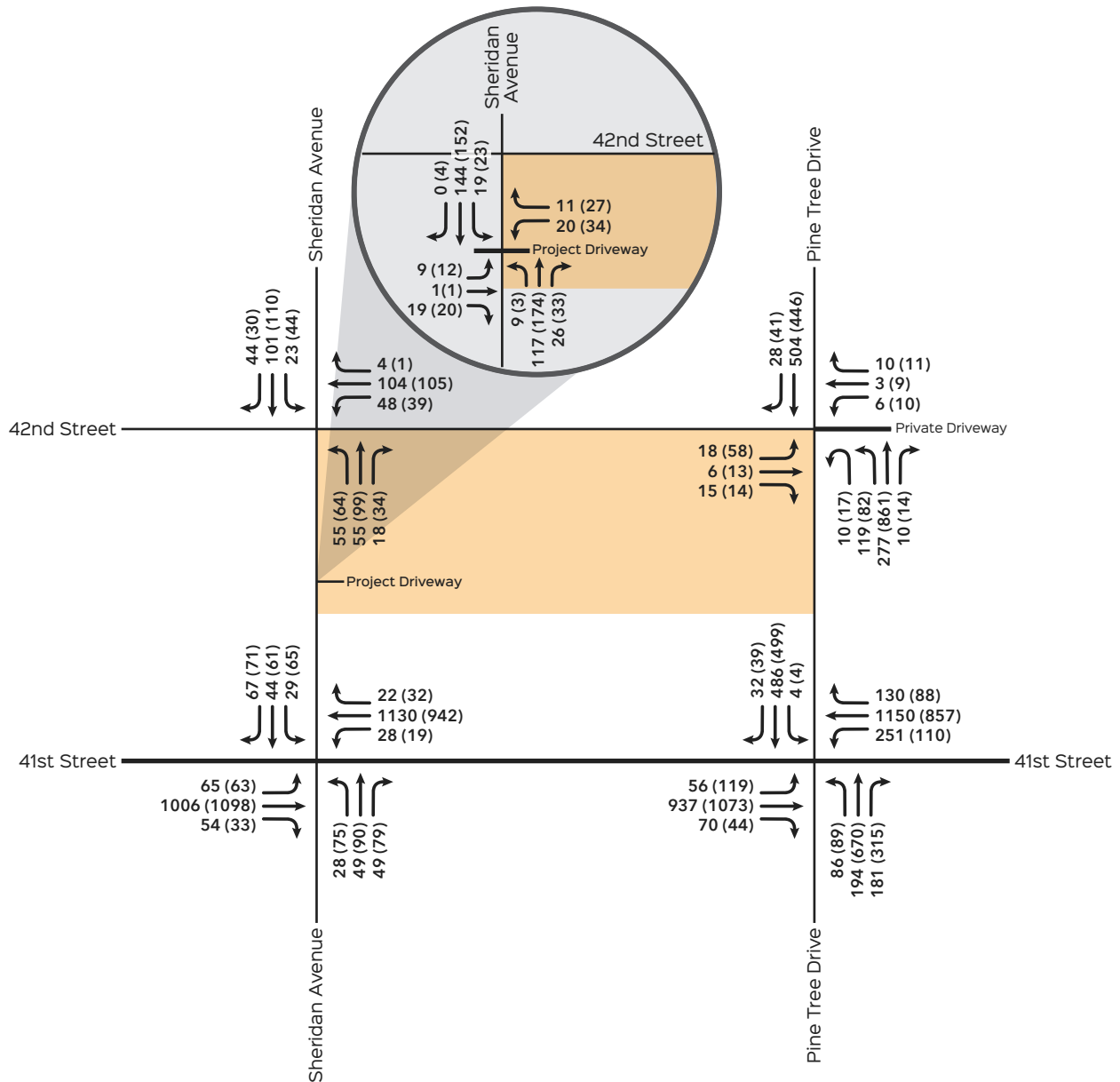
4.5 Future with Project Intersection Capacity Analysis

Future background traffic from the previous section and traffic projections for the project were combined to obtain future traffic with project at the analyzed intersections. Furthermore turning movement counts were collected on February 9th, 2016 at existing five surface parking driveways during the AM and PM peak periods. In order to account for existing traffic volumes entering / exiting the surface lot serving the HSBC office building, which will remain for future with project conditions, the AM and PM peak hour driveway traffic volumes were redistributed to the proposed parking garage into the project driveway accessing Sheridan Avenue. Existing driveways to proposed driveway volume diversions are provided in Appendix C. Exhibit 11 shows the total future with project conditions projected turning movement volumes.

As with existing and future without project conditions, the minor approaches at the Pine Tree Drive / 41st Street intersection and at the Sheridan Avenue / 41st Street intersection continue to experience delays. As previously stated, this condition may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. However, in order to improve the operations of this intersection, the project is recommending the following improvements:

- Pine Tree Drive and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.
- Sheridan Avenue and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.

The results of the analysis show that with the signal timing improvements the overall LOS for all intersections is projected to be within the City's LOS standards. Exhibit 12 shows the resulting LOS for the weekday AM and PM peak hour conditions for future with project. The project driveway was analyzed and results show adequate operations. Intersection capacity worksheets with the recommended improvement are included in Appendix D. Exhibit 13 shows the approximate existing storage length and the projected 95th percentile queue at all the left turn lanes for the weekday AM and PM peak hour conditions.



00 AM
(00) PM

Project Location

Exhibit 11

Future With Project AM and PM Peak Hour Traffic Volumes



**Exhibit 12: Future with Project Intersection Capacity
Analysis Weekday AM and PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	AM Peak LOS	Delay (Sec)	PM Peak LOS	Delay (Sec)
Pine Tree Drive / 41 st Street ⁽¹⁾	S	NB SB EB WB Overall	D E C C C	38.0 62.7 27.1 25.5 33.0	D E C C D	53.6 77.3 23.4 22.2 38.8
Pine Tree Drive / 42 nd Street	S	NB SB EB WB Overall	A A D D A	1.9 4.8 42.7 40.6 5.7	A A E D A	3.1 5.1 58.8 44.4 7.5
Sheridan Avenue / 41 st Street ⁽¹⁾	S	NB SB EB WB Overall	D D B A B	42.5 39.0 13.9 1.5 11.0	F E A A D	401.7 60.6 9.5 0.9 46.5
Sheridan Avenue / 42 nd Street	U	NB SB WB Overall	A A A A	8.9 9.0 9.5 9.1	A A A A	9.5 9.4 9.6 9.5
Sheridan Avenue / Project Driveway	U	EB WB	A B	9.8 10.6	B B	10.7 11.6

(1) PM Peak LOS with Signal Timing Improvements

Source: David Plummer & Associates

Exhibit 13: Projected Queues and Existing Storage Length

Intersection	Direction	95 th Percentile Back of Queue (Feet)						Existing Storage Length (Feet)
		Existing		Future without Project		Future with Project		
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	
Pine Tree Drive / 41 st Street	NBL	102	139	104	141	106	134	100
	EBL	36	79	33	63	33	63	70
	WBL	146	56	168	62	170	62	200
Pine Tree Drive / 42 nd Street	NBL	20	15	24	22	25	22	30
Sheridan Avenue / 41 st Street	EBL	53	32	57	33	62	39	140
	WBL	10	8	10	8	10	8	30

5.0 CIRCULATION PLAN

As mentioned before, access to the project will be via a two-way driveway on Sheridan Avenue providing full movement to the proposed parking garage. A second driveway accessing Pine Tree Drive will be provided for bank teller circulation only. The proposed project will provide 134 parking spaces and a total of 72 bike racks. Proposed parking garage will be provide valet for the residential component. The commercial/office component will be self-parking. The first and second floor of the parking garage will provide 21 and 30 parking spaces respectively. The third floor will provide 39 mechanical parking lifts (78 spaces) and 5 standard parking spaces. The proposed drop-off and pick-up areas are located on the first level. The 25 parking spaces for the Existing Office Building will be provided first floor and second floor of the parking garage. The floor plan for levels one, two, and three showing the internal circulation of the garage, and the auto turn analysis is included in Appendix G. A queuing analysis was perform for the proposed drop-off and pick-up areas. In addition a queuing analysis was perform at the ATM bank drive-through. Both queuing analysis are included in Appendix G.

Based on the owners' Letter of Intent, the following summarizes the loading area and trash pick-up operations. The number of units in the project requires one (1) off-street loading space to be provided and (3) three loading spaces are proposed to be provided in the parking garage and accessed from within the parking garage. Deliveries from the new loading space can be taken to the existing office building either through the parking garage and out through a door on the south facade or directly out through a door in the loading area and then along the hardscape area that will be in-between the new building and the existing office building. Deliveries from the loading space to the new building can be taken directly into the lobby through the interior of the garage. Trash pick-up will also occur in the loading space. Deliveries for the retail tenants will be taken from the loading spaces, through the garage and out to the front doors of the tenant bays. Trash containers can be wheeled from the trash room over to the loading space either inside the garage or trash bins will be wheeled out to the curb on Sheridan for pick up.

The project is located in an area that is conducive for pedestrian and bicycle activities. Pine Tree Drive, 41st Street, 42nd Street, and Sheridan Avenue provide sidewalks on both sides of the road. 41st Street provides a shared bike lane on both sides of the road. All intersections adjacent to the site have clearly marked crosswalks. Signalized intersection provides pedestrian signals. A mobility plan was prepared for the site (see Exhibit 14). The plan shows the project driveways, location of street signals, sidewalk connections, and pedestrian crosswalks.

The area surrounding the project is served by transit. There are four bus routes that traverse that area of Miami Beach (Routes: C-103, J-110, M-113, and 150). The closest bus stops to the project site are located between Sheridan Avenue and Pine Tree Drive on the north side of 41st Street. Exhibit 15 shows the available bus routes and bus stops in the area. Appendix H shows the bus route maps and schedules.



 Project Location

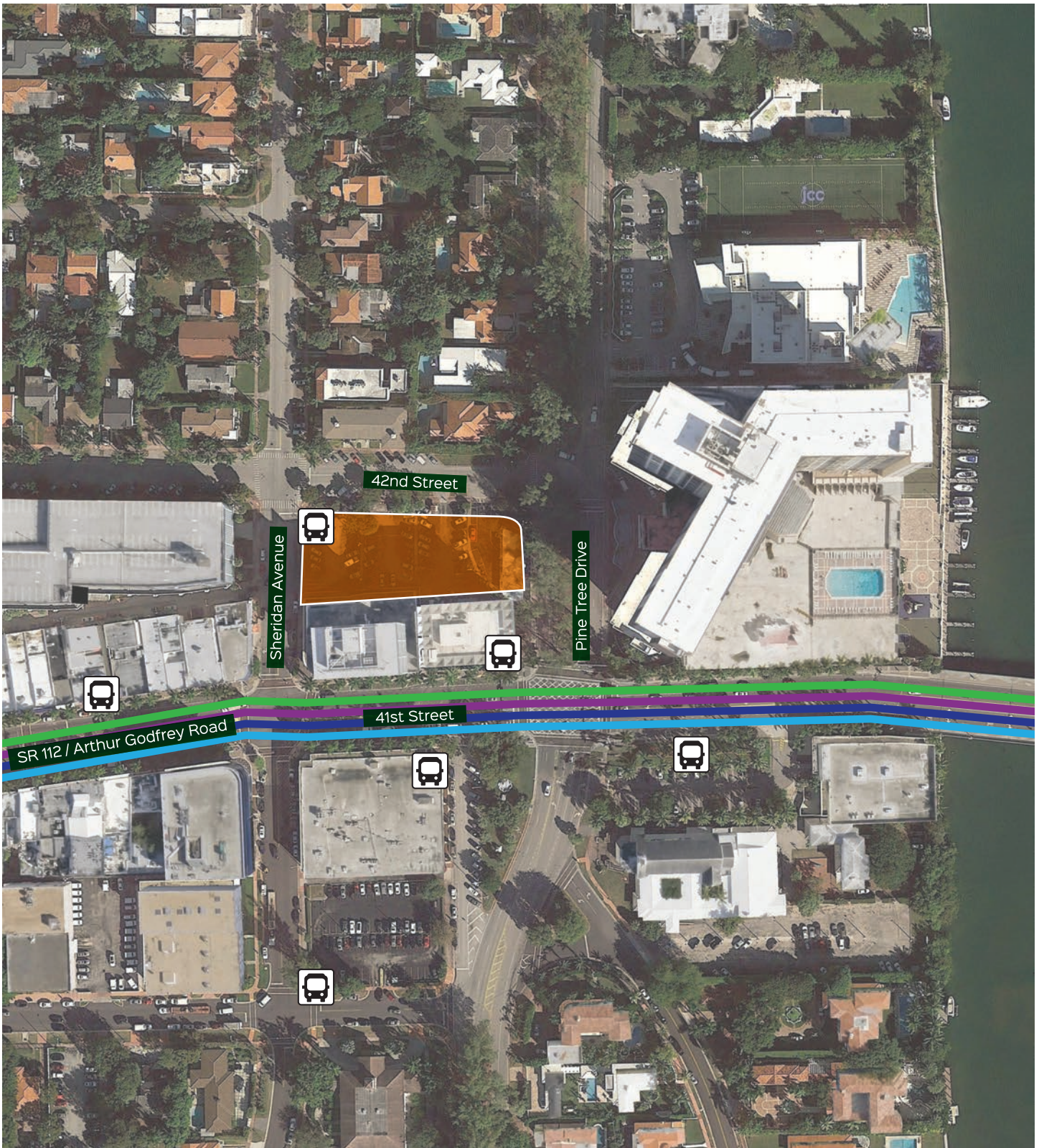
Exhibit 14

Circulation Plan - Mobility

LEGEND

-  - Sidewalk
-  - Crosswalk
-  - Shared Bike Lane
-  - Delivery





 Project Location

Exhibit 15

Circulation Plan - Bus Routes

LEGEND

-  - Route C 103
-  - Route J 110
-  - Route M 113
-  - Route 150
-  - Bus Stop



6.0 CONCLUSIONS

An assessment of the traffic impacts associated with the proposed 340 West 42nd Street Site (ask HSBC Site) project was performed in accordance with the requirements of the City of Miami Beach. As with existing and future without project conditions, the minor approaches at the Pine Tree Drive / 41st Street intersection and at the Sheridan Avenue / 41st Street intersection continue to experience delays. As previously stated, this condition may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. However, in order to improve the operations of this intersection, the project is recommending the following improvements:

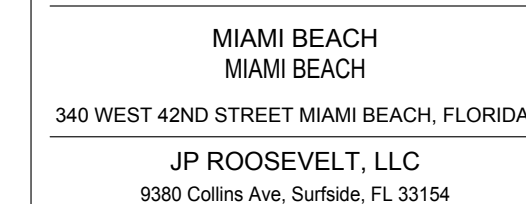
- Pine Tree Drive and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.
- Sheridan Avenue and 41st Street intersection – adjust signal timing to provide additional green time to the northbound/southbound movement.

The results of the analysis show that with the signal timing improvements the overall LOS for all intersections is projected to be within the City's LOS standards.

In addition, a mobility and circulation plan was completed as part of the study. The plan shows that the project area is currently served by various Miami-Dade Transit bus routes. The project is located in an area that is conducive for pedestrian and bicycle activities providing shared bike lanes, ample sidewalks, and crosswalks.

Appendix A

Site Plan



ARCHITECT OF RECORD

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CORAL GABLES, FL 33134
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TWR ENGINEERS
12915 SW 132ND ST SUITE 1
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LANDSCAPE ARCHITECT
JFS DESIGN INC.
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VSN
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MIAMI FL 33144
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305.551.4542

CONSULTANT:

CONSULTANT:

LIGHTING CONSULTANT:

SEAL / SIGNATURE / DATE

SITE PLAN SUBMITTAL

OFFICE REGISTRATION #: AA C00046

Date	#	Revision
------	---	----------

Issue #	Issue Date / For
---------	------------------

Issue #	Issue Date / Vol

ARQ Project No : 3346

Drawn by: MR

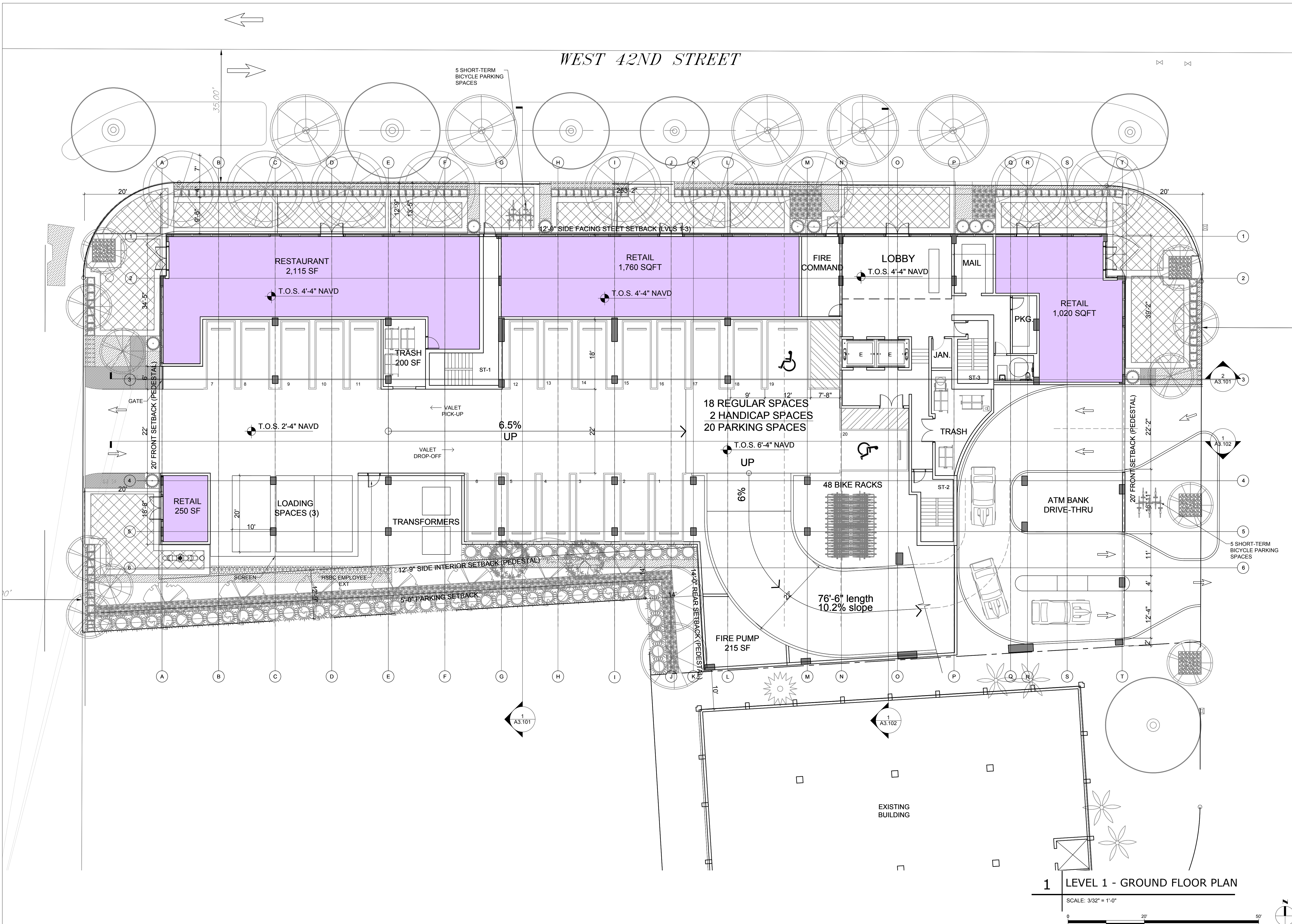
Approved by:

SHEET INDEX

LEVEL 1 FLOOR PLAN

A1.101

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Appendix B

Methodology

HSBC Site Transportation Impact Study Methodology

February 2, 2016

Revised: February 4, 2016

PROJECT LOCATION

The project is located at 4100 Pine Tree Drive in Miami Beach, Florida. The project is proposing a new residential building with 43 units. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building.

PURPOSE

This methodology will provide the details of the Transportation Impact Study for the proposed development. This methodology is based on discussions from a methodology meeting held with city staff on February 1, 2016. Confirmation of this methodology will be requested from the city and/or its traffic consultant prior to performing the study.

TRAFFIC STUDY

- Traffic Counts (Intersections) – Two-hour turning movement counts (including pedestrians) will be collected for the AM (7-9AM) and the PM (4-6 PM) hours on a regular weekday at the following intersections:

- Pine Tree Drive / 41st Street (S)
- Pine Tree Drive / 42nd Street (S)
- Sheridan Avenue / 41st Street (S)
- Sheridan Avenue / 42nd Street (U)
- Existing Project Driveways

S= Signalized

U=Un-signalized

Traffic counts used as part of this project will be included in the appendix of the Transportation Impact Study submitted to the city.

- Trip Generation – Trip generation for the project was estimated using trip generation information published by the Institute of Transportation Engineers (ITE) Trip Generation

Manual, 9th edition. As agreed with city staff, a 10% reduction was applied to account for other modes of transportation. Credit for vehicle trips generated by the existing uses was based on ITE Trip Generation Manual, 9th edition.

Project Trip Generation Summary

Proposed ITE Land Use Designation	Number of Units	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
		In	Out	Total	In	Out	Total
Residential Condominium <i>Land Use Code: 230</i>	43 Units	4	22	26	20	10	30
Transit/Pedestrian Trips	10%	-1	-2	-3	-2	-1	-3
Net External Trips		3	20	23	18	9	27

- Signal Location and Timing – Existing signal phasing and timing for the signalized intersections will be obtained from Miami-Dade County. Signal data collected from the county will be included in the appendix of this study.
- Trip Distribution / Trip Assignment – Net new external project traffic will be assigned to the adjacent street network using the appropriate cardinal distribution from the Miami-Dade Long Range Transportation Plan Update, published by the Metropolitan Planning Organization. Normal area traffic patterns will also be considered when assigning project trips. A figure showing all of the assigned trips to the adjacent transportation network will be provided as part of the study.
- Background Traffic – Available Florida Department of Transportation (FDOT) and Miami-Dade County (MDC) traffic counts will be consulted to determine a growth factor consistent with historical annual growth in the area. The growth factor will be applied to the existing traffic volumes to establish background traffic. This will be documented in the study.
- Committed Developments – The city will be consulted to determine committed developments in the area. Evidence of the data collected as part of the committed developments will be included in the appendix of the study.

- Future Transportation Projects – The 2015 TIP and the 2040 LRTP will be reviewed and considered in the analysis at project build-out. In addition, the proposed conversion of 42nd Street from one-way to two way will be considered in the analysis.
- Intersection Capacity Analysis – The intersection capacity analyses will be conducted for the following conditions:
 - Existing conditions
 - Future conditions with Committed Developments
 - Future conditions with Project and Committed Development

The analysis will be done on a regular weekday during the AM peak hour (7-9 AM) and PM peak hour (4-6 PM). Intersection analysis will be done using Highway Capacity Software (HCS 2010) or the Synchro software both based on the 2010 Highway Capacity Manual (HCM). Figures depicting trip distribution for each of these scenarios will be provided as part of this study. In addition to the intersections identified above, all projects driveways will be analyzed. If the results of the analysis show any intersection operating below the City's Level of Service standards, specific mitigation measures will be recommended.

CIRCULATION ANALYSIS/PLAN

The study will provide a circulation plan depicting the parking garage circulation. The plan will also include a clear site plan defining all of the various land use categories assigned to the project site, driveways, delivery areas, location of street signs/signals, crosswalks, sidewalks, location of bus facilities, bike facilities, adjacent streets configuration (travel lanes, etc.) including names, on-street parking and any other pertinent transportation feature in the vicinity of this project.

As part of the study, any proposed/existing driveways will be analyzed. This analysis will include sight distance for vehicles entering/exiting the proposed driveway. An Auto-turn analysis will be conducted for the bank drive-through area and the proposed building loading area. If deficiencies are determined, mitigation measures will be recommended.

Multimodal – Pedestrian, bicycle and transit facilities will be defined in the Circulation Plan. Existing bus routes including schedule and bus stop locations will be discussed as part of the study. An effort will be made to include bicycle parking facilities within the project site to be utilized either by employees or tenants.

DOCUMENTATION

The applicant will submit one original, 13 hard copies and four CDs of the traffic study. The submittal will include a CD with the HCS 2010 or Synchro program output calculations for consideration/review by the consultant acting as the peer reviewer. Also included will be the latest version of the site plan, with an AutoCad version.

Other Considerations from the City

- As part of the intersection analysis, a table summarizing/comparing the existing storage length and the proposed queues for all turn lanes will be provided.
- If valet service is provided, a queuing analysis will be conducted. The operation of the valet will also be analyzed and discussed in the traffic report.
- The City reserves the right to request additional analyses including but not limited to, additional traffic counts and level of service analysis for any intersection City staff feels is necessary in order to complete the review process.
- Counts will be schedule not to coincide with any religious or government designated holidays.
- TMC will also be collected at the existing surface parking driveways. This traffic will be redistributed and accounted for in the analysis.

w:\15\15231\hsbc site_methodology_rev.docx

Appendix C
Traffic Data
Traffic Volumes
Signal Timings
Historic Background Growth
Committed Roadway Improvements
Cardinal Distribution
Existing Driveways Volume

Traffic Volumes

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Pine Tree Drive / 41st Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Pine Tree Drive								41St Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
07:00 AM	07:15 AM	12	15	25	52	0	124	6	130	22	268	21	311	81	237	15	333	826
07:15 AM	07:30 AM	27	32	41	100	1	78	7	86	14	219	14	247	68	246	12	326	759
07:30 AM	07:45 AM	17	24	20	61	0	112	13	125	20	218	15	253	62	253	13	328	767
07:45 AM	08:00 AM	19	39	43	101	1	118	6	125	19	240	12	271	70	275	23	368	865
08:00 AM	08:15 AM	30	45	39	114	2	101	8	111	17	200	20	237	65	260	22	347	809
08:15 AM	08:30 AM	9	43	44	96	1	101	6	108	17	209	18	244	49	306	39	394	842
08:30 AM	08:45 AM	21	56	41	118	0	137	10	147	15	233	14	262	52	244	40	336	863
08:45 AM	09:00 AM	21	48	62	131	0	156	8	164	16	228	12	256	59	227	25	311	862

AM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Pine Tree Drive								41St Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
07:45 AM	08:45 AM	80	185	169	433	4	462	30	496	69	891	65	1024	238	1096	125	1459	3,413	
PEAK HOUR FACTOR					0.91				0.84				0.94				0.92	0.98	

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Pine Tree Drive / 41st Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Pine Tree Drive								41St Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:00 PM	04:15 PM	15	145	79	239	0	105	7	112	19	237	13	269	25	212	12	249	869
04:15 PM	04:30 PM	16	143	55	214	1	127	9	137	32	263	9	304	28	221	16	265	920
04:30 PM	04:45 PM	19	184	91	294	2	119	11	132	29	240	16	285	23	153	25	201	912
04:45 PM	05:00 PM	28	177	80	285	0	110	6	116	31	250	4	285	25	206	21	252	938
05:00 PM	05:15 PM	17	131	66	214	1	113	10	124	42	251	13	306	19	217	21	257	901
05:15 PM	05:30 PM	23	199	78	300	1	101	8	110	24	238	17	279	16	119	22	157	846
05:30 PM	05:45 PM	18	159	67	244	0	94	10	104	27	260	19	306	34	144	24	202	856
05:45 PM	06:00 PM	15	176	74	265	1	119	2	122	31	258	13	302	14	122	25	161	850

PM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Pine Tree Drive								41St Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:15 PM	05:15 PM	81	641	295	1017	4	474	36	514	135	1014	42	1192	96	805	84	985	3,708
PEAK HOUR FACTOR					0.86				0.93				0.96				0.92	0.98

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
 Location: Pine Tree Drive / 42nd Street
 Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
 Count Date: 2/9/2016
 Day of Week: Tuesday

		Pine Tree Drive										42nd Street								
TIME INTERVAL		NORTHBOUND					SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL
		U-Turn	L	T	R	TOTAL	U-Turn	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
07:00 AM	07:15 AM	3	11	37	1	52	6	0	128	8	142	0	0	0	0	0	1	0	1	195
07:15 AM	07:30 AM	1	7	48	3	59	3	0	73	5	81	0	0	0	0	0	1	0	1	141
07:30 AM	07:45 AM	7	17	38	1	63	2	0	104	7	113	0	0	0	0	0	0	2	2	178
07:45 AM	08:00 AM	7	16	55	4	82	4	1	113	6	124	0	0	0	0	2	3	4	9	215
08:00 AM	08:15 AM	4	20	60	5	89	3	0	90	4	97	0	0	0	0	1	0	2	3	189
08:15 AM	08:30 AM	3	47	55	2	107	3	0	106	8	117	0	0	0	0	1	2	4	7	231
08:30 AM	08:45 AM	6	36	80	4	126	2	0	148	6	156	0	0	0	0	0	1	3	4	286
08:45 AM	09:00 AM	2	13	80	2	97	0	2	143	9	154	0	0	0	0	0	0	1	1	252

AM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY
 ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Pine Tree Drive										42nd Street										
TIME INTERVAL		NORTHBOUND					SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL		
		U-Turn	L	T	R	TOTAL	U-Turn	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL			
08:00 AM	09:00 AM	15	117	278	13	423	8	2	492	27	529	0	0	0	0	2	3	10	15	968		
PEAK HOUR FACTOR						0.83					0.84					#DIV/0!					0.54	0.84

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
 Location: Pine Tree Drive / 42nd Street
 Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
 Count Date: 2/9/2016
 Day of Week: Tuesday

		Pine Tree Drive										42nd Street								
TIME INTERVAL		NORTHBOUND					SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL
		U-Turn	L	T	R	TOTAL	U-Turn	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:00 PM	04:15 PM	2	24	157	9	192	2	3	86	19	110	0	0	0	0	2	4	3	9	311
04:15 PM	04:30 PM	3	21	179	10	213	1	3	126	14	144	0	0	0	0	3	3	5	11	368
04:30 PM	04:45 PM	5	30	172	12	219	4	3	109	13	129	0	0	0	0	1	1	1	3	351
04:45 PM	05:00 PM	3	21	218	4	246	9	2	107	9	127	0	0	0	0	1	1	3	5	378
05:00 PM	05:15 PM	3	17	181	4	205	11	1	110	12	134	0	0	0	0	1	2	1	4	343
05:15 PM	05:30 PM	6	20	212	6	244	5	4	102	11	122	0	0	0	0	2	0	2	4	370
05:30 PM	05:45 PM	1	20	223	5	249	5	0	111	5	121	0	0	0	0	4	6	5	15	385
05:45 PM	06:00 PM	5	18	185	7	215	13	1	105	12	131	0	0	0	0	0	2	2	4	350

PM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY
 ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Pine Tree Drive										42nd Street								
TIME INTERVAL		NORTHBOUND					SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL
		U-Turn	L	T	R	TOTAL	U-Turn	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:45 PM	05:45 PM	13	79	842	19	953	30	7	434	37	509	0	0	0	0	8	9	11	28	1,491
PEAK HOUR FACTOR						0.95					0.94				#DIV/0!				0.47	0.96

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Sheridan Avenue / 41st Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Sheridan Avenue								41St Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
07:00 AM	07:15 AM	2	8	5	15	10	24	14	48	13	278	11	302	20	203	1	224	589
07:15 AM	07:30 AM	9	14	20	43	4	14	10	28	12	218	16	246	8	259	4	271	588
07:30 AM	07:45 AM	6	4	5	15	7	5	16	28	14	260	13	287	6	290	0	296	626
07:45 AM	08:00 AM	7	10	11	28	10	14	11	35	14	243	9	266	8	236	9	253	582
08:00 AM	08:15 AM	5	10	18	33	10	8	19	37	17	228	13	258	5	281	5	291	619
08:15 AM	08:30 AM	2	8	13	23	8	11	14	33	14	207	5	226	6	269	6	281	563
08:30 AM	08:45 AM	3	10	14	27	20	13	12	45	15	215	6	236	8	220	3	231	539
08:45 AM	09:00 AM	7	7	17	31	9	18	12	39	23	263	11	297	6	232	4	242	609

AM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Sheridan Avenue								41st Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
07:15 AM	08:15 AM	27	38	55	120	31	41	57	129	58	958	52	1068	27	1077	18	1122	2,439	
PEAK HOUR FACTOR					0.69				0.86				0.92				0.94	0.96	

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Sheridan Avenue / 41st Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Sheridan Avenue								41St Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:00 PM	04:15 PM	10	17	20	47	18	17	25	60	17	257	13	287	5	196	10	211	605
04:15 PM	04:30 PM	6	14	21	41	19	21	13	53	12	247	15	274	5	240	9	254	622
04:30 PM	04:45 PM	15	17	24	56	16	19	11	46	16	250	13	279	1	179	6	186	567
04:45 PM	05:00 PM	19	19	19	57	19	12	20	51	9	261	7	277	11	223	4	238	623
05:00 PM	05:15 PM	19	17	27	63	18	12	21	51	11	261	5	277	2	236	8	246	637
05:15 PM	05:30 PM	18	18	18	54	13	15	11	39	14	258	7	279	4	241	6	251	623
05:30 PM	05:45 PM	16	19	21	56	17	16	16	49	3	241	13	257	1	177	5	183	545
05:45 PM	06:00 PM	17	17	18	52	10	13	17	40	6	274	7	287	3	136	10	149	528

PM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Sheridan Avenue								41st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	05:30 PM	72	72	89	232	67	59	64	189	51	1040	32	1123	18	888	24	930	2,475
PEAK HOUR FACTOR					0.91				0.92				1.00				0.92	0.96

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Sheridan Avenue / 42nd Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Sheridan Avenue								42nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
07:00 AM	07:15 AM	6	8	0	14	0	32	3	35	0	0	0	0	10	11	0	21	70
07:15 AM	07:30 AM	7	12	0	19	0	22	4	26	0	0	0	0	7	5	1	13	58
07:30 AM	07:45 AM	5	8	0	13	0	22	4	26	0	0	0	0	4	8	4	16	55
07:45 AM	08:00 AM	12	18	0	30	0	26	3	29	0	0	0	0	11	15	1	27	86
08:00 AM	08:15 AM	10	12	0	22	0	26	8	34	0	0	0	0	11	20	0	31	87
08:15 AM	08:30 AM	20	12	0	32	0	19	21	40	0	0	0	0	14	38	1	53	125
08:30 AM	08:45 AM	12	12	0	24	0	29	3	32	0	0	0	0	9	29	5	43	99
08:45 AM	09:00 AM	9	15	0	24	0	32	10	42	0	0	0	0	9	12	0	21	87

AM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Sheridan Avenue								42nd Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
08:00 AM	09:00 AM	52	52	0	103	0	107	42	149	0	0	0	0	43	100	6	149	402	
PEAK HOUR FACTOR					0.80				0.88				#DIV/0!				0.70	0.80	

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Sheridan Avenue / 42nd Street
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

		Sheridan Avenue								42nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:00 PM	04:15 PM	20	24	0	44	0	29	13	42	0	0	0	0	18	29	2	49	135
04:15 PM	04:30 PM	15	27	0	42	0	24	10	34	0	0	0	0	10	22	4	36	112
04:30 PM	04:45 PM	10	29	0	39	0	32	1	33	0	0	0	0	9	31	2	42	114
04:45 PM	05:00 PM	15	16	0	31	0	28	5	33	0	0	0	0	10	18	6	34	98
05:00 PM	05:15 PM	17	26	0	43	0	22	4	26	0	0	0	0	12	25	2	39	108
05:15 PM	05:30 PM	8	31	0	39	0	16	3	19	0	0	0	0	12	17	3	32	90
05:30 PM	05:45 PM	8	23	0	31	0	31	7	38	0	0	0	0	6	23	4	33	102
05:45 PM	06:00 PM	10	21	0	31	0	20	2	22	0	0	0	0	10	20	3	33	86

PM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

		Sheridan Avenue								42nd Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
04:00 PM	05:00 PM	61	97	0	158	0	114	29	143	0	0	0	0	47	101	14	163	464	
PEAK HOUR FACTOR					0.89				0.85				#DIV/0!				0.82	0.85	

Note: 2014 FDOT Peak Season Conversion Factor = 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Existing Parking Lot Driveways
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

TIME INTERVAL		Driveway #1			Driveway #2			Driveway #3			Driveway #4			Driveway #5			TOTAL		GRAND TOTAL
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	
07:00 AM	07:15 AM	1	1	2	0	1	1	0	0	0	1	0	1	0	3	3	2	5	7
07:15 AM	07:30 AM	3	0	3	0	0	0	0	0	0	1	0	1	0	1	1	4	1	5
07:30 AM	07:45 AM	2	1	3	0	0	0	0	0	0	0	0	0	0	1	1	2	2	4
07:45 AM	08:00 AM	3	0	3	0	0	0	0	0	1	1	2	0	2	2	2	5	3	8
08:00 AM	08:15 AM	4	1	5	0	0	0	0	0	0	0	0	0	0	0	0	4	1	5
08:15 AM	08:30 AM	4	0	4	0	0	0	1	1	2	1	0	1	0	0	0	6	1	7
08:30 AM	08:45 AM	4	0	4	0	0	0	0	2	2	1	0	1	0	2	2	5	4	9
08:45 AM	09:00 AM	2	0	2	0	0	0	0	0	0	3	1	4	0	0	0	5	1	6

AM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

TIME INTERVAL		Driveway #1			Driveway #2			Driveway #3			Driveway #4			Driveway #5			TOTAL		GRAND TOTAL
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	
07:45 AM	08:45 AM	15	1	16	0	0	0	1	4	5	4	0	4	0	4	4	20	9	29
PEAK HOUR FACTOR				0.80			#DIV/0!			0.63			0.50			0.50			0.81

Note: 2014 FDOT Peak Season Conversion Fa 1.01

TURNING MOVEMENT COUNTS

Project Name: HSBC Site
Location: Existing Parking Lot Driveways
Observer: Traffic Survey Specialists, Inc.

Project Number: 15231
Count Date: 2/9/2016
Day of Week: Tuesday

TIME INTERVAL		Driveway #1			Driveway #2			Driveway #3			Driveway #4			Driveway #5			TOTAL		GRAND TOTAL
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	
04:00 PM	04:15 PM	2	1	3	0	0	0	0	2	2	1	0	1	0	1	1	3	4	7
04:15 PM	04:30 PM	2	2	4	0	1	1	0	5	5	1	1	2	0	0	0	3	9	12
04:30 PM	04:45 PM	2	0	2	0	0	0	1	6	7	1	1	2	1	3	4	5	10	15
04:45 PM	05:00 PM	0	0	0	0	0	0	1	9	10	3	1	4	2	6	8	6	16	22
05:00 PM	05:15 PM	5	1	6	0	0	0	0	8	8	0	1	1	0	0	0	5	10	15
05:15 PM	05:30 PM	4	1	5	0	0	0	0	4	4	0	0	0	0	0	0	4	5	9
05:30 PM	05:45 PM	1	0	1	0	0	0	0	4	4	0	0	0	0	0	0	1	4	5
05:45 PM	06:00 PM	2	1	3	0	0	0	1	7	8	1	0	1	0	4	4	4	12	16

PM PEAK HOUR TURNING MOVEMENT COUNT SUMMARY ANNUAL AVERAGE DAILY TRAFFIC CONDITIONS

TIME INTERVAL		Driveway #1			Driveway #2			Driveway #3			Driveway #4			Driveway #5			TOTAL		GRAND TOTAL
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	
04:15 PM	05:15 PM	9	3	12	0	1	1	2	28	30	5	4	9	3	9	12	19	45	64
PEAK HOUR FACTOR				0.50			0.25			0.75			0.56			0.38			0.73

Note: 2014 FDOT Peak Season Conversion Fa 1.01

15231

		Sheridan Avenue / Driveway #1							
		SBL	NBR	EBT	IN	WBL	WBT	WBR	OUT
07:00 AM	07:15 AM	0	1	0	1	1	0	0	1
07:15 AM	07:30 AM	1	2	0	3	0	0	0	0
07:30 AM	07:45 AM	1	1	0	2	0	0	1	1
07:45 AM	08:00 AM	2	1	0	3	0	0	0	0
08:00 AM	08:15 AM	1	3	0	4	1	0	0	1
08:15 AM	08:30 AM	2	1	1	4	0	0	0	0
08:30 AM	08:45 AM	1	3	0	4	0	0	0	0
08:45 AM	09:00 AM	1	1	0	2	0	0	0	0

04:00 PM	04:15 PM	0	2	0	2	1	0	0	1
04:15 PM	04:30 PM	0	1	1	2	0	0	2	2
04:30 PM	04:45 PM	1	1	0	2	0	0	0	0
04:45 PM	05:00 PM	0	0	0	0	0	0	0	0
05:00 PM	05:15 PM	2	3	0	5	0	0	1	1
05:15 PM	05:30 PM	2	2	0	4	1	0	0	1
05:30 PM	05:45 PM	1	0	0	1	0	0	0	0
05:45 PM	06:00 PM	1	0	1	2	1	0	0	1

		42nd Street / Driveway #2							
		EBR	-	WBL	IN	NBL	-	NBR	OUT
07:00 AM	07:15 AM	0		0	0	1		0	1
07:15 AM	07:30 AM	0		0	0	0		0	0
07:30 AM	07:45 AM	0		0	0	0		0	0
07:45 AM	08:00 AM	0		0	0	0		0	0
08:00 AM	08:15 AM	0		0	0	0		0	0
08:15 AM	08:30 AM	0		0	0	0		0	0
08:30 AM	08:45 AM	0		0	0	0		0	0
08:45 AM	09:00 AM	0		0	0	0		0	0

04:00 PM	04:15 PM	0		0	0	0		0	0
04:15 PM	04:30 PM	0		0	0	1		0	1
04:30 PM	04:45 PM	0		0	0	0		0	0
04:45 PM	05:00 PM	0		0	0	0		0	0
05:00 PM	05:15 PM	0		0	0	0		0	0
05:15 PM	05:30 PM	0		0	0	0		0	0
05:30 PM	05:45 PM	0		0	0	0		0	0
05:45 PM	06:00 PM	0		0	0	0		0	0

		42nd Street / Driveway #3							
		EBR	-	WBL	IN	NBL	-	NBR	OUT
07:00 AM	07:15 AM	0		0	0	0		0	0
07:15 AM	07:30 AM	0		0	0	0		0	0
07:30 AM	07:45 AM	0		0	0	0		0	0
07:45 AM	08:00 AM	0		0	0	1		0	1
08:00 AM	08:15 AM	0		0	0	0		0	0
08:15 AM	08:30 AM	0		1	1	1		0	1
08:30 AM	08:45 AM	0		0	0	2		0	2
08:45 AM	09:00 AM	0		0	0	0		0	0

04:00 PM	04:15 PM	0		0	0	1		1	2
04:15 PM	04:30 PM	0		0	0	4		1	5
04:30 PM	04:45 PM	0		1	1	6		0	6
04:45 PM	05:00 PM	0		1	1	8		1	9
05:00 PM	05:15 PM	0		0	0	8		0	8
05:15 PM	05:30 PM	0		0	0	4		0	4
05:30 PM	05:45 PM	0		0	0	4		0	4
05:45 PM	06:00 PM	1		0	1	7		0	7

		42nd Street / Driveway #4							
		EBR	-	WBL	IN	NBL	-	NBR	OUT
07:00 AM	07:15 AM	0		1	1	0		0	0
07:15 AM	07:30 AM	0		1	1	0		0	0
07:30 AM	07:45 AM	0		0	0	0		0	0
07:45 AM	08:00 AM	0		2	2	0		0	0
08:00 AM	08:15 AM	0		0	0	0		0	0
08:15 AM	08:30 AM	0		1	1	0		0	0
08:30 AM	08:45 AM	0		1	1	0		0	0
08:45 AM	09:00 AM	0		3	3	1		0	1

04:00 PM	04:15 PM	0		1	1	0		0	0
04:15 PM	04:30 PM	0		1	1	1		0	1
04:30 PM	04:45 PM	0		1	1	1		0	1
04:45 PM	05:00 PM	0		3	3	1		0	1
05:00 PM	05:15 PM	0		0	0	1		0	1
05:15 PM	05:30 PM	0		0	0	0		0	0
05:30 PM	05:45 PM	0		0	0	0		0	0
05:45 PM	06:00 PM	0		1	1	0		0	0

		Pine Tree Drive / Driveway #5							
		SBR	-	-	IN	-	-	EBR	OUT
07:00 AM	07:15 AM	0			0			3	3
07:15 AM	07:30 AM	0			0			1	1
07:30 AM	07:45 AM	0			0			1	1
07:45 AM	08:00 AM	0			0			2	2
08:00 AM	08:15 AM	0			0			0	0
08:15 AM	08:30 AM	0			0			0	0
08:30 AM	08:45 AM	0			0			2	2
08:45 AM	09:00 AM	0			0			0	0

04:00 PM	04:15 PM	0			0			1	1
04:15 PM	04:30 PM	0			0			0	0
04:30 PM	04:45 PM	1			1			3	3
04:45 PM	05:00 PM	2			2			6	6
05:00 PM	05:15 PM	0			0			0	0
05:15 PM	05:30 PM	0			0			0	0
05:30 PM	05:45 PM	0			0			0	0
05:45 PM	06:00 PM	0			0			4	4

AM Driveway Percent Use			
	IN	OUT	TOTAL
Driveway #1	75%	11%	55%
Driveway #2	0%	0%	0%
Driveway #3	5%	44%	17%
Driveway #4	20%	0%	14%
Driveway #5	0%	44%	14%
	100%	100%	100%

PM Driveway Percent Use			
	IN	OUT	TOTAL
Driveway #1	47%	7%	19%
Driveway #2	0%	2%	2%
Driveway #3	11%	62%	47%
Driveway #4	26%	9%	14%
Driveway #5	16%	20%	19%
	100%	100%	100%

42ND STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STSHER
 Page : 1

ALL VEHICLES

SHERIDAN AVENUE From North					42ND STREET From East					SHERIDAN AVENUE From South					42ND STREET From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 02/09/16 -----																				
07:00	0	0	32	3	0	10	11	0		0	6	8	0		0	0	0	0	0	70
07:15	0	0	22	4	0	7	5	1		0	7	12	0		0	0	0	0	0	58
07:30	0	0	22	4	0	4	8	4		1	4	8	0		0	0	0	0	0	55
07:45	0	0	26	3	0	11	15	1		0	12	18	0		0	0	0	0	0	86
Hr Total	0	0	102	14	0	32	39	6		1	29	46	0		0	0	0	0	0	269
08:00	0	0	26	8	0	11	20	0		1	9	12	0		0	0	0	0	0	87
08:15	0	0	19	21	0	14	38	1		1	19	12	0		0	0	0	0	0	125
08:30	0	0	29	3	0	9	29	5		1	11	12	0		0	0	0	0	0	99
08:45	0	0	32	10	0	9	12	0		1	8	15	0		0	0	0	0	0	87
Hr Total	0	0	106	42	0	43	99	6		4	47	51	0		0	0	0	0	0	398
----- * BREAK * -----																				
16:00	0	0	29	13	0	18	29	2		0	20	24	0		0	0	0	0	0	135
16:15	0	0	24	10	0	10	22	4		1	14	27	0		0	0	0	0	0	112
16:30	0	0	32	1	0	9	31	2		0	10	29	0		0	0	0	0	0	114
16:45	0	0	28	5	0	10	18	6		2	13	16	0		0	0	0	0	0	98
Hr Total	0	0	113	29	0	47	100	14		3	57	96	0		0	0	0	0	0	459
17:00	0	0	22	4	0	12	25	2		1	16	26	0		0	0	0	0	0	108
17:15	0	0	16	3	0	12	17	3		0	8	31	0		0	0	0	0	0	90
17:30	0	0	31	7	0	6	23	4		0	8	23	0		0	0	0	0	0	102
17:45	0	0	20	2	0	10	20	3		0	10	21	0		0	0	0	0	0	86
Hr Total	0	0	89	16	0	40	85	12		1	42	101	0		0	0	0	0	0	386

TOTAL	0	0	410	101	0	162	323	38		9	175	294	0		0	0	0	0	0	1512

42ND STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 NOT SIGNALIZED

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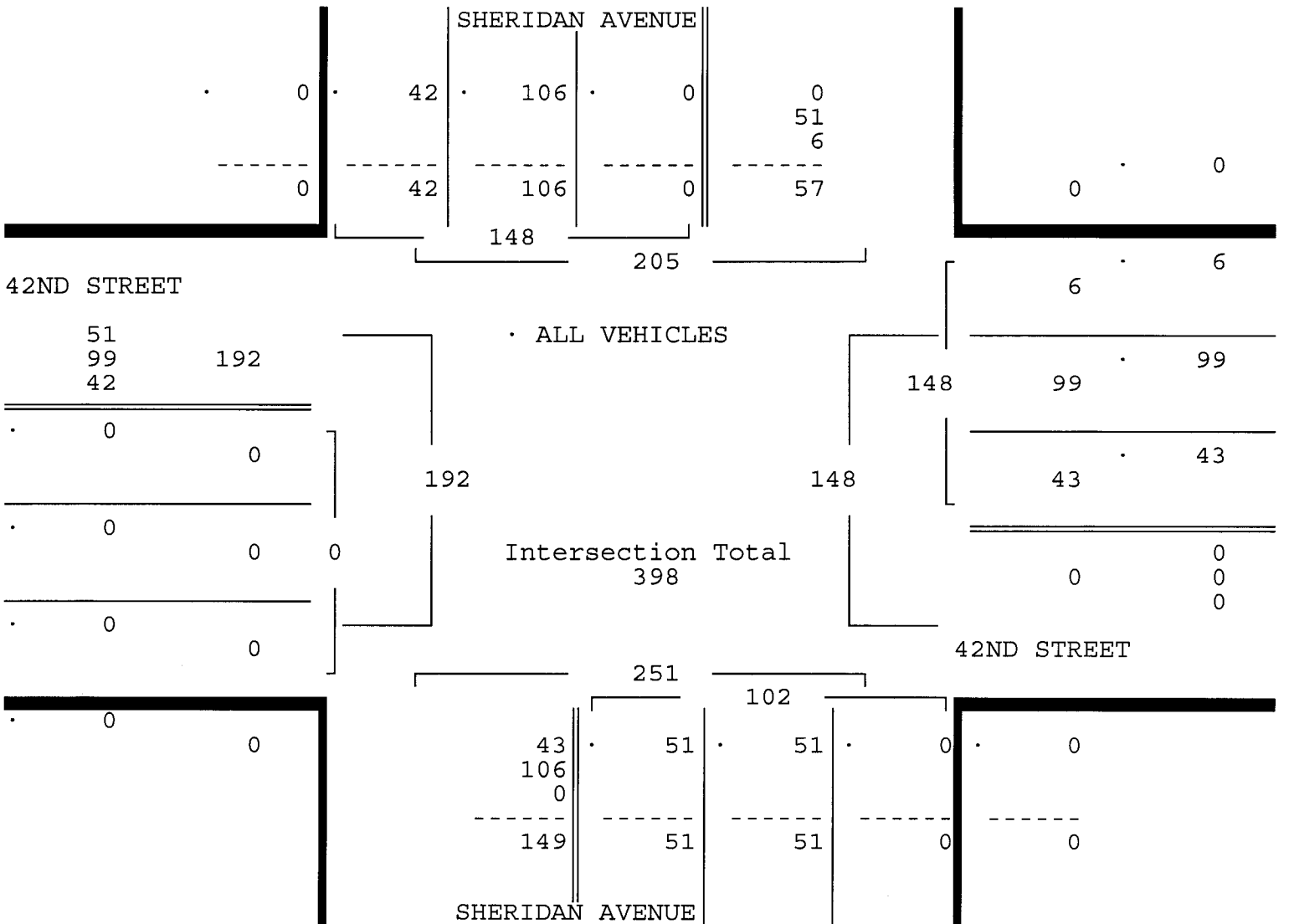
ALL VEHICLES

SHERIDAN AVENUE From North				42ND STREET From East				SHERIDAN AVENUE From South				42ND STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 02/09/16

Peak start 08:00					08:00				08:00				08:00			
Volume	0	0	106	42	0	43	99	6	4	47	51	0	0	0	0	0
Percent	0%	0%	72%	28%	0%	29%	67%	4%	4%	46%	50%	0%	0%	0%	0%	0%
Pk total	148					148					102					0
Highest	08:45					08:15					08:15					07:00
Volume	0	0	32	10	0	14	38	1	1	19	12	0	0	0	0	0
Hi total	42					53					32					0
PHF	.88					.70					.80					.0



42ND STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 NOT SIGNALIZED

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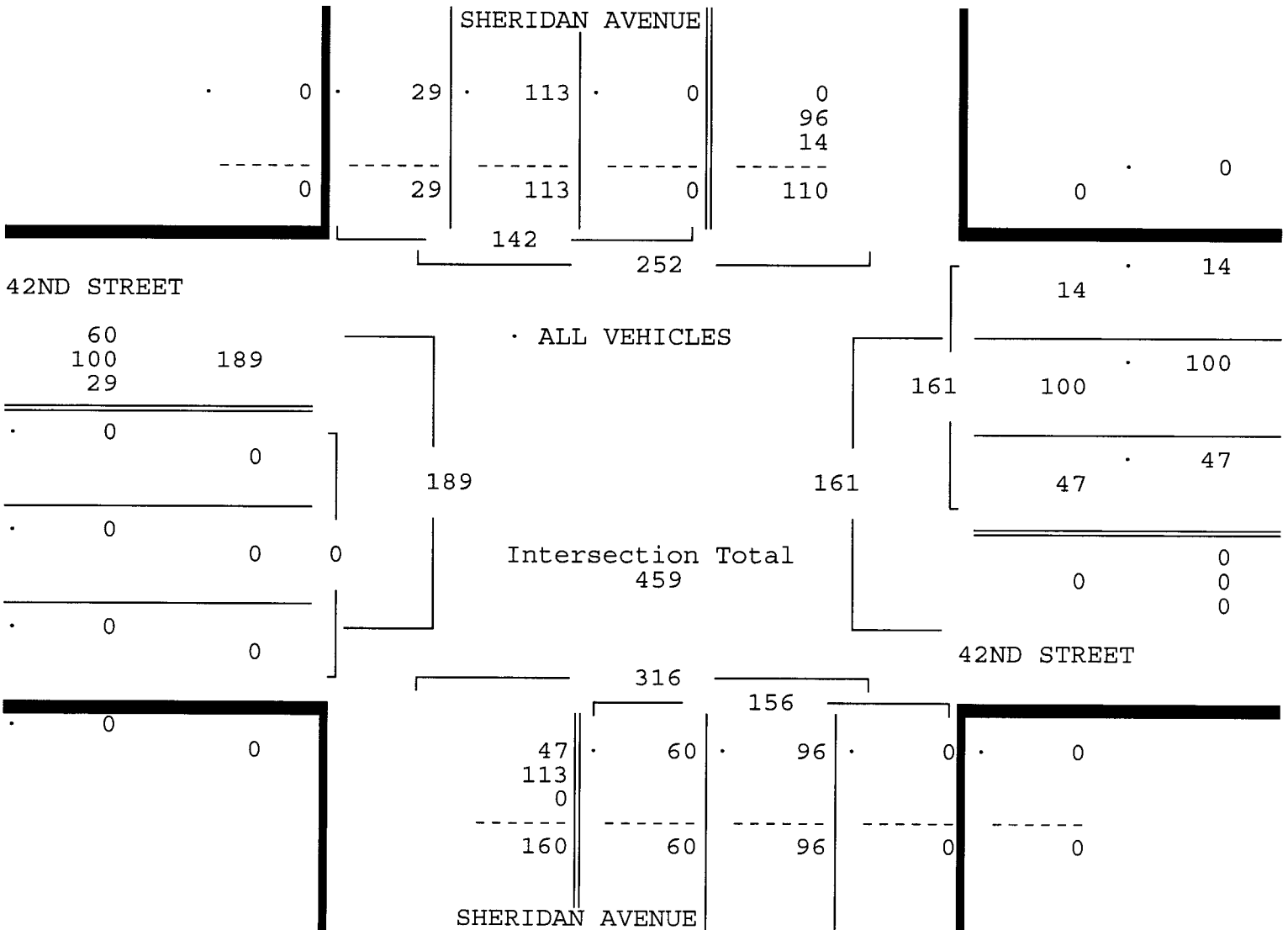
ALL VEHICLES

SHERIDAN AVENUE From North				42ND STREET From East				SHERIDAN AVENUE From South				42ND STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16

Peak start 16:00	16:00				16:00				16:00				16:00			
Volume	0	0	113	29	0	47	100	14	3	57	96	0	0	0	0	0
Percent	0%	0%	80%	20%	0%	29%	62%	9%	2%	37%	62%	0%	0%	0%	0%	0%
Pk total	142				161				156				0			
Highest	16:00				16:00				16:00				07:00			
Volume	0	0	29	13	0	18	29	2	0	20	24	0	0	0	0	0
Hi total	42				49				44				0			
PHF	.85				.82				.89				.0			



42ND STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 NOT SIGNALIZED

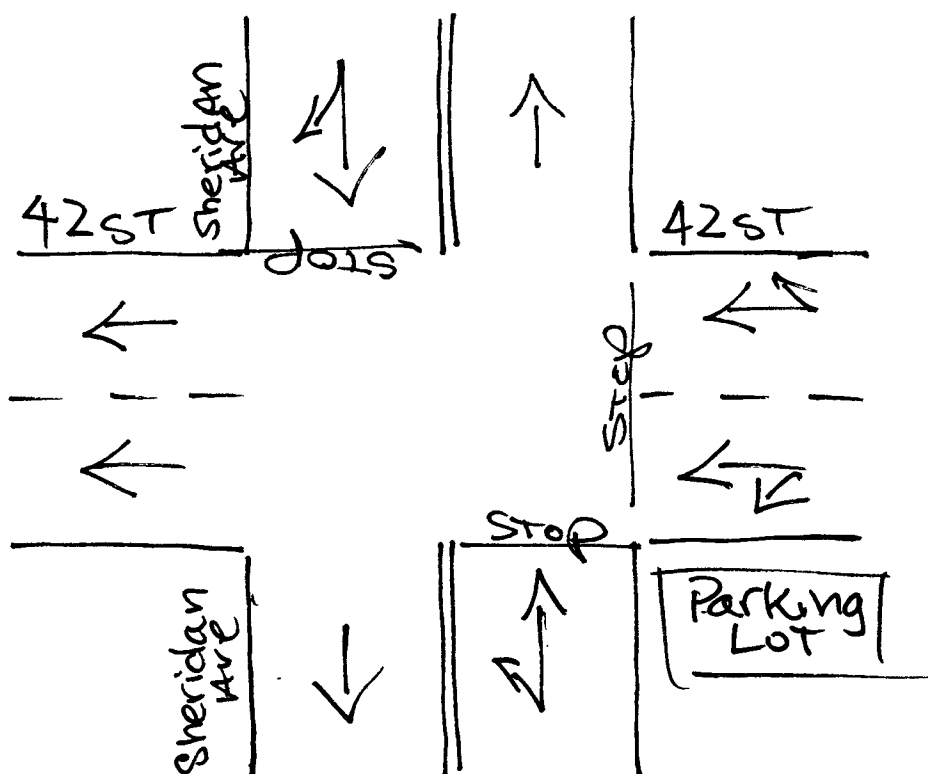
Traffic Survey Specialists, Inc.
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 Page : 1

PEDESTRIANS & BIKES

Date 02/09/16	SHERIDAN AVENUE From North				42ND STREET From East				SHERIDAN AVENUE From South				42ND STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
07:00	0	0	0	0	0	0	0	0	0	0	0	6	0	1	0	6	13
07:15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
07:30	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	4
07:45	0	0	0	1	0	0	0	4	0	0	0	1	0	0	0	0	6
Hr Total	0	0	0	1	0	0	0	4	0	0	0	11	0	2	0	6	24
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	4	0	0	0	1	0	0	0	0	0	0	0	4	9
08:30	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
08:45	0	0	0	2	0	0	0	6	0	0	0	7	0	0	0	0	15
Hr Total	0	0	0	6	0	0	0	10	0	0	0	7	0	0	0	4	27
* BREAK *																	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
16:15	0	0	0	0	0	0	0	4	0	0	0	5	0	0	0	0	9
16:30	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	6
16:45	0	0	0	1	0	0	0	2	0	1	0	3	0	0	0	1	8
Hr Total	0	0	0	1	0	0	0	11	0	1	0	8	0	1	0	2	24
17:00	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	7	0	0	0	5	0	0	0	7	0	0	0	8	27
17:45	0	0	0	3	0	0	0	3	0	0	0	3	0	1	0	4	14
Hr Total	0	0	0	10	0	0	0	8	0	0	0	15	0	1	0	12	46
TOTAL	0	0	0	18	0	0	0	33	0	1	0	41	0	4	0	24	121

↑
North



Miami Beach, Florida
February 09, 2016
drawn by: Luis Pelomino
not signalized

PROJECT DRIVEWAY #1 & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: DREW GONZALEZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : DWY1SHER
 Page : 1

DRIVEWAY VOLUME ONLY

SHERIDAN AVENUE From North					DRIVEWAY #1 From East					SHERIDAN AVENUE From South					ALLEYWAY From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		
Date 02/09/16																				Total
07:00	1	0	0	0	0	1	0	0	0	3	0	0	1	0	0	0	0	2	8	
07:15	0	1	0	2	0	0	0	0	0	2	2	0	2	0	0	0	0	4	13	
07:30	0	1	0	1	0	0	0	1	1	1	0	0	1	0	1	0	0	4	10	
07:45	2	2	0	1	0	0	0	0	0	2	0	0	1	0	2	0	0	6	16	
Hr Total	3	4	0	4	0	1	0	1	8	2	0	5	0	3	0	16		47		
08:00	0	1	0	0	0	1	0	0	4	2	0	3	0	3	0	3		17		
08:15	0	2	0	1	0	0	0	0	0	0	0	0	1	0	1	1	3	9		
08:30	0	1	0	0	0	0	0	0	0	1	0	0	3	0	3	0	7	15		
08:45	1	1	0	1	0	0	0	0	2	0	0	1	0	1	0	7		14		
Hr Total	1	5	0	2	0	1	0	0	6	3	0	8	0	8	1	20		55		
----- * BREAK *																				
16:00	0	0	0	0	0	1	0	0	1	0	0	2	0	4	0	9		17		
16:15	1	0	0	0	0	0	0	2	0	0	0	1	0	4	1	3		12		
16:30	2	1	0	0	0	0	0	0	1	0	0	1	0	0	0	2		7		
16:45	1	0	0	0	0	0	0	0	1	1	0	0	0	3	0	1		7		
Hr Total	4	1	0	0	0	1	0	2	3	1	0	4	0	11	1	15		43		
17:00	2	2	0	1	0	0	0	1	0	1	0	3	0	2	0	8		20		
17:15	0	2	0	0	0	1	0	0	0	0	0	2	0	2	0	6		13		
17:30	0	1	0	2	0	0	0	0	1	0	0	0	0	6	0	4		14		
17:45	2	1	0	1	0	1	0	0	1	0	0	0	0	2	1	1		10		
Hr Total	4	6	0	4	0	2	0	1	2	1	0	5	0	12	1	19		57		
TOTAL	12	16	0	10	0	5	0	4	19	7	0	22	0	34	3	70		202		

PROJECT DRIVEWAY #1 & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: DREW GONZALEZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : DWY1SHER
 Page : 2

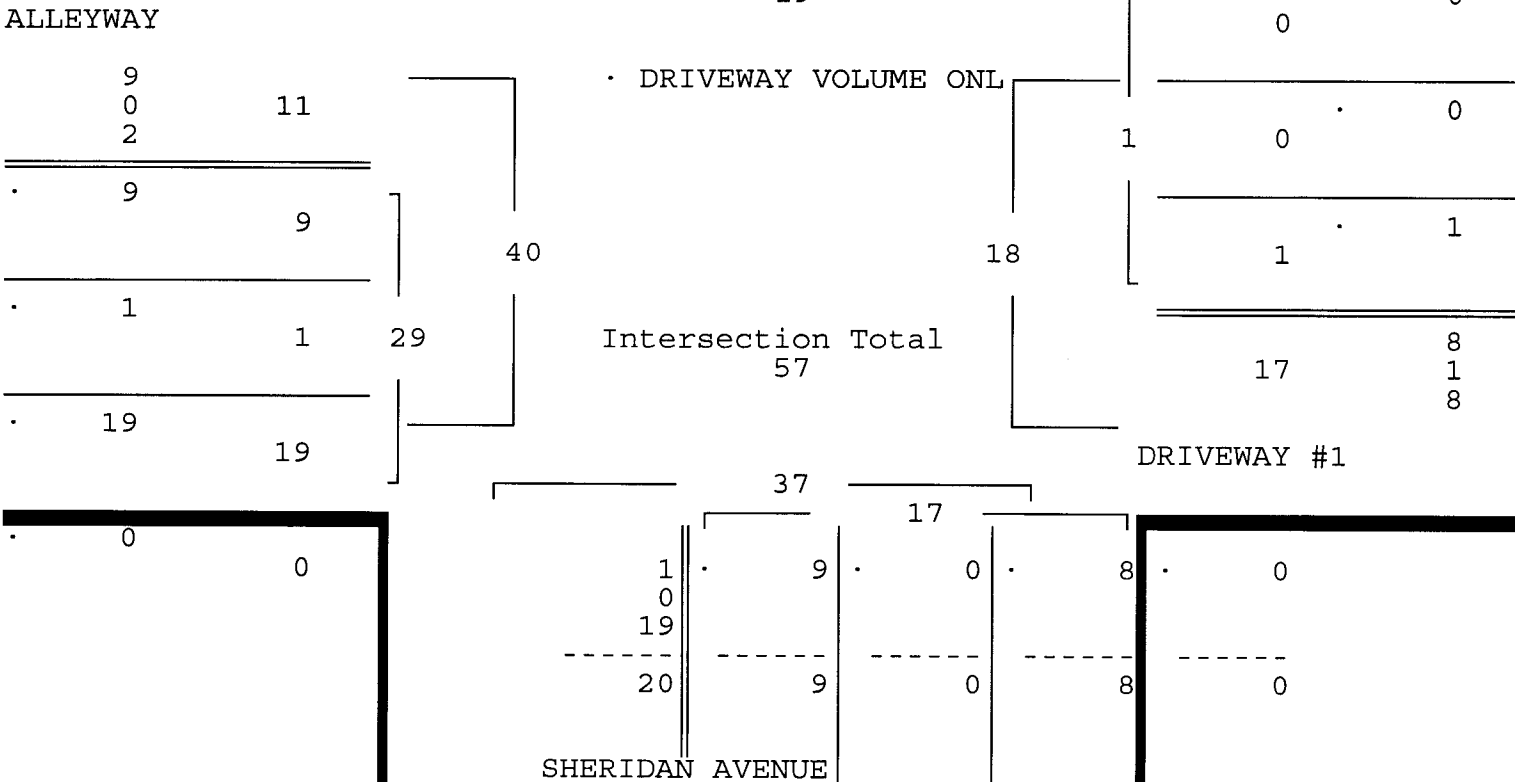
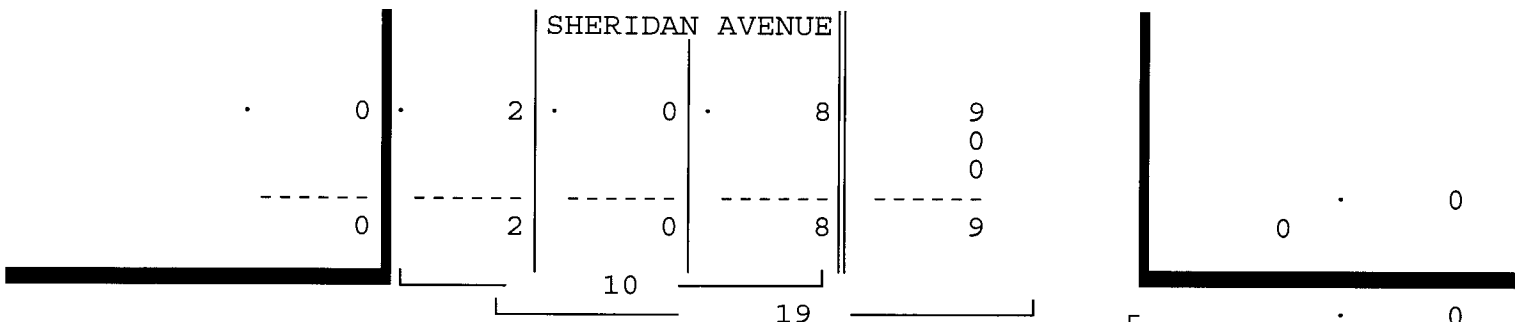
DRIVEWAY VOLUME ONLY

SHERIDAN AVENUE From North				DRIVEWAY #1 From East				SHERIDAN AVENUE From South				ALLEYWAY From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 02/09/16

Peak start 07:45					07:45				07:45				07:45			
Volume	2	6	0	2	0	1	0	0	6	3	0	8	0	9	1	19
Percent	20%	60%	0%	20%	0%	100%	0%	0%	35%	18%	0%	47%	0%	31%	3%	66%
Pk total	10				1				17				29			
Highest	07:45				08:00				08:00				08:30			
Volume	2	2	0	1	0	1	0	0	4	2	0	3	0	3	0	7
Hi total	5				1				9				10			
PHF	.50				.25				.47				.72			



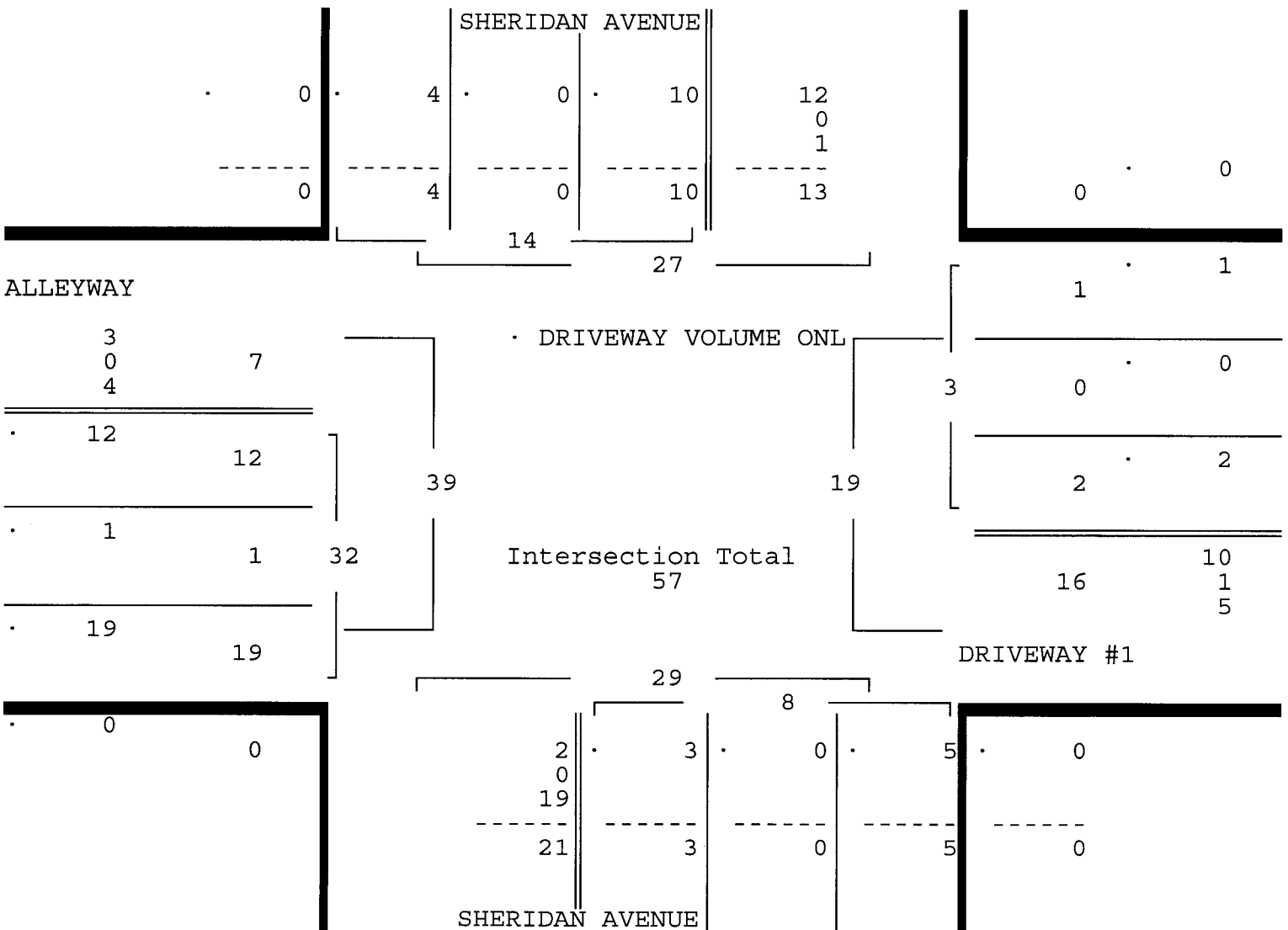
PROJECT DRIVEWAY #1 & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: DREW GONZALEZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : DWY1SHER
 Page : 3

DRIVEWAY VOLUME ONLY

SHERIDAN AVENUE					DRIVEWAY #1				SHERIDAN AVENUE				ALLEYWAY				Total
From North					From East				From South				From West				
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	
Date 02/09/16 -----																	
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16																	
Peak start 17:00					17:00				17:00				17:00				
Volume	4	6	0	4	0	2	0	1	2	1	0	5	0	12	1	19	
Percent	29%	43%	0%	29%	0%	67%	0%	33%	25%	12%	0%	62%	0%	38%	3%	59%	
Pk total	14				3				8				32				
Highest	17:00				17:00				17:00				17:00				
Volume	2	2	0	1	0	0	0	1	0	1	0	3	0	2	0	8	
Hi total	5				1				4				10				
PHF	.70				.75				.50				.80				



PROJECT DRIVEWAY #1 & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: DREW GONZALEZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

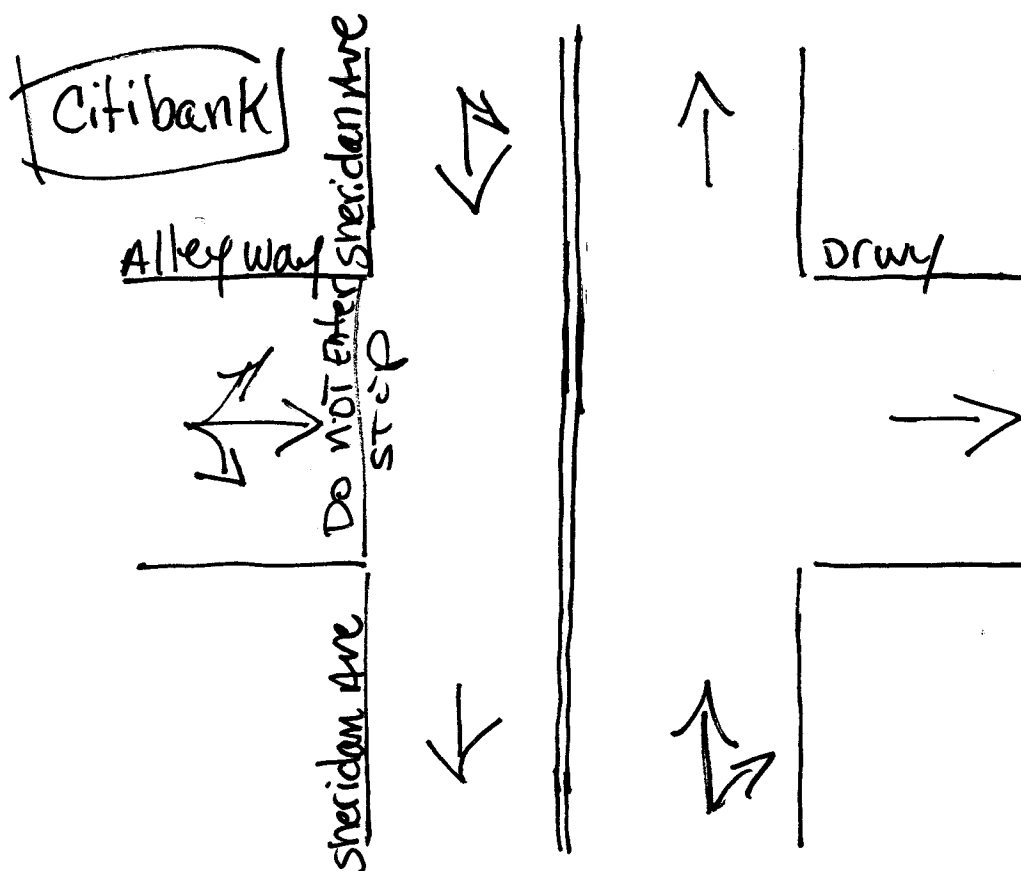
Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : DWY1SHER
 Page : 1

PEDESTRIANS & BIKES

	SHERIDAN AVENUE From North				DRIVEWAY #1 From East				SHERIDAN AVENUE From South				ALLEYWAY From West				
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 02/09/16																	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	6	0	0	0	0	0	0	0	3	0	0	0	0	9
07:30	0	1	0	4	0	0	0	0	0	0	0	4	0	0	0	0	9
07:45	0	0	0	8	0	0	0	0	0	0	0	1	0	0	0	0	9
Hr Total	0	1	0	18	0	0	0	0	0	0	0	8	0	0	0	0	27
08:00	0	0	0	4	0	0	0	2	0	0	0	1	0	0	0	1	8
08:15	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	3	8
08:30	0	0	0	10	0	0	0	6	0	0	0	4	0	0	0	5	25
08:45	0	0	0	1	0	0	0	0	0	0	0	9	0	0	0	1	11
Hr Total	0	0	0	19	0	0	0	8	0	0	0	15	0	0	0	10	52
----- * BREAK * -----																	
16:00	0	0	0	6	0	1	0	2	0	0	0	1	0	0	0	7	17
16:15	0	1	0	8	0	0	0	2	0	0	0	0	0	2	0	16	29
16:30	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	6	14
16:45	0	0	0	12	0	2	0	2	0	0	0	0	0	1	0	17	34
Hr Total	0	1	0	34	0	3	0	6	0	0	0	1	0	3	0	46	94
17:00	0	0	0	8	0	0	0	3	0	0	0	2	0	0	0	18	31
17:15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3
17:30	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
17:45	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	0	7
Hr Total	0	0	0	14	0	0	0	3	0	0	0	9	0	0	0	19	45

TOTAL	0	2	0	85	0	3	0	17	0	0	0	33	0	3	0	75	218

↑
North



Miami Beach Florida
February 09, 2016
drawn by: Luis Palomino
NOT signalized

41ST STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41STSHER
 Page : 1

ALL VEHICLES

SHERIDAN AVENUE					41ST STREET				SHERIDAN AVENUE				41ST STREET				
From North					From East				From South				From West				
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total
Date 02/09/16																	
07:00	0	10	24	14	0	20	203	1	0	2	8	5	0	13	278	11	589
07:15	0	4	14	10	0	8	259	4	0	9	14	20	0	12	218	16	588
07:30	0	7	5	16	0	6	290	0	0	6	4	5	0	14	260	13	626
07:45	0	10	14	11	0	8	236	9	0	7	10	11	0	14	243	9	582
Hr Total	0	31	57	51	0	42	988	14	0	24	36	41	0	53	999	49	2385
08:00	0	10	8	19	0	5	281	5	0	5	10	18	0	17	228	13	619
08:15	0	8	11	14	0	6	269	6	0	2	8	13	0	14	207	5	563
08:30	0	20	13	12	0	8	220	3	0	3	10	14	0	15	215	6	539
08:45	0	9	18	12	0	6	232	4	0	7	7	17	0	23	263	11	609
Hr Total	0	47	50	57	0	25	1002	18	0	17	35	62	0	69	913	35	2330
* BREAK *																	
16:00	0	18	17	25	0	5	196	10	0	10	17	20	0	17	257	13	605
16:15	0	19	21	13	0	5	240	9	0	6	14	21	0	12	247	15	622
16:30	0	16	19	11	0	1	179	6	0	15	17	24	0	16	250	13	567
16:45	0	19	12	20	1	10	223	4	0	19	19	19	0	9	261	7	623
Hr Total	0	72	69	69	1	21	838	29	0	50	67	84	0	54	1015	48	2417
17:00	0	18	12	21	0	2	236	8	0	19	17	27	0	11	261	5	637
17:15	0	13	15	11	0	4	141	6	0	18	18	18	0	14	258	7	523
17:30	0	17	16	16	0	1	177	5	0	16	19	21	0	3	241	13	545
17:45	0	10	13	17	0	3	136	10	0	17	17	18	0	6	274	7	528
Hr Total	0	58	56	65	0	10	690	29	0	70	71	84	0	34	1034	32	2233
TOTAL	0	208	232	242	1	98	3518	90	0	161	209	271	0	210	3961	164	9365

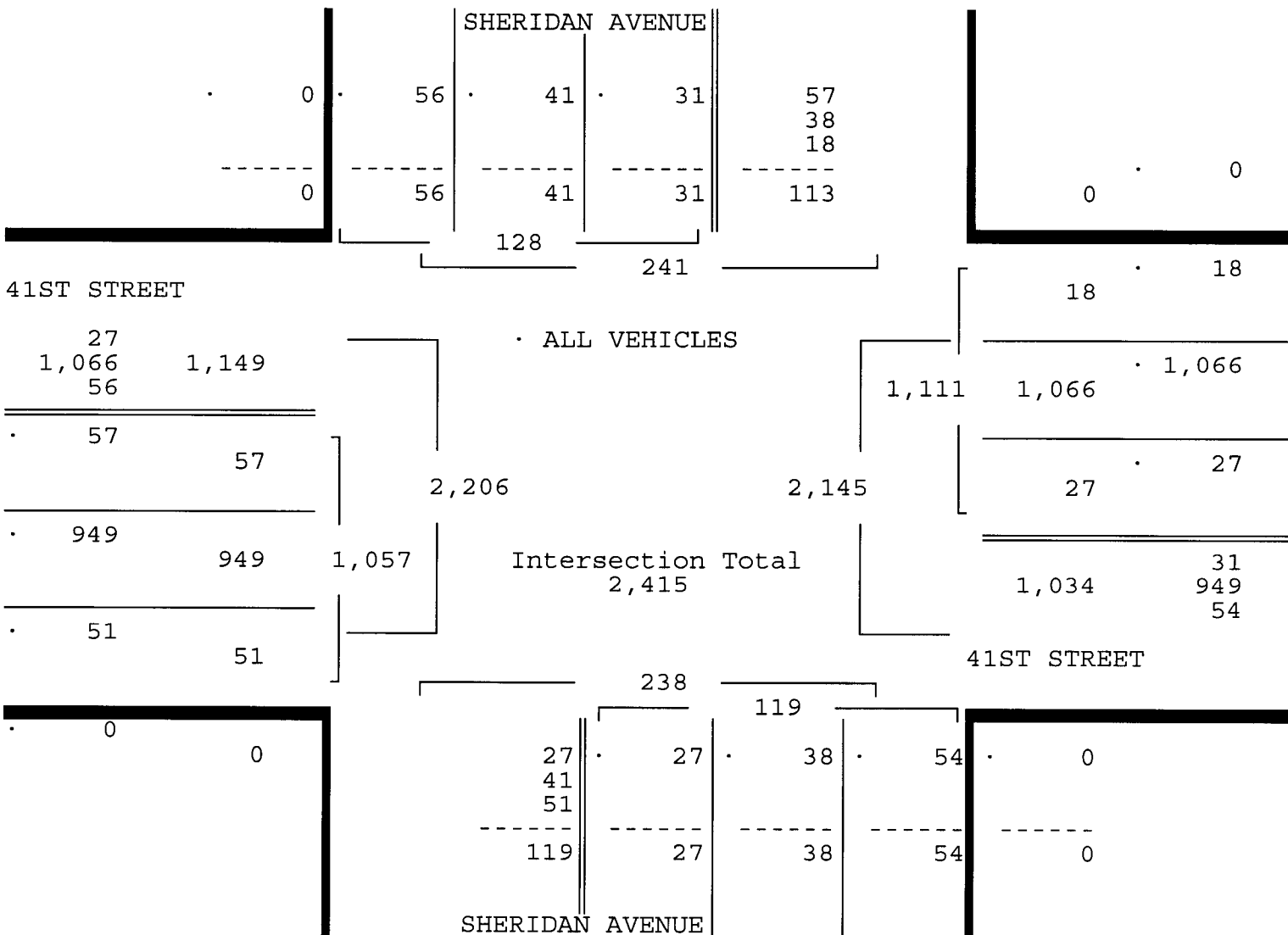
41ST STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41STSHER
 Page : 2

ALL VEHICLES

SHERIDAN AVENUE					41ST STREET				SHERIDAN AVENUE				41ST STREET				Total	
From North					From East				From South				From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left		Thru
Date 02/09/16 -----																		
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 02/09/16																		
Peak start 07:15					07:15				07:15				07:15					
Volume	0	31	41	56	0	27	1066	18	0	27	38	54	0	57	949	51		
Percent	0%	24%	32%	44%	0%	2%	96%	2%	0%	23%	32%	45%	0%	5%	90%	5%		
Pk total	128				1111				119				1057					
Highest	08:00				07:30				07:15				07:30					
Volume	0	10	8	19	0	6	290	0	0	9	14	20	0	14	260	13		
Hi total	37				296				43				287					
PHF	.86				.94				.69				.92					



41ST STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41STSHER
 Page : 3

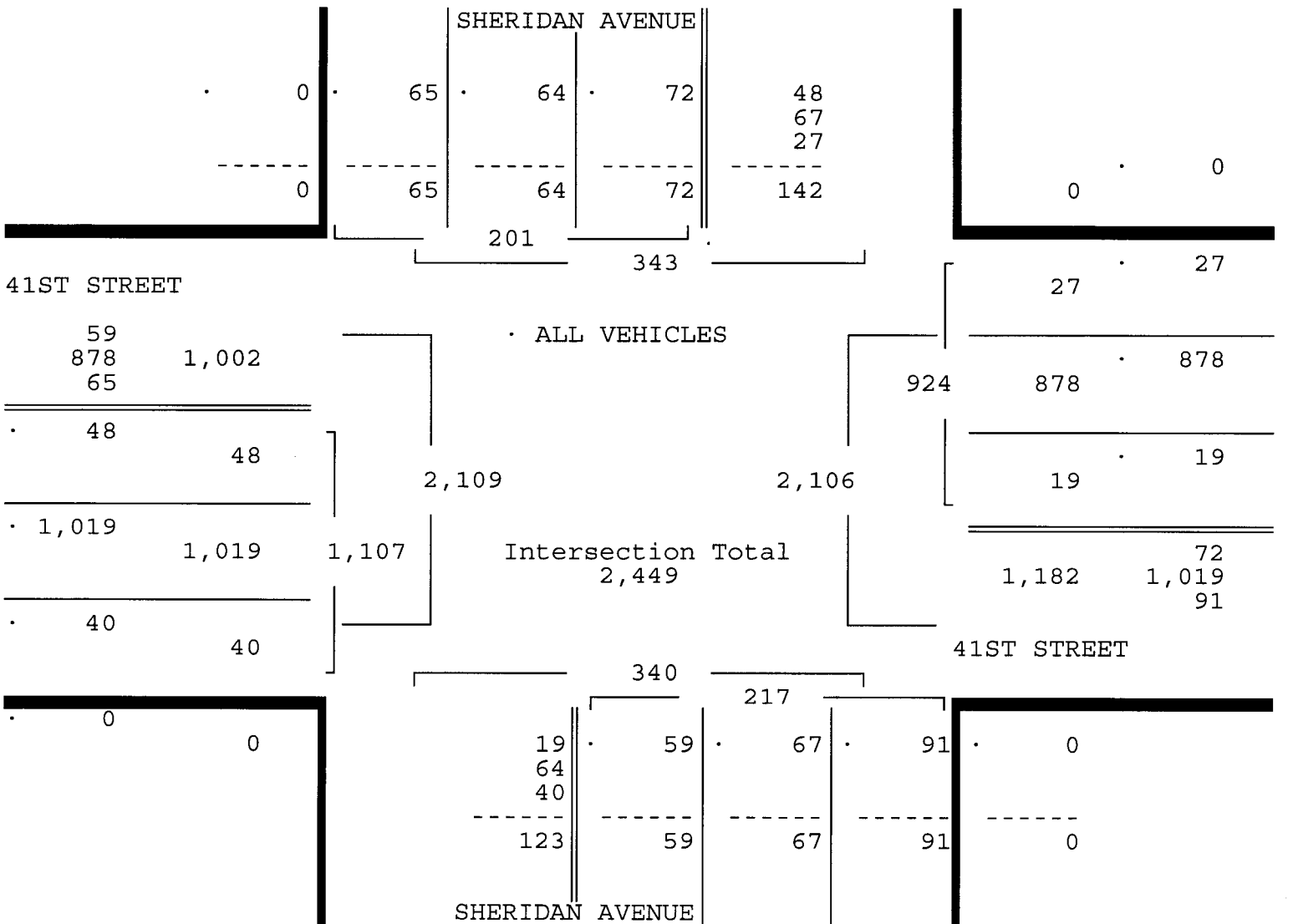
ALL VEHICLES

SHERIDAN AVENUE From North				41ST STREET From East				SHERIDAN AVENUE From South				41ST STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16

Peak start 16:15					16:15				16:15				16:15			
Volume	0	72	64	65	1	18	878	27	0	59	67	91	0	48	1019	40
Percent	0%	36%	32%	32%	0%	2%	95%	3%	0%	27%	31%	42%	0%	4%	92%	4%
Pk total	201					924					217					1107
Highest	16:15					16:15					17:00					16:30
Volume	0	19	21	13	0	5	240	9	0	19	17	27	0	16	250	13
Hi total	53					254					63					279
PHF	.95					.91					.86					.99



41ST STREET & SHERIDAN AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

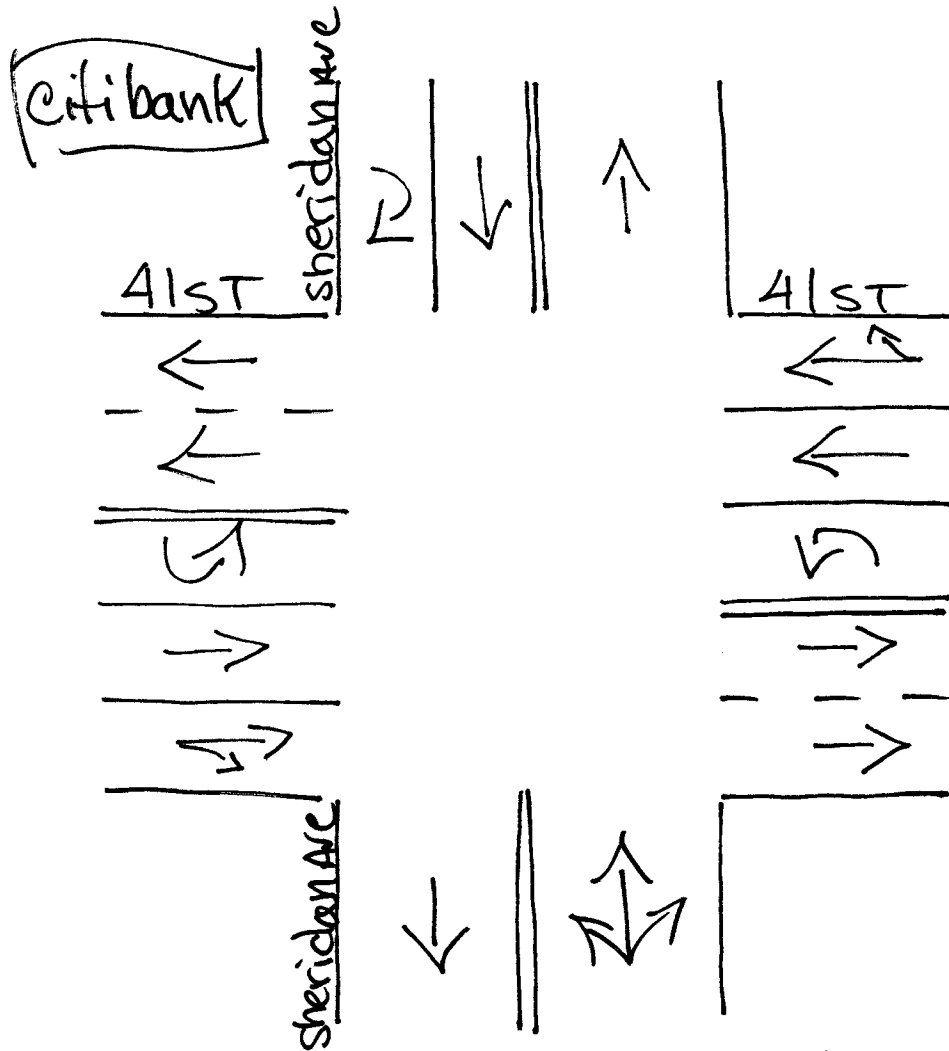
Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41STSHER
 Page : 1

PEDESTRIANS & BIKES

SHERIDAN AVENUE				41ST STREET				SHERIDAN AVENUE				41ST STREET					
From North				From East				From South				From West					
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 02/09/16 -----																	
07:00	0	0	0	4	0	0	0	3	0	1	0	2	0	0	0	3	13
07:15	0	0	0	9	0	0	0	4	0	0	0	6	0	0	0	6	25
07:30	0	0	0	7	0	0	0	4	0	0	0	5	0	0	0	9	25
07:45	0	2	0	14	0	0	0	8	0	1	0	6	0	0	0	0	31
Hr Total	0	2	0	34	0	0	0	19	0	2	0	19	0	0	0	18	94
08:00	0	0	0	9	0	0	0	7	0	0	0	13	0	0	0	17	46
08:15	0	1	0	11	0	0	0	1	0	3	0	9	0	1	0	4	30
08:30	0	3	0	17	0	0	0	1	0	1	0	15	0	0	0	7	44
08:45	0	0	0	23	0	0	0	4	0	0	0	13	0	0	0	7	47
Hr Total	0	4	0	60	0	0	0	13	0	4	0	50	0	1	0	35	167
----- * BREAK * -----																	
16:00	0	2	0	39	0	0	0	15	0	5	0	34	0	1	0	2	98
16:15	0	2	0	31	0	0	0	16	0	2	0	25	0	0	0	2	78
16:30	0	4	0	25	0	0	0	3	0	0	0	27	0	1	0	17	77
16:45	0	3	0	32	0	0	0	1	0	2	0	10	0	2	0	1	51
Hr Total	0	11	0	127	0	0	0	35	0	9	0	96	0	4	0	22	304
17:00	0	2	0	12	0	1	0	3	0	1	0	29	0	0	0	10	58
17:15	0	3	0	26	0	0	0	5	0	1	0	21	0	0	0	2	58
17:30	0	2	0	9	0	0	0	7	0	2	0	17	0	0	0	0	37
17:45	0	0	0	16	0	1	0	0	0	1	0	9	0	0	0	0	27
Hr Total	0	7	0	63	0	2	0	15	0	5	0	76	0	0	0	12	180

TOTAL	0	24	0	284	0	2	0	82	0	20	0	241	0	5	0	87	745

North



Miami Beach, Florida
February 09, 2016
drawn by: Luis Palomino
signalized

42ND STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: SEBASTIAN SALVO
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STPINE
 Page : 1

ALL VEHICLES

PINE TREE DRIVE From North					DRIVEWAY From East				PINE TREE DRIVE From South				42ND STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 02/09/16 -----																				
07:00	6	0	128	8	0	0	1	0	3	11	37	1	0	0	0	0	0	0	195	
07:15	3	0	73	5	0	0	1	0	1	7	48	3	0	0	0	0	0	141		
07:30	2	0	104	7	0	0	0	2	7	17	38	1	0	0	0	0	0	178		
07:45	4	1	113	6	0	2	3	4	7	16	55	4	0	0	0	0	0	215		
Hr Total	15	1	418	26	0	2	5	6	18	51	178	9	0	0	0	0	0	729		
08:00	3	0	90	4	0	1	0	2	4	20	60	5	0	0	0	0	0	189		
08:15	3	0	106	8	0	1	2	4	3	47	55	2	0	0	0	0	0	231		
08:30	2	0	148	6	0	0	1	3	6	36	80	4	0	0	0	0	0	286		
08:45	0	2	143	9	0	0	0	1	2	13	80	2	0	0	0	0	0	252		
Hr Total	8	2	487	27	0	2	3	10	15	116	275	13	0	0	0	0	0	958		
----- * BREAK * -----																				
16:00	2	3	86	19	0	2	4	3	2	24	157	9	0	0	0	0	0	311		
16:15	1	3	126	14	0	3	3	5	3	21	179	10	0	0	0	0	0	368		
16:30	4	3	109	13	0	1	1	1	5	30	172	12	0	0	0	0	0	351		
16:45	9	2	107	9	0	1	1	3	3	21	218	4	0	0	0	0	0	378		
Hr Total	16	11	428	55	0	7	9	12	13	96	726	35	0	0	0	0	0	1408		
17:00	11	1	110	12	0	1	2	1	3	17	181	4	0	0	0	0	0	343		
17:15	5	4	102	11	0	2	0	2	6	20	212	6	0	0	0	0	0	370		
17:30	5	0	111	5	0	4	6	5	1	20	223	5	0	0	0	0	0	385		
17:45	13	1	105	12	0	0	2	2	5	18	185	7	0	0	0	0	0	350		
Hr Total	34	6	428	40	0	7	10	10	15	75	801	22	0	0	0	0	0	1448		

TOTAL	73	20	1761	148	0	18	27	38	61	338	1980	79	0	0	0	0	0	4543		

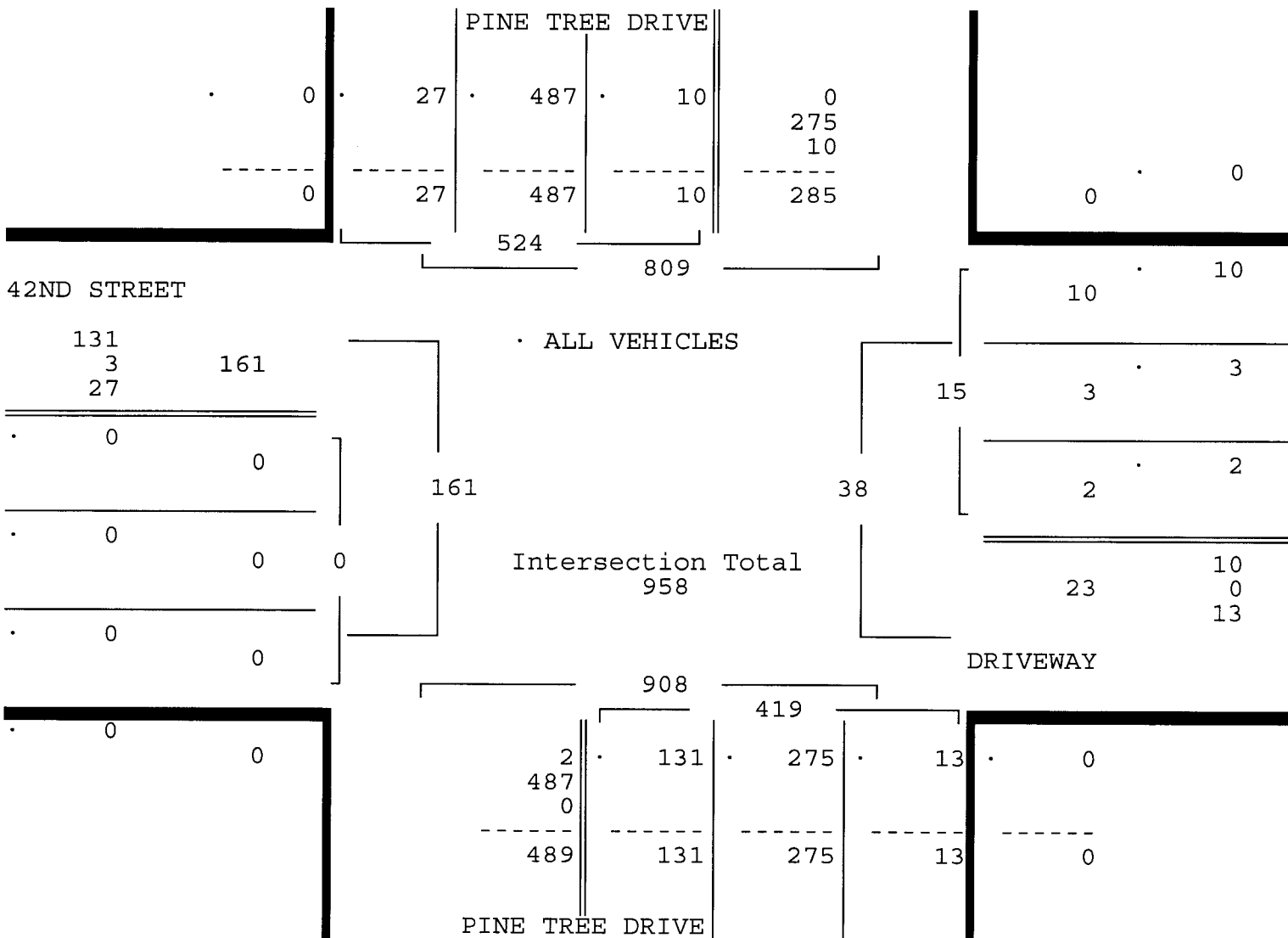
42ND STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: SEBASTIAN SALVO
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STPINE
 Page : 2

ALL VEHICLES

PINE TREE DRIVE From North					DRIVEWAY From East				PINE TREE DRIVE From South				42ND STREET From West						
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	
Date 02/09/16 -----																			
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 02/09/16																			
Peak start 08:00					08:00				08:00				08:00						
Volume	8	2	487	27	0	2	3	10	15	116	275	13	0	0	0	0			
Percent	2%	0%	93%	5%	0%	13%	20%	67%	4%	28%	66%	3%	0%	0%	0%	0%			
Pk total	524				15				419				0						
Highest	08:30				08:15				08:30				07:00						
Volume	2	0	148	6	0	1	2	4	6	36	80	4	0	0	0	0			
Hi total	156				7				126				0						
PHF	.84				.54				.83				.0						



42ND STREET & PINE TREE DRIVE
MIAMI BEACH, FLORIDA
COUNTED BY: SEBASTIAN SALVO
SIGNALIZED

Traffic Survey Specialists, Inc.
85 SE 4th Avenue, Unit 109
Delray Beach, Florida 33483
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Site Code : 00160033
Start Date: 02/09/16
File I.D. : 42STPINE
Page : 3

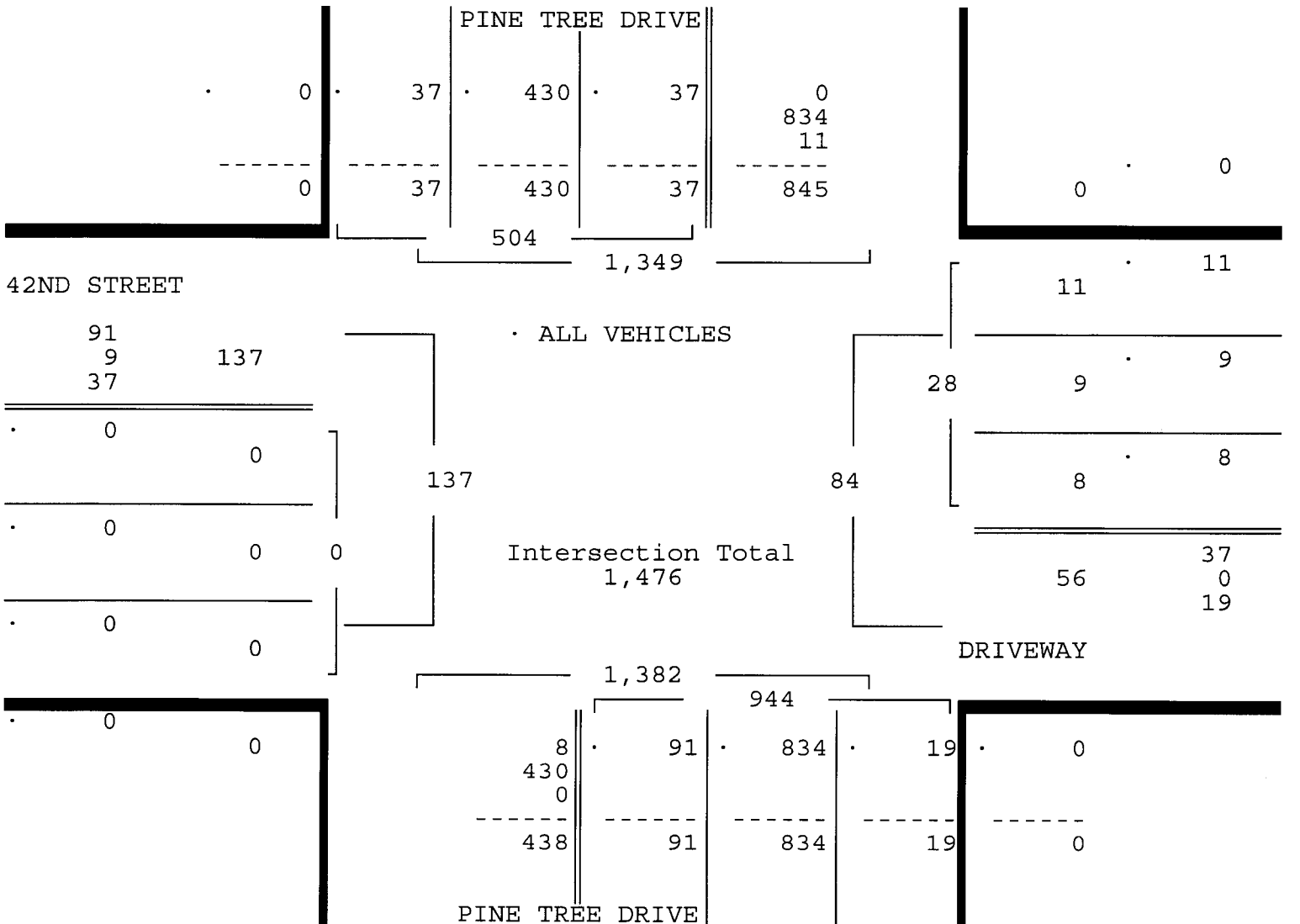
ALL VEHICLES

PINE TREE DRIVE From North				DRIEWAY From East				PINE TREE DRIVE From South				42ND STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16

Peak start 16:45				16:45				16:45				16:45				Total
Volume	30	7	430	37	0	8	9	11	13	78	834	19	0	0	0	
Percent	6%	1%	85%	7%	0%	29%	32%	39%	1%	8%	88%	2%	0%	0%	0%	
Pk total	504				28				944				0			
Highest	17:00				17:30				17:30				07:00			
Volume	11	1	110	12	0	4	6	5	1	20	223	5	0	0	0	
Hi total	134				15				249				0			
PHF	.94				.47				.95				.0			

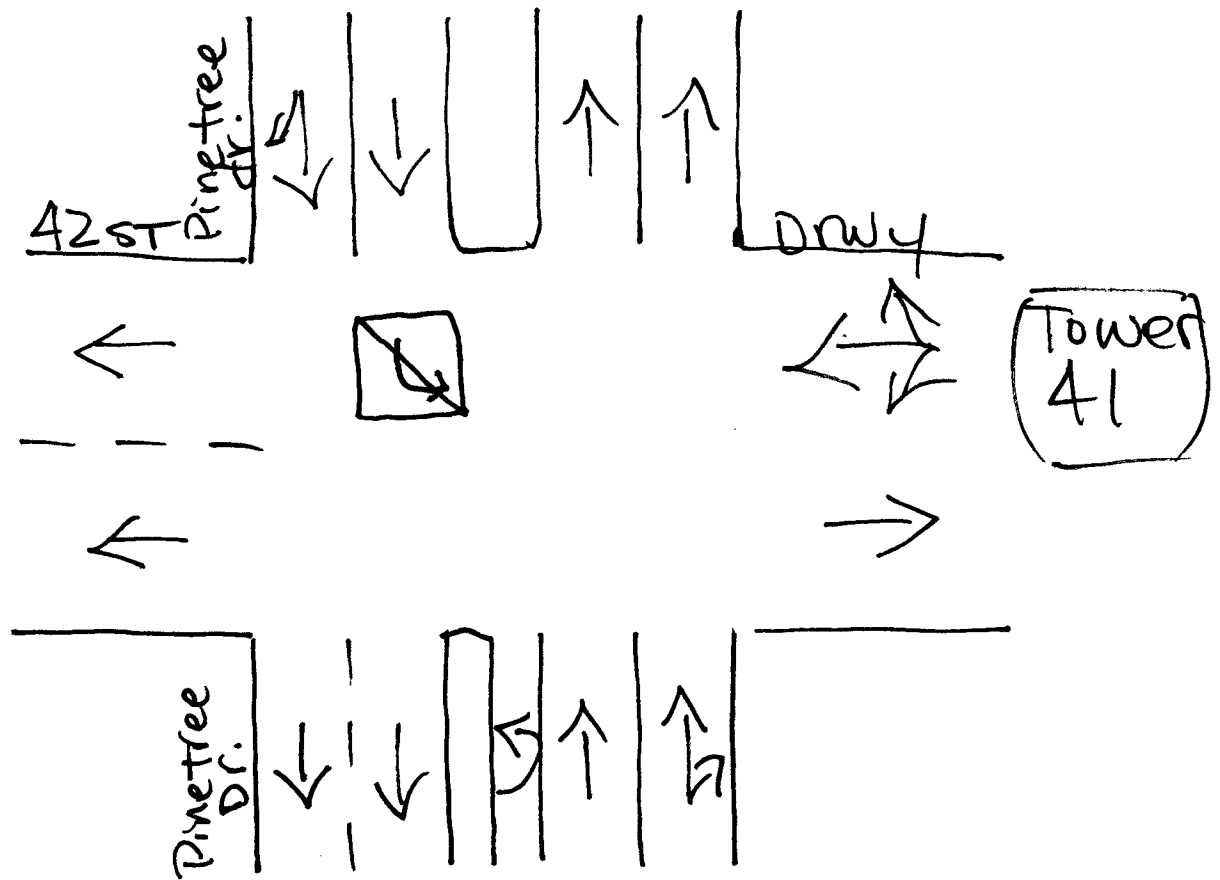


Site Code : 00160033
Start Date: 02/09/16
File I.D. : 42STPINE
Page : 1

PINE TREE DRIVE				DRIVEWAY				PINE TREE DRIVE				42ND STREET					
From North				From East				From South				From West					
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 02/09/16 -----																	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	1	0	0	0	2	0	0	0	3	0	0	0	2	8
07:30	0	0	0	1	0	1	0	1	0	1	0	2	0	0	0	1	7
07:45	0	0	0	1	0	0	0	3	0	0	0	1	0	1	0	1	7
Hr Total	0	0	0	3	0	1	0	6	0	1	0	6	0	1	0	4	22
08:00	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
08:15	0	0	0	0	0	0	0	3	0	0	0	3	0	1	0	0	7
08:30	0	0	0	5	0	0	0	4	0	0	0	0	0	0	0	2	11
08:45	0	0	0	1	0	2	0	0	0	0	0	2	0	0	0	0	5
Hr Total	0	0	0	6	0	2	0	7	0	0	0	9	0	1	0	2	27
----- * BREAK * -----																	
16:00	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	5
16:15	0	0	0	2	0	1	0	5	0	0	0	3	0	0	0	6	17
16:30	0	0	0	4	0	0	0	2	0	0	0	3	0	1	0	0	10
16:45	0	0	0	1	0	0	0	1	0	0	0	4	0	1	0	3	10
Hr Total	0	0	0	7	0	1	0	10	0	0	0	12	0	3	0	9	42
17:00	0	0	0	0	0	0	0	6	0	0	0	7	0	0	0	2	15
17:15	0	0	0	1	0	0	0	13	0	0	0	1	0	1	0	1	17
17:30	0	0	0	2	0	0	0	4	0	3	0	6	0	1	0	3	19
17:45	0	0	0	5	0	0	0	0	0	0	0	6	0	0	0	0	11
Hr Total	0	0	0	8	0	0	0	23	0	3	0	20	0	2	0	6	62

TOTAL	0	0	0	24	0	4	0	46	0	4	0	47	0	7	0	21	153

North



Miami Beach, Florida
February 09, 2016
drawn by: Luis Palomino
Signalized

HSBC DRIVEWAY & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ALBERTO GUTIERREZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : BANKPINE
 Page : 1

DRIVEWAY VOLUME ONLY

PINE TREE DRIVE From North					DRIVEWAY From East					PINE TREE DRIVE From South					HSBC DRIVEWAY From West						
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 02/09/16 -----																					
07:00	0	0	0	0		0	0	0	5		0	0	0	4		0	0	0	3		12
07:15	0	0	0	0		0	0	0	3		0	0	0	1		0	0	0	1		5
07:30	0	0	0	0		0	0	0	9		0	0	0	7		0	0	0	1		17
07:45	0	0	0	0		0	0	0	13		0	0	0	6		0	0	0	2		21
Hr Total	0	0	0	0		0	0	0	30		0	0	0	18		0	0	0	7		55
08:00	0	0	0	0		0	0	0	11		0	0	0	6		0	0	0	0		17
08:15	0	0	0	0		0	0	0	10		0	0	0	5		0	0	0	0		15
08:30	0	0	0	0		0	0	0	15		0	0	0	1		0	0	0	2		18
08:45	0	0	0	0		0	0	0	8		0	0	0	2		0	0	0	0		10
Hr Total	0	0	0	0		0	0	0	44		0	0	0	14		0	0	0	2		60
----- * BREAK * -----																					
16:00	0	0	0	0		0	0	0	18		0	0	0	6		0	0	0	1		25
16:15	0	0	0	0		0	0	0	18		0	0	0	2		0	0	0	0		20
16:30	0	0	0	1		0	0	0	10		0	0	0	5		0	0	0	3		19
16:45	0	0	0	2		0	0	0	10		0	0	0	2		0	0	0	6		20
Hr Total	0	0	0	3		0	0	0	56		0	0	0	15		0	0	0	10		84
17:00	0	0	0	0		0	0	0	9		0	0	0	6		0	0	0	0		15
17:15	0	0	0	0		0	0	0	8		0	0	0	3		0	0	0	0		11
17:30	0	0	0	0		0	0	0	10		0	0	0	6		0	0	0	0		16
17:45	0	0	0	0		0	0	0	9		0	0	0	9		0	0	0	4		22
Hr Total	0	0	0	0		0	0	0	36		0	0	0	24		0	0	0	4		64

TOTAL	0	0	0	3		0	0	0	166		0	0	0	71		0	0	0	23		263

Site Code : 00160033
Start Date: 02/09/16
File I.D. : BANKPINE
Page : 2

[illegible]

HSBC DRIVEWAY & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ALBERTO GUTIERREZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
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Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : BANKPINE
 Page : 3

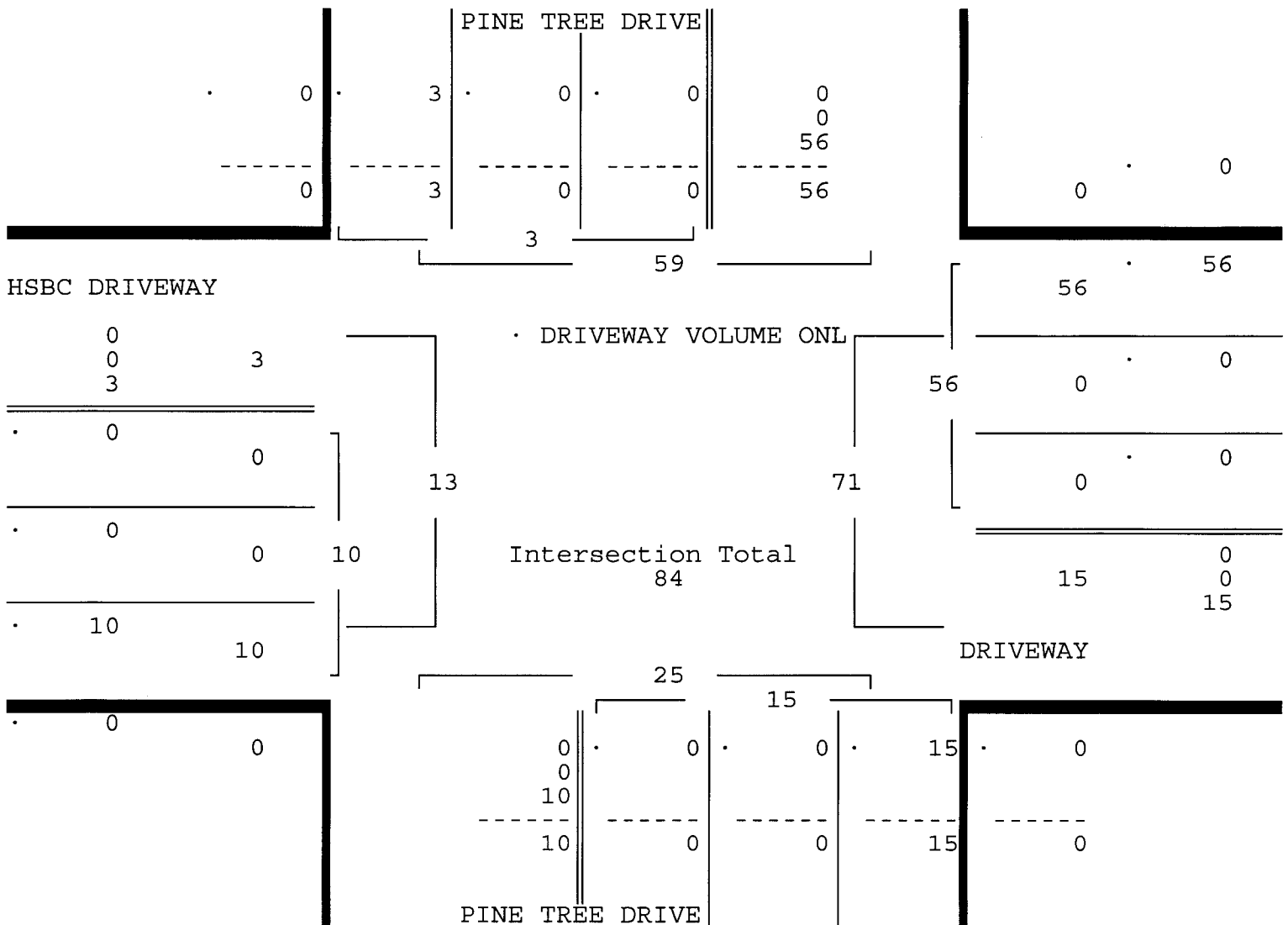
DRIVEWAY VOLUME ONLY

PINE TREE DRIVE From North				DRIVEWAY From East				PINE TREE DRIVE From South				HSBC DRIVEWAY From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16

Peak start 16:00					16:00				16:00				16:00				
Volume	0	0	0	3	0	0	0	56	0	0	0	15	0	0	0	10	
Percent	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%	0%	100%	
Pk total	3				56				15				10				
Highest	16:45				16:00				16:00				16:45				
Volume	0	0	0	2	0	0	0	18	0	0	0	6	0	0	0	6	
Hi total	2				18				6				6				
PHF	.38				.78				.62				.42				



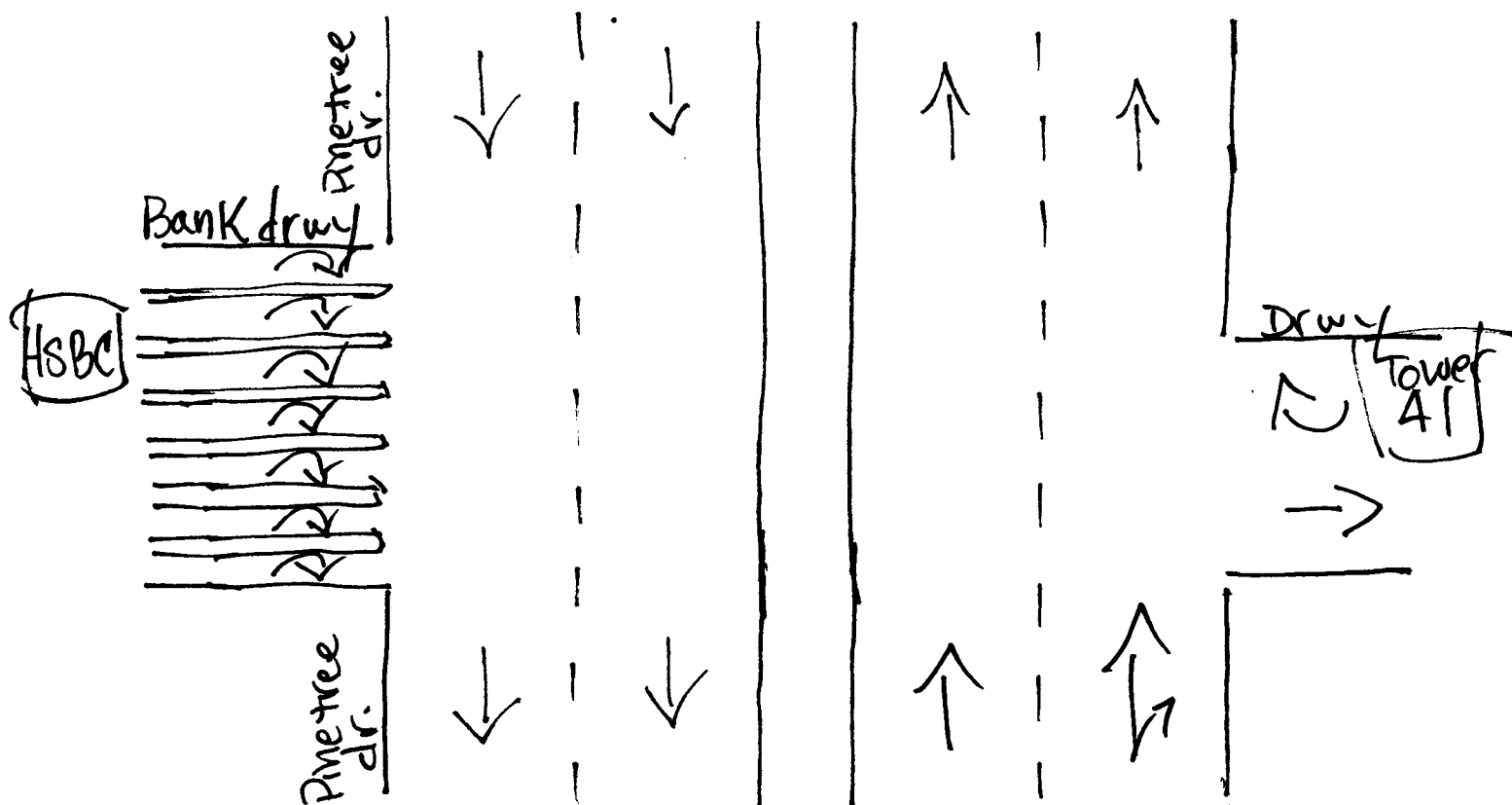
HSBC DRIVEWAY & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ALBERTO GUTIERREZ
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : BANKPINE
 Page : 1

PEDESTRIANS & BIKES

PINE TREE DRIVE From North				DRIVEWAY From East				PINE TREE DRIVE From South				HSBC DRIVEWAY From West				
Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 02/09/16																
07:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
07:15	0	0	0	0	0	0	7	0	0	0	0	0	0	0	6	13
07:30	0	0	0	2	0	0	6	0	0	0	0	0	0	0	1	9
07:45	0	0	0	0	0	0	6	0	0	0	0	0	0	0	1	7
Hr Total	0	0	0	2	0	0	20	0	0	0	0	0	0	0	9	31
08:00	0	0	0	2	0	0	1	0	0	0	11	0	0	0	1	15
08:15	0	0	0	0	0	0	4	0	0	0	1	0	0	0	4	9
08:30	0	0	0	4	0	0	4	0	0	0	0	0	0	0	6	14
08:45	0	0	0	0	0	0	5	0	1	0	2	0	0	0	1	9
Hr Total	0	0	0	6	0	0	14	0	1	0	14	0	0	0	12	47
* BREAK *																
16:00	0	0	0	1	0	0	1	0	0	0	0	0	1	0	2	5
16:15	0	0	0	2	0	1	11	0	0	0	0	0	0	0	0	14
16:30	0	0	0	2	0	1	6	0	0	0	0	0	0	0	0	9
16:45	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
Hr Total	0	0	0	5	0	2	21	0	0	0	0	0	1	0	2	31
17:00	0	0	0	3	0	0	2	0	0	0	2	0	0	0	0	7
17:15	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	11
17:30	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
17:45	0	0	0	2	0	0	8	0	0	0	0	0	0	0	0	10
Hr Total	0	0	0	6	0	0	22	0	0	0	2	0	0	0	0	30
TOTAL	0	0	0	19	0	2	77	0	1	0	16	0	1	0	23	139



Miami Beach, Florida
February 09, 2016
drawn by: Luis Palomino
NOT signalized
no signalized

41ST STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. PALOMINO & L. PALOMINO
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41S_PINE
 Page : 1

ALL VEHICLES

PINE TREE DRIVE					41ST STREET				PINE TREE DRIVE				41ST STREET							
From North					From East				From South				From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 02/09/16 -----																				
07:00	0	0	124	6	0	81	237	15		0	12	15	25		0	22	268	21		826
07:15	0	1	78	7	0	68	246	12		0	27	32	41		0	14	219	14		759
07:30	0	0	112	13	0	62	253	13		0	17	24	20		0	20	218	15		767
07:45	0	1	118	6	0	70	275	23		0	19	39	43		0	19	240	12		865
Hr Total	0	2	432	32	0	281	1011	63		0	75	110	129		0	75	945	62		3217
08:00	1	1	101	8	0	65	260	22		0	30	45	39		0	17	200	20		809
08:15	1	0	101	6	0	49	306	39		0	9	43	44		0	17	209	18		842
08:30	0	0	137	10	0	52	244	40		0	21	56	41		0	15	233	14		863
08:45	0	0	156	8	0	59	227	25		0	21	48	62		0	16	228	12		862
Hr Total	2	1	495	32	0	225	1037	126		0	81	192	186		0	65	870	64		3376
----- * BREAK * -----																				
16:00	0	0	105	7	0	25	212	12		0	15	145	79		0	19	237	13		869
16:15	1	0	127	9	0	28	221	16		0	16	143	55		0	32	263	9		920
16:30	2	0	119	11	0	23	153	25		0	19	184	91		0	29	240	16		912
16:45	0	0	110	6	0	25	206	21		0	28	177	80		0	31	250	4		938
Hr Total	3	0	461	33	0	101	792	74		0	78	649	305		0	111	990	42		3639
17:00	0	1	113	10	0	19	217	21		0	17	131	66		0	42	251	13		901
17:15	1	0	101	8	0	16	119	22		0	23	199	78		0	24	238	17		846
17:30	0	0	94	10	0	34	144	24		0	18	159	67		0	27	260	19		856
17:45	0	1	119	2	0	14	122	25		0	15	176	74		0	31	258	13		850
Hr Total	1	2	427	30	0	83	602	92		0	73	665	285		0	124	1007	62		3453

TOTAL	6	5	1815	127	0	690	3442	355		0	307	1616	905		0	375	3812	230		13685

41ST STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. PALOMINO & L. PALOMINO
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
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Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41S_PINE
 Page : 2

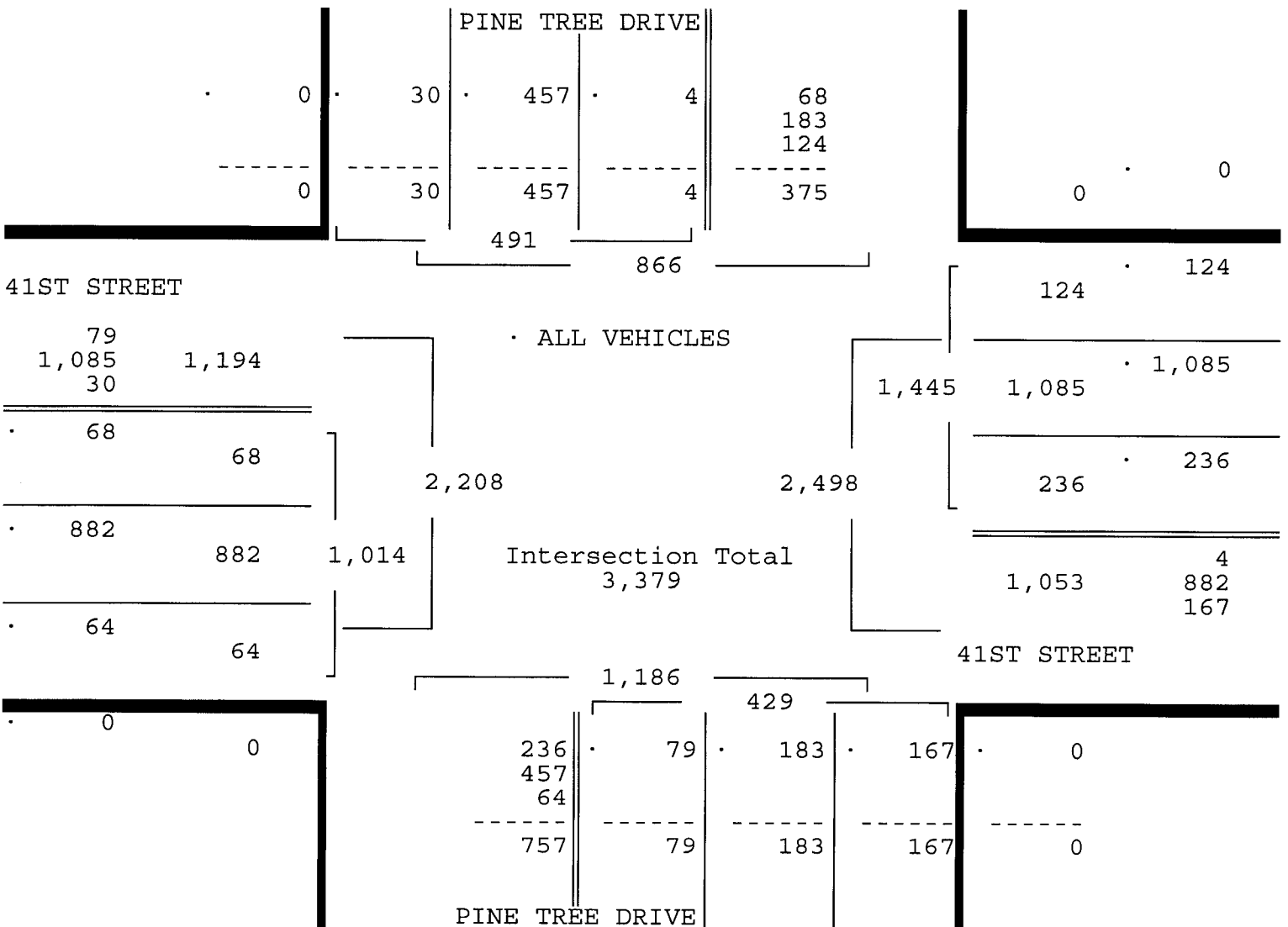
ALL VEHICLES

PINE TREE DRIVE From North				41ST STREET From East				PINE TREE DRIVE From South				41ST STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 02/09/16

Peak start 07:45					07:45								07:45				
Volume	2	2	457	30	0	236	1085	124	0	79	183	167	0	68	882	64	
Percent	0%	0%	93%	6%	0%	16%	75%	9%	0%	18%	43%	39%	0%	7%	87%	6%	
Pk total	491					1445					429					1014	
Highest	08:30					08:15					08:30					07:45	
Volume	0	0	137	10	0	49	306	39	0	21	56	41	0	19	240	12	
Hi total	147					394					118					271	
PHF	.84					.92					.91					.94	



41ST STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. PALOMINO & L. PALOMINO
 SIGNALIZED

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Site Code : 00160033
 Start Date: 02/09/16
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 Page : 3

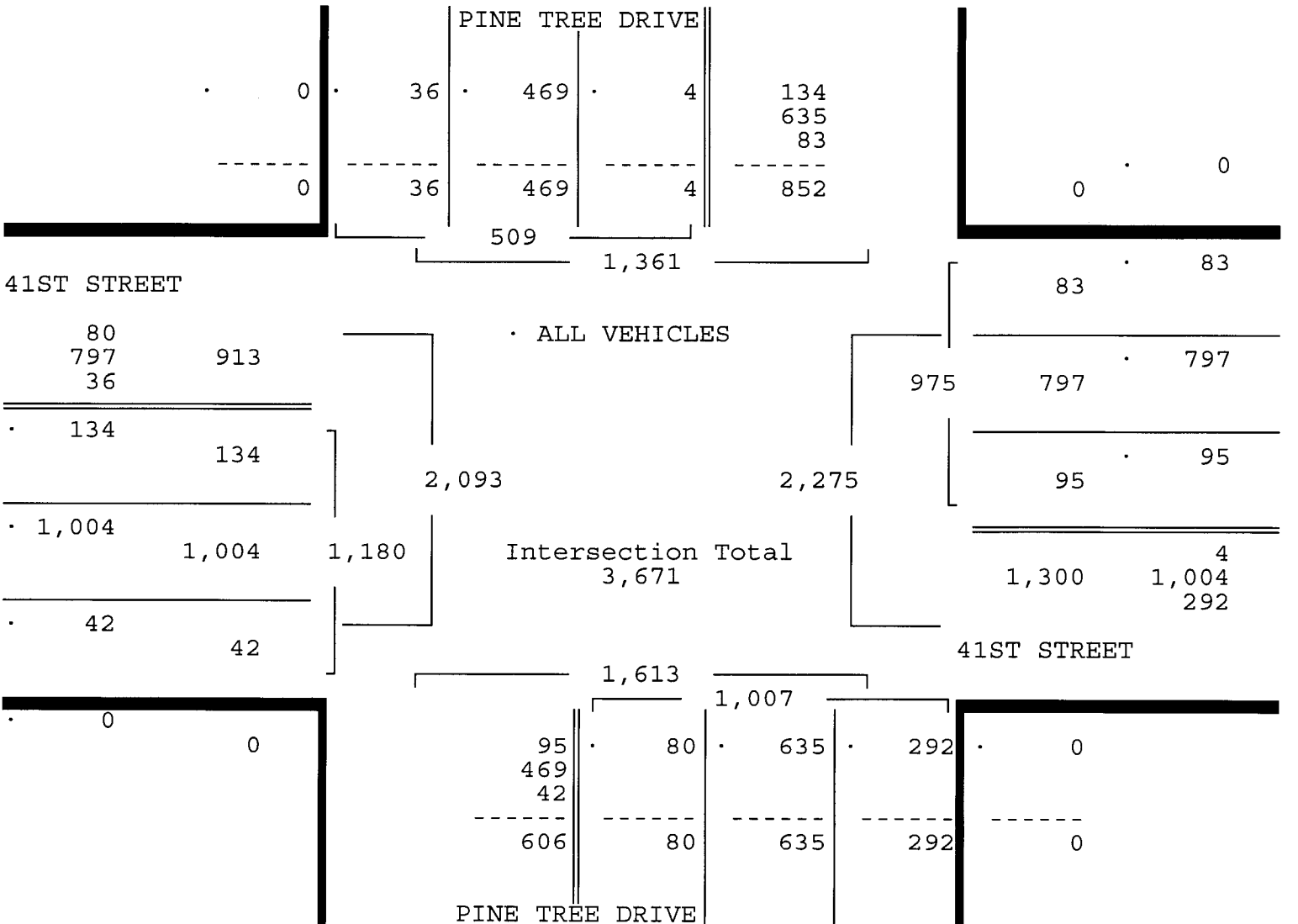
ALL VEHICLES

PINE TREE DRIVE From North				41ST STREET From East				PINE TREE DRIVE From South				41ST STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 02/09/16

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 02/09/16

Peak start 16:15				16:15				16:15				16:15				
Volume	3	1	469	36	0	95	797	83	0	80	635	292	0	134	1004	42
Percent	1%	0%	92%	7%	0%	10%	82%	9%	0%	8%	63%	29%	0%	11%	85%	4%
Pk total	509				975				1007				1180			
Highest	16:15				16:15				16:30				17:00			
Volume	1	0	127	9	0	28	221	16	0	19	184	91	0	42	251	13
Hi total	137				265				294				306			
PHF	.93				.92				.86				.96			



41ST STREET & PINE TREE DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. PALOMINO & L. PALOMINO
 SIGNALIZED

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

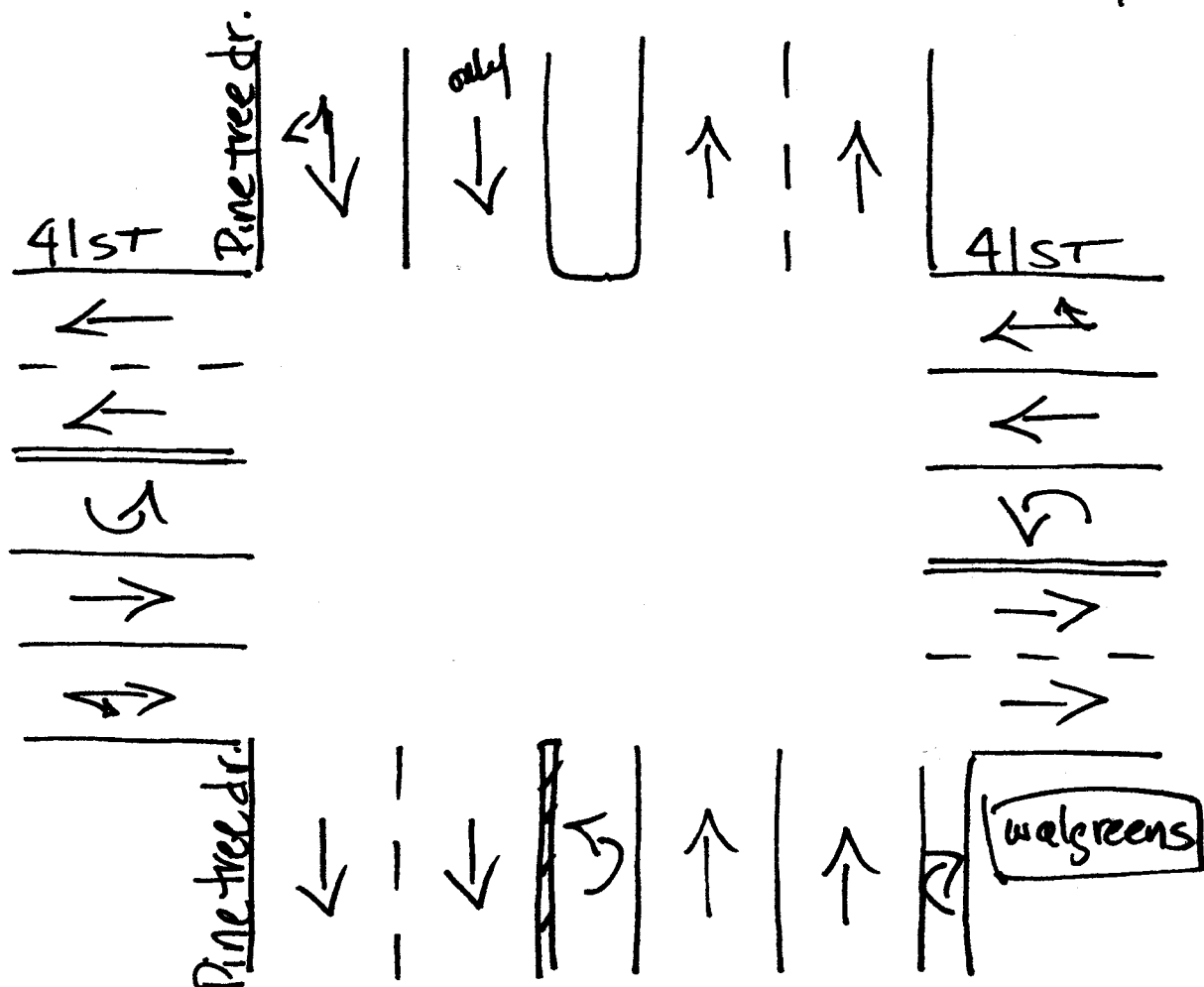
Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 41S_PINE
 Page : 1

PEDESTRIANS & BIKES

PINE TREE DRIVE				41ST STREET				PINE TREE DRIVE				41ST STREET					
From North				From East				From South				From West					
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 02/09/16 -----																	
07:00	0	0	0	17	0	0	0	2	0	2	0	9	0	0	0	3	33
07:15	0	0	0	12	0	1	0	4	0	0	0	5	0	0	0	2	24
07:30	0	1	0	19	0	1	0	6	0	0	0	9	0	1	0	4	41
07:45	0	3	0	21	0	0	0	4	0	2	0	11	0	0	0	0	41
Hr Total	0	4	0	69	0	2	0	16	0	4	0	34	0	1	0	9	139
08:00	0	0	0	17	0	0	0	6	0	0	0	12	0	0	0	3	38
08:15	0	3	0	28	0	0	0	5	0	3	0	11	0	0	0	0	50
08:30	0	0	0	17	0	0	0	5	0	2	0	22	0	0	0	3	49
08:45	0	3	0	32	0	3	0	6	0	1	0	11	0	0	0	5	61
Hr Total	0	6	0	94	0	3	0	22	0	6	0	56	0	0	0	11	198
----- * BREAK * -----																	
16:00	0	3	0	42	0	2	0	18	0	6	0	54	0	0	0	4	129
16:15	0	5	0	42	0	1	0	21	0	6	0	54	0	0	0	0	129
16:30	0	5	0	49	0	1	0	18	0	0	0	31	0	0	0	0	104
16:45	0	2	0	42	0	0	0	18	0	3	0	24	0	0	0	1	90
Hr Total	0	15	0	175	0	4	0	75	0	15	0	163	0	0	0	5	452
17:00	0	3	0	35	0	0	0	14	0	0	0	55	0	1	0	2	110
17:15	0	3	0	40	0	1	0	12	0	1	0	42	0	0	0	8	107
17:30	0	2	0	31	0	0	0	8	0	2	0	32	0	0	0	0	75
17:45	0	2	0	29	0	0	0	8	0	3	0	27	0	0	0	1	70
Hr Total	0	10	0	135	0	1	0	42	0	6	0	156	0	1	0	11	362

TOTAL	0	35	0	473	0	10	0	155	0	31	0	409	0	2	0	36	1151

↑
North



Miami Beach, Florida
November 16, 2015
drawn by: Luis Palomino
signalized ✓

42ND STREET & DRIVEWAYS 2,3 & 4
 MIAMI BEACH, FLORIDA
 COUNTED BY: ISIDRO GONZALEZ
 DRIVEWAY INS & OUTS ONLY

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STDWYS
 Page : 1

DWY INS & OUTS ONLY

----- From North					42ND STREET From East				DRIVEWAY #2 From South				42ND STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 02/09/16 -----																				
07:00	0	0	0	0	0	0	17	0		0	1	0	0		0	0	0	0		18
07:15	0	0	0	0	0	0	13	0		0	0	0	0		0	0	0	0		13
07:30	0	0	0	0	0	0	21	0		0	0	0	0		0	0	0	0		21
07:45	0	0	0	0	0	0	23	0		0	0	0	0		0	0	0	0		23
Hr Total	0	0	0	0	0	0	74	0		0	1	0	0		0	0	0	0		75
08:00	0	0	0	0	0	0	30	0		0	0	0	0		0	0	0	0		30
08:15	0	0	0	0	0	0	56	0		0	0	0	0		0	0	0	0		56
08:30	0	0	0	0	0	0	40	0		0	0	0	0		0	0	0	0		40
08:45	0	0	0	0	0	0	20	0		0	0	0	0		0	0	0	0		20
Hr Total	0	0	0	0	0	0	146	0		0	0	0	0		0	0	0	0		146
----- * BREAK * -----																				
16:00	0	0	0	0	0	0	47	0		0	0	0	0		0	0	0	0		47
16:15	0	0	0	0	0	0	34	0		0	1	0	0		0	0	0	0		35
16:30	0	0	0	0	0	0	38	0		0	0	0	0		0	0	0	0		38
16:45	0	0	0	0	0	0	33	0		0	0	0	0		0	0	0	0		33
Hr Total	0	0	0	0	0	0	152	0		0	1	0	0		0	0	0	0		153
17:00	0	0	0	0	0	0	31	0		0	0	0	0		0	0	0	0		31
17:15	0	0	0	0	0	0	28	0		0	0	0	0		0	0	0	0		28
17:30	0	0	0	0	0	0	34	0		0	0	0	0		0	0	0	0		34
17:45	0	0	0	0	0	0	33	0		0	0	0	0		0	0	0	0		33
Hr Total	0	0	0	0	0	0	126	0		0	0	0	0		0	0	0	0		126

TOTAL	0	0	0	0	0	0	498	0		0	2	0	0		0	0	0	0		500

42ND STREET & DRIVEWAYS 2,3 & 4
 MIAMI BEACH, FLORIDA
 COUNTED BY: ISIDRO GONZALEZ
 DRIVEWAY INS & OUTS ONLY

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STDWYS
 Page : 1

DWY INS & OUTS ONLY

----- From North					42ND STREET From East					DRIVEWAY #3 From South					42ND STREET From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		
Date 02/09/16 -----																				
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
07:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
07:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
Hr Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:15	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	
08:30	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Hr Total	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	4	
----- * BREAK * -----																				
16:00	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	
16:15	0	0	0	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	5	
16:30	0	0	0	0	0	1	0	0	0	0	6	0	0	0	0	0	0	0	7	
16:45	0	0	0	0	0	1	0	0	0	0	8	0	1	0	0	0	0	0	10	
Hr Total	0	0	0	0	0	2	0	0	0	0	19	0	3	0	0	0	0	0	24	
17:00	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8	
17:15	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	
17:30	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	
17:45	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	1	8	
Hr Total	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	0	0	1	24	

TOTAL	0	0	0	0	0	3	0	0	0	0	47	0	3	0	0	0	0	1	54	

42ND STREET & DRIVEWAYS 2,3 & 4
 MIAMI BEACH, FLORIDA
 COUNTED BY: ISIDRO GONZALEZ
 DRIVEWAY INS & OUTS ONLY

Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00160033
 Start Date: 02/09/16
 File I.D. : 42STDWYS
 Page : 1

DWY INS & OUTS ONLY

-----				42ND STREET				DRIVEWAY #4				42ND STREET							
From North				From East				From South				From West							
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total		
Date 02/09/16 -----																			
07:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
07:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
07:45	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2		
Hr Total	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	4		
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
08:15	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
08:30	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
08:45	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	4		
Hr Total	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	6		
----- * BREAK * -----																			
16:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
16:15	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2		
16:30	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2		
16:45	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	4		
Hr Total	0	0	0	0	6	0	0	0	3	0	0	0	0	0	0	0	9		
17:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1		
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
17:45	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1		
Hr Total	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2		

TOTAL	0	0	0	0	16	0	0	0	5	0	0	0	0	0	0	0	21		

Signal Timings

TOD Schedule Report

for 2771: Art Godfrey Rd&Pine Tree Dr

Print Date:
12/9/2017

Print Time:
2:02 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2771	Art Godfrey Rd&Pine Tree Dr	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	NBL	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	
1 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	7 - 5 - 5	21 - 10 - 10	3.7	2
2 WBT	4 - 4 - 4	32 - 32 - 32	4 - 4 - 4	1 - 1 - 1	30 - 30 - 30	0 - 47 - 47	4	3.2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	4 - 4 - 4	22 - 22 - 22	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 12	37 - 37 - 37	4	2.8
5 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	5 - 5 - 5	38 - 20 - 20	3.7	2
6 EBT	4 - 4 - 4	32 - 32 - 32	4 - 4 - 4	1 - 1 - 1	30 - 30 - 30	0 - 47 - 47	4	3.2
7 NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	6 - 6 - 6	21 - 10 - 10	3.7	2
8 SBT	4 - 4 - 4	22 - 22 - 22	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 12	37 - 37 - 37	4	2.8

Last In Service Date: unknown

Permitted Phases

12345678

Default 12-45678
External Permit 0 -2-4-6-8
External Permit 1 12-456-8
External Permit 2 -2-4-6-8

TOD Schedule Report

for 2771: Art Godfrey Rd&Pine Tree Dr

Print Date:
12/9/2017

Print Time:
2:02 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 NBL	8 SBT		
1		180	8	125	0	27	27	106	0	27	0	13
2		100	6	42	0	27	25	23	6	20	0	28
3		120	13	41	0	46	13	41	6	34	0	18
4		100	11	36	0	33	11	36	0	33	0	68
5		120	10	49	0	41	25	34	6	29	0	24
6		140	17	64	0	39	25	56	6	27	0	52
7		120	10	52	0	38	25	37	6	26	0	28
8		120	10	47	0	43	10	47	6	31	0	8
9		140	17	64	0	39	25	56	6	27	0	52
10		160	8	105	0	27	27	86	0	27	0	129
11		100	7	34	0	38	7	34	6	27	0	56
12		90	8	35	0	27	8	35	0	27	0	68
13		140	19	62	0	39	25	56	7	26	0	6
18		160	13	88	0	39	17	84	7	26	0	5
19		160	10	91	0	39	25	76	7	26	0	128
24		160	5	94	0	41	5	94	7	28	0	18

Local TOD Schedule

Time	Plan	DOW
0000	Free	M T W Th F
0000	10	Su S
0200	Free	Su S
0600	13	M T W Th F
0700	4	Su S
0715	9	M T W Th F
0800	2	Su S
0900	10	M T W Th F
1000	10	Su S
1145	10	M T W Th F
1230	10	S
1230	10	Su
1345	10	M T W Th F
1430	10	W
1600	19	M T Th F
1800	10	Su S
1930	2	M T W Th F
2000	10	Su S
2300	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFU	---4---	SuM T W ThF S
0200	TOD OUTPUTS	-----2-	Su S
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0700	TOD OUTPUTS	-----	Su S
0800	TOD OUTPUTS	-----	Su S
1800	TOD OUTPUTS	-----	Su S

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	---4---	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0200	TOD OUTPUTS	-----2-	Su S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su S
0800	TOD OUTPUTS	-----	Su S
1800	TOD OUTPUTS	-----	Su S
2330	TOD OUTPUTS	-----1	M T W Th

* 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 4154: Pine Tree Dr&42 St

Print Date:
11/20/2017

Print Time:
6:16 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4154	Pine Tree Dr&42 St	DOW-2		N/A	0	0	N/A	0	Max 0

Splits

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
NBL	SBT	-	WBT	-	NBT	-	-
0	0	0	0	0	0	0	0



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	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	6 - 10 - 15	15 - 15 - 20	3	0
2 SBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	1 - 1 - 1	40 - 89 - 109	40 - 89 - 11	4	2
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 WBT	7 - 7 - 7	32 - 32 - 32	7 - 7 - 7	2.5 - 2.5 - 2.5	23 - 40 - 40	30 - 40 - 40	4	2
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 NBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	1 - 1 - 1	40 - 89 - 109	40 - 89 - 11	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

12345678

Default 12-4-6--
External Permit 0 12-4-6--
External Permit 1 -2-4-6--
External Permit 2 12-4-6--

TOD Schedule Report
for 4154: Pine Tree Dr&42 St

Print Date:
11/20/2017

Print Time:
6:16 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 NBL	2 SBT	3 -	4 WBT	5 -	6 NBT	7 -	8 -		
1		45	0	39	0	0	0	39	0	0	0	0
2		50	0	44	0	0	0	44	0	0	0	0
3		60	0	54	0	0	0	54	0	0	0	0
4		50	0	44	0	0	0	44	0	0	0	0
5		60	0	54	0	0	0	54	0	0	0	0
6		105	0	99	0	0	0	99	0	0	0	0
7		60	0	54	0	0	0	54	0	0	0	0
8		60	0	54	0	0	0	54	0	0	0	0
9		70	0	64	0	0	0	64	0	0	0	0
10		90	0	84	0	0	0	84	0	0	0	0
11		50	0	44	0	0	0	44	0	0	0	0
13		70	0	64	0	0	0	64	0	0	0	0
18		80	0	74	0	0	0	74	0	0	0	0
19		80	0	74	0	0	0	74	0	0	0	0

Local TOD Schedule		
Time	Plan	DOW
0000	Flash	Su M T W Th F S
0630	Free	M T W Th F
0700	Free	Su S

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0000	TOD LOCAL MULTIFU	---4---	SuM T W ThF S
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0630	TOD OUTPUTS	---4---	M T W ThF
0800	TOD OUTPUTS	---3--	M T W ThF
0900	TOD OUTPUTS	-----1	M T W ThF
1100	TOD OUTPUTS	-----2-	M T W ThF
1530	TOD OUTPUTS	---4---	M T ThF
1930	TOD OUTPUTS	-----1	M T W ThF S
2330	TOD OUTPUTS	-----	M T W Th

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	---4---	SuM T W ThF S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0630	TOD OUTPUTS	---4---	M T W ThF
0700	TOD OUTPUTS	-----1	Su S
0800	TOD OUTPUTS	---3--	M T W ThF
0900	TOD OUTPUTS	-----1	M T W ThF
1100	TOD OUTPUTS	-----2-	M T W ThF
1200	TOD OUTPUTS	-----2-	Su S
1230	TOD OUTPUTS	-----2-	S
1500	TOD OUTPUTS	---4---	W
1530	TOD OUTPUTS	---4---	M T ThF
1800	TOD OUTPUTS	-----1	Su S
1930	TOD OUTPUTS	-----1	M T W ThF S
2330	TOD OUTPUTS	-----	M T W Th

* 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 2783: Art Godfrey Rd&Sheridan Av

Print Date:
11/20/2017

Print Time:
3:36 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2783	Art Godfrey Rd&Sheridan Av	DOW-2		N/A	0	0	N/A	0	Max 0

Splits

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
-	WBT	-	NBT	-	EBT	-	SBT
0	0	0	0	0	0	0	0



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 WBT	5 - 5 - 5	14 - 14 - 14	5 - 5 - 5	1 - 1 - 1	40 - 40 - 40	0 - 40 - 0	4	2.7
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	5 - 5 - 5	22 - 22 - 22	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 12	40 - 12 - 40	4	2.8
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 EBT	5 - 5 - 5	14 - 14 - 14	5 - 5 - 5	1 - 1 - 1	40 - 40 - 40	0 - 40 - 0	4	2.7
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	5 - 5 - 5	22 - 22 - 22	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 12	40 - 12 - 40	4	2.8

Last In Service Date: 09/23/2016 19:30

Permitted Phases

12345678

Default	-2-4-6-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

TOD Schedule Report

for 2783: Art Godfrey Rd&Sheridan Av

Print Date:
11/20/2017

Print Time:
3:36 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1	2	3	4	5	6	7	8		
			-	WBT	-	NBT	-	EBT	-	SBT		
1		180	0	132	0	34	0	132	0	34	0	11
2		100	0	58	0	28	0	58	0	28	0	46
3		120	0	69	0	37	0	69	0	37	0	38
4		100	0	56	0	30	0	56	0	30	0	71
5		120	0	68	0	38	0	68	0	38	0	45
6		140	0	88	0	38	0	88	0	38	0	44
7		120	0	72	0	34	0	72	0	34	0	43
8		120	0	72	0	34	0	72	0	34	0	23
9		140	0	88	0	38	0	88	0	38	0	44
10		160	0	112	0	34	0	112	0	34	0	141
11		100	0	58	0	28	0	58	0	28	0	98
12		90	0	48	0	28	0	48	0	28	0	0
13		140	0	88	0	38	0	88	0	38	0	22
18		160	0	118	0	28	0	118	0	28	0	27
19		160	0	118	0	28	0	118	0	28	0	115
24		160	0	117	0	29	0	117	0	29	0	15

Local TOD Schedule

Time	Plan	DOW
0000	Free	M T W Th F
0000	10	Su S
0200	Free	Su S
0600	13	M T W Th F
0700	4	Su S
0715	9	M T W Th F
0800	2	Su S
0900	10	M T W Th F
1000	10	Su S
1145	10	M T W Th F
1230	10	S
1230	10	Su
1345	10	M T W Th F
1430	10	W
1600	19	M T Th F
1800	10	Su S
1930	2	M T W Th F
2000	10	Su S
2300	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFU	---4---	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
2330	TOD OUTPUTS	-----1	M T W Th

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	---4---	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0200	TOD OUTPUTS	-----2-	Su S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su S
0800	TOD OUTPUTS	---4---	Su S
1800	TOD OUTPUTS	-----	Su S
2330	TOD OUTPUTS	-----1	M T W Th

* 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

Historic Background Growth

340 W 42nd Street (HSBC Site)

Background Growth Rate

Station	Location	2012	2013	2014	2015	2016
5388	SR 112/Arthur Godfery Rd, 200' w Indian Creek Dr	42,500	41,000	34,000	39,000	36,000
2646	Indian Creek Dr. 200' South of 38 St	15,000	16,000	19,000	16,000	16,000
2647	SR 907 Alton Rd 200' N of Nautilus Dr	6,800	5,600	7,000	6,800	7,200
Total		64,300	62,600	60,000	61,800	59,200
Yearly Growth			-2.6%	-4.2%	3.0%	-4.2%
Growth Trend						-2.0%

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2646 - INDIAN CREEK DR. 200' SOUTH OF 38 STREET

YEAR	AADT		DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----	-----	-----	-----	-----
2016	16000 C	S	16000	0	9.00	99.90	7.80
2015	16000 C	S	16000	0	9.00	99.90	4.60
2014	19000 C	S	19000		9.00	99.90	5.10
2013	16000 C	S	16000	0	9.00	99.90	6.10
2012	15000 C	S	15000	0	9.00	99.90	8.40
2011	10500 C	S	10500	0	9.00	99.90	7.50
2010	12000 C	S	12000	0	8.98	99.99	8.80
2009	14000 C	S	14000	0	8.99	99.99	8.40
2008	13500 C	S	13500	0	9.09	99.99	5.30
2007	16500 C	S	16500	0	8.01	99.99	4.90
2006	12500 C	S	12500	B 0	7.97	99.99	2.20
2005	25500 F	S			8.80	99.90	5.50
2004	25500 C	S	25500	0	9.00	99.90	8.20
2003	18500 C	S	18500	0	8.80	99.90	4.90

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

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2647 - SR 907 ALTON ROAD 200' N OF NAUTILUS DR

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2016	7200 C	N	4800	S	2400	9.00	54.50	4.20
2015	6800 C	N	4600	S	2200	9.00	54.70	2.50
2014	7000 C	N	4600	S	2400	9.00	54.50	3.70
2013	5600 C	N	3600	S	2000	9.00	52.40	5.00
2012	6800 C	N	4600	S	2200	9.00	55.70	6.60
2011	6500 C	N	4400	S	2100	9.00	55.10	4.90
2010	6300 C	N	4100	S	2200	8.98	54.08	1.90
2009	6800 C	N	4600	S	2200	8.99	53.24	4.30
2008	5900 C	N	3800	S	2100	9.09	55.75	4.20
2007	6400 C	N	4100	S	2300	8.01	54.34	4.00
2006	6400 C	N	4000	S	2400	7.97	54.22	2.10
2005	6500 C	N	4400	S	2100	8.80	53.80	0.00
2004	6100 C	N	3900	S	2200	9.00	53.30	8.20

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

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 5388 - SR 112/ARTHUR GODFREY RD, 200' W INDIAN CREEK DR

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2016	36000	C	E 18500		W 17500	9.00	54.50	3.30
2015	39000	C	E 19000		W 20000	9.00	54.70	4.40
2014	34000	C	E 17000		W 17000	9.00	54.50	4.40
2013	41000	C	E 20500		W 20500	9.00	52.40	5.20
2012	42500	C	E 23000		W 19500	9.00	55.70	4.90
2011	44000	C	E 23000		W 21000	9.00	55.10	5.00
2010	38500	C	E 20500		W 18000	8.98	54.08	6.20
2009	37500	C	E 19000		W 18500	8.99	53.24	6.00
2008	36500	C	E 19000		W 17500	9.09	55.75	5.90
2007	39000	C	E 22000		W 17000	8.36	54.73	5.70
2006	36500	C	E 21000		W 15500	8.70	56.15	13.70
2005	32000	C	E 17000		W 15000	8.50	53.00	5.50
2004	34500	C	E 18000		W 16500	8.70	54.00	7.00
2003	38500	C	E 20500		W 18000	8.50	53.40	4.20
2002	39500	C	E 20000		W 19500	9.80	52.30	3.50
2001	40000	C	E 21000		W 19000	8.20	53.50	4.10

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

Committed Roadway Improvements

Project Information - DT4347781

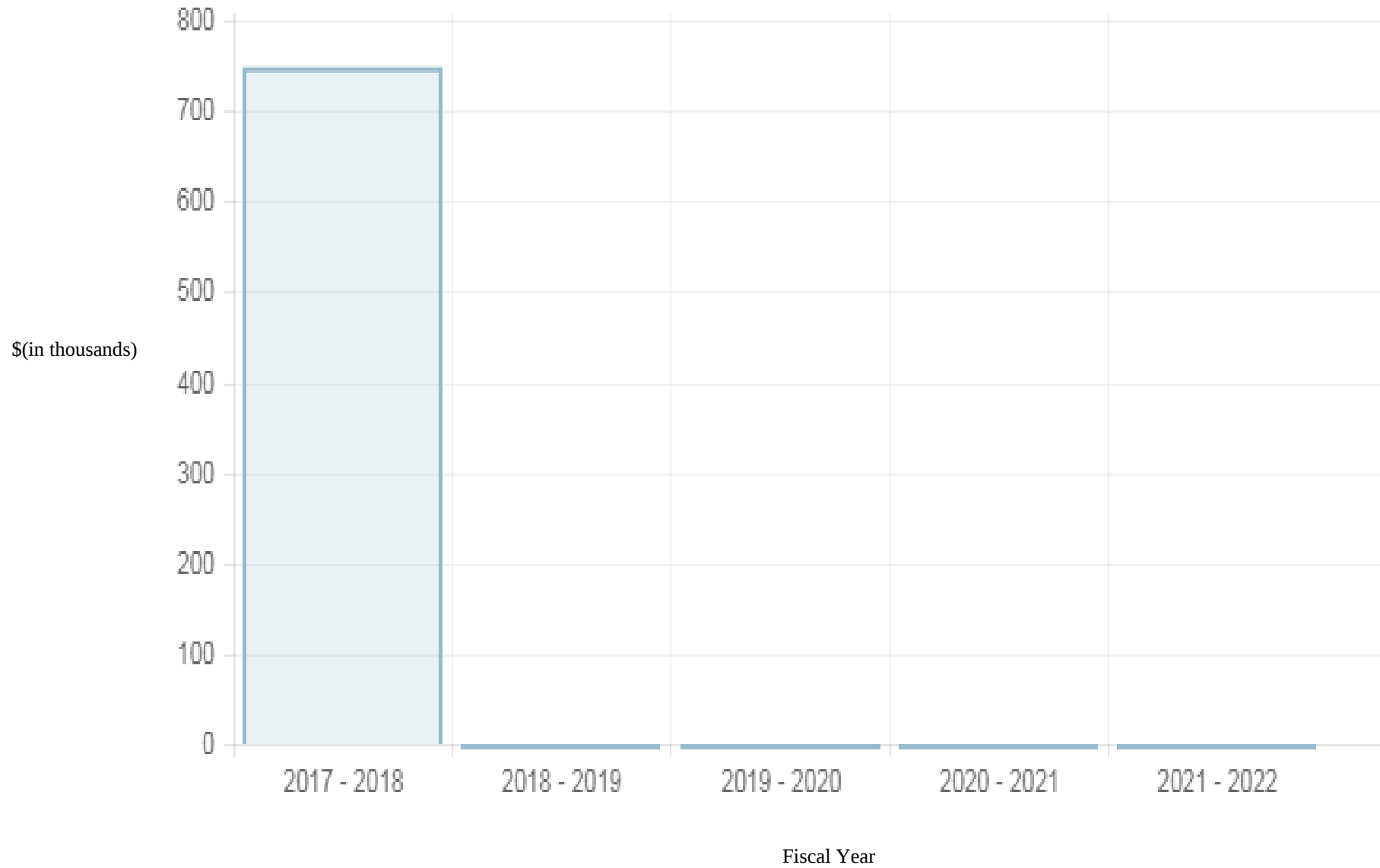
Field Name	Field Value
MPO Project No.	DT4347781
Project Name	SR 112 / ARTHUR GODFREY
Location/From	FROM ALTON ROAD
Location/To	TO WEST OF PINE TREE
Description	.
TIP Year	2018
Type of Project	Arterial/Collector Road
Agency	FL Dept. of Transportation
Management Agency :	FDOT
Type of Work	INTERSECTION IMPROVEMENT
Status	
Construction Year	2018
Next Step	
Agency Project No.	4347781
Contact Person	
Contact E-mail	
Phone No	

Funding Information

Project Phase	Funding	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022
CONSTRUCTION		0	0	0	0	0
CONSTRUCTION		21	0	0	0	0
CONSTRUCTION		660	0	0	0	0
CONSTRUCTION		67	0	0	0	0
PLANNING AND DESIGN		0	0	0	0	0
PLANNING AND DESIGN		0	0	0	0	0
PLANNING AND DESIGN		0	0	0	0	0

Project Phase	Funding	2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022
PLANNING AND DESIGN		0	0	0	0	0
PLANNING AND DESIGN		0	0	0	0	0
PLANNING AND DESIGN		0	0	0	0	0

Funding Chart



The team considered adding a northbound left turn lane. Providing a left turn lane in the median was not feasible as the pine trees are protected due to their historic status and cannot be removed. Also, widening to the outside (east side) was not feasible due to the limited right-of-way. The alternative was not recommended for further evaluation.

Pine Tree Drive and W. 42nd Street, evaluate an exclusive left turn lane southbound with two through lanes

The traffic data and the field observations confirm a significant number of southbound U-turns occurring at this intersection. The team considered adding a southbound left turn lane. The traffic signal would have an exclusive left turn signal phase. Providing a left turn lane in the median was not feasible as the pine trees are protected due to their historic status and cannot be removed. Also, widening to the outside (west side) was not feasible due to the limited right-of-way. This alternative was not recommended for further evaluation.

Pine Tree Drive and W. 42nd Street, evaluate an exclusive left turn lane southbound and one through lane

The team considered converting the inside through lane to an exclusive southbound left turn lane with one outside through lane. The traffic signal would have an exclusive left turn signal phase. By converting the inside through lane to an exclusive left turn lane, the capacity of the southbound through movement would be reduced by about one half. A significant amount of the southbound traffic would divert to adjacent streets in the Orchid neighborhood. Rear end crashes and sideswipe crashes would likely increase in the southbound direction due to the lane drop. This alternative was not recommended for further evaluation.

Pine Tree Drive and W. 42nd Street, evaluate a shared left-through lane southbound and one through lane

The team considered converting the inside through lane to a shared left-through lane southbound with one outside through lane. The traffic signal would have a split phase for the north-south movement. The split phase signal operation would cause queuing northbound and impact the operation of the intersection of W. 41st Street. Without the split phase signal operation, the rear end crashes and sideswipe crashes would increase in the southbound direction. This alternative was not recommended for further evaluation.

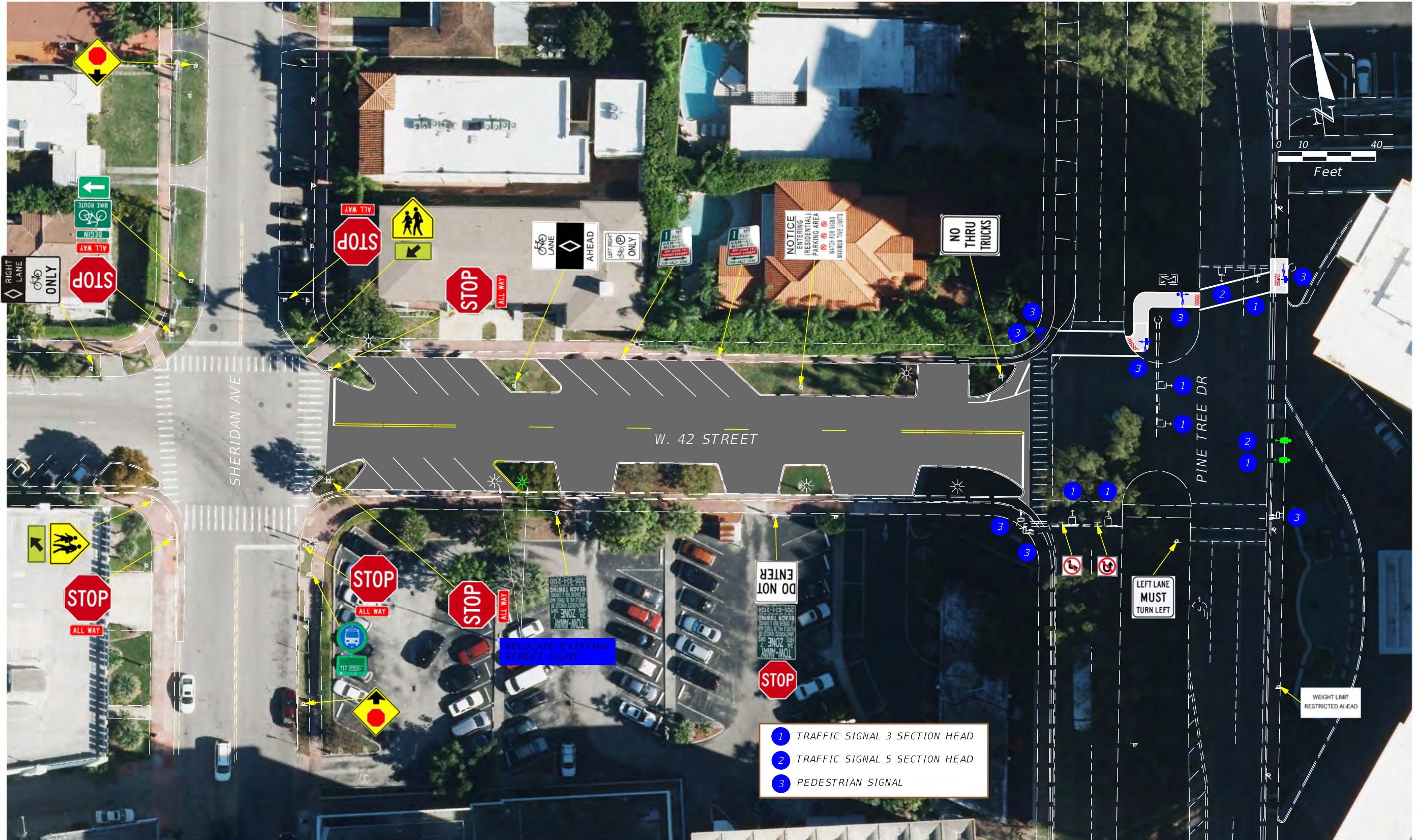
W. 42nd Street, evaluate a two way street from Sheridan Avenue to Pine Tree Drive

The team considered converting W. 42nd Street between Sheridan Avenue and Pine Tree Drive from a one-way street (westbound) to a two-way street. The traffic signal would have an exclusive signal phase eastbound. This alternative will provide a better circulation for the MBJCC patrons. With W. 42nd Street as a two-way roadway, the MBJCC patrons coming from the north can travel south along Sheridan Avenue and turn east on W. 42nd Street and then turn left at Pine Tree Drive to access the MBJCC. Patrons currently driving south on Sheridan Avenue

would not have to turn left at the traffic signal at W. 41st Street to then turn north on Pine Tree Drive, nor will they see the need to perform illegal U-turns at Pine Tree Drive at W. 42nd Street or at Pine Tree Drive and W. 41st Street. This alternative was recommended for further evaluation.

Figure 17 illustrates the proposed circulation plan for the MBJCC. Figures 18 thru 20 illustrate the existing roadway conditions and proposed concept. . Converting W. 42nd Street between Sheridan Avenue and Pine Tree Drive to a two-way roadway will require the following improvements:

- The on-street parking on both sides of the street will be maintained. However, the south side on-street parking will be modified to eastbound instead of westbound. This will lead to the relocation of an existing lighting pole.
- The concept will require signal modification at the intersection with Pine Tree Drive to accommodate the eastbound traffic. Figure 20 shows the proposed signal heads and the pedestrian signal heads to be mounted on pedestals on the east side of the intersection. This will need to be coordinated with the County.
- Provide a pedestrian crosswalk on the north side of Pine Tree Drive, which will include new pedestrian ramps.
- Removal of redundant one-way signage at the Sheridan Avenue intersection.
- Improve pedestrian safety by adding signage indicating the presence of pedestrians crossing (S1-1) is recommended at both intersections with W. 42nd Street.



DRAWING DATE: 11/12/2014

REVISIONS	
DATE	DESCRIPTION



TRAFFIC CIRCULATION AND
CONCEPTUAL ALTERNATIVES STUDY
PINE TREE DRIVE AND
W. 42ND STREET



W. 42ND STREET
PROPOSED CONCEPT

FIGURE
NO.

Project Details - NM156

Field Name	Field Value
LRTP Project Code	NM156
Facility	Pine Tree Drive/La Gorce
Limit From	23rd Street
Limit To	63rd Street
Description	Bicycle Facility Improvements
LRTP Year	2040
Project Type	Bicycle/Pedestrian Improvements
Agency Name	FL Dept. of Transportation
Purpose	
Last Approved Date	10/10/2014
Last Approved User Name	Shankar Lakshmanan
Last Amended Date	10/10/2014
Last Amended User Name	Shankar Lakshmanan
Project Costs Funded	\$0.568M
Total Capital Cost	\$0.251M

Priority Data

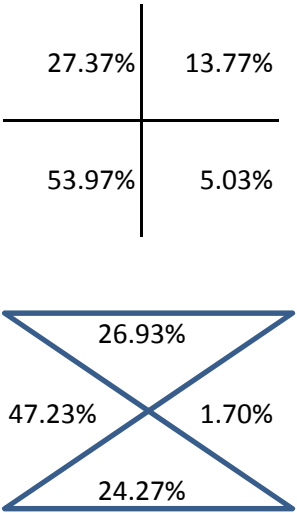
	P1 2015-2020(Y-O-E\$)	P2 2021-2025(Y-O-E\$)	P3 2026-2030(Y-O-E\$)	P4 2031-2040(Y-O-E\$)
Preliminary Engineering	\$M	\$M	\$M	\$0.074M
Right of Way	\$M	\$M	\$M	\$M
Construction	\$M	\$M	\$M	\$0.494M
Operations and Maintenance	\$M	\$M	\$M	\$M
Capital	\$M	\$M	\$M	\$M

Cardinal Distribution

Project_Cardinal Distribution

TAZ 630

DIRECTION	2010	2040	2020
NNE	12.80%	15.70%	13.77%
ENE	0.00%	0.00%	0.00%
ESE	1.30%	2.50%	1.70%
SSE	2.90%	4.20%	3.33%
SSW	21.30%	20.20%	20.93%
WSW	33.50%	32.10%	33.03%
WNW	15.10%	12.40%	14.20%
NNW	13.20%	13.10%	13.17%



Appendix D
Intersection Capacity Analysis Worksheets

Existing Conditions

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Existing AM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	909	66	243	1118	128	82	189	172	0	471	31
Future Volume (veh/h)	70	909	66	243	1118	128	82	189	172	0	471	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	1.00		0.99
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	0	1870	1870
Adj Flow Rate, veh/h	71	928	67	248	1141	131	84	193	176	0	481	32
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	0	2	2
Cap, veh/h	237	1659	120	369	1738	199	180	990	562	0	652	43
Arrive On Green	0.03	0.50	0.50	0.08	0.55	0.55	0.04	0.28	0.28	0.00	0.19	0.19
Sat Flow, veh/h	1781	3343	241	1781	3189	365	1781	3554	1551	0	3474	224
Grp Volume(v), veh/h	71	493	502	248	634	638	84	193	176	0	252	261
Grp Sat Flow(s),veh/h/ln	1781	1777	1807	1781	1777	1777	1781	1777	1551	0	1777	1827
Q Serve(g_s), s	2.7	27.1	27.1	9.2	35.4	35.6	5.2	5.8	11.5	0.0	18.7	18.8
Cycle Q Clear(g_c), s	2.7	27.1	27.1	9.2	35.4	35.6	5.2	5.8	11.5	0.0	18.7	18.8
Prop In Lane	1.00		0.13	1.00		0.21	1.00		1.00	0.00		0.12
Lane Grp Cap(c), veh/h	237	882	897	369	969	969	180	990	562	0	343	352
V/C Ratio(X)	0.30	0.56	0.56	0.67	0.65	0.66	0.47	0.19	0.31	0.00	0.74	0.74
Avail Cap(c_a), veh/h	280	882	897	540	969	969	180	990	562	0	343	352
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)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.98	0.98
Uniform Delay (d), s/veh	19.7	24.6	24.6	18.9	22.5	22.6	43.0	38.5	32.3	0.0	53.1	53.2
Incr Delay (d2), s/veh	0.2	2.2	2.2	0.8	3.5	3.5	0.7	0.4	1.5	0.0	7.5	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.1	17.2	17.5	6.8	22.0	22.1	4.2	4.7	17.0	0.0	14.0	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	26.8	26.8	19.7	26.0	26.1	43.7	39.0	33.7	0.0	60.7	60.7
LnGrp LOS	B	C	C	B	C	C	D	D	C	A	E	E
Approach Vol, veh/h	1066			1520			453			513		
Approach Delay, s/veh	26.3			25.0			37.8			60.7		
Approach LOS	C			C			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	83.3		46.0	17.5	76.5	12.0	34.0				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	8.0	* 74		39.0	25.0	56.0	6.0	27.0				
Max Q Clear Time (g_c+I1), s	4.7	37.6		13.5	11.2	29.1	7.2	20.8				
Green Ext Time (p_c), s	0.0	3.4		1.5	0.3	2.4	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Timings
1: Pine Tree Drive & 41st Street

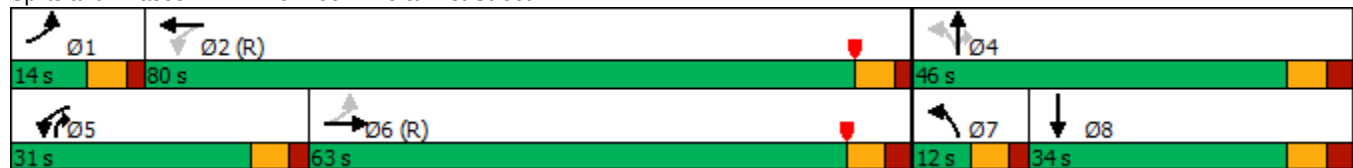
15231 Existing AM
02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	909	66	243	1118	128	82	189	172	0	471	31
Future Volume (vph)	70	909	66	243	1118	128	82	189	172	0	471	31
Confl. Peds. (#/hr)	83		56	56		83	6		20	20		6
Confl. Bikes (#/hr)			7			7						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov		NA	
Protected Phases	1	6		5	2		7	4	5		8	
Permitted Phases	6			2			4		4			
Detector Phase	1	6		5	2		7	4	4 5		8	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0		7.0	
Minimum Split (s)	11.0	46.0		11.0	45.0		11.0	46.0	11.0		34.0	
Total Split (s)	14.0	63.0		31.0	80.0		12.0	46.0	31.0		34.0	
Total Split (%)	10.0%	45.0%		22.1%	57.1%		8.6%	32.9%	22.1%		24.3%	
Yellow Time (s)	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		2.0	3.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0		7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead		Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes		Yes	
Recall Mode	None	C-Max		None	C-Max		None	Max	None		None	

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 52 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 105
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Existing AM
02/14/2018

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	71	995	248	1272	84	193	176	513
v/c Ratio	0.34	0.60	0.71	0.66	0.51	0.20	0.29	0.76
Control Delay	13.2	24.0	23.9	24.5	49.7	39.2	21.0	61.0
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	53.1
Total Delay	13.2	24.5	23.9	24.5	49.7	39.2	21.0	114.1
Queue Length 50th (ft)	0	374	92	426	58	71	82	233
Queue Length 95th (ft)	36	498	146	520	102	104	122	299
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	228	1658	460	1917	164	985	732	679
Starvation Cap Reductn	0	270	0	0	0	0	0	222
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.72	0.54	0.66	0.51	0.20	0.24	1.12
Intersection Summary								

HCM 6th Signalized Intersection Summary
1: Pine Tree Drive & 41st Street

15231 Existing PM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	1034	43	98	821	66	83	654	301	0	484	37
Future Volume (veh/h)	138	1034	43	98	821	66	83	654	301	0	484	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.90	1.00		0.90	1.00		0.90	1.00		0.98
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	0	1870	1870
Adj Flow Rate, veh/h	141	1055	44	100	838	67	85	667	307	0	494	38
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	0	2	2
Cap, veh/h	397	2063	86	322	1939	155	137	864	403	0	541	41
Arrive On Green	0.04	0.60	0.60	0.04	0.59	0.59	0.04	0.24	0.24	0.00	0.16	0.16
Sat Flow, veh/h	1781	3459	144	1781	3301	264	1781	3554	1428	0	3433	256
Grp Volume(v), veh/h	141	542	557	100	451	454	85	667	307	0	262	270
Grp Sat Flow(s),veh/h/ln	1781	1777	1826	1781	1777	1788	1781	1777	1428	0	1777	1818
Q Serve(g_s), s	5.1	28.3	28.3	3.6	22.5	22.5	6.3	28.0	31.6	0.0	23.2	23.4
Cycle Q Clear(g_c), s	5.1	28.3	28.3	3.6	22.5	22.5	6.3	28.0	31.6	0.0	23.2	23.4
Prop In Lane	1.00		0.08	1.00		0.15	1.00		1.00	0.00		0.14
Lane Grp Cap(c), veh/h	397	1060	1089	322	1044	1050	137	864	403	0	288	295
V/C Ratio(X)	0.36	0.51	0.51	0.31	0.43	0.43	0.62	0.77	0.76	0.00	0.91	0.92
Avail Cap(c_a), veh/h	429	1060	1089	538	1044	1050	137	866	404	0	289	296
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)	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.99	0.99
Uniform Delay (d), s/veh	13.8	18.7	18.7	14.9	18.3	18.3	53.6	56.4	53.1	0.0	65.9	66.0
Incr Delay (d2), s/veh	0.2	1.6	1.5	0.2	1.3	1.3	6.3	4.2	7.9	0.0	30.4	31.0
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(95%),veh/ln	3.7	17.6	18.0	2.7	14.8	14.9	5.5	19.1	32.5	0.0	18.9	19.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	20.3	20.3	15.1	19.6	19.6	59.9	60.6	61.0	0.0	96.3	97.0
LnGrp LOS	B	C	C	B	B	B	E	E	E	A	F	F
Approach Vol, veh/h	1240				1005				1059			
Approach Delay, s/veh	19.6				19.1				60.6			
Approach LOS	B				B				E			
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	101.0		45.9	11.6	102.4	13.0	32.9				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	10.0	* 92		39.0	25.0	76.0	7.0	26.0				
Max Q Clear Time (g_c+I1), s	7.1	24.5		33.6	5.6	30.3	8.3	25.4				
Green Ext Time (p_c), s	0.0	2.2		2.3	0.1	2.7	0.0	0.2				

Intersection Summary

HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Timings
1: Pine Tree Drive & 41st Street

15231 Existing PM

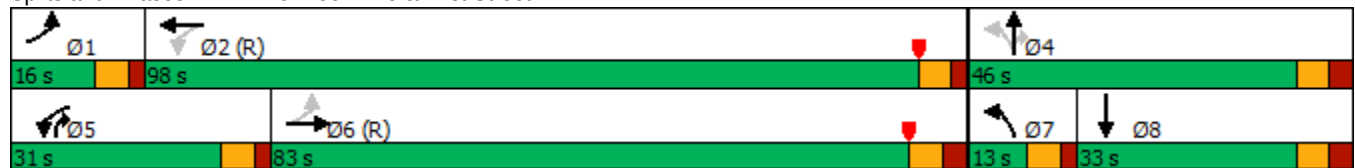
02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	1034	43	98	821	66	83	654	301	0	484	37
Future Volume (vph)	138	1034	43	98	821	66	83	654	301	0	484	37
Confl. Peds. (#/hr)	168		164	164		168	3		71	71		3
Confl. Bikes (#/hr)			9			15			2			1
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov		NA	
Protected Phases	1	6		5	2		7	4	5		8	
Permitted Phases	6			2			4		4			
Detector Phase	1	6		5	2		7	4	4 5		8	
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0		7.0	
Minimum Split (s)	11.0	43.0		11.0	43.0		11.0	33.0	11.0		33.0	
Total Split (s)	16.0	83.0		31.0	98.0		13.0	46.0	31.0		33.0	
Total Split (%)	10.0%	51.9%		19.4%	61.3%		8.1%	28.8%	19.4%		20.6%	
Yellow Time (s)	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		2.0	3.0	2.0		3.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0		7.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead		Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes		Yes	
Recall Mode	None	C-Max		None	C-Max		None	None	None		None	

Intersection Summary

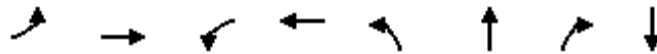
Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Existing PM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	141	1099	100	905	85	667	307	532
v/c Ratio	0.40	0.54	0.34	0.45	0.68	0.78	0.71	0.94
Control Delay	10.8	23.2	12.3	19.5	75.2	64.0	51.4	91.6
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	47.0
Total Delay	10.8	23.6	12.3	19.5	75.2	64.0	51.4	138.6
Queue Length 50th (ft)	56	424	34	271	71	345	241	291
Queue Length 95th (ft)	m79	m492	56	328	#139	422	339	#404
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	370	2043	465	2016	125	862	603	571
Starvation Cap Reductn	0	445	0	0	0	0	0	173
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.69	0.22	0.45	0.68	0.77	0.51	1.34

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Existing AM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	3	10	15	119	284	13	0	502
Future Volume (vph)	0	0	0	2	3	10	15	119	284	13	0	502
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0			3.0	6.0			6.0
Lane Util. Factor					1.00			1.00	0.95			0.95
Frbp, ped/bikes					0.99			1.00	1.00			1.00
Flpb, ped/bikes					1.00			1.00	1.00			1.00
Frt					0.91			1.00	0.99			0.99
Flt Protected					0.99			0.95	1.00			1.00
Satd. Flow (prot)					1667			1769	3512			3509
Flt Permitted					0.99			0.39	1.00			1.00
Satd. Flow (perm)					1667			734	3512			3509
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	0	0	0	2	4	12	16	142	338	15	0	598
RTOR Reduction (vph)	0	0	0	0	12	0	0	0	2	0	0	3
Lane Group Flow (vph)	0	0	0	0	6	0	0	158	351	0	0	628
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Turn Type				Perm	NA		custom	pm+pt	NA			NA
Protected Phases					4			1	6			2
Permitted Phases				4			1	6				
Actuated Green, G (s)					2.7			73.7	73.7			65.0
Effective Green, g (s)					2.7			73.7	73.7			65.0
Actuated g/C Ratio					0.03			0.83	0.83			0.74
Clearance Time (s)					6.0			3.0	6.0			6.0
Vehicle Extension (s)					2.5			2.0	1.0			1.0
Lane Grp Cap (vph)					50			678	2927			2580
v/s Ratio Prot								c0.02	0.10			c0.18
v/s Ratio Perm					0.00			0.18				
v/c Ratio					0.13			0.23	0.12			0.24
Uniform Delay, d1					41.7			1.4	1.4			3.8
Progression Factor					1.00			1.00	1.00			1.00
Incremental Delay, d2					0.8			0.1	0.1			0.2
Delay (s)					42.5			1.5	1.4			4.0
Level of Service					D			A	A			A
Approach Delay (s)		0.0			42.5				1.5			4.0
Approach LOS		A			D				A			A
Intersection Summary												
HCM 2000 Control Delay			3.5		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			88.4		Sum of lost time (s)				15.0			
Intersection Capacity Utilization			53.9%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Existing AM

02/14/2018

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

15231 Existing AM
02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	2	3	10	15	119	284	13	0	502
Future Volume (vph)	0	0	0	2	3	10	15	119	284	13	0	502
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type				Perm	NA		custom	pm+pt	NA			NA
Protected Phases					4			1	6			2
Permitted Phases				4			1	6				
Detector Phase				4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)				7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)				16.0	16.0		9.5	9.5	33.0			33.0
Total Split (s)				16.0	16.0		10.0	10.0	74.0			64.0
Total Split (%)				17.8%	17.8%		11.1%	11.1%	82.2%			71.1%
Yellow Time (s)				4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)				2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)					0.0			0.0	0.0			0.0
Total Lost Time (s)					6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode				None	None		None	None	Max			Max

Intersection Summary

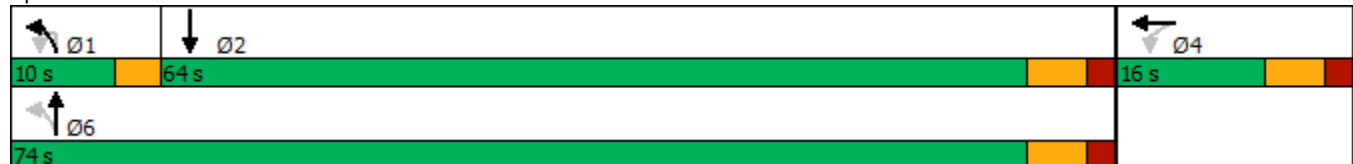
Cycle Length: 90

Actuated Cycle Length: 84.8

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.84
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

Queues
2: 42nd Street & Pine Tree Drive

15231 Existing AM
02/14/2018



Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	18	158	353	631
v/c Ratio	0.12	0.22	0.11	0.23
Control Delay	25.1	1.7	1.3	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.1	1.7	1.3	3.9
Queue Length 50th (ft)	3	0	0	22
Queue Length 95th (ft)	22	20	24	79
Internal Link Dist (ft)	196		219	470
Turn Bay Length (ft)		29		
Base Capacity (vph)	207	748	3207	2691
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.09	0.21	0.11	0.23
Intersection Summary				

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Existing PM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	8	9	11	13	81	859	19	0	443
Future Volume (vph)	0	0	0	8	9	11	13	81	859	19	0	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					6.0			3.0	6.0			6.0
Lane Util. Factor					1.00			1.00	0.95			0.95
Frbp, ped/bikes					0.99			1.00	1.00			1.00
Flpb, ped/bikes					1.00			1.00	1.00			1.00
Frt					0.95			1.00	1.00			0.99
Flt Protected					0.99			0.95	1.00			1.00
Satd. Flow (prot)					1722			1766	3523			3490
Flt Permitted					0.99			0.45	1.00			1.00
Satd. Flow (perm)					1722			839	3523			3490
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	8	9	11	14	84	895	20	0	461
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	1	0	0	4
Lane Group Flow (vph)	0	0	0	0	17	0	0	98	914	0	0	497
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Turn Type				Perm	NA		custom	pm+pt	NA			NA
Protected Phases					4			1	6			2
Permitted Phases				4			1	6				
Actuated Green, G (s)					4.4			87.9	87.9			80.5
Effective Green, g (s)					4.4			87.9	87.9			80.5
Actuated g/C Ratio					0.04			0.84	0.84			0.77
Clearance Time (s)					6.0			3.0	6.0			6.0
Vehicle Extension (s)					2.5			2.0	1.0			1.0
Lane Grp Cap (vph)					72			746	2969			2693
v/s Ratio Prot								0.01	c0.26			0.14
v/s Ratio Perm					0.01			0.11				
v/c Ratio					0.24			0.13	0.31			0.18
Uniform Delay, d1					48.3			1.4	1.7			3.2
Progression Factor					1.00			1.00	1.00			1.00
Incremental Delay, d2					1.3			0.0	0.3			0.2
Delay (s)					49.6			1.4	2.0			3.3
Level of Service					D			A	A			A
Approach Delay (s)		0.0			49.6				2.0			3.3
Approach LOS		A			D				A			A
Intersection Summary												
HCM 2000 Control Delay			3.3		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			104.3		Sum of lost time (s)				15.0			
Intersection Capacity Utilization			52.5%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Existing PM

02/14/2018

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	40
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

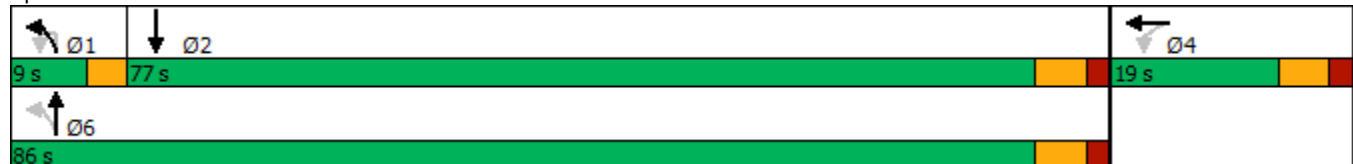
15231 Existing PM
02/14/2018

	           											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	0	0	0	8	9	11	13	81	859	19	0	443
Future Volume (vph)	0	0	0	8	9	11	13	81	859	19	0	443
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type				Perm	NA	custom	pm+pt	NA				NA
Protected Phases					4			1	6			2
Permitted Phases				4			1	6				
Detector Phase				4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)				7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)				45.0	45.0		9.0	9.0	33.0			33.0
Total Split (s)				19.0	19.0		9.0	9.0	86.0			77.0
Total Split (%)				18.1%	18.1%		8.6%	8.6%	81.9%			73.3%
Yellow Time (s)				4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)				2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)					0.0			0.0	0.0			0.0
Total Lost Time (s)					6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode				None	None		None	None	Max			Max

Intersection Summary

Cycle Length: 105
Actuated Cycle Length: 101.4
Natural Cycle: 90
Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	38
Future Volume (vph)	38
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Peak Hour Factor	0.96
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

Queues
2: 42nd Street & Pine Tree Drive

15231 Existing PM
02/14/2018



Lane Group	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	28	98	915	501
v/c Ratio	0.21	0.12	0.29	0.18
Control Delay	35.0	1.5	2.0	3.5
Queue Delay	0.0	0.0	0.5	0.0
Total Delay	35.0	1.5	2.5	3.5
Queue Length 50th (ft)	11	7	58	43
Queue Length 95th (ft)	38	15	81	65
Internal Link Dist (ft)	196		219	470
Turn Bay Length (ft)		29		
Base Capacity (vph)	230	800	3120	2817
Starvation Cap Reductn	0	0	1659	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.63	0.18
Intersection Summary				

HCM 6th Signalized Intersection Summary

3: Sheridan Avenue & 41st Street

15231 Existing AM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	977	53	28	1099	18	28	39	56	32	52	58
Future Volume (veh/h)	59	977	53	28	1099	18	28	39	56	32	52	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	1.00		0.95	0.97		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	61	1018	55	29	1145	19	29	41	58	33	54	60
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	353	2148	116	299	2131	35	102	139	174	183	285	415
Arrive On Green	0.63	0.63	0.63	1.00	1.00	1.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	479	3418	185	526	3390	56	258	514	640	544	1052	1529
Grp Volume(v), veh/h	61	529	544	29	600	564	128	0	0	87	0	60
Grp Sat Flow(s),veh/h/ln	479	1777	1825	526	1777	1670	1411	0	0	1596	0	1529
Q Serve(g_s), s	7.6	22.1	22.1	2.1	0.0	0.0	2.8	0.0	0.0	0.0	0.0	4.2
Cycle Q Clear(g_c), s	7.6	22.1	22.1	24.2	0.0	0.0	9.6	0.0	0.0	5.4	0.0	4.2
Prop In Lane	1.00		0.10	1.00		0.03	0.23		0.45	0.38		1.00
Lane Grp Cap(c), veh/h	353	1117	1147	299	1117	1049	415	0	0	469	0	415
V/C Ratio(X)	0.17	0.47	0.47	0.10	0.54	0.54	0.31	0.00	0.00	0.19	0.00	0.14
Avail Cap(c_a), veh/h	353	1117	1147	299	1117	1049	415	0	0	469	0	415
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	13.8	13.8	3.0	0.0	0.0	40.6	0.0	0.0	39.0	0.0	38.7
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.5	1.3	1.4	1.9	0.0	0.0	0.1	0.0	0.1
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(95%),veh/ln	1.5	13.6	13.9	0.4	0.7	0.7	6.8	0.0	0.0	4.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	13.9	13.9	3.5	1.3	1.4	42.5	0.0	0.0	39.2	0.0	38.8
LnGrp LOS	B	B	B	A	A	A	D	A	A	D	A	D
Approach Vol, veh/h	1134			1193			128			147		
Approach Delay, s/veh	13.7			1.4			42.5			39.0		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	95.0			45.0			95.0			45.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	88.0			38.0			88.0			38.0		
Max Q Clear Time (g_c+I1), s	26.2			11.6			24.1			7.4		
Green Ext Time (p_c), s	3.1			0.6			3.2			0.5		
Intersection Summary												
HCM 6th Ctrl Delay	10.9											
HCM 6th LOS	B											
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Existing AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	977	53	28	1099	18	28	39	56	32	52	58
Future Volume (vph)	59	977	53	28	1099	18	28	39	56	32	52	58
Confl. Peds. (#/hr)	39		30	30		39	32		23	23		32
Confl. Bikes (#/hr)			1			2						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	34.0
Total Split (s)	95.0	95.0		95.0	95.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	67.9%	67.9%		67.9%	67.9%		32.1%	32.1%		32.1%	32.1%	32.1%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 140

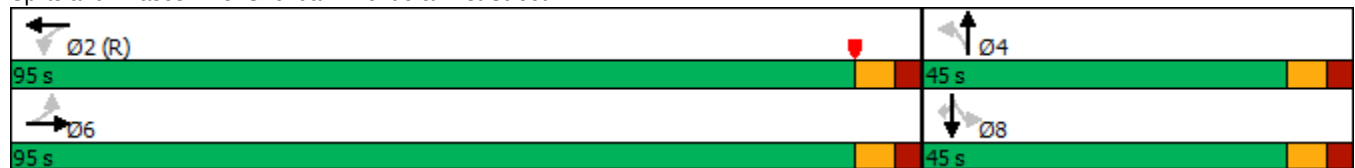
Actuated Cycle Length: 140

Offset: 38 (27%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

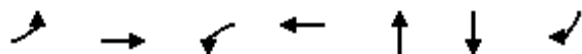
Control Type: Actuated-Coordinated

Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Existing AM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	61	1073	29	1164	128	87	60
v/c Ratio	0.28	0.49	0.13	0.55	0.32	0.20	0.13
Control Delay	15.8	14.8	8.8	9.5	33.7	41.0	9.7
Queue Delay	0.0	0.5	0.0	0.4	0.0	0.0	0.0
Total Delay	15.8	15.2	8.8	10.0	33.7	41.0	9.7
Queue Length 50th (ft)	24	258	6	141	71	61	0
Queue Length 95th (ft)	53	310	m10	158	132	110	37
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	220	2195	224	2104	401	426	447
Starvation Cap Reductn	0	0	0	438	0	0	0
Spillback Cap Reductn	0	597	0	0	4	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.67	0.13	0.70	0.32	0.20	0.13

Intersection Summary

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

HCM 6th Signalized Intersection Summary

3: Sheridan Avenue & 41st Street

15231 Existing PM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	1061	33	18	906	24	73	73	91	68	60	65
Future Volume (veh/h)	52	1061	33	18	906	24	73	73	91	68	60	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.92	1.00		0.91	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	54	1105	34	19	944	25	76	76	95	71	62	68
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	466	2587	80	350	2467	65	48	33	32	113	89	259
Arrive On Green	0.74	0.74	0.74	1.00	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	570	3508	108	494	3345	89	108	189	185	450	509	1481
Grp Volume(v), veh/h	54	560	579	19	501	468	247	0	0	133	0	68
Grp Sat Flow(s),veh/h/ln	570	1777	1839	494	1777	1657	482	0	0	959	0	1481
Q Serve(g_s), s	4.4	19.3	19.3	1.1	0.0	0.0	7.3	0.0	0.0	0.0	0.0	6.4
Cycle Q Clear(g_c), s	4.4	19.3	19.3	20.4	0.0	0.0	28.0	0.0	0.0	20.7	0.0	6.4
Prop In Lane	1.00		0.06	1.00		0.05	0.31		0.38	0.53		1.00
Lane Grp Cap(c), veh/h	466	1310	1356	350	1310	1222	114	0	0	202	0	259
V/C Ratio(X)	0.12	0.43	0.43	0.05	0.38	0.38	2.17	0.00	0.00	0.66	0.00	0.26
Avail Cap(c_a), veh/h	466	1310	1356	350	1310	1222	114	0	0	202	0	259
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.1	8.0	8.0	1.7	0.0	0.0	72.6	0.0	0.0	62.2	0.0	57.1
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.3	0.7	0.8	555.3	0.0	0.0	7.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	11.7	12.0	0.2	0.5	0.5	37.7	0.0	0.0	9.5	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	8.3	8.3	1.9	0.7	0.8	627.9	0.0	0.0	69.8	0.0	57.6
LnGrp LOS	A	A	A	A	A	A	F	A	A	E	A	E
Approach Vol, veh/h	1193			988			247			201		
Approach Delay, s/veh	8.2			0.8			627.9			65.7		
Approach LOS	A			A			F			E		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	125.0			35.0			125.0			35.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	118.0			28.0			118.0			28.0		
Max Q Clear Time (g_c+I1), s	22.4			30.0			21.3			22.7		
Green Ext Time (p_c), s	8.5			0.0			11.7			0.4		
Intersection Summary												
HCM 6th Ctrl Delay			68.0									
HCM 6th LOS			E									
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Existing PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	1061	33	18	906	24	73	73	91	68	60	65
Future Volume (vph)	52	1061	33	18	906	24	73	73	91	68	60	65
Confl. Peds. (#/hr)	95		87	87		95	30		12	12		30
Confl. Bikes (#/hr)			4			12			1			3
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	125.0	125.0		125.0	125.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)	78.1%	78.1%		78.1%	78.1%		21.9%	21.9%		21.9%	21.9%	21.9%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 160

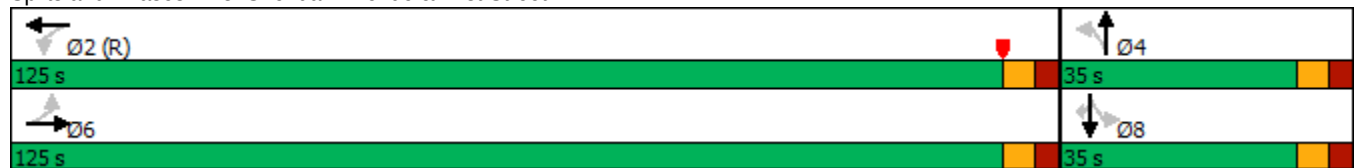
Actuated Cycle Length: 160

Offset: 115 (72%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 55

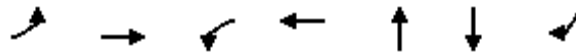
Control Type: Actuated-Coordinated

Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Existing PM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	54	1139	19	969	247	134	68
v/c Ratio	0.16	0.44	0.07	0.40	1.17	0.74	0.23
Control Delay	7.5	8.8	5.4	6.0	164.8	87.2	17.0
Queue Delay	0.0	0.3	0.0	0.2	0.1	0.0	0.0
Total Delay	7.5	9.0	5.4	6.2	165.0	87.2	17.0
Queue Length 50th (ft)	15	221	4	118	~291	135	6
Queue Length 95th (ft)	32	258	m8	m127	#480	#242	53
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	343	2570	258	2442	212	180	301
Starvation Cap Reductn	0	0	0	648	0	0	0
Spillback Cap Reductn	0	664	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.60	0.07	0.54	1.18	0.74	0.23

Intersection Summary

~ 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.

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	44	102	6	53	53	0	0	109	43
Future Vol, veh/h	0	0	0	44	102	6	53	53	0	0	109	43
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	55	128	8	66	66	0	0	136	47
Number of Lanes	0	0	0	0	2	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.1	8.8	8.7
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	50%	46%	0%	0%
Vol Thru, %	50%	54%	89%	72%
Vol Right, %	0%	0%	11%	28%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	95	57	152
LT Vol	53	44	0	0
Through Vol	53	51	51	109
RT Vol	0	0	6	43
Lane Flow Rate	132	119	71	183
Geometry Grp	2	7	7	2
Degree of Util (X)	0.174	0.181	0.103	0.225
Departure Headway (Hd)	4.737	5.487	5.18	4.421
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	758	653	691	812
Service Time	2.766	3.224	2.916	2.446
HCM Lane V/C Ratio	0.174	0.182	0.103	0.225
HCM Control Delay	8.8	9.4	8.5	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.7	0.3	0.9

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	48	103	14	62	99	0	0	116	30
Future Vol, veh/h	0	0	0	48	103	14	62	99	0	0	116	30
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	56	121	16	73	116	0	0	136	35
Number of Lanes	0	0	0	0	2	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	9.2	9.3	8.8
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	39%	48%	0%	0%
Vol Thru, %	61%	52%	79%	79%
Vol Right, %	0%	0%	21%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	161	100	66	146
LT Vol	62	48	0	0
Through Vol	99	52	52	116
RT Vol	0	0	14	30
Lane Flow Rate	189	117	77	172
Geometry Grp	2	7	7	2
Degree of Util (X)	0.248	0.182	0.112	0.217
Departure Headway (Hd)	4.719	5.606	5.212	4.547
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	760	639	686	788
Service Time	2.752	3.353	2.959	2.58
HCM Lane V/C Ratio	0.249	0.183	0.112	0.218
HCM Control Delay	9.3	9.6	8.6	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.7	0.4	0.8

Future without Project Conditions

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Future Without AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	936	65	251	1150	130	83	193	181	4	486	31
Future Volume (veh/h)	56	936	65	251	1150	130	83	193	181	4	486	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	0.98		0.97
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	57	955	66	256	1173	133	85	197	185	4	496	32
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	227	1656	114	364	1747	197	170	990	566	28	637	41
Arrive On Green	0.03	0.49	0.49	0.08	0.55	0.55	0.04	0.28	0.28	0.19	0.19	0.19
Sat Flow, veh/h	1781	3355	232	1781	3194	361	1781	3554	1551	7	3301	211
Grp Volume(v), veh/h	57	506	515	256	651	655	85	197	185	281	0	251
Grp Sat Flow(s),veh/h/ln	1781	1777	1810	1781	1777	1779	1781	1777	1551	1864	0	1656
Q Serve(g_s), s	2.2	28.2	28.2	9.6	36.7	37.0	5.3	5.9	12.1	0.6	0.0	20.2
Cycle Q Clear(g_c), s	2.2	28.2	28.2	9.6	36.7	37.0	5.3	5.9	12.1	20.0	0.0	20.2
Prop In Lane	1.00		0.13	1.00		0.20	1.00		1.00	0.01		0.13
Lane Grp Cap(c), veh/h	227	877	894	364	971	972	170	990	566	386	0	319
V/C Ratio(X)	0.25	0.58	0.58	0.70	0.67	0.67	0.50	0.20	0.33	0.73	0.00	0.79
Avail Cap(c_a), veh/h	272	877	894	531	971	972	170	990	566	386	0	319
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)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	19.9	25.1	25.1	19.6	22.7	22.8	43.3	38.6	32.2	53.7	0.0	53.7
Incr Delay (d2), s/veh	0.2	2.4	2.3	0.9	3.7	3.7	0.8	0.5	1.5	6.4	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	17.8	18.1	7.1	22.7	22.9	4.3	4.8	8.4	15.3	0.0	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	27.5	27.4	20.6	26.4	26.5	44.1	39.0	33.7	60.1	0.0	65.3
LnGrp LOS	C	C	C	C	C	C	D	D	C	E	A	E
Approach Vol, veh/h	1078				1562				467			
Approach Delay, s/veh	27.0				25.5				37.9			
Approach LOS	C				C				D			
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	83.5		46.0	17.9	76.1	12.0	34.0				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	8.0	* 74		39.0	25.0	56.0	6.0	27.0				
Max Q Clear Time (g_c+I1), s	4.2	39.0		14.1	11.6	30.2	7.3	22.2				
Green Ext Time (p_c), s	0.0	3.5		1.5	0.3	2.5	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay 32.9

HCM 6th LOS C

Notes

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

User approved changes to right turn type.

Timings
1: Pine Tree Drive & 41st Street

15231 Future Without AM

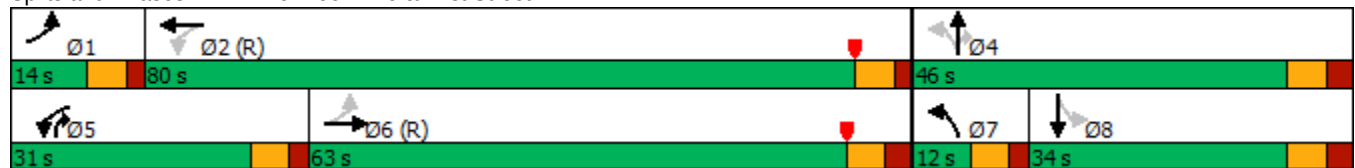
02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	936	65	251	1150	130	83	193	181	4	486	31
Future Volume (vph)	56	936	65	251	1150	130	83	193	181	4	486	31
Confl. Peds. (#/hr)	83		56	56		83	6		20	20		6
Confl. Bikes (#/hr)			7			7						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm		NA
Protected Phases	1	6		5	2		7	4	5			8
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		7	4	4 5	8		8
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0	7.0		7.0
Minimum Split (s)	11.0	46.0		11.0	45.0		11.0	46.0	11.0	34.0		34.0
Total Split (s)	14.0	63.0		31.0	80.0		12.0	46.0	31.0	34.0		34.0
Total Split (%)	10.0%	45.0%		22.1%	57.1%		8.6%	32.9%	22.1%	24.3%		24.3%
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		2.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0			7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	Yes		Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	None	None		None

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 52 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 105
 Control Type: Actuated-Coordinated

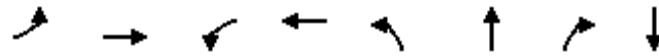
Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Future Without AM

02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	57	1021	256	1306	85	197	185	532
v/c Ratio	0.29	0.62	0.73	0.68	0.54	0.20	0.30	0.82
Control Delay	12.6	24.5	26.2	24.8	51.7	39.3	21.1	65.4
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	51.8
Total Delay	12.6	25.0	26.2	24.8	51.7	39.3	21.1	117.2
Queue Length 50th (ft)	11	392	96	442	58	72	88	245
Queue Length 95th (ft)	33	525	168	539	104	106	126	#318
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	220	1634	450	1924	157	985	731	646
Starvation Cap Reductn	0	240	0	0	0	0	0	190
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.73	0.57	0.68	0.54	0.20	0.25	1.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Future Without PM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	1071	41	110	856	87	84	667	315	4	499	37
Future Volume (veh/h)	119	1071	41	110	856	87	84	667	315	4	499	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.90	1.00		0.90	1.00		0.90	0.98		0.86
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	121	1093	42	112	873	89	86	681	321	4	509	38
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	370	2061	79	313	1904	194	126	866	408	24	523	39
Arrive On Green	0.04	0.59	0.59	0.04	0.59	0.59	0.04	0.24	0.24	0.16	0.16	0.16
Sat Flow, veh/h	1781	3473	133	1781	3217	328	1781	3554	1428	7	3220	238
Grp Volume(v), veh/h	121	559	576	112	482	480	86	681	321	294	0	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1829	1781	1777	1768	1781	1777	1428	1852	0	1613
Q Serve(g_s), s	4.3	29.9	29.9	4.0	24.3	24.3	6.3	28.7	33.3	7.1	0.0	25.4
Cycle Q Clear(g_c), s	4.3	29.9	29.9	4.0	24.3	24.3	6.3	28.7	33.3	25.2	0.0	25.4
Prop In Lane	1.00		0.07	1.00		0.19	1.00		1.00	0.01		0.15
Lane Grp Cap(c), veh/h	370	1054	1085	313	1051	1046	126	866	408	324	0	262
V/C Ratio(X)	0.33	0.53	0.53	0.36	0.46	0.46	0.68	0.79	0.79	0.91	0.00	0.98
Avail Cap(c_a), veh/h	411	1054	1085	524	1051	1046	126	866	408	324	0	262
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)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	14.0	19.3	19.3	15.3	18.3	18.3	53.7	56.6	53.3	66.6	0.0	66.8
Incr Delay (d2), s/veh	0.2	1.7	1.7	0.3	1.4	1.4	11.9	4.7	9.5	27.3	0.0	50.1
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(95%),veh/ln	3.2	18.4	18.9	3.0	15.8	15.8	5.9	19.5	19.0	20.6	0.0	20.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	21.0	21.0	15.5	19.7	19.7	65.6	61.3	62.8	93.9	0.0	116.9
LnGrp LOS	B	C	C	B	B	B	E	E	E	F	A	F
Approach Vol, veh/h	1256				1074				1088			
Approach Delay, s/veh	20.3				19.3				62.1			
Approach LOS	C				B				E			
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	101.7		46.0	12.1	101.9	13.0	33.0				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	10.0	* 92		39.0	25.0	76.0	7.0	26.0				
Max Q Clear Time (g_c+I1), s	6.3	26.3		35.3	6.0	31.9	8.3	27.4				
Green Ext Time (p_c), s	0.0	2.3		1.8	0.1	2.8	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 43.2

HCM 6th LOS D

Notes

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

User approved changes to right turn type.

Timings

1: Pine Tree Drive & 41st Street

15231 Future Without PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1071	41	110	856	87	84	667	315	4	499	37
Future Volume (vph)	119	1071	41	110	856	87	84	667	315	4	499	37
Confl. Peds. (#/hr)	168		164	164		168	3		71	71		3
Confl. Bikes (#/hr)			9			15			2			1
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm		NA
Protected Phases	1	6		5	2		7	4	5			8
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		7	4	4 5	8		8
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0	7.0		7.0
Minimum Split (s)	11.0	43.0		11.0	43.0		11.0	33.0	11.0	33.0		33.0
Total Split (s)	16.0	83.0		31.0	98.0		13.0	46.0	31.0	33.0		33.0
Total Split (%)	10.0%	51.9%		19.4%	61.3%		8.1%	28.8%	19.4%	20.6%		20.6%
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		2.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0			7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	Yes		Yes
Recall Mode	None	C-Max		None	C-Max		None	None	None	None		None

Intersection Summary

Cycle Length: 160

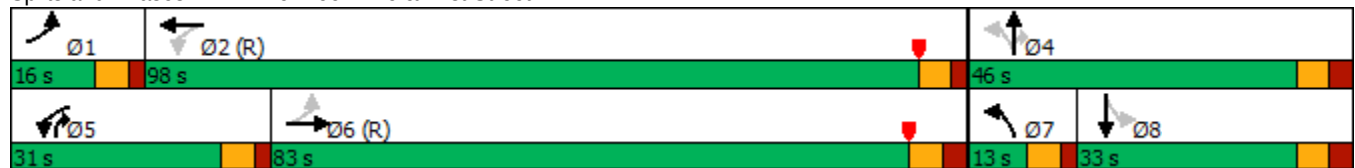
Actuated Cycle Length: 160

Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

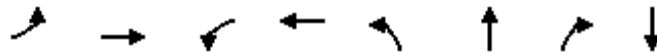
Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Future Without PM

02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	121	1135	112	962	86	681	321	551
v/c Ratio	0.37	0.56	0.39	0.48	0.69	0.79	0.73	1.02
Control Delay	9.9	23.3	13.2	19.9	75.6	64.4	52.0	107.1
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	31.5
Total Delay	9.9	23.7	13.2	19.9	75.6	64.4	52.0	138.5
Queue Length 50th (ft)	43	441	38	291	72	354	255	~317
Queue Length 95th (ft)	m63	m522	62	355	#141	432	351	#444
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	351	2023	450	2005	125	862	603	542
Starvation Cap Reductn	0	385	0	0	0	0	0	146
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.69	0.25	0.48	0.69	0.79	0.53	1.39

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Future Without AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	6	15	2	3	10	8	120	227	10	0	502
Future Volume (vph)	18	6	15	2	3	10	8	120	227	10	0	502
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			3.0	6.0			6.0
Lane Util. Factor		1.00			1.00			1.00	0.95			0.95
Frpb, ped/bikes		0.99			0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		0.95			0.91			1.00	0.99			0.99
Flt Protected		0.98			0.99			0.95	1.00			1.00
Satd. Flow (prot)		1710			1667			1769	3512			3507
Flt Permitted		0.84			0.95			0.39	1.00			1.00
Satd. Flow (perm)		1478			1597			733	3512			3507
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	21	7	18	2	4	12	9	143	270	12	0	598
RTOR Reduction (vph)	0	17	0	0	11	0	0	0	2	0	0	3
Lane Group Flow (vph)	0	29	0	0	7	0	0	152	280	0	0	628
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		8			4			1	6			2
Permitted Phases	8			4			1	6				
Actuated Green, G (s)		4.9			4.9			72.4	72.4			63.5
Effective Green, g (s)		4.9			4.9			72.4	72.4			63.5
Actuated g/C Ratio		0.05			0.05			0.81	0.81			0.71
Clearance Time (s)		6.0			6.0			3.0	6.0			6.0
Vehicle Extension (s)		2.5			2.5			2.0	1.0			1.0
Lane Grp Cap (vph)		81			87			662	2847			2493
v/s Ratio Prot								c0.02	0.08			c0.18
v/s Ratio Perm		c0.02			0.00			0.17				
v/c Ratio		0.36			0.08			0.23	0.10			0.25
Uniform Delay, d1		40.7			40.1			1.8	1.7			4.5
Progression Factor		1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2		2.0			0.3			0.1	0.1			0.2
Delay (s)		42.7			40.3			1.9	1.8			4.8
Level of Service		D			D			A	A			A
Approach Delay (s)		42.7			40.3				1.8			4.8
Approach LOS		D			D				A			A
Intersection Summary												
HCM 2000 Control Delay		5.8			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.26										
Actuated Cycle Length (s)		89.3			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		55.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

15231 Future Without AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	6	15	2	3	10	8	120	227	10	0	502
Future Volume (vph)	18	6	15	2	3	10	8	120	227	10	0	502
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		8			4			1	6			2
Permitted Phases	8			4			1	6				
Detector Phase	8	8		4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)	16.0	16.0		16.0	16.0		9.5	9.5	33.0			33.0
Total Split (s)	16.0	16.0		16.0	16.0		10.0	10.0	74.0			64.0
Total Split (%)	17.8%	17.8%		17.8%	17.8%		11.1%	11.1%	82.2%			71.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		6.0			6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode	None	None		None	None		None	None	Max			Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 86.8

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive

		
10 s	64 s	16 s
		
74 s		16 s

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.84
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

Queues
2: 42nd Street & Pine Tree Drive

15231 Future Without AM
02/14/2018



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	46	18	152	282	631
v/c Ratio	0.31	0.12	0.22	0.09	0.25
Control Delay	31.6	24.6	2.3	1.9	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	24.6	2.3	1.9	5.0
Queue Length 50th (ft)	15	3	12	13	60
Queue Length 95th (ft)	43	21	24	24	88
Internal Link Dist (ft)	305	196		219	470
Turn Bay Length (ft)			29		
Base Capacity (vph)	186	195	720	3031	2568
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.09	0.21	0.09	0.25
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Future Without PM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	48	13	14	8	9	11	14	82	861	14	0	443
Future Volume (vph)	48	13	14	8	9	11	14	82	861	14	0	443
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			3.0	6.0			6.0
Lane Util. Factor		1.00			1.00			1.00	0.95			0.95
Frpb, ped/bikes		0.99			0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		0.97			0.95			1.00	1.00			0.99
Flt Protected		0.97			0.99			0.95	1.00			1.00
Satd. Flow (prot)		1744			1723			1764	3527			3485
Flt Permitted		0.79			0.90			0.45	1.00			1.00
Satd. Flow (perm)		1424			1577			835	3527			3485
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	50	14	15	8	9	11	15	85	897	15	0	461
RTOR Reduction (vph)	0	8	0	0	10	0	0	0	1	0	0	5
Lane Group Flow (vph)	0	71	0	0	18	0	0	100	911	0	0	497
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		4			4			1	6			2
Permitted Phases	4			4			1	6				
Actuated Green, G (s)		8.5			8.5			84.0	84.0			76.5
Effective Green, g (s)		8.5			8.5			84.0	84.0			76.5
Actuated g/C Ratio		0.08			0.08			0.80	0.80			0.73
Clearance Time (s)		6.0			6.0			3.0	6.0			6.0
Vehicle Extension (s)		2.5			2.5			2.0	1.0			1.0
Lane Grp Cap (vph)		115			128			711	2835			2551
v/s Ratio Prot								0.01	c0.26			0.14
v/s Ratio Perm		c0.05			0.01			0.11				
v/c Ratio		0.62			0.14			0.14	0.32			0.19
Uniform Delay, d1		46.4			44.6			2.2	2.7			4.4
Progression Factor		1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2		8.1			0.4			0.0	0.3			0.2
Delay (s)		54.5			45.0			2.2	3.0			4.5
Level of Service		D			D			A	A			A
Approach Delay (s)		54.5			45.0				2.9			4.5
Approach LOS		D			D				A			A
Intersection Summary												
HCM 2000 Control Delay		6.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		104.5			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		60.7%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Future Without PM

02/14/2018

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	41
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

15231 Future Without PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	48	13	14	8	9	11	14	82	861	14	0	443
Future Volume (vph)	48	13	14	8	9	11	14	82	861	14	0	443
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		4			4			1	6			2
Permitted Phases	4			4			1	6				
Detector Phase	4	4		4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)	45.0	45.0		45.0	45.0		9.0	9.0	33.0			33.0
Total Split (s)	19.0	19.0		19.0	19.0		9.0	9.0	86.0			77.0
Total Split (%)	18.1%	18.1%		18.1%	18.1%		8.6%	8.6%	81.9%			73.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		6.0			6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode	None	None		None	None		None	None	Max			Max

Intersection Summary

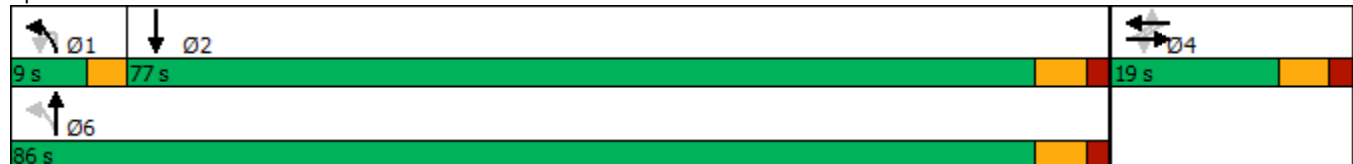
Cycle Length: 105

Actuated Cycle Length: 102.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	39
Future Volume (vph)	39
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Peak Hour Factor	0.96
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

Queues
2: 42nd Street & Pine Tree Drive

15231 Future Without PM
02/14/2018



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	79	28	100	912	502
v/c Ratio	0.54	0.17	0.13	0.31	0.19
Control Delay	52.8	31.9	2.4	3.3	5.0
Queue Delay	0.0	0.0	0.0	0.8	0.0
Total Delay	52.8	31.9	2.4	4.1	5.0
Queue Length 50th (ft)	44	10	10	71	50
Queue Length 95th (ft)	93	37	22	108	78
Internal Link Dist (ft)	305	196		219	470
Turn Bay Length (ft)			29		
Base Capacity (vph)	188	209	754	2908	2643
Starvation Cap Reductn	0	0	0	1573	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.42	0.13	0.13	0.68	0.19
Intersection Summary					

HCM 6th Signalized Intersection Summary 3: Sheridan Avenue & 41st Street

15231 Future Without AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1006	54	28	1130	19	28	48	49	23	40	59
Future Volume (veh/h)	60	1006	54	28	1130	19	28	48	49	23	40	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	1.00		0.95	0.97		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	62	1048	56	29	1177	20	29	50	51	24	42	61
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	344	2150	115	289	2130	36	101	167	153	177	295	415
Arrive On Green	0.63	0.63	0.63	1.00	1.00	1.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	465	3420	183	511	3389	58	257	614	562	523	1087	1529
Grp Volume(v), veh/h	62	544	560	29	617	580	130	0	0	66	0	61
Grp Sat Flow(s),veh/h/ln	465	1777	1826	511	1777	1669	1432	0	0	1610	0	1529
Q Serve(g_s), s	8.0	23.0	23.0	2.3	0.0	0.0	2.7	0.0	0.0	0.0	0.0	4.2
Cycle Q Clear(g_c), s	8.0	23.0	23.0	25.3	0.0	0.0	9.6	0.0	0.0	3.8	0.0	4.2
Prop In Lane	1.00		0.10	1.00		0.03	0.22		0.39	0.36		1.00
Lane Grp Cap(c), veh/h	344	1117	1148	289	1117	1049	420	0	0	472	0	415
V/C Ratio(X)	0.18	0.49	0.49	0.10	0.55	0.55	0.31	0.00	0.00	0.14	0.00	0.15
Avail Cap(c_a), veh/h	344	1117	1148	289	1117	1049	420	0	0	472	0	415
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	13.9	13.9	3.3	0.0	0.0	40.6	0.0	0.0	38.5	0.0	38.7
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.5	1.4	1.5	1.9	0.0	0.0	0.1	0.0	0.1
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(95%),veh/ln	1.5	14.0	14.4	0.4	0.8	0.8	6.9	0.0	0.0	3.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.2	14.0	14.0	3.8	1.4	1.5	42.5	0.0	0.0	38.6	0.0	38.8
LnGrp LOS	B	B	B	A	A	A	D	A	A	D	A	D
Approach Vol, veh/h	1166			1226			130			127		
Approach Delay, s/veh	13.9			1.5			42.5			38.7		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	95.0			45.0			95.0			45.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	88.0			38.0			88.0			38.0		
Max Q Clear Time (g_c+I1), s	27.3			11.6			25.0			6.2		
Green Ext Time (p_c), s	3.3			0.6			3.3			0.4		
Intersection Summary												
HCM 6th Ctrl Delay			10.7									
HCM 6th LOS			B									
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Future Without AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	1006	54	28	1130	19	28	48	49	23	40	59
Future Volume (vph)	60	1006	54	28	1130	19	28	48	49	23	40	59
Confl. Peds. (#/hr)	39		30	30		39	32		23	23		32
Confl. Bikes (#/hr)			1			2						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	34.0
Total Split (s)	95.0	95.0		95.0	95.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	67.9%	67.9%		67.9%	67.9%		32.1%	32.1%		32.1%	32.1%	32.1%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 140

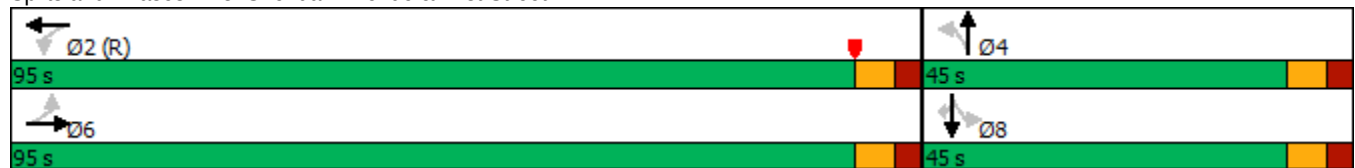
Actuated Cycle Length: 140

Offset: 38 (27%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

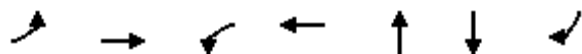
Control Type: Actuated-Coordinated

Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Future Without AM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	63	1104	29	1197	130	66	61
v/c Ratio	0.30	0.50	0.14	0.57	0.32	0.15	0.14
Control Delay	16.7	15.0	9.2	9.8	35.9	40.0	9.7
Queue Delay	0.0	0.6	0.0	0.5	0.0	0.0	0.0
Total Delay	16.7	15.6	9.2	10.3	35.9	40.0	9.7
Queue Length 50th (ft)	25	269	6	143	77	46	0
Queue Length 95th (ft)	57	322	m10	173	139	87	36
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	209	2195	214	2102	403	435	448
Starvation Cap Reductn	0	0	0	425	0	0	0
Spillback Cap Reductn	0	659	0	0	3	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.72	0.14	0.71	0.33	0.15	0.14

Intersection Summary

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

HCM 6th Signalized Intersection Summary 3: Sheridan Avenue & 41st Street

15231 Future Without PM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1098	33	19	942	25	75	89	79	60	59	67
Future Volume (veh/h)	53	1098	33	19	942	25	75	89	79	60	59	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.92	1.00		0.91	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	55	1144	34	20	981	26	78	93	82	62	61	70
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	451	2591	77	336	2467	65	56	47	35	110	98	259
Arrive On Green	0.74	0.74	0.74	1.00	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	551	3513	104	476	3345	89	152	266	201	435	559	1481
Grp Volume(v), veh/h	55	578	600	20	521	486	253	0	0	123	0	70
Grp Sat Flow(s),veh/h/ln	551	1777	1840	476	1777	1657	619	0	0	993	0	1481
Q Serve(g_s), s	4.7	20.3	20.3	1.2	0.0	0.0	10.1	0.0	0.0	0.0	0.0	6.6
Cycle Q Clear(g_c), s	4.7	20.3	20.3	21.5	0.0	0.0	28.0	0.0	0.0	17.9	0.0	6.6
Prop In Lane	1.00		0.06	1.00		0.05	0.31		0.32	0.50		1.00
Lane Grp Cap(c), veh/h	451	1310	1357	336	1310	1222	138	0	0	208	0	259
V/C Ratio(X)	0.12	0.44	0.44	0.06	0.40	0.40	1.84	0.00	0.00	0.59	0.00	0.27
Avail Cap(c_a), veh/h	451	1310	1357	336	1310	1222	138	0	0	208	0	259
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.1	8.2	8.2	1.9	0.0	0.0	72.5	0.0	0.0	61.1	0.0	57.2
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.3	0.8	0.8	403.2	0.0	0.0	4.4	0.0	0.6
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(95%),veh/ln	1.0	12.1	12.5	0.2	0.5	0.5	35.2	0.0	0.0	8.6	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	8.4	8.4	2.1	0.8	0.8	475.8	0.0	0.0	65.5	0.0	57.7
LnGrp LOS	A	A	A	A	A	A	F	A	A	E	A	E
Approach Vol, veh/h	1233			1027			253			193		
Approach Delay, s/veh	8.3			0.8			475.8			62.7		
Approach LOS	A			A			F			E		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	125.0			35.0			125.0			35.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	118.0			28.0			118.0			28.0		
Max Q Clear Time (g_c+I1), s	23.5			30.0			22.3			19.9		
Green Ext Time (p_c), s	9.0			0.0			12.5			0.5		
Intersection Summary												
HCM 6th Ctrl Delay			53.1									
HCM 6th LOS			D									
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Future Without PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	1098	33	19	942	25	75	89	79	60	59	67
Future Volume (vph)	53	1098	33	19	942	25	75	89	79	60	59	67
Confl. Peds. (#/hr)	95		87	87		95	30		12	12		30
Confl. Bikes (#/hr)			4			12			1			3
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	125.0	125.0		125.0	125.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)	78.1%	78.1%		78.1%	78.1%		21.9%	21.9%		21.9%	21.9%	21.9%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 160

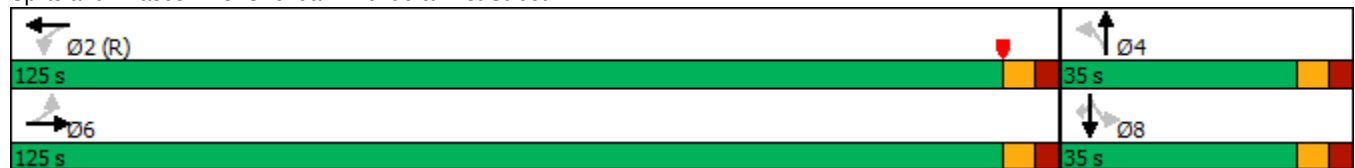
Actuated Cycle Length: 160

Offset: 115 (72%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

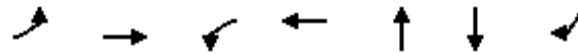
Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Future Without PM

02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	55	1178	20	1007	253	124	70
v/c Ratio	0.17	0.46	0.08	0.41	1.16	0.68	0.23
Control Delay	7.7	9.0	5.5	6.1	163.5	81.5	14.3
Queue Delay	0.0	0.3	0.0	0.2	0.1	0.0	0.0
Total Delay	7.7	9.3	5.5	6.2	163.7	81.5	14.3
Queue Length 50th (ft)	16	233	5	122	~301	123	2
Queue Length 95th (ft)	33	272	m8	m132	#489	#214	49
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	329	2570	247	2442	218	182	307
Starvation Cap Reductn	0	0	0	592	0	0	0
Spillback Cap Reductn	0	698	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.63	0.08	0.54	1.17	0.68	0.23

Intersection Summary

~ 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.

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	45	104	6	54	49	14	23	99	44
Future Vol, veh/h	0	0	0	45	104	6	54	49	14	23	99	44
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	56	130	8	68	61	18	29	124	48
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.4	8.8	9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	46%	29%	14%
Vol Thru, %	42%	67%	60%
Vol Right, %	12%	4%	27%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	117	155	166
LT Vol	54	45	23
Through Vol	49	104	99
RT Vol	14	6	44
Lane Flow Rate	146	194	200
Geometry Grp	1	1	1
Degree of Util (X)	0.189	0.256	0.248
Departure Headway (Hd)	4.66	4.756	4.455
Convergence, Y/N	Yes	Yes	Yes
Cap	769	754	805
Service Time	2.693	2.791	2.485
HCM Lane V/C Ratio	0.19	0.257	0.248
HCM Control Delay	8.8	9.4	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.7	1	1

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	49	105	15	63	91	24	44	107	30
Future Vol, veh/h	0	0	0	49	105	15	63	91	24	44	107	30
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	58	124	18	74	107	28	52	126	35
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.8	9.5	9.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	35%	29%	24%
Vol Thru, %	51%	62%	59%
Vol Right, %	13%	9%	17%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	178	169	181
LT Vol	63	49	44
Through Vol	91	105	107
RT Vol	24	15	30
Lane Flow Rate	209	199	213
Geometry Grp	1	1	1
Degree of Util (X)	0.272	0.271	0.274
Departure Headway (Hd)	4.676	4.907	4.634
Convergence, Y/N	Yes	Yes	Yes
Cap	766	730	773
Service Time	2.718	2.955	2.675
HCM Lane V/C Ratio	0.273	0.273	0.276
HCM Control Delay	9.5	9.8	9.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.1	1.1	1.1

Future with Project Conditions

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Future With Project AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	937	70	251	1150	130	86	194	181	4	486	32
Future Volume (veh/h)	56	937	70	251	1150	130	86	194	181	4	486	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.94	1.00		0.98	0.98		0.97
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	57	956	71	256	1173	133	88	198	185	4	496	33
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	227	1647	122	362	1747	197	170	990	566	28	635	42
Arrive On Green	0.03	0.49	0.49	0.08	0.55	0.55	0.04	0.28	0.28	0.19	0.19	0.19
Sat Flow, veh/h	1781	3335	248	1781	3194	361	1781	3554	1551	7	3294	217
Grp Volume(v), veh/h	57	509	518	256	651	655	88	198	185	282	0	251
Grp Sat Flow(s),veh/h/ln	1781	1777	1806	1781	1777	1779	1781	1777	1551	1864	0	1655
Q Serve(g_s), s	2.2	28.5	28.5	9.6	36.7	37.0	5.5	6.0	12.1	0.7	0.0	20.2
Cycle Q Clear(g_c), s	2.2	28.5	28.5	9.6	36.7	37.0	5.5	6.0	12.1	20.1	0.0	20.2
Prop In Lane	1.00		0.14	1.00		0.20	1.00		1.00	0.01		0.13
Lane Grp Cap(c), veh/h	227	877	892	362	971	972	170	990	566	386	0	319
V/C Ratio(X)	0.25	0.58	0.58	0.71	0.67	0.67	0.52	0.20	0.33	0.73	0.00	0.79
Avail Cap(c_a), veh/h	272	877	892	529	971	972	170	990	566	386	0	319
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)	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	19.9	25.1	25.2	19.8	22.7	22.8	43.4	38.6	32.2	53.7	0.0	53.8
Incr Delay (d2), s/veh	0.2	2.4	2.4	1.0	3.7	3.7	1.3	0.5	1.5	6.5	0.0	11.7
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(95%),veh/ln	1.7	18.0	18.2	7.1	22.7	22.9	4.5	4.9	8.4	15.3	0.0	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.1	27.6	27.5	20.7	26.4	26.5	44.7	39.0	33.7	60.2	0.0	65.5
LnGrp LOS	C	C	C	C	C	C	D	D	C	E	A	E
Approach Vol, veh/h	1084			1562			471			533		
Approach Delay, s/veh	27.1			25.5			38.0			62.7		
Approach LOS	C			C			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.5	83.5		46.0	17.9	76.1	12.0	34.0				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	8.0	* 74		39.0	25.0	56.0	6.0	27.0				
Max Q Clear Time (g_c+I1), s	4.2	39.0		14.1	11.6	30.5	7.5	22.2				
Green Ext Time (p_c), s	0.0	3.5		1.5	0.3	2.5	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay 33.0

HCM 6th LOS C

Notes

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

User approved changes to right turn type.

Timings
1: Pine Tree Drive & 41st Street

15231 Future With Project AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	937	70	251	1150	130	86	194	181	4	486	32
Future Volume (vph)	56	937	70	251	1150	130	86	194	181	4	486	32
Confl. Peds. (#/hr)	83		56	56		83	6		20	20		6
Confl. Bikes (#/hr)			7			7						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm		NA
Protected Phases	1	6		5	2		7	4	5			8
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		7	4	4 5	8		8
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0	7.0		7.0
Minimum Split (s)	11.0	46.0		11.0	45.0		11.0	46.0	11.0	34.0		34.0
Total Split (s)	14.0	63.0		31.0	80.0		12.0	46.0	31.0	34.0		34.0
Total Split (%)	10.0%	45.0%		22.1%	57.1%		8.6%	32.9%	22.1%	24.3%		24.3%
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		2.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0			7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	Yes		Yes
Recall Mode	None	C-Max		None	C-Max		None	Max	None	None		None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 52 (37%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 105

Control Type: Actuated-Coordinated

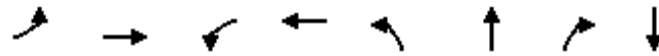
Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Future With Project AM

02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	57	1027	256	1306	88	198	185	533
v/c Ratio	0.29	0.63	0.74	0.68	0.56	0.20	0.30	0.83
Control Delay	12.9	25.1	26.9	24.8	52.8	39.3	21.0	65.6
Queue Delay	0.0	0.5	0.0	0.0	0.0	0.0	0.0	51.8
Total Delay	12.9	25.6	26.9	24.8	52.8	39.3	21.0	117.4
Queue Length 50th (ft)	11	397	96	442	61	72	87	246
Queue Length 95th (ft)	33	530	170	539	106	107	126	#320
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	220	1631	448	1924	157	985	731	646
Starvation Cap Reductn	0	239	0	0	0	0	0	190
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.74	0.57	0.68	0.56	0.20	0.25	1.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Future With PM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	1073	44	110	857	88	89	670	315	4	499	39
Future Volume (veh/h)	119	1073	44	110	857	88	89	670	315	4	499	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.90	1.00		0.90	1.00		0.90	0.98		0.86
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	121	1095	45	112	874	90	91	684	321	4	509	40
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	370	2054	84	312	1901	196	125	866	408	24	521	41
Arrive On Green	0.04	0.59	0.59	0.04	0.59	0.59	0.04	0.24	0.24	0.16	0.16	0.16
Sat Flow, veh/h	1781	3461	142	1781	3213	331	1781	3554	1428	7	3204	249
Grp Volume(v), veh/h	121	562	578	112	483	481	91	684	321	295	0	258
Grp Sat Flow(s),veh/h/ln	1781	1777	1827	1781	1777	1767	1781	1777	1428	1852	0	1609
Q Serve(g_s), s	4.3	30.1	30.1	4.0	24.4	24.4	6.7	28.8	33.3	7.2	0.0	25.6
Cycle Q Clear(g_c), s	4.3	30.1	30.1	4.0	24.4	24.4	6.7	28.8	33.3	25.4	0.0	25.6
Prop In Lane	1.00		0.08	1.00		0.19	1.00		1.00	0.01		0.16
Lane Grp Cap(c), veh/h	370	1054	1084	312	1051	1046	125	866	408	324	0	261
V/C Ratio(X)	0.33	0.53	0.53	0.36	0.46	0.46	0.73	0.79	0.79	0.91	0.00	0.99
Avail Cap(c_a), veh/h	411	1054	1084	523	1051	1046	125	866	408	324	0	261
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)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	14.0	19.3	19.4	15.3	18.3	18.3	53.9	56.7	53.3	66.6	0.0	66.8
Incr Delay (d2), s/veh	0.2	1.7	1.7	0.3	1.4	1.5	16.9	4.8	9.5	28.1	0.0	51.6
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(95%),veh/ln	3.2	18.6	19.0	3.0	15.9	15.8	6.5	19.6	19.0	20.8	0.0	20.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.2	21.1	21.0	15.6	19.8	19.8	70.8	61.5	62.8	94.8	0.0	118.5
LnGrp LOS	B	C	C	B	B	B	E	E	E	F	A	F
Approach Vol, veh/h	1261			1076			1096			553		
Approach Delay, s/veh	20.4			19.3			62.6			105.8		
Approach LOS	C			B			E			F		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	101.7		46.0	12.1	101.9	13.0	33.0				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	10.0	* 92		39.0	25.0	76.0	7.0	26.0				
Max Q Clear Time (g_c+I1), s	6.3	26.4		35.3	6.0	32.1	8.7	27.6				
Green Ext Time (p_c), s	0.0	2.4		1.8	0.1	2.9	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay 43.6
HCM 6th LOS D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
User approved changes to right turn type.

Timings
1: Pine Tree Drive & 41st Street

15231 Future With PM

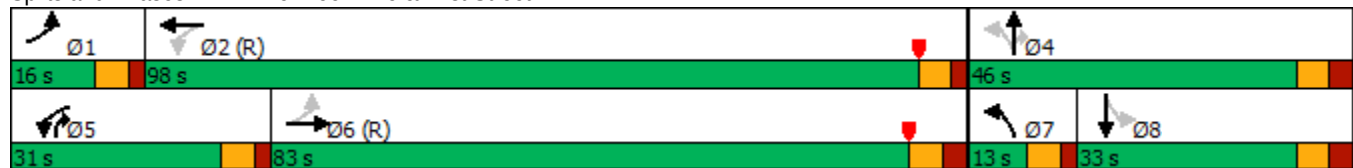
02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1073	44	110	857	88	89	670	315	4	499	39
Future Volume (vph)	119	1073	44	110	857	88	89	670	315	4	499	39
Confl. Peds. (#/hr)	168		164	164		168	3		71	71		3
Confl. Bikes (#/hr)			9			15			2			1
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm		NA
Protected Phases	1	6		5	2		7	4	5			8
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		7	4	4 5	8		8
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0	7.0		7.0
Minimum Split (s)	11.0	43.0		11.0	43.0		11.0	33.0	11.0	33.0		33.0
Total Split (s)	16.0	83.0		31.0	98.0		13.0	46.0	31.0	33.0		33.0
Total Split (%)	10.0%	51.9%		19.4%	61.3%		8.1%	28.8%	19.4%	20.6%		20.6%
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		2.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0			7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	Yes		Yes
Recall Mode	None	C-Max		None	C-Max		None	None	None	None		None

Intersection Summary

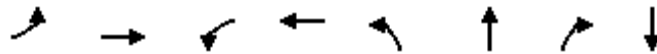
Cycle Length: 160
 Actuated Cycle Length: 160
 Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow
 Natural Cycle: 100
 Control Type: Actuated-Coordinated

Splits and Phases: 1: Pine Tree Drive & 41st Street



Queues
1: Pine Tree Drive & 41st Street

15231 Future With PM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	121	1140	112	964	91	684	321	553
v/c Ratio	0.37	0.56	0.39	0.48	0.73	0.79	0.73	1.02
Control Delay	10.0	23.6	13.3	20.0	80.1	64.5	52.0	108.2
Queue Delay	0.0	0.4	0.0	0.0	0.0	0.0	0.0	29.9
Total Delay	10.0	24.0	13.3	20.0	80.1	64.5	52.0	138.1
Queue Length 50th (ft)	43	444	38	292	76	356	255	~320
Queue Length 95th (ft)	m63	m524	62	356	#134	433	351	#445
Internal Link Dist (ft)		309		280		334		219
Turn Bay Length (ft)	70		190		95		95	
Base Capacity (vph)	351	2022	449	2005	125	862	603	541
Starvation Cap Reductn	0	385	0	0	0	0	0	145
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.70	0.25	0.48	0.73	0.79	0.53	1.40

Intersection Summary

~ 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.

HCM 6th Signalized Intersection Summary

1: Pine Tree Drive & 41st Street

15231 Future With PM with IMP

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	1073	44	110	857	88	89	670	315	4	499	39
Future Volume (veh/h)	119	1073	44	110	857	88	89	670	315	4	499	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.90	1.00		0.90	1.00		0.91	0.98		0.87
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	121	1095	45	112	874	90	91	684	321	4	509	40
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	350	1955	80	295	1808	186	159	961	453	24	580	45
Arrive On Green	0.04	0.56	0.56	0.04	0.56	0.56	0.05	0.27	0.27	0.18	0.18	0.18
Sat Flow, veh/h	1781	3460	142	1781	3211	331	1781	3554	1441	7	3210	250
Grp Volume(v), veh/h	121	562	578	112	484	480	91	684	321	295	0	258
Grp Sat Flow(s),veh/h/ln	1781	1777	1826	1781	1777	1765	1781	1777	1441	1853	0	1614
Q Serve(g_s), s	4.6	32.2	32.2	4.3	26.1	26.1	6.5	27.8	31.6	4.3	0.0	25.0
Cycle Q Clear(g_c), s	4.6	32.2	32.2	4.3	26.1	26.1	6.5	27.8	31.6	24.7	0.0	25.0
Prop In Lane	1.00		0.08	1.00		0.19	1.00		1.00	0.01		0.15
Lane Grp Cap(c), veh/h	350	1004	1031	295	1001	994	159	961	453	358	0	292
V/C Ratio(X)	0.35	0.56	0.56	0.38	0.48	0.48	0.57	0.71	0.71	0.82	0.00	0.89
Avail Cap(c_a), veh/h	388	1004	1031	502	1001	994	166	1133	522	438	0	363
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)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.00	0.99
Uniform Delay (d), s/veh	16.1	22.2	22.2	17.6	21.0	21.0	50.5	52.7	49.0	63.7	0.0	63.9
Incr Delay (d2), s/veh	0.2	2.0	1.9	0.3	1.7	1.7	2.5	1.5	3.3	9.4	0.0	18.1
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(95%),veh/ln	3.5	19.9	20.3	3.2	17.0	16.9	5.5	18.6	17.5	18.5	0.0	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.3	24.1	24.1	17.9	22.7	22.7	53.0	54.3	52.3	73.1	0.0	82.0
LnGrp LOS	B	C	C	B	C	C	D	D	D	E	A	F
Approach Vol, veh/h	1261			1076			1096			553		
Approach Delay, s/veh	23.4			22.2			53.6			77.3		
Approach LOS	C			C			D			E		
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	97.1		50.3	12.3	97.4	14.4	35.9				
Change Period (Y+Rc), s	6.0	* 7		7.0	6.0	7.0	6.0	7.0				
Max Green Setting (Gmax), s	10.0	* 80		51.0	25.0	64.0	9.0	36.0				
Max Q Clear Time (g_c+I1), s	6.6	28.1		33.6	6.3	34.2	8.5	27.0				
Green Ext Time (p_c), s	0.0	2.4		4.7	0.1	2.8	0.0	1.9				

Intersection Summary

HCM 6th Ctrl Delay 38.8

HCM 6th LOS D

Notes

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

User approved changes to right turn type.

Timings

1: Pine Tree Drive & 41st Street

15231 Future With PM with IMP

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	119	1073	44	110	857	88	89	670	315	4	499	39
Future Volume (vph)	119	1073	44	110	857	88	89	670	315	4	499	39
Confl. Peds. (#/hr)	168		164	164		168	3		71	71		3
Confl. Bikes (#/hr)			9			15			2			1
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	pm+ov	Perm		NA
Protected Phases	1	6		5	2		7	4	5			8
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		7	4	4 5	8		8
Switch Phase												
Minimum Initial (s)	5.0	4.0		5.0	4.0		5.0	7.0	5.0	7.0		7.0
Minimum Split (s)	11.0	43.0		11.0	43.0		11.0	33.0	11.0	33.0		33.0
Total Split (s)	16.0	71.0		31.0	86.0		15.0	58.0	31.0	43.0		43.0
Total Split (%)	10.0%	44.4%		19.4%	53.8%		9.4%	36.3%	19.4%	26.9%		26.9%
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		2.0	3.0	2.0	3.0		3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0			0.0
Total Lost Time (s)	6.0	7.0		6.0	6.0		6.0	7.0	6.0			7.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead		Lead	Lag		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes		Yes	Yes		Yes
Recall Mode	None	C-Max		None	C-Max		None	None	None	None		None

Intersection Summary

Cycle Length: 160

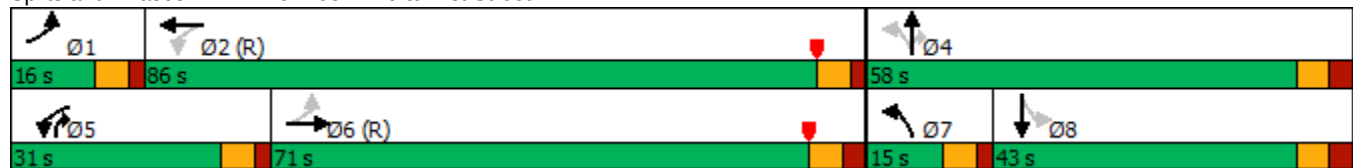
Actuated Cycle Length: 160

Offset: 128 (80%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 1: Pine Tree Drive & 41st Street



HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Future With Project AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	6	15	6	3	10	10	119	277	10	0	504
Future Volume (vph)	18	6	15	6	3	10	10	119	277	10	0	504
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			3.0	6.0			6.0
Lane Util. Factor		1.00			1.00			1.00	0.95			0.95
Frpb, ped/bikes		0.99			0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		0.95			0.93			1.00	0.99			0.99
Flt Protected		0.98			0.99			0.95	1.00			1.00
Satd. Flow (prot)		1710			1688			1769	3517			3507
Flt Permitted		0.84			0.88			0.39	1.00			1.00
Satd. Flow (perm)		1473			1510			732	3517			3507
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Adj. Flow (vph)	21	7	18	7	4	12	11	142	330	12	0	600
RTOR Reduction (vph)	0	17	0	0	11	0	0	0	2	0	0	3
Lane Group Flow (vph)	0	29	0	0	12	0	0	153	340	0	0	630
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		8			4			1	6			2
Permitted Phases	8			4			1	6				
Actuated Green, G (s)		4.9			4.9			72.3	72.3			63.4
Effective Green, g (s)		4.9			4.9			72.3	72.3			63.4
Actuated g/C Ratio		0.05			0.05			0.81	0.81			0.71
Clearance Time (s)		6.0			6.0			3.0	6.0			6.0
Vehicle Extension (s)		2.5			2.5			2.0	1.0			1.0
Lane Grp Cap (vph)		80			82			661	2850			2492
v/s Ratio Prot								c0.02	0.10			c0.18
v/s Ratio Perm		c0.02			0.01			0.17				
v/c Ratio		0.36			0.14			0.23	0.12			0.25
Uniform Delay, d1		40.6			40.1			1.8	1.8			4.5
Progression Factor		1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2		2.0			0.6			0.1	0.1			0.2
Delay (s)		42.7			40.7			1.9	1.9			4.8
Level of Service		D			D			A	A			A
Approach Delay (s)		42.7			40.7				1.9			4.8
Approach LOS		D			D				A			A
Intersection Summary												
HCM 2000 Control Delay		5.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.26										
Actuated Cycle Length (s)		89.2			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		55.7%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.84
Adj. Flow (vph)	33
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

15231 Future With Project AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	6	15	6	3	10	10	119	277	10	0	504
Future Volume (vph)	18	6	15	6	3	10	10	119	277	10	0	504
Confl. Peds. (#/hr)	6		9	9		6		2		7	7	
Confl. Bikes (#/hr)										2		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.92	0.84	0.84	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		8			4			1	6			2
Permitted Phases	8			4			1	6				
Detector Phase	8	8		4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)	16.0	16.0		16.0	16.0		9.5	9.5	33.0			33.0
Total Split (s)	16.0	16.0		16.0	16.0		10.0	10.0	74.0			64.0
Total Split (%)	17.8%	17.8%		17.8%	17.8%		11.1%	11.1%	82.2%			71.1%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		6.0			6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode	None	None		None	None		None	None	Max			Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 86.7

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive

 Ø1	 Ø2	 Ø4
10 s	64 s	16 s
 Ø6		 Ø8
74 s		16 s

Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	28
Future Volume (vph)	28
Confl. Peds. (#/hr)	2
Confl. Bikes (#/hr)	1
Peak Hour Factor	0.84
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	

Queues
2: 42nd Street & Pine Tree Drive

15231 Future With Project AM
02/14/2018



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	46	23	153	342	633
v/c Ratio	0.31	0.16	0.22	0.11	0.25
Control Delay	31.6	27.3	2.3	2.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	27.3	2.3	2.0	5.0
Queue Length 50th (ft)	15	6	12	17	60
Queue Length 95th (ft)	43	26	25	28	88
Internal Link Dist (ft)	305	196		219	470
Turn Bay Length (ft)			29		
Base Capacity (vph)	186	185	719	3035	2567
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.21	0.11	0.25
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

2: 42nd Street & Pine Tree Drive

15231 Future With PM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	13	14	10	9	11	17	82	861	14	0	446
Future Volume (vph)	58	13	14	10	9	11	17	82	861	14	0	446
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			3.0	6.0			6.0
Lane Util. Factor		1.00			1.00			1.00	0.95			0.95
Frpb, ped/bikes		0.99			0.99			1.00	1.00			1.00
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		0.98			0.95			1.00	1.00			0.99
Flt Protected		0.97			0.98			0.95	1.00			1.00
Satd. Flow (prot)		1747			1725			1764	3527			3483
Flt Permitted		0.78			0.88			0.45	1.00			1.00
Satd. Flow (perm)		1408			1546			830	3527			3483
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	60	14	15	10	9	11	18	85	897	15	0	465
RTOR Reduction (vph)	0	7	0	0	10	0	0	0	1	0	0	6
Lane Group Flow (vph)	0	82	0	0	20	0	0	103	911	0	0	502
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		4			4			1	6			2
Permitted Phases	4			4			1	6				
Actuated Green, G (s)		9.0			9.0			83.1	83.1			74.5
Effective Green, g (s)		9.0			9.0			83.1	83.1			74.5
Actuated g/C Ratio		0.09			0.09			0.80	0.80			0.72
Clearance Time (s)		6.0			6.0			3.0	6.0			6.0
Vehicle Extension (s)		2.5			2.5			2.0	1.0			1.0
Lane Grp Cap (vph)		121			133			712	2815			2492
v/s Ratio Prot								0.01	c0.26			0.14
v/s Ratio Perm		c0.06			0.01			0.11				
v/c Ratio		0.68			0.15			0.14	0.32			0.20
Uniform Delay, d1		46.1			44.0			2.3	2.9			4.9
Progression Factor		1.00			1.00			1.00	1.00			1.00
Incremental Delay, d2		12.7			0.4			0.0	0.3			0.2
Delay (s)		58.8			44.4			2.3	3.2			5.1
Level of Service		E			D			A	A			A
Approach Delay (s)		58.8			44.4				3.1			5.1
Approach LOS		E			D				A			A
Intersection Summary												
HCM 2000 Control Delay		7.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		104.1			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		61.1%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	41
Future Volume (vph)	41
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	43
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Timings
2: 42nd Street & Pine Tree Drive

15231 Future With PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	58	13	14	10	9	11	17	82	861	14	0	446
Future Volume (vph)	58	13	14	10	9	11	17	82	861	14	0	446
Confl. Peds. (#/hr)	4		18	18		4		9		24	24	
Confl. Bikes (#/hr)			3									
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%				0%			0%
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		custom	pm+pt	NA			NA
Protected Phases		4			4			1	6			2
Permitted Phases	4			4			1	6				
Detector Phase	4	4		4	4		1	1	6			2
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		5.0	5.0	7.0			7.0
Minimum Split (s)	45.0	45.0		45.0	45.0		9.0	9.0	33.0			33.0
Total Split (s)	19.0	19.0		19.0	19.0		9.0	9.0	86.0			77.0
Total Split (%)	18.1%	18.1%		18.1%	18.1%		8.6%	8.6%	81.9%			73.3%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.0	3.0	4.0			4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		0.0	0.0	2.0			2.0
Lost Time Adjust (s)		0.0			0.0			0.0	0.0			0.0
Total Lost Time (s)		6.0			6.0			3.0	6.0			6.0
Lead/Lag							Lead	Lead				Lag
Lead-Lag Optimize?							Yes	Yes				Yes
Recall Mode	None	None		None	None		None	None	Max			Max

Intersection Summary

Cycle Length: 105

Actuated Cycle Length: 102.9

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Splits and Phases: 2: 42nd Street & Pine Tree Drive



Lane Group	SBR
Lane Configurations	
Traffic Volume (vph)	41
Future Volume (vph)	41
Confl. Peds. (#/hr)	9
Confl. Bikes (#/hr)	3
Peak Hour Factor	0.96
Growth Factor	100%
Heavy Vehicles (%)	2%
Bus Blockages (#/hr)	0
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	
Minimum Split (s)	
Total Split (s)	
Total Split (%)	
Yellow Time (s)	
All-Red Time (s)	
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	
Intersection Summary	



Lane Group	EBT	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	89	30	103	912	508
v/c Ratio	0.60	0.18	0.14	0.32	0.20
Control Delay	56.6	32.7	2.6	3.5	5.4
Queue Delay	0.0	0.0	0.0	0.8	0.0
Total Delay	56.6	32.7	2.6	4.3	5.4
Queue Length 50th (ft)	51	12	10	75	52
Queue Length 95th (ft)	104	40	22	108	79
Internal Link Dist (ft)	305	196		219	470
Turn Bay Length (ft)			29		
Base Capacity (vph)	184	204	746	2892	2527
Starvation Cap Reductn	0	0	0	1563	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.15	0.14	0.69	0.20
Intersection Summary					

HCM 6th Signalized Intersection Summary

3: Sheridan Avenue & 41st Street

15231 Future With Project AM

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1006	54	28	1130	22	28	49	49	29	44	67
Future Volume (veh/h)	65	1006	54	28	1130	22	28	49	49	29	44	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	1.00		0.95	0.97		0.96	0.98		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	68	1048	56	29	1177	23	29	51	51	30	46	70
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	343	2150	115	289	2123	41	100	168	151	189	275	415
Arrive On Green	0.63	0.63	0.63	1.00	1.00	1.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	463	3420	183	511	3378	66	254	620	557	563	1014	1529
Grp Volume(v), veh/h	68	544	560	29	619	581	131	0	0	76	0	70
Grp Sat Flow(s),veh/h/ln	463	1777	1826	511	1777	1667	1431	0	0	1578	0	1529
Q Serve(g_s), s	8.9	23.0	23.0	2.3	0.0	0.0	2.7	0.0	0.0	0.0	0.0	4.9
Cycle Q Clear(g_c), s	8.9	23.0	23.0	25.3	0.0	0.0	9.7	0.0	0.0	4.7	0.0	4.9
Prop In Lane	1.00		0.10	1.00		0.04	0.22		0.39	0.39		1.00
Lane Grp Cap(c), veh/h	343	1117	1148	289	1117	1048	420	0	0	464	0	415
V/C Ratio(X)	0.20	0.49	0.49	0.10	0.55	0.55	0.31	0.00	0.00	0.16	0.00	0.17
Avail Cap(c_a), veh/h	343	1117	1148	289	1117	1048	420	0	0	464	0	415
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.3	13.9	13.9	3.3	0.0	0.0	40.6	0.0	0.0	38.8	0.0	38.9
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.5	1.4	1.5	1.9	0.0	0.0	0.1	0.0	0.1
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(95%),veh/ln	1.7	14.0	14.4	0.4	0.8	0.8	7.0	0.0	0.0	3.7	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	14.0	14.0	3.8	1.4	1.5	42.5	0.0	0.0	38.9	0.0	39.1
LnGrp LOS	B	B	B	A	A	A	D	A	A	D	A	D
Approach Vol, veh/h	1172			1229			131			146		
Approach Delay, s/veh	13.9			1.5			42.5			39.0		
Approach LOS	B			A			D			D		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	95.0			45.0			95.0			45.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	88.0			38.0			88.0			38.0		
Max Q Clear Time (g_c+I1), s	27.3			11.7			25.0			6.9		
Green Ext Time (p_c), s	3.3			0.6			3.4			0.5		
Intersection Summary												
HCM 6th Ctrl Delay	11.0											
HCM 6th LOS	B											
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Future With Project AM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1006	54	28	1130	22	28	49	49	29	44	67
Future Volume (vph)	65	1006	54	28	1130	22	28	49	49	29	44	67
Confl. Peds. (#/hr)	39		30	30		39	32		23	23		32
Confl. Bikes (#/hr)			1			2						
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		34.0	34.0		34.0	34.0	34.0
Total Split (s)	95.0	95.0		95.0	95.0		45.0	45.0		45.0	45.0	45.0
Total Split (%)	67.9%	67.9%		67.9%	67.9%		32.1%	32.1%		32.1%	32.1%	32.1%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 140

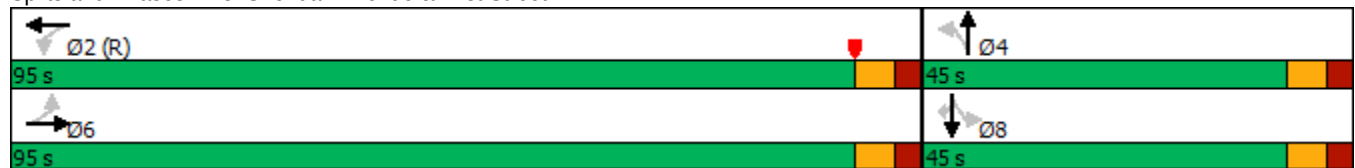
Actuated Cycle Length: 140

Offset: 38 (27%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

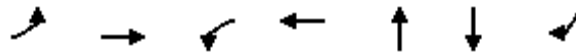
Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Future With Project AM

02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	68	1104	29	1200	131	76	70
v/c Ratio	0.33	0.50	0.14	0.57	0.33	0.18	0.15
Control Delay	17.5	15.0	9.2	9.8	36.3	40.5	9.0
Queue Delay	0.0	0.7	0.0	0.5	0.0	0.0	0.0
Total Delay	17.5	15.7	9.2	10.3	36.3	40.5	9.0
Queue Length 50th (ft)	27	269	6	145	79	53	0
Queue Length 95th (ft)	62	322	m10	173	140	98	39
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	208	2195	214	2101	402	426	454
Starvation Cap Reductn	0	0	0	423	0	0	0
Spillback Cap Reductn	0	677	0	0	3	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.73	0.14	0.72	0.33	0.18	0.15

Intersection Summary

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

HCM 6th Signalized Intersection Summary

3: Sheridan Avenue & 41st Street

15231 Future With PM
02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1098	33	19	942	32	75	90	79	65	61	71
Future Volume (veh/h)	63	1098	33	19	942	32	75	90	79	65	61	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.92	1.00		0.91	1.00		0.94	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	66	1144	34	20	981	33	78	94	82	68	64	74
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	449	2591	77	336	2445	82	50	40	29	111	94	259
Arrive On Green	0.74	0.74	0.74	1.00	1.00	1.00	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	547	3513	104	476	3316	112	120	230	167	439	539	1481
Grp Volume(v), veh/h	66	578	600	20	526	488	254	0	0	132	0	74
Grp Sat Flow(s),veh/h/ln	547	1777	1840	476	1777	1650	517	0	0	979	0	1481
Q Serve(g_s), s	5.8	20.3	20.3	1.2	0.0	0.0	8.0	0.0	0.0	0.0	0.0	6.9
Cycle Q Clear(g_c), s	5.8	20.3	20.3	21.5	0.0	0.0	28.0	0.0	0.0	20.0	0.0	6.9
Prop In Lane	1.00		0.06	1.00		0.07	0.31		0.32	0.52		1.00
Lane Grp Cap(c), veh/h	449	1310	1357	336	1310	1217	120	0	0	205	0	259
V/C Ratio(X)	0.15	0.44	0.44	0.06	0.40	0.40	2.12	0.00	0.00	0.64	0.00	0.29
Avail Cap(c_a), veh/h	449	1310	1357	336	1310	1217	120	0	0	205	0	259
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.3	8.2	8.2	1.9	0.0	0.0	72.8	0.0	0.0	61.9	0.0	57.3
Incr Delay (d2), s/veh	0.1	0.2	0.2	0.3	0.8	0.8	530.7	0.0	0.0	6.7	0.0	0.6
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(95%),veh/ln	1.2	12.1	12.5	0.2	0.5	0.5	38.1	0.0	0.0	9.3	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.4	8.4	8.4	2.1	0.8	0.8	603.5	0.0	0.0	68.6	0.0	57.9
LnGrp LOS	A	A	A	A	A	A	F	A	A	E	A	E
Approach Vol, veh/h	1244			1034			254			206		
Approach Delay, s/veh	8.3			0.8			603.5			64.7		
Approach LOS	A			A			F			E		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	125.0			35.0			125.0			35.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	118.0			28.0			118.0			28.0		
Max Q Clear Time (g_c+I1), s	23.5			30.0			22.3			22.0		
Green Ext Time (p_c), s	9.1			0.0			12.7			0.5		
Intersection Summary												
HCM 6th Ctrl Delay			64.9									
HCM 6th LOS			E									
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Future With PM

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1098	33	19	942	32	75	90	79	65	61	71
Future Volume (vph)	63	1098	33	19	942	32	75	90	79	65	61	71
Confl. Peds. (#/hr)	95		87	87		95	30		12	12		30
Confl. Bikes (#/hr)			4			12			1			3
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	125.0	125.0		125.0	125.0		35.0	35.0		35.0	35.0	35.0
Total Split (%)	78.1%	78.1%		78.1%	78.1%		21.9%	21.9%		21.9%	21.9%	21.9%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 160

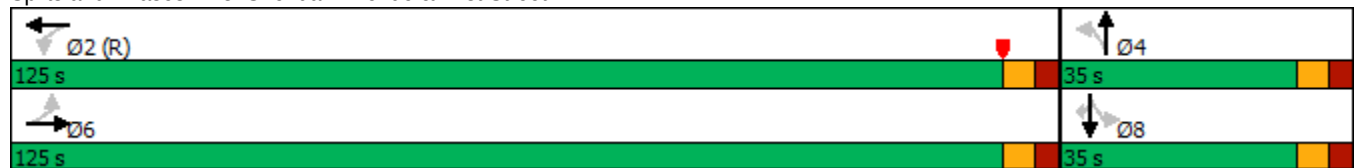
Actuated Cycle Length: 160

Offset: 115 (72%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 60

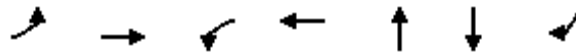
Control Type: Actuated-Coordinated

Splits and Phases: 3: Sheridan Avenue & 41st Street



Queues
3: Sheridan Avenue & 41st Street

15231 Future With PM
02/14/2018



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	66	1178	20	1014	254	132	74
v/c Ratio	0.20	0.46	0.08	0.42	1.20	0.73	0.22
Control Delay	8.2	9.0	5.5	6.1	176.4	86.1	15.8
Queue Delay	0.0	0.3	0.0	0.2	0.1	0.0	0.0
Total Delay	8.2	9.3	5.5	6.3	176.6	86.1	15.8
Queue Length 50th (ft)	19	233	5	125	~309	132	6
Queue Length 95th (ft)	39	272	m8	m134	#498	#238	55
Internal Link Dist (ft)		286		309	266	228	
Turn Bay Length (ft)	130		110				85
Base Capacity (vph)	327	2570	247	2433	212	180	332
Starvation Cap Reductn	0	0	0	582	0	0	0
Spillback Cap Reductn	0	709	0	0	2	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.63	0.08	0.55	1.21	0.73	0.22

Intersection Summary

~ 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.

HCM 6th Signalized Intersection Summary

3: Sheridan Avenue & 41st Street

15231 Future With PM with IMP

02/14/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	1098	33	19	942	32	75	90	79	65	61	71
Future Volume (veh/h)	63	1098	33	19	942	32	75	90	79	65	61	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.91	1.00		0.91	1.00		0.94	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	0.90	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	66	1144	34	20	981	33	78	94	82	68	64	74
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	438	2525	75	322	2383	80	59	53	39	119	101	288
Arrive On Green	0.72	0.72	0.72	1.00	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	547	3512	104	476	3315	112	152	276	204	436	524	1489
Grp Volume(v), veh/h	66	579	599	20	526	488	254	0	0	132	0	74
Grp Sat Flow(s),veh/h/ln	547	1777	1840	476	1777	1650	631	0	0	960	0	1489
Q Serve(g_s), s	6.2	21.7	21.7	1.4	0.0	0.0	11.2	0.0	0.0	0.0	0.0	6.7
Cycle Q Clear(g_c), s	6.2	21.7	21.7	23.1	0.0	0.0	31.0	0.0	0.0	19.8	0.0	6.7
Prop In Lane	1.00		0.06	1.00		0.07	0.31		0.32	0.52		1.00
Lane Grp Cap(c), veh/h	438	1277	1322	322	1277	1186	152	0	0	220	0	288
V/C Ratio(X)	0.15	0.45	0.45	0.06	0.41	0.41	1.67	0.00	0.00	0.60	0.00	0.26
Avail Cap(c_a), veh/h	438	1277	1322	322	1277	1186	152	0	0	220	0	288
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	9.4	9.4	2.2	0.0	0.0	71.3	0.0	0.0	59.2	0.0	54.7
Incr Delay (d2), s/veh	0.2	0.3	0.2	0.3	0.8	0.9	330.5	0.0	0.0	4.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.3	13.1	13.5	0.2	0.5	0.5	33.5	0.0	0.0	9.0	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	9.6	9.6	2.5	0.8	0.9	401.7	0.0	0.0	63.7	0.0	55.2
LnGrp LOS	A	A	A	A	A	A	F	A	A	E	A	E
Approach Vol, veh/h	1244			1034				254		206		
Approach Delay, s/veh	9.5			0.9				401.7		60.6		
Approach LOS	A			A				F		E		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	122.0			38.0			122.0			38.0		
Change Period (Y+Rc), s	7.0			7.0			7.0			7.0		
Max Green Setting (Gmax), s	115.0			31.0			115.0			31.0		
Max Q Clear Time (g_c+I1), s	25.1			33.0			23.7			21.8		
Green Ext Time (p_c), s	9.1			0.0			12.7			0.6		
Intersection Summary												
HCM 6th Ctrl Delay			46.5									
HCM 6th LOS			D									
Notes												

Timings
3: Sheridan Avenue & 41st Street

15231 Future With PM with IMP

02/14/2018

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	1098	33	19	942	32	75	90	79	65	61	71
Future Volume (vph)	63	1098	33	19	942	32	75	90	79	65	61	71
Confl. Peds. (#/hr)	95		87	87		95	30		12	12		30
Confl. Bikes (#/hr)			4			12			1			3
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)				0	0	0	0	0	0			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		8
Detector Phase	6	6		2	2		4	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	25.0	25.0		25.0	25.0		25.0	25.0		25.0	25.0	25.0
Total Split (s)	122.0	122.0		122.0	122.0		38.0	38.0		38.0	38.0	38.0
Total Split (%)	76.3%	76.3%		76.3%	76.3%		23.8%	23.8%		23.8%	23.8%	23.8%
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)	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
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		C-Max	C-Max		Max	Max		Min	Min	Min

Intersection Summary

Cycle Length: 160

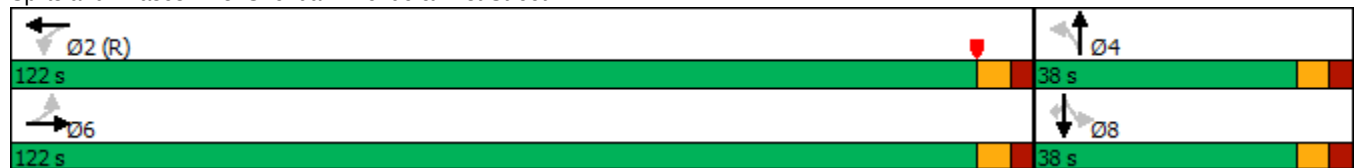
Actuated Cycle Length: 160

Offset: 115 (72%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 3: Sheridan Avenue & 41st Street



Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	48	104	4	55	55	18	23	101	44
Future Vol, veh/h	0	0	0	48	104	4	55	55	18	23	101	44
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	60	130	5	69	69	23	29	126	48
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.5	8.9	9
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	43%	31%	14%
Vol Thru, %	43%	67%	60%
Vol Right, %	14%	3%	26%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	128	156	168
LT Vol	55	48	23
Through Vol	55	104	101
RT Vol	18	4	44
Lane Flow Rate	160	195	203
Geometry Grp	1	1	1
Degree of Util (X)	0.207	0.26	0.252
Departure Headway (Hd)	4.653	4.804	4.48
Convergence, Y/N	Yes	Yes	Yes
Cap	771	747	801
Service Time	2.686	2.842	2.512
HCM Lane V/C Ratio	0.208	0.261	0.253
HCM Control Delay	8.9	9.5	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	1	1

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	39	105	1	64	99	34	44	110	30
Future Vol, veh/h	0	0	0	39	105	1	64	99	34	44	110	30
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	46	124	1	75	116	40	52	129	35
Number of Lanes	0	0	0	0	1	0	0	1	0	0	1	0

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	9.6	9.5	9.4
HCM LOS	A	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	32%	27%	24%
Vol Thru, %	50%	72%	60%
Vol Right, %	17%	1%	16%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	197	145	184
LT Vol	64	39	44
Through Vol	99	105	110
RT Vol	34	1	30
Lane Flow Rate	232	171	216
Geometry Grp	1	1	1
Degree of Util (X)	0.295	0.237	0.276
Departure Headway (Hd)	4.581	4.996	4.586
Convergence, Y/N	Yes	Yes	Yes
Cap	783	716	781
Service Time	2.62	3.044	2.627
HCM Lane V/C Ratio	0.296	0.239	0.277
HCM Control Delay	9.5	9.6	9.4
HCM Lane LOS	A	A	A
HCM 95th-tile Q	1.2	0.9	1.1

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	1	19	20	0	11	9	117	26	19	114	0
Future Vol, veh/h	9	1	19	20	0	11	9	117	26	19	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	1	21	22	0	12	10	127	28	21	124	0
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	333	341	124	338	327	141	124	0	0	155	0	0
Stage 1	166	166	-	161	161	-	-	-	-	-	-	-
Stage 2	167	175	-	177	166	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	620	581	927	616	591	907	1463	-	-	1425	-	-
Stage 1	836	761	-	841	765	-	-	-	-	-	-	-
Stage 2	835	754	-	825	761	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	601	567	927	591	577	907	1463	-	-	1425	-	-
Mov Cap-2 Maneuver	601	567	-	591	577	-	-	-	-	-	-	-
Stage 1	829	749	-	834	759	-	-	-	-	-	-	-
Stage 2	817	748	-	793	749	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	9.8		10.6		0.4		1.1					
HCM LOS	A		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1463	-	-	779	674	1425	-	-				
HCM Lane V/C Ratio	0.007	-	-	0.04	0.05	0.014	-	-				
HCM Control Delay (s)	7.5	0	-	9.8	10.6	7.6	0	-				
HCM Lane LOS	A	A	-	A	B	A	A	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-	-				

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	1	20	34	0	27	3	174	33	23	152	4
Future Vol, veh/h	12	1	20	34	0	27	3	174	33	23	152	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	1	22	37	0	29	3	189	36	25	165	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	445	448	167	442	432	207	169	0	0	225	0	0
Stage 1	217	217	-	213	213	-	-	-	-	-	-	-
Stage 2	228	231	-	229	219	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	523	506	877	526	516	833	1409	-	-	1344	-	-
Stage 1	785	723	-	789	726	-	-	-	-	-	-	-
Stage 2	775	713	-	774	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	496	494	877	503	504	833	1409	-	-	1344	-	-
Mov Cap-2 Maneuver	496	494	-	503	504	-	-	-	-	-	-	-
Stage 1	783	708	-	787	725	-	-	-	-	-	-	-
Stage 2	746	712	-	738	707	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.7		11.6		0.1		1	
HCM LOS	B		B					

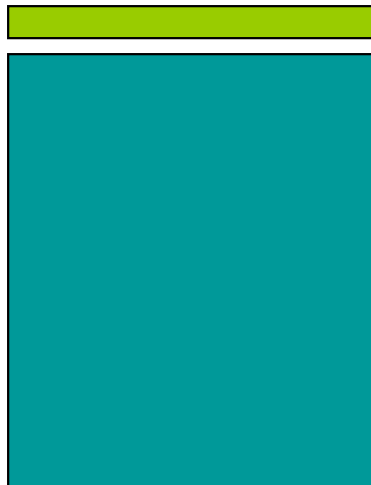
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1409	-	-	673	610	1344	-
HCM Lane V/C Ratio	0.002	-	-	0.053	0.109	0.019	-
HCM Control Delay (s)	7.6	0	-	10.7	11.6	7.7	0
HCM Lane LOS	A	A	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.1	-

Appendix E

Committed Development

4000 Collins Miami Beach, Florida

traffic study



prepared for:
Duncan Hillsley Capital, LLC

Traf Tech
ENGINEERING, INC.

October 2016
Second Revision April 2017

TRIP GENERATION

The trip generation for the project was based on information contained in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual (9th Edition)*. According to the subject ITE manual, the most appropriate "land use" category for the proposed land uses are: Land Use 310 – Hotel and Land Use 826 – Specialty Retail. Table 1 below summarizes the external trips associated with the proposed 4000 Collins development.

TABLE 1 Trip Generation Summary 4000 Collins					
Land Use	Size	Daily Trips	Total Trips	PM Peak Hour	
				Inbound	Outbound
Hotel (LUC 310)	100 Rooms	892	70	34	36
Retail (LUC 826)	11,141 Sf	514	48	21	27
Total Gross Trips		1,406	118	55	63
Hotel Internal Trips (-3%)		-27	-2	-1	-1
Retail Internal Trips (-3%)		-15	-2	-1	-1
New Trips - Hotel		865	68	33	35
New Trips - Retail		499	46	20	26
Total New Trips		1,364	114	53	61

Source: ITE Trip Generation Manual (9th Edition)

Source: ITE Trip Generation Manual (9th Edition)

As indicated in Table 1, the proposed 4000 Collins development is anticipated to generate approximately 1,406 gross daily trips and approximately 114 gross trips (53 inbound and 61 outbound) during the typical PM peak hour. The net new trips (proposed trips minus internal trips) include approximately 1,364 new daily trips and approximately 114 additional PM peak hour trips (53 inbound and 61 outbound).

ITE Land Use 310 – Hotel

Weekday Trip Generation

$$T = 8.17 (X)$$

Where T = number of weekday trips and

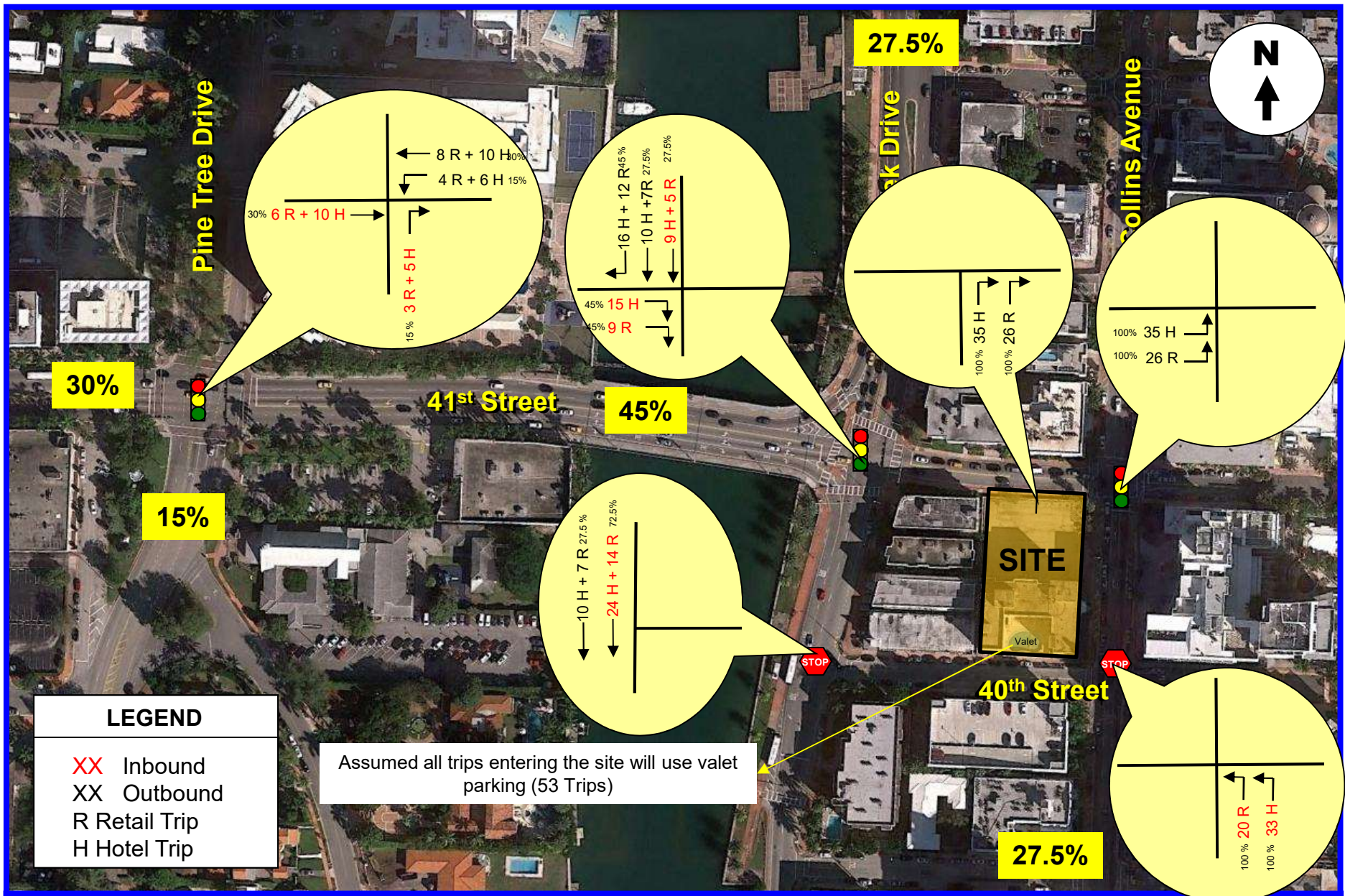
X = 1,000 square feet of gross leasable area

Weekday PM Peak Hour of Adjacent Street

$$T = 0.6 (X) \text{ (51\% inbound and 49\% outbound)}$$

Where T = number of weekday PM peak hour trips and

X = 1,000 square feet of gross leasable area



Trip Generation Summary

Weekday AM Peak Hour of Adjacent Street Traffic

Alternative: Alternative 1

Phase:

Open Date: 2/14/2018

Project: 4000 Collins Com DEV 15231

Analysis Date: 2/14/2018

ITE	Land Use	Size	Units	★	Enter	Exit	Total
310	HOTEL 1	100	Rooms		31	22	53
826	CENTERSPECIALTY 1	11.14	Gross Leasable Area 1000 SF				
Unadjusted Volume					31	22	53
Internal Capture Trips					0	0	0
Pass-By Trips					0	0	0
Volume Added to Adjacent Streets					31	22	53

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

★ - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

TRIP GENERATION 2014, TRAFFICWARE, LLC

Appendix F

Trip Generation

AM Peak Hour Trip Generation and Internalization

HSBC (340 w 42nd Street)

Condo Land Use 221 55 Units		Shopping center Land Use 820 3,030 Sq Ft		Restaurant Land Use 932 2,115 Sq Ft		
In	Out	In	Out	In	Out	
5	20	2	1	12	9	49 ITE Trips
UNBALANCED INTERNALIZATION						
1% 0 0 2% 0						
17% 0 14%						
20% 4 5%						
20% 2 4%						
13% 0 8%						
50% 6 14%						
Condo		Shopping center		Restaurant		
In	Out	In	Out	In	Out	
5	20	2	1	12	9	49 Vehicle Trips
BALANCED INTERNALIZATION						
0 0						
-2 0						
0 0						
0	-2	0	0	-2	0	-4 Internal
5	18	2	1	10	9	45 External Trips
	8.0%		0.0%		9.5%	8.2% % Internal
5	18	2	1	10	9	0 0% Passby
45						
-1	-2	0	0	-1	-1	-5 -10.0% Transit/Pedestrian
4	16	2	1	9	8	40 Net New External Trips

PM Peak Hour Trip Generation and Internalization

HSBC (340 w 42nd Street)

Condo Land Use 221 55 Units			Shopping center Land Use 820 3,030 Sq Ft			Restaurant Land Use 932 2,115 Sq Ft			
In	Out		In	Out		In	Out		
24	12		20	21		13	8		98 ITE Trips
UNBALANCED INTERNALIZATION									
42% 5 2 10% 2 26% 5 46% 11 5									
21% 3 2 14% 2 18% 1 16% 4 1									
29% 6 4 29% 4 41% 3 50% 10 3									
Condo			Shopping center			Restaurant			
In	Out		In	Out		In	Out		
24	12		20	21		13	8		98 Vehicle Trips
BALANCED INTERNALIZATION									
-2 -5 -2 -5									
-2 -1 -2 -1									
-4 -3 -4 -3									
-6	-4		-5	-9		-6	-4		-34 Internal
18	8		15	12		7	4		64 External Trips
	27.8%			34.1%			47.6%		34.7% % Internal
			-5	-5					-10 -34% Passby (Shopping)
						-3	-2		-5 -43% Passby (Rest)
18	8		10	7		4	2		49
-2	-1		-1	-1		0	0		-5 -10.0% Transit/Pedestrian
16	7		9	6		4	2		44 Net New External Trips

16%

4

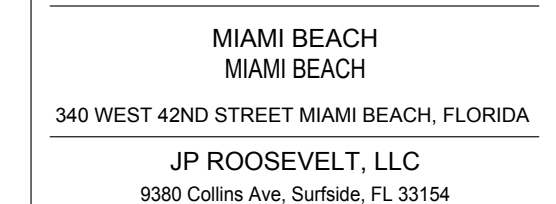
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18%

1

Appendix G

Site Circulation



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Date		Revision
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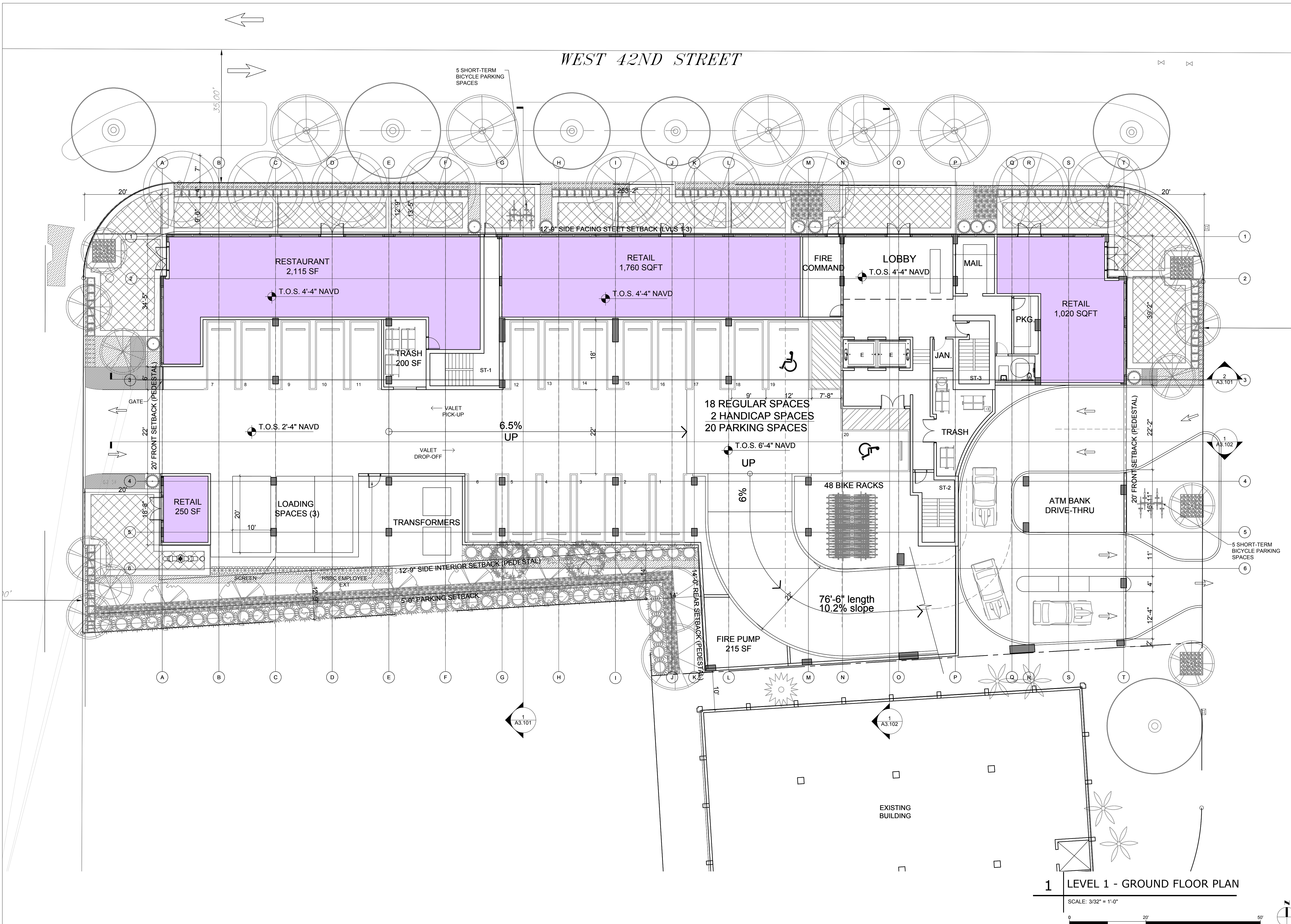
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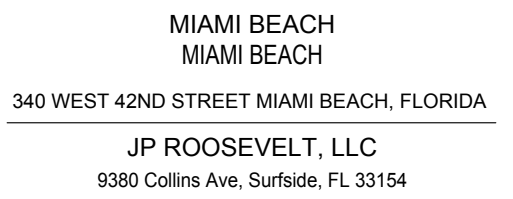
ARQ Project No.: 3346
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**LEVEL 1
FLOOR PLAN**

A1.101





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Issue #	Issue Date / For
1	1/1/2020
2	2/1/2020
3	3/1/2020
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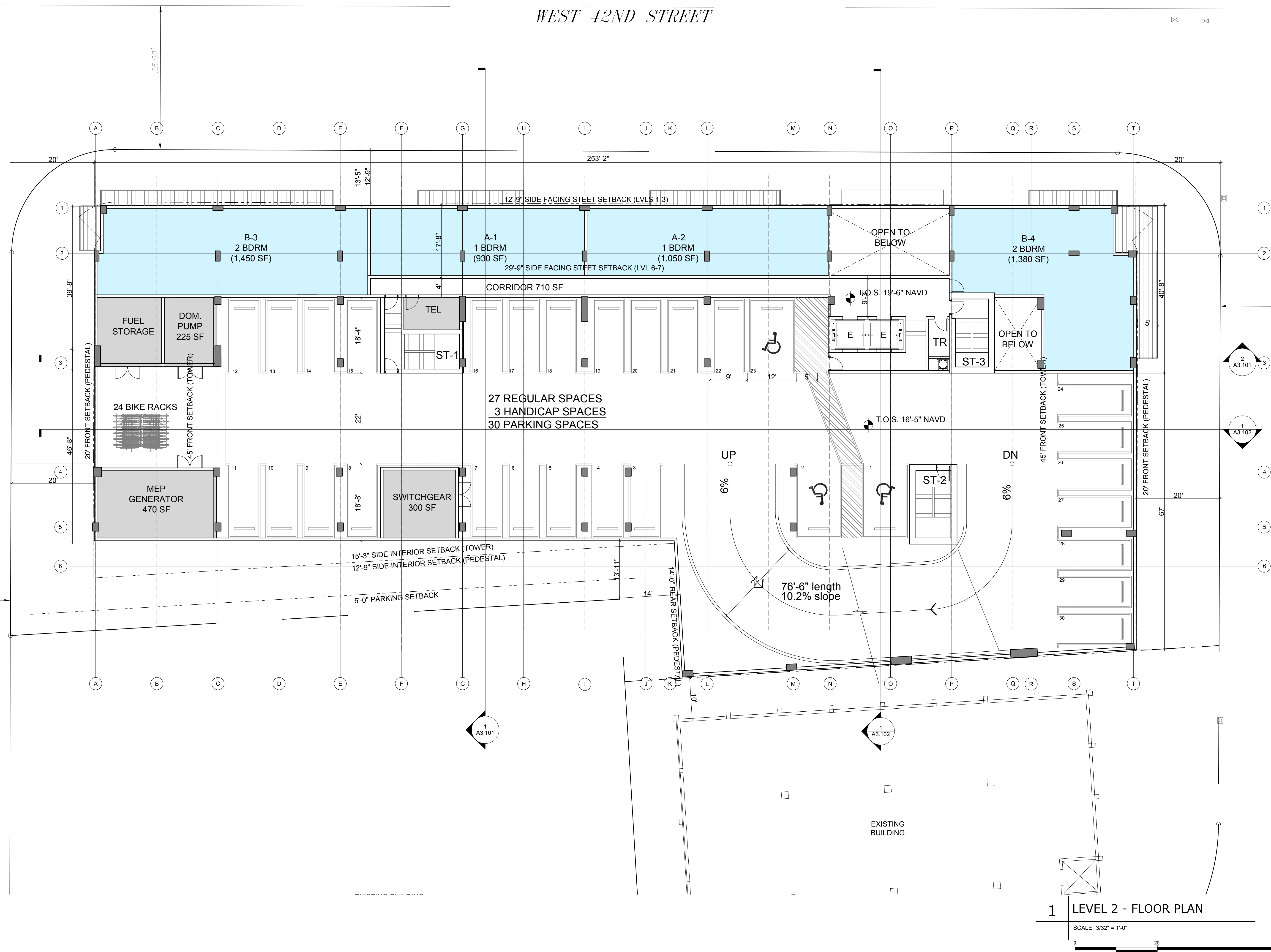
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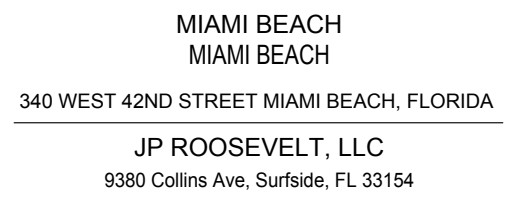
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LEVEL 2 FLOOR PLAN

A1.102

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OFFICE REGISTRATION #: AA C000465

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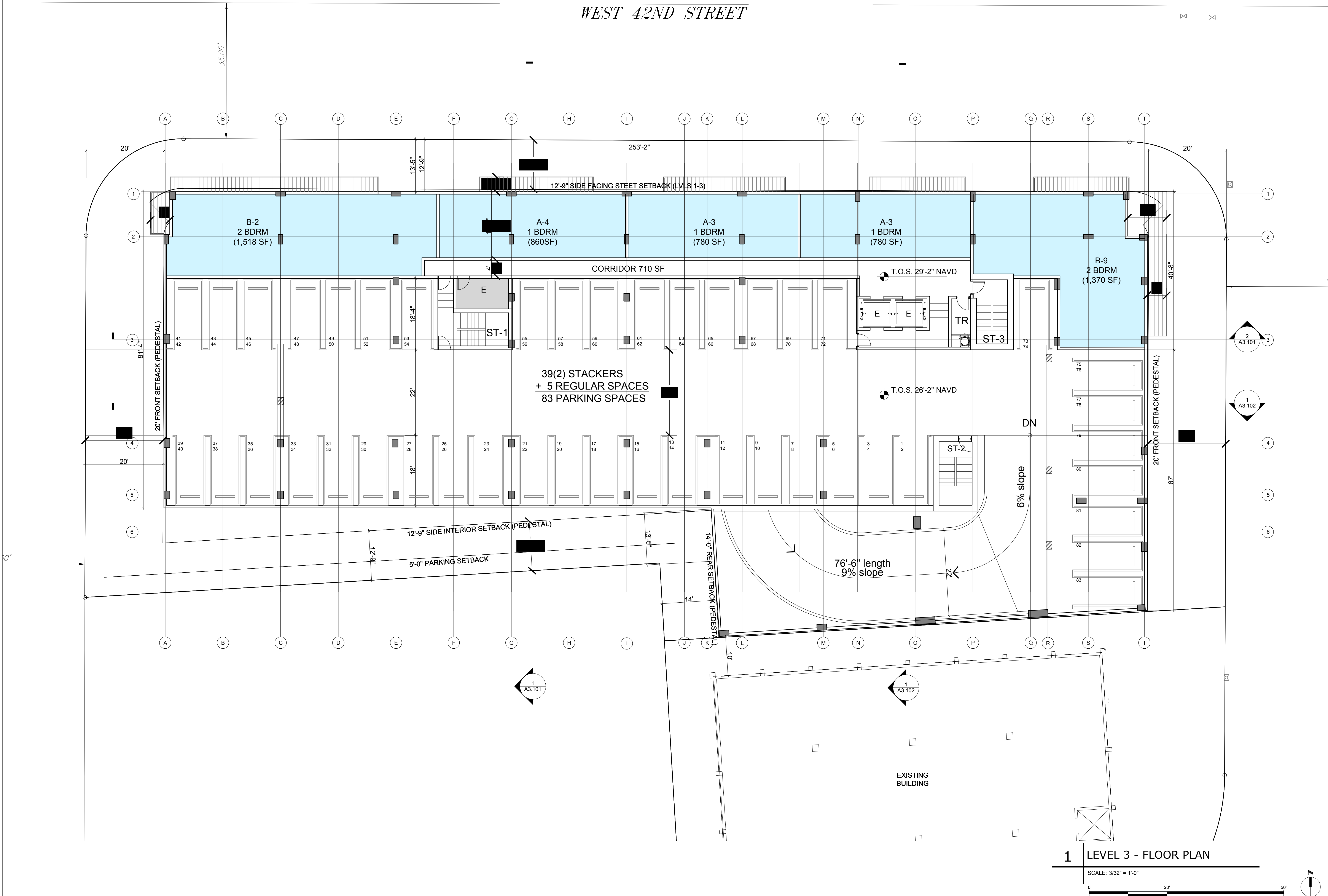
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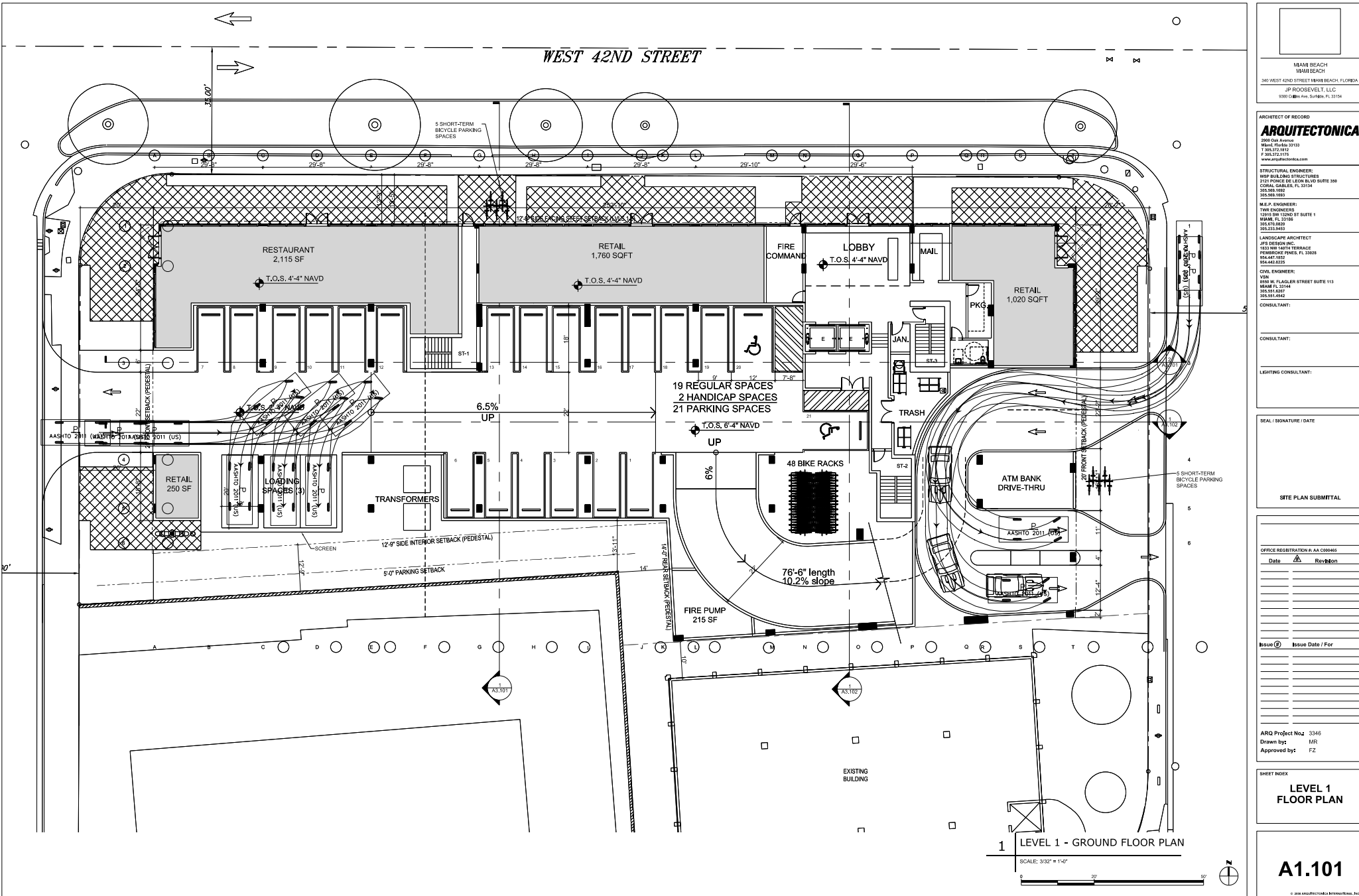
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LEVEL 3 FLOOR PLAN

A1.103

2003 ARQUITECTONICA INTERNATIONAL, INC.





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OFFICE REGISTRATION # AA C000465

Date Revision

Issue Issue Date / For

ARQ Project No.: 3346
Drawn by: MR
Approved by: FZ

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LEVEL 1
FLOOR PLAN

A1.101

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February 14, 2018

Mr. Mendy Boymelgreen
Caton Owner, LLC
3921 Alton Road, Suite 138
Miami Beach, FL 33140
646.319.9882
MBoymelgreen@gmail.com

RE: 340 W 42nd Street (HSBC Site) Valet Queuing Analysis - #15231

Dear Mr. Boymelgreen:

The 340 W 42nd Street Site (aka HSBC Site) is located on the south side of W 42nd Street between Sheridan Avenue and Pine Tree Drive in Miami Beach, Florida. The project is proposing a new residential building with 55 units, 3,030 square feet of retail space and 2,115 square feet of restaurant. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building. Access to the project parking garage will be via a two-way driveway on Sheridan Avenue. A second driveway accessing Pine Tree Drive will be provided for ATM bank drive-through circulation only.

The proposed parking garage will provide valet service for the residential component; the commercial component will be self-parking. The project is providing an inbound valet (drop-off area) and an outbound valet (pick-up area) located on the first level. The first and second floor of the parking garage will provide 21 and 30 parking spaces respectively. The third floor of the parking garage provides 39 mechanical parking lifts (78 spaces) and 5 standard parking spaces. Residents assigned to the mechanical lift parking spaces will be required to valet. Residents assigned to standard parking spaces will have the option to self-park or use the valet service.

Queuing Analysis

The queuing analysis was performed based on the methodology outlined in the *Institute of Transportation Engineers (ITE) Transportation and Land Development*. The analysis was performed to determine if there is sufficient storage to accommodate the anticipated queue at the proposed valet drop-off and pick-up areas during the AM and PM peak period so that the queue does not extend past the entrance.

As previously mentioned, the parking garage will provide mechanical lift parking and standard parking. The residents assigned to the mechanical lift parking spaces will be required to valet. Residents assigned to standard parking spaces will have the option to self-park or use the valet service. Based on the proposed parking space distribution, which is 72% mechanical lift and 28% standard, the residential demand at the valet station was assumed to be 72% of trips generated. To account for both scenarios, two queuing analyses were performed:

- (1) only residents assigned to mechanical lift spaces valet (72% of the residential demand)
- (2) all residents use valet (100% of the residential demand)

The potential queue at the drop-off / pickup areas was calculated based on the peak hour traffic published by the Institute of Transportation Engineers (ITE) trip generation rates and/or equations for the proposed development plan (see Exhibit 1).

Exhibit 1
Project Trip Generation

Proposed ITE Land Use Designation ¹	Number of Units	AM Peak Hour Vehicle Trips			PM Peak Hour Vehicle Trips		
		In	Out	Total	In	Out	Total
Multifamily Housing (Mid-Rise) <i>Land Use Code: 221</i>	55 Rooms	5	20	25	24	12	36
Gross Trip Generation (ITE)		5	20	25	24	12	36
Internalization		-0	-2	-2	-6	-4	-10
Transit/Pedestrian Trips (10%)		-1	-2	-3	-2	-1	-3
100% Residential Demand		4	16	20	16	7	23
72% Residential Demand		3	12	15	12	5	17

¹Based on ITE *Trip Generation Manual*, Tenth Edition

The queuing analysis used the single-channel waiting line model with Poisson arrivals and exponential service times. The analysis is based on the coefficient of utilization (ρ) which is the ratio of the average arrival rate of vehicles to the average service rate.

$$\rho = \frac{\text{Average Demand Rate}}{\text{Average Service Rate}}$$

The average service rate corresponds to the time it will take the valet attendant to process and park/retrieve the vehicle. If the coefficient of utilization is greater than 1, then the calculation will yield an infinite queue length.

The required queue storage (M) is determined using the following equation:

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

In this equation, $P(x > M)$ is set at 5% to yield a 95% confidence that the queue will not back-up onto the adjacent street.

The processing rate was calculated by adding the time it will take a valet attendant to process the vehicles (**processing time**), the time it will take him to drive to/from the parking space (**driving time**) the time it will take him to park or retrieve a vehicle (**park processing time** and **mechanical lift timing requirement**), and the time it will take him to walk to/from the parking area (**walking time**). A processing time of 51 seconds per vehicle was used in the analysis. This information is based on data collected on a hotel in Miami Beach (see Attachment). The driving time for the valet attendant was calculated on a conservative speed of 10 mph, and the walking time for the valet attendant was calculated on a jogging speed of 6ft/sec. The **mechanical lift time** has a process time of 30 seconds per platform lift.

The project is providing an inbound valet (drop-off area) and an outbound valet (pick-up area). Therefore queuing calculations were performed for each valet area.

Queuing Calculations (72% Residential Demand)

The calculations for the inbound/outbound drop-off / pick-up valet processing time if only the residents assigned to mechanical lift parking use valet are presented in Exhibit 2.

Exhibit 2 Valet Processing Rate Inbound Valet (Drop-off)

Inbound Valet Time (Mechanical Lift Spaces)

<i>Processing time:</i>	51 sec / 60 sec / 1 min = <i>0.85 min</i>
<i>Driving time (most distant space):</i>	679 ft * 1 mile/5280 ft * 1hr/10 miles * 60 min/hr = <i>0.77 min</i>
<i>Mechanical Lift Processing Time:</i>	30 sec/lift * 1 min/60 sec = <i>0.50 min</i>
<i>Park Processing Time:</i>	<i>0.30 min</i>
<i>Walking time:</i>	141ft/6 ft/sec / 60 sec/min = <i>0.39 min</i>
Total	= <u>2.81 min</u>

Outbound Valet (Pick-up)

Outbound Valet Time (Mechanical Lift Spaces)

<i>Processing time:</i>	51 sec / 60 sec / 1 min = <i>0.85 min</i>
<i>Driving time (most distant space):</i>	572 ft * 1 mile/5280 ft * 1hr/10 miles * 60 min/hr = <i>0.65 min</i>
<i>Mechanical Lift Processing Time:</i>	30 sec/lift * 1 min/60 sec = <i>0.50 min</i>
<i>Park Processing Time:</i>	<i>0.30 min</i>
<i>Walking time:</i>	122ft/6 ft/sec / 60 sec/min = <i>0.34 min</i>
Total	= <u>2.64 min</u>

An iterative approach was used to determine the minimum number of valet attendants required during the AM and PM peak hour to serve the both the entering and exiting vehicles that will ensure that the average valet queue will not extend past the property entrance. Exhibit 3A - 3D shows the calculations for the inbound valet (drop-off area) and an outbound valet (pick-up area) during the AM and PM peak hour.

Exhibit 3A
AM Peak Hour - Inbound Drop-off
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.81 \text{ min/process}} = 21.35 \text{ process/hr}$$

$$q = \text{Demand Rate} = 3 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 1 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{3 \text{ veh/hr}}{1 \times 21.35 \text{ process/hr}} = 0.1405$$

$$Q_m = \text{Table Value} = 0.1405$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1405)}{\ln(0.1405)} - 1 = -0.47, \text{ say no vehicles on queue}$$

The results of the analysis show that, if only the residents assigned to mechanical lifts use the valet services, 1 valet attendant would be able to handle the demand during AM peak hour at the inbound drop-off area with approximately no vehicles on queue. The proposed site inbound drop-off area can accommodate approximately 4 vehicles in queue.

Exhibit 3B
AM Peak Hour - Outbound Pick-up
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.64 \text{ min/process}} = 22.73 \text{ process/hr}$$

$$q = \text{Demand Rate} = 12 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 2 \text{ attendant}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{12 \text{ veh/hr}}{2 \times 22.73 \text{ process/hr}} = 0.2640$$

$$Q_m = \text{Table Value} = 0.1124$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1124)}{\ln(0.2640)} - 1 = -0.39, \text{ say no vehicles on queue}$$

The results of the analysis show that, if only residents assigned to mechanical lifts use the valet services, 2 valet attendants would be able to handle the demand during AM peak hour at the outbound pick-up area with approximately no vehicles on queue. The outbound queue will occur within the property.

Exhibit 3C
PM Peak Hour - Inbound Drop-off
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.81 \text{ min/process}} = 21.35 \text{ process/hr}$$

$$q = \text{Demand Rate} = 12 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 2 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{12 \text{ veh/hr}}{2 \times 21.35 \text{ process/hr}} = 0.2810$$

$$Q_m = \text{Table Value} = 0.1247$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1247)}{\ln(0.2810)} - 1 = -0.28, \text{ say no vehicles on queue}$$

The results of the analysis show that, if only residents assigned to mechanical lifts use the valet services, 2 valet attendants would be able to handle the demand during PM peak hour at the inbound drop-off area with approximately no vehicles on queue. The proposed site inbound drop-off area can accommodate approximately 4 vehicles in queue.

Exhibit 3D
PM Peak Hour - Outbound Pick-up
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.64 \text{ min/process}} = 22.73 \text{ process/hr}$$

$$q = \text{Demand Rate} = 5 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 1 \text{ attendant}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{5 \text{ veh/hr}}{1 \times 22.73 \text{ process/hr}} = 0.2200$$

$$Q_m = \text{Table Value} = 0.2200$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.2200)}{\ln(0.2200)} - 1 = -0.02 \text{ say no vehicles on queue}$$

The results of the analysis show that, if only residents assigned to mechanical lifts use the valet services, 1 valet attendant would be able to handle the demand during PM peak hour at the outbound pick-up area with approximately no vehicles on queue. The outbound queue will occur within the property.

Queuing Calculations (100% Residential Demand)

Since the residents assigned to standard parking spaces have the option to use valet, the proposed valet drop-off/pick-up areas was tested assuming all residents use valet. Since the process time differs for mechanical lift parking and standard parking, a weighted average of the lift/standard parking space valet processing time was used. The weighted average was based on the parking space distribution, which is 72% mechanical and 28% standard. The calculations for the inbound/outbound drop-off / pick-up valet processing time are presented in Exhibit 4 and 4A.

Exhibit 4 Inbound Valet (Drop-off) Valet Processing Rate

Inbound Valet Time (Mechanical Lift Spaces)

<i>Processing time:</i>	$51 \text{ sec} / 60 \text{ sec} / 1 \text{ min} =$	<i>0.85 min</i>
<i>Driving time (most distant space):</i>	$679 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} =$	<i>0.77 min</i>
<i>Mechanical Lift Processing Time:</i>	$30 \text{ sec} / \text{lift} * 1 \text{ min} / 60 \text{ sec} =$	<i>0.50 min</i>
<i>Park Processing Time:</i>		<i>0.30 min</i>
<i>Walking time:</i>	$141 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} =$	<i>0.39 min</i>
Total		<u><i>= 2.81 min</i></u>

Inbound Valet Time (Standard Space)

<i>Processing time:</i>	$51 \text{ sec} / 60 \text{ sec} / 1 \text{ min} =$	<i>0.85 min</i>
<i>Driving time (most distant space):</i>	$466 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} =$	<i>0.53 min</i>
<i>Walking time:</i>	$205 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} =$	<i>0.57 min</i>
Total		<u><i>= 1.95 min</i></u>

Weighted Inbound Valet Time

<i>72% Mechanical Lift parking:</i>	$0.72 * 2.81 \text{ min} =$	<i>2.02 min</i>
<i>28% Standard parking:</i>	$0.28 * 1.95 \text{ min} =$	<i>0.55 min</i>
Total		<u><i>= 2.57 min</i></u>

Exhibit 4A
Outbound Valet (Pick-up)
Valet Processing Rate

Outbound Valet Time (Mechanical Lift Spaces)

<i>Processing time:</i>	51 sec / 60 sec / 1 min = 0.85 min
<i>Driving time (most distant space):</i>	572 ft * 1 mile/5280 ft * 1hr/10 miles * 60 min/hr = 0.65 min
<i>Mechanical Lift Processing Time:</i>	30 sec/lift * 1 min/60 sec = 0.50 min
<i>Park Processing Time:</i>	0.30 min
<i>Walking time:</i>	122ft/6 ft/sec / 60 sec/min = 0.34 min
Total	= <u>2.64 min</u>

Outbound Valet Time (Standard Space)

<i>Processing time:</i>	51 sec / 60 sec / 1 min = 0.85 min
<i>Driving time (most distant space):</i>	363 ft * 1 mile/5280 ft * 1hr/10 miles * 60 min/hr = 0.41 min
<i>Walking time:</i>	186ft/6 ft/sec / 60 sec/min = 0.52 min
Total	= <u>1.78 min</u>

Weighted Outbound Valet Time

<i>72% Mechanical Lift parking:</i>	0.72*2.64 min = 1.90 min
<i>28% Standard parking:</i>	0.28*1.78 min = 0.50 min
Total	= <u>2.40 min</u>

An iterative approach was used to determine the minimum number of valet attendants required during the AM and PM peak hour to serve the both the entering and exiting vehicles that will ensure that the average valet queue will not extend past the property entrance. Exhibit 5A - 5D shows the calculations for the inbound valet (drop-off area) and an outbound valet (pick-up area) during the AM and PM peak hour.

Exhibit 5A
AM Peak Hour - Inbound Drop-off
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.57 \text{ min/process}} = 23.35 \text{ process/hr}$$

$$q = \text{Demand Rate} = 4 = \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 1 \text{ attendant}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{4 \text{ veh/hr}}{1 \times 23.35 \text{ process/hr}} = 0.1713$$

$$Q_m = \text{Table Value} = 0.1713$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1713)}{\ln(0.1713)} - 1 = -0.30, \text{ say no vehicles on queue}$$

The results of the analysis show that, if all the residents use the valet services, 1 valet attendant would be able to handle the demand during AM peak hour at the inbound drop-off area with approximately no vehicles on queue. The proposed site inbound drop-off area can accommodate approximately 4 vehicles in queue.

Exhibit 5B
AM Peak Hour - Outbound Pick-up
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.40 \text{ min/process}} = 25 \text{ process/hr}$$

$$q = \text{Demand Rate} = 16 = \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 2 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{16 \text{ veh/hr}}{2 \times 25 \text{ process/hr}} = 0.3200$$

$$Q_m = \text{Table Value} = 0.1565$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1565)}{\ln(0.3200)} - 1 = 0.00, \text{ say no vehicles on queue}$$

The results of the analysis show that, if all residents use the valet services, 2 valet attendants would be able to handle the demand during AM peak hour at the outbound pick-up area with approximately no vehicles on queue. The outbound queue will occur within the property.

Exhibit 5C
PM Peak Hour - Inbound Drop-off
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.57 \text{ min/process}} = 23 \text{ process/hr}$$

$$q = \text{Demand Rate} = 16 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 2 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{16 \text{ veh/hr}}{2 \times 23 \text{ process/hr}} = 0.3427$$

$$Q_m = \text{Table Value} = 0.1769$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1769)}{\ln(0.3427)} - 1 = 0.18, \text{ say 1 vehicle on queue}$$

The results of the analysis show that, if all residents use the valet services, 2 valet attendants would be able to handle the demand during PM peak hour at the inbound drop-off area with an average queue of approximately 1 vehicle or less. The proposed site inbound drop-off area can accommodate approximately 4 vehicles in queue.

Exhibit 5D
PM Peak Hour - Outbound Pick-up
Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.40 \text{ min/process}} = 25.00 \text{ process/hr}$$

$$q = \text{Demand Rate} = 7 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 1 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{7 \text{ veh/hr}}{1 \times 25 \text{ process/hr}} = 0.2800$$

$$Q_m = \text{Table Value} = 0.2800$$

$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.2800)}{\ln(0.2800)} - 1 = 0.35 \text{ say 1 vehicle}$$

The results of the analysis show that, if all residents use the valet services, 1 valet attendant would be able to handle the demand during PM peak hour at the outbound pick-up area with an average queue of approximately 1 vehicle or less. The outbound queue will occur within the property.

Exhibit 6 provides a table summarizing the required valet attendants for both scenarios.

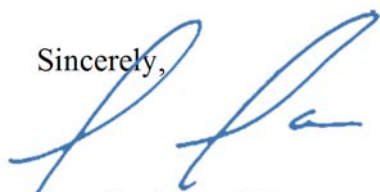
Exhibit 6
Total Required Valet Attendants

Valet with 72% of Residents	AM Peak Hour	PM Peak Hour
Inbound Drop-off	1	2
Outbound Pick-up	2	1
Total Required Valet Attendants	3	3

Valet with 100% of Residents	AM Peak Hour	PM Peak Hour
Inbound Drop-off	1	2
Outbound Pick-up	2	1
Total Required Valet Attendants	3	3

In order for the valet drop-off / pick-up queue to not extend past the entrance with only residents assigned to mechanical lifts using the valet, a total of 3 valet attendants will be required during the AM peak hour and 3 valet attendants during the PM peak hour. If all residents use valet, a total of 3 valet attendants will be required during the AM peak hour and 3 valet attendants during the PM peak hour. It should be noted that it is unlikely that all resident use valet, therefore the results represent a conservative analysis. We stand ready to provide any support needed for this proposed project. Should you have any questions or comments, please call me at (305) 447-0900.

Sincerely,



Juan Espinosa, PE
Vice-President – Transportation

Attachments

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Attachment A

Data Collection

Attachment 2

Grand Beach Hotel

Date: July 20, 2011
Observer: J. Espinosa (DPA)

Vehicle	In	Out	Type	Arrival Time	Processing Time	Notes
1		X	Car	8:34 AM	0:00:37	Valet Return
2		X	Car	8:35 AM	0:01:06	Valet Return
3		X	Car	8:36 AM	0:00:25	Valet Return
4		X	Car	8:36 AM	0:00:38	Pick Up (Personal)
5	X		Car	8:41 AM	0:00:18	Guest In
6		X	Car	8:45 AM	0:00:30	Valet Return
7	X		Car	8:52 AM	0:01:17	Check In
8		X	Car	9:02 AM	0:01:46	Check Out
9	X		Car	9:04 AM	0:01:01	Check In
10	X		Car	9:05 AM	0:00:51	Check In
11		X	Van	9:06 AM	0:00:32	Tour
12		X	Taxi	9:09 AM	0:00:26	Guest Out
13	X		Car	9:09 AM	0:02:34	Check In
14		X	Car	9:10 AM	0:00:26	Valet Return
15		X	Car	9:11 AM	0:00:37	Valet Return
16	X		Car	9:14 AM	0:00:28	Guest In
17		X	Car	9:14 AM	0:00:22	Valet Return
18	X		Car	9:18 AM	0:01:02	Check In
19		X	Car	9:18 AM	0:00:36	Valet Return
20		X	Taxi	9:21 AM	0:00:22	Guest Out
21		X	Car	9:21 AM	0:01:26	Check Out
22		X	Car	9:22 AM	0:00:44	Valet Return
23	X		Car	9:25 AM	0:01:21	Check In
24		X	Car	9:25 AM	0:01:06	Valet Return
25		X	Car	9:26 AM	0:00:23	Valet Return
26		X	Car	9:28 AM	0:00:25	Valet Return
27		X	Car	9:29 AM	0:00:22	Valet Return
28		X	Car	9:29 AM	0:00:21	Valet Return
29		X	Car	9:34 AM	0:00:46	Valet Return
30	X		Car	9:38 AM	0:01:04	Check In
31		X	Car	9:38 AM	0:00:36	Valet Return
32		X	Car	9:39 AM	0:00:21	Valet Return
33		X	Car	9:41 AM	0:00:34	Guest Out
34		X	Car	9:43 AM	0:00:14	Valet Return
35		X	Car	9:45 AM	0:02:04	Check Out
36	X		Car	9:45 AM	0:01:20	Check In
37		X	Taxi	9:48 AM	0:00:48	Check Out
38		X	Car	9:49 AM	0:00:26	Guest Out
39		X	Car	9:49 AM	0:00:48	Valet Return
40	X		Car	9:51 AM	0:00:37	Check In
41		X	Car	9:51 AM	0:00:30	Valet Return
42		X	Car	9:57 AM	0:00:28	Valet Return
43		X	Car	9:58 AM	0:01:22	Check Out
44		X	Car	10:02 AM	0:00:32	Valet Return
45		X	Car	10:03 AM	0:00:35	Valet Return
46		X	Van	10:04 AM	0:00:46	Valet Return
47	X		Car	10:06 AM	0:00:39	Check In
48		X	Car	10:08 AM	0:01:58	Check Out
49		X	Taxi	10:08 AM	0:01:48	Check Out
50		X	Car	10:09 AM	0:00:41	Valet Return
51		X	Car	10:10 AM	0:00:44	Valet Return
52		X	Car	10:12 AM	0:00:26	Valet Return
53	X		Taxi	10:13 AM	0:00:42	Check In
54		X	Taxi	10:14 AM	0:02:21	Check Out
55			Taxi	10:16 AM	0:01:48	Check Out
56		X	Car	10:18 AM	0:00:37	Valet Return
57		X	Car	10:18 AM	0:00:56	Valet Return
58	X		Car	10:20 AM	0:00:40	Guest In
59		X	Car	10:24 AM	0:00:57	Valet Return

Total Processing Time: 0:50:10

Average Processing Time: 0:00:51

The first vehicle dropping-off children arrived at school at 8:30 AM. Data collection began at this time.

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)

$\rho = \frac{\text{demand rate}}{\text{service rate}} = \frac{q}{NQ}$ = 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

ρ	$N = 1$	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

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

N = number of channels (service positions)

Solution

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

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

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

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:

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

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

February 14, 2018

Mr. Mendy Boymelgreen
Caton Owner, LLC
3921 Alton Road, Suite 138
Miami Beach, FL 33140
646.319.9882
MBoymelgreen@gmail.com

RE: 340 W 42nd Street (HSBC Site) ATM Bank Queuing Analysis - #15231

Dear Mr. Boymelgreen:

The 340 W 42nd Street Site (aka HSBC Site) is located on the south side of W 42nd Street between Sheridan Avenue and Pine Tree Drive in Miami Beach, Florida. The project is proposing a new residential building with 55 units, 3,030 square feet of retail space and 2,115 square feet of restaurant. The site is currently occupied by a surface parking lot serving the HSBC office building. Required parking for the HSBC office building will be relocated to the new residential building. Access to the project will be via a two-way driveway on Sheridan Avenue. A second driveway accessing Pine Tree Drive will be provided for ATM bank drive-through circulation only. The bank teller area will consist of two teller lanes.

Introduction

To evaluate the impacts of the proposed bank tellers, DPA conducted a queuing analysis. To determine the anticipated traffic associated with the proposed tellers, two surrogate facilities were counted. In addition to the number of vehicles using the tellers, the processing time was also measured. The counts were collected at the following two locations:

- Gibraltar Private Bank - 1575 San Ignacio Avenue, Coral Gables
- Chase Bank – 1300 Ponce de Leon Blvd, Coral Gables

Based on industry standard, the busiest time for bank tellers is on Fridays between 12:30 PM and 1:30 PM. To coincide with the busiest time and to provide a conservative analysis, the traffic counts were collected on a Friday between 12:30 PM to 1:30 PM. Counts and processing times at the Gibraltar Bank were collected at the regular drive-through window teller. Counts and processing times at the Chase Bank were collected at an ATM drive-through teller. Exhibit 1 shows a summary of the results of the bank teller counts. The detailed counts are shown in Appendix A.

Exhibit 1
Drive-Through Teller Counts and Processing Time

Location	Time	Number of Vehicles	Average Processing Time (Min:Sec)
Gibraltar Private	12:30 – 1:30 PM	11	2:10
Chase Bank	12:30 – 1:30 PM	6	1:55
Total (Average)		9	2:03

Source: David Plummer & Associates

Queuing Analysis

The queuing analysis was performed based on the methodology outlined in the *Institute of Transportation Engineers (ITE) Transportation and Land Development*. The analysis was performed to determine if an adequate storage area is provided within the bank property so that the queue does not extend past the entrance (95% confidence level analysis). The potential queue at the drive-through teller was calculated based on the average number of vehicles using a bank teller at two surrogate locations during the busiest time (worst case scenario).

The queuing analysis used the single-channel waiting line model with Poisson arrivals and exponential service times. The analysis is based on the coefficient of utilization (ρ) which is the ratio of the average arrival rate of vehicles to the average service rate.

$$\rho = \frac{\text{Average Demand Rate}}{\text{Average Service Rate}}$$

The average service rate corresponds to the time it will take a customer to process a transaction and leave the teller area. If the coefficient of utilization is greater than 1, then the calculation will yield an infinite queue length.

The required queue storage (M) is determined using the following equation:

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

In this equation, $P(x > M)$ is set at 5% to yield a 95% confidence that the queue will not back-up onto the adjacent roadway.

An average processing rate 2.05 minutes per vehicle was used in the analysis. This information is based on data collected at the two surrogate locations. Exhibit 3 shows the calculations for the site.

Exhibit 3 HSBC ATM Bank Drive-through Queue Calculation

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{2.05 \text{ min/process}} = 29.27 \text{ process/hr}$$

$$q = \text{Demand Rate} = 9 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 2$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{9 \text{ veh/hr}}{2 \times 29.27 \text{ process/hr}} = 0.1538$$

$$Q_m = \text{Table Value} = 0.0439$$

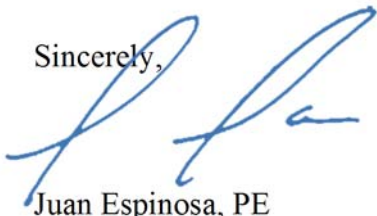
$$M = \text{queue length which is exceeded 5\% of the time } [P(x > M)]$$

$$M = \frac{\ln P(x > M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.0439)}{\ln(0.1538)} - 1 = -1.07, \text{ say 0 vehicles on queue}$$

The results of the queuing analysis show that there will be no queue during the peak hour of the bank drive-through. Based on the site plan, the location of the ATM bank drive-through has 150 feet of storage; this distance is enough to accommodate 7 vehicles in queue.

In conclusion, it is our professional opinion that the ATM bank drive-through will not have an adverse impact on the operations of Pine Tree Drive. We stand ready to provide any support needed for this proposed project. Should you have any questions or comments, please call me at (305) 447-0900.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Juan Espinosa', is written over the word 'Sincerely,'.

Juan Espinosa, PE
Vice-President – Transportation

Attachments

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Attachment A

Data Collection

HSBC Site

Location: Gibraltar Bank @ San Ignacio

Date: 2/15/2013

Time: 12:30 - 1:30 PM

Observer: DL

Vehicle	TIME		Total Time	Vehicles on queue	Notes
	Arrival	Departure			
1	12:33 PM	12:34:45 PM	01:45	0	Window Lane
2	12:43 PM	12:45:55 PM	02:55	0	Window Lane
3	12:52 PM	12:53:50 PM	01:50	0	Window Lane
4	12:55 PM	12:56:57 PM	01:57	0	Window Lane
5	12:59 PM	1:00:07 PM	01:07	0	Window Lane
6	1:03 PM	1:05:30 PM	02:30	2	Window Lane
7	1:03 PM	1:07:10 PM	04:10	0	Window Lane
8	1:04 PM	1:04:35 PM	00:35	0	Window Lane
9	1:11 PM	1:15:13 PM	04:13	0	Window Lane
10	1:21 PM	1:22:05 PM	01:05	0	Window Lane
11	1:26 PM	1:27:45 PM	01:45	0	Window Lane
Average			02:10		

HSBC Site

Location: Chase Bank @ Ponce/Salamanca

Date: 2/15/2013

Time: 12:30 - 1:30 PM

Observer: NS

Vehicle	TIME		Total Time	Vehicles on queue	Notes
	Arrival	Departure			
1	12:30 PM	12:31:02 PM	01:02	0	ATM Drive-Through
2	12:45 PM	12:47:27 PM	02:27	0	ATM Drive-Through
3	12:59 PM	1:02:04 PM	03:04	0	ATM Drive-Through
4	1:03 PM	1:04:22 PM	01:22	1	ATM Drive-Through
5	1:05 PM	1:07:15 PM	02:15	0	ATM Drive-Through
6	1:10 PM	1:11:18 PM	01:18	0	ATM Drive-Through
Average			01:55		

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)

$\rho = \frac{\text{demand rate}}{\text{service rate}} = \frac{q}{NQ}$ = 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

ρ	$N = 1$	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

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

N = number of channels (service positions)

Solution

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

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

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

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:

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

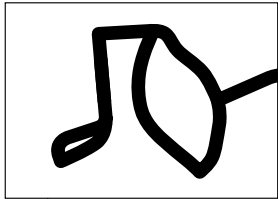
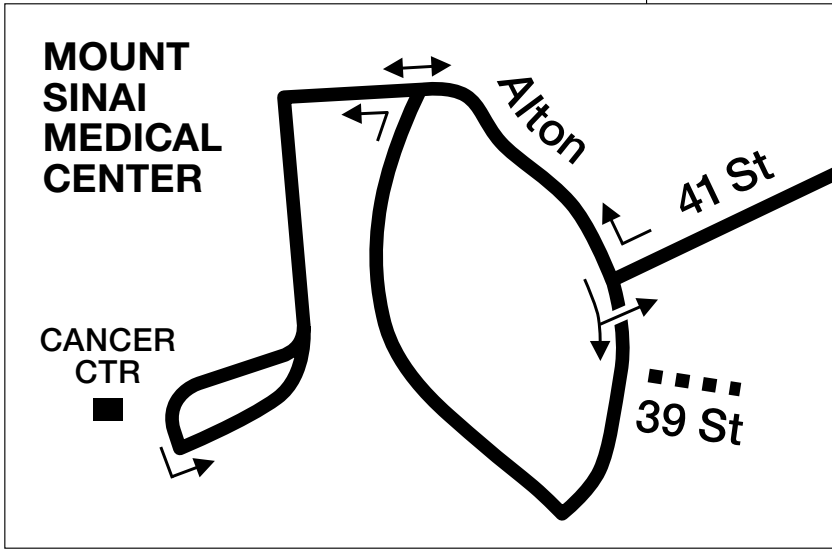
$$= 24.38 - 1 = 23.38, \text{ say } 23 \text{ vehicles.}$$

Appendix H

Bus Route Information



C



MID
BEACH

44 St

41 St

Indian Crk Dr
Collins Ave

17 St
Lincoln Rd

SOUTH
BEACH

Washington Ave

5 St

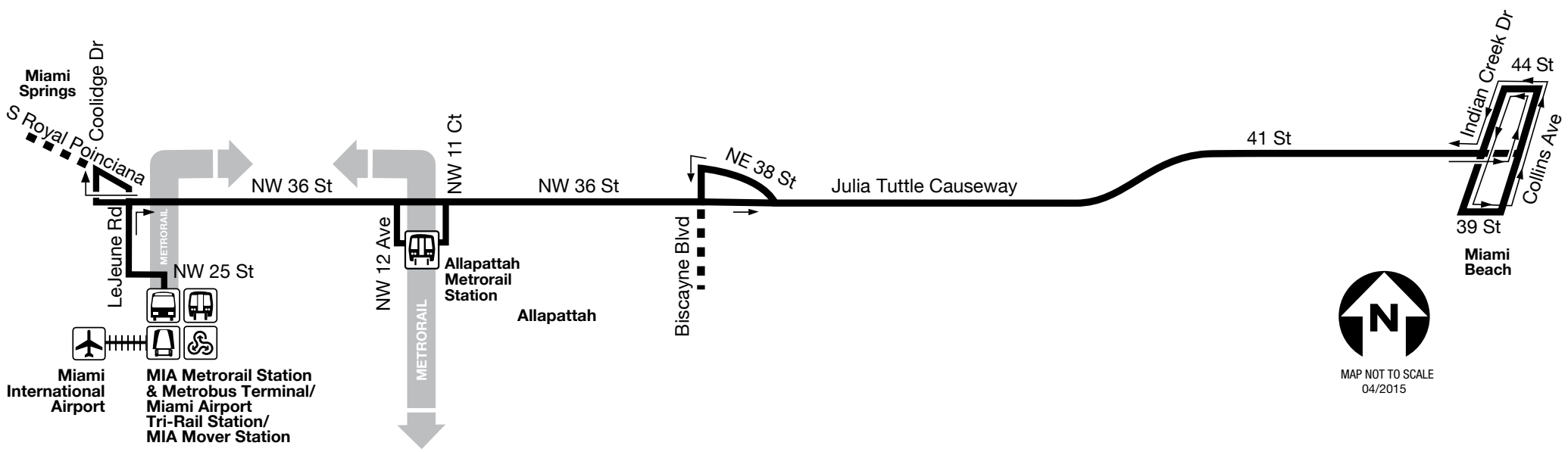
Alton Rd

South Pointe Dr



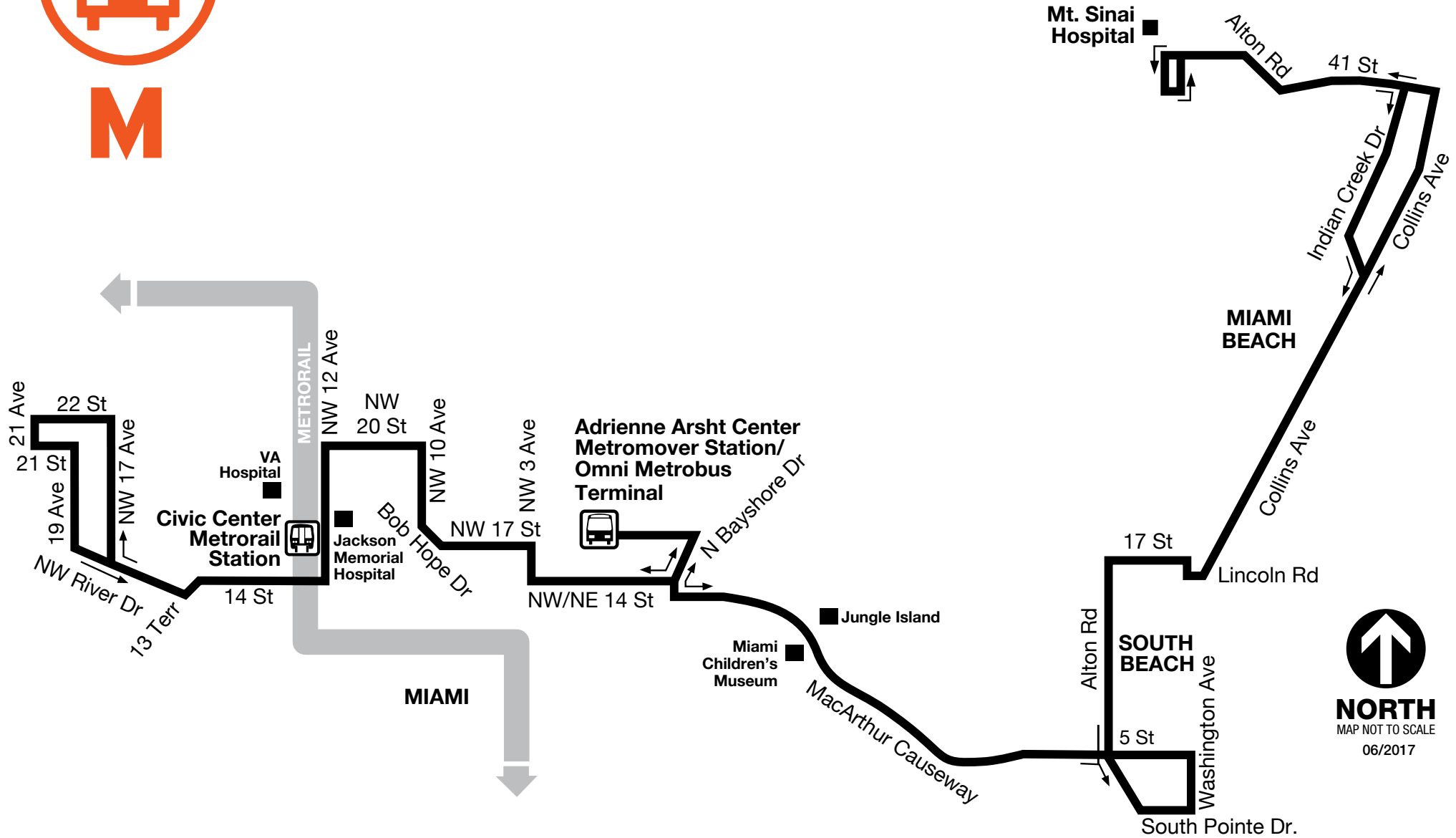
NORTH
08/2017

Route J





M



www.miamidade.gov/transit DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS



@GoMiamiDade

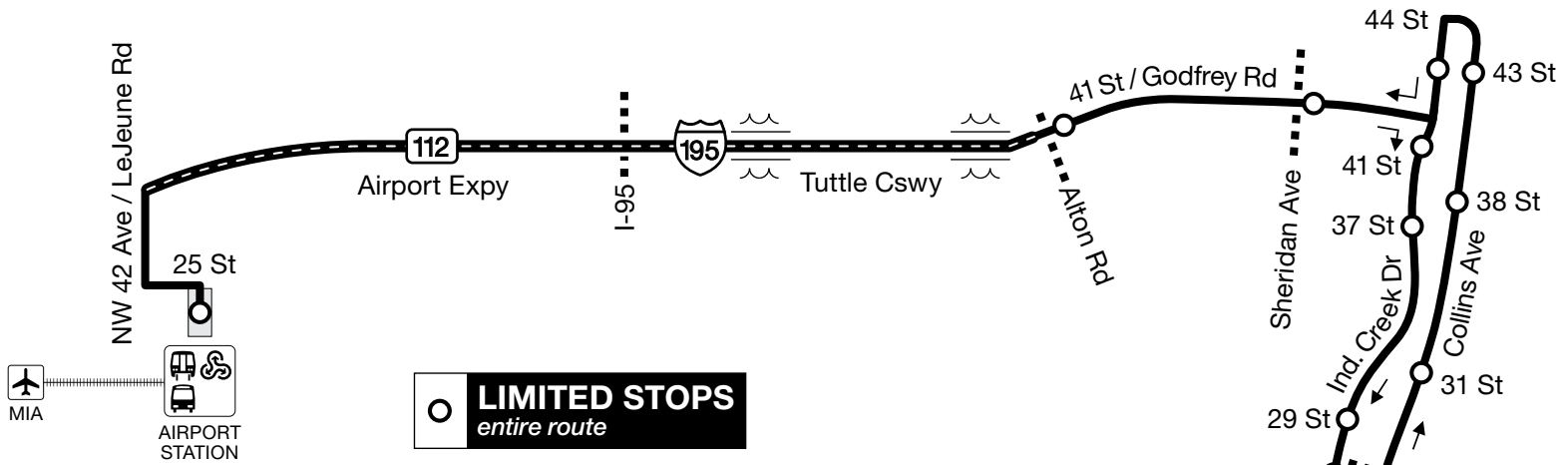


MDT TRACKER | EASY PAY MIAMI | MDT TRANSIT WATCH



INFORMATION: INFORMACION: ENFOMASYON
311 OR 305.468.5900 (TDD: 305.468.5402)





LIMITED STOPS
entire route

SEVEN DAYS A WEEK LOS SIETE DIAS SET JOU YON SEMEN	EVERY/CADA/CHAK 20m	
EASTBOUND RUMBO ESTE/DIREKSYON IS	FROM DESDE • DE	UNTIL* HASTA • A
MIA METRORAIL STATION	6:00 a.m.	11:40 p.m.
41 ST & ALTON RD	6:14 a.m.	11:52 p.m.
41 ST & INDIAN CREEK	6:20 a.m.	11:57 p.m.
LINCOLN RD & WASHINGTON AVE	6:29 a.m.	12:06 a.m.
SOUTH POINTE DR & WASHINGTON AVE	6:39 a.m.	12:16 a.m.
WESTBOUND RUMBO OESTE/DIREKSYON WES	FROM DESDE • DE	UNTIL* HASTA • A
SOUTH POINTE DR & WASHINGTON AVE	5:10 a.m.	10:55 p.m.
LINCOLN RD & WASHINGTON AVE	5:20 a.m.	11:05 p.m.
41 ST & INDIAN CREEK	5:29 a.m.	11:14 p.m.
41 ST & ALTON RD	5:33 a.m.	11:18 p.m.
MIA METRORAIL STATION	5:45 a.m.	11:30 p.m.

*LAST FOUR TRIPS 30 MINUTES APART/ULTIMOS CUATRO VIAJES 30 MINUTOS APARTE/DENYE KAT SOTI 30 MINIT APA

Frecuencias son aproximadas, pues dependen del trafico y otras condiciones de las vias/Asosye yo apwoksimatif epi yo ka varye selon kondisyon sikilasyon sou wout yo



150

MIAMI BEACH
AIRPORT EXPRESS