

THE AUDIO BUG, INC.

3800 HILLCREST DRIVE, # 102 • HOLLYWOOD, FL 33021-7937 • PHONE: 954-983-2788 • FAX: 954-983-2789 • audiobug1@aol.com

February 10, 2016

Thomas R. Mooney, Director
City of Miami Beach Planning Department
1700 Convention Center Drive, 2nd Floor
Miami Beach, Florida 33139
Phone: (305) 673-7550, Fax: (786) 394-4799

Reference: Conditional Use Permit Application
Imperial Companies Property
601 - 685 Washington Avenue
Miami Beach, Florida 33139

RECEIVED
2016 FEB 11 PM 5:08
CMB PLANNING DEPT

Dear Mr. Mooney,

This report provides an assessment of potential noise and sound impact at the above referenced property in conjunction with the Applicant's request for a conditional use permit for a Neighborhood Impact Establishment. This study is based on two site visits during which we were able to inspect the neighborhood, take photographs and gather acoustical measurement data for analysis.

Satellite images, architectural drawings, photographs and acoustical measurements in graphic format are provided to support our findings and recommendations. I welcome any comments or questions you and your staff may have pertaining to our sound study and look forward to assisting in any way possible.

Respectfully submitted,



Donald J. Washburn
President



Acoustical Society of America

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Acoustical Data Analysis

We conducted a site survey on Friday, November 13, 2015, beginning just after 11:00 p.m. Two sets of sound level measurements were taken along Washington Avenue between 6th and 7th Streets to quantify ambient noise levels. These measurements confirm that the most significant acoustical impact on the area is that of traffic noise.

The first represents a 5-minute period measured on the southeast corner of the intersection of Washington Avenue and 7th Street starting at 11:25 p.m. Here, the equivalent sound level (LA_{eq}) registered 68.7 dBA with a peak level (LA_{max}) registering 79.6 dBA. The ambient noise level (LA_{90}) registered 58.2 dBA.

The second measurement was recorded over a 30-minute period starting at 11:38 p.m. It represents sound levels observed while walking along both sides of Washington Avenue. The graph clearly illustrates the ebb and flow of traffic. LA_{eq} registered 68.0 dBA with peak levels (LA_{max}) in excess of 85 dBA representing the louder sounds typical of buses and motorcycles which regularly traverse this busy roadway. The ambient noise level (LA_{90}) registered 57.4 dBA.

We next performed a computer-assisted analysis of a simulated sound system suitable for this rooftop venue to analyze its sound propagation characteristics at various points of observation. Sound level maps and sound pressure levels at selected distances from the rooftop appear on pages 9 through 11. The system shown consists of 20 loudspeakers evenly distributed around the perimeter of the pool deck. These were adjusted to provide a uniform program level of 82 dBZ (unweighted), which is representative of moderate entertainment sound levels. Under these conditions, sound levels at the front façade of the Arcadia House Condo are predicted to be 68 dBZ or 62 dBA. This is 5 dB higher than the measured ambient noise level (LA_{90}) of 57.4 dBA and 6 dB lower than the measured LA_{eq} of 68.0 dBA. This 6 dB difference illustrates the previously mentioned masking effect provided by the traffic noise. In this case music would be perceived at a level 6 dB below the ambient noise present at the front façade of Arcadia House Condo. An additional advantage would be provided by the structure itself, especially when windows are closed.

The Applicant intends to limit hours of operation for entertainment on the pool deck to 8:00 p.m. Background music will extend beyond 8:00 p.m. until closing. Entertainment levels inside the restaurant will cease at 1:00 a.m. This will ensure that residents across the street will not be impacted during normal sleeping hours, 11:00 p.m. to 7:00 a.m. This provides an addition level of protection from unwanted noise throughout the neighborhood.

Summary

Sound generated by the rooftop pool deck's music system should be controlled to prevent excessive spill into the environment. Utilization of the attached sound system design specification will ensure that levels be maintained consistent with the concept of "entertainment level music." Maximum sound levels of 82 dBZ will result in sound levels 240 feet from the pool deck of 68 dBZ / 62 dBA or less, close to or below local long-term ambient noises levels (L_{90}) of 57.4 dBA. Traffic noise will introduce substantial masking of any music heard at this distance.

With a properly designed and calibrated sound system, the introduction of the rooftop pool deck venue into this neighborhood will have no negative noise impact on neighboring residential properties. The size and scale of the space should not significantly increase activity in the area. Restricted hours of operation of the sound system and the constant background noise of traffic will contribute to mitigating any impact that might be envisioned.

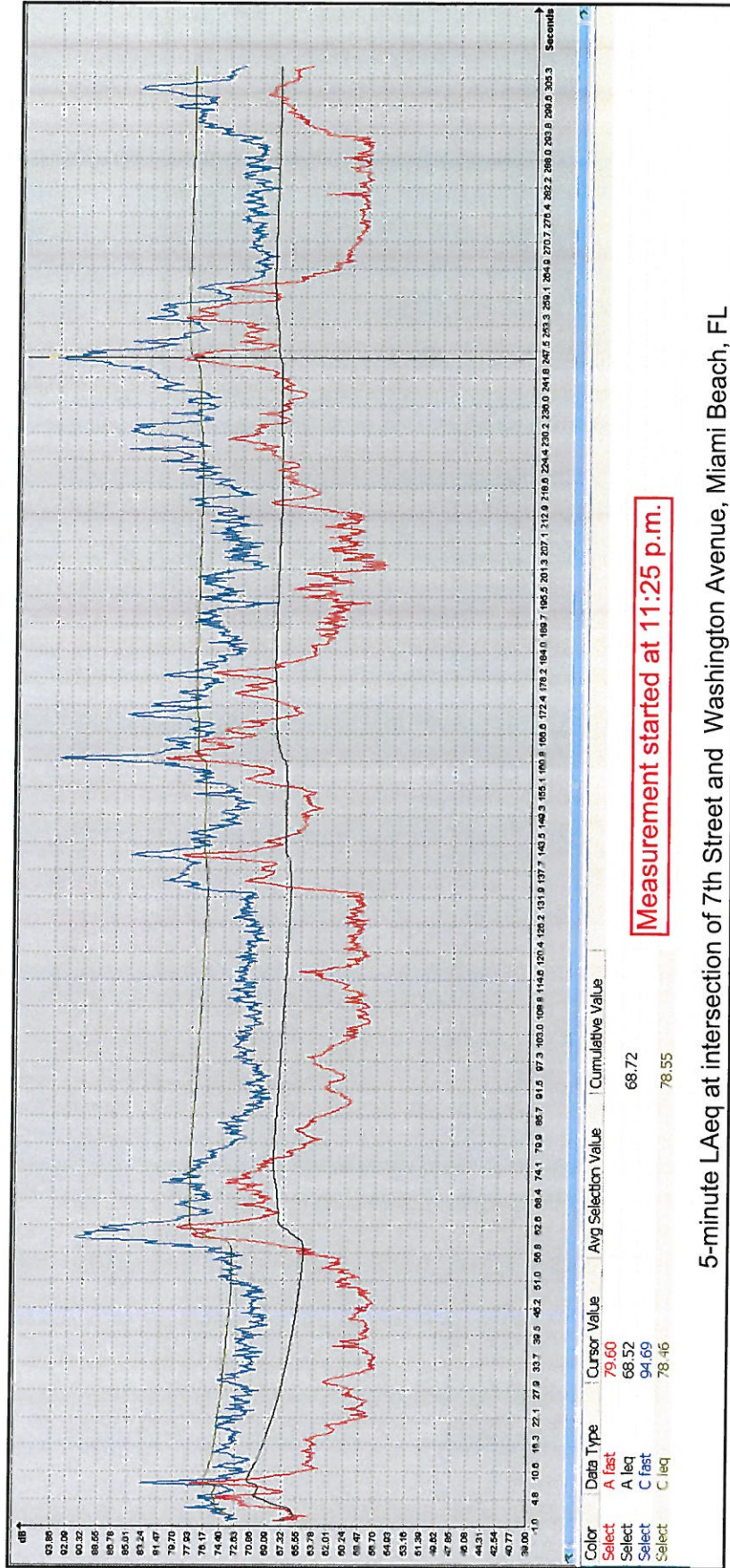
In my professional opinion, the proposed rooftop pool deck venue will have no adverse impact on neighboring residential properties nor will it present any violations of the City of Miami Beach's Noise Ordinance.



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Nighttime Ambient Sound Level Measurements 601 Washington Avenue, Miami Beach, Florida



5-minute LAeq at intersection of 7th Street and Washington Avenue, Miami Beach, FL

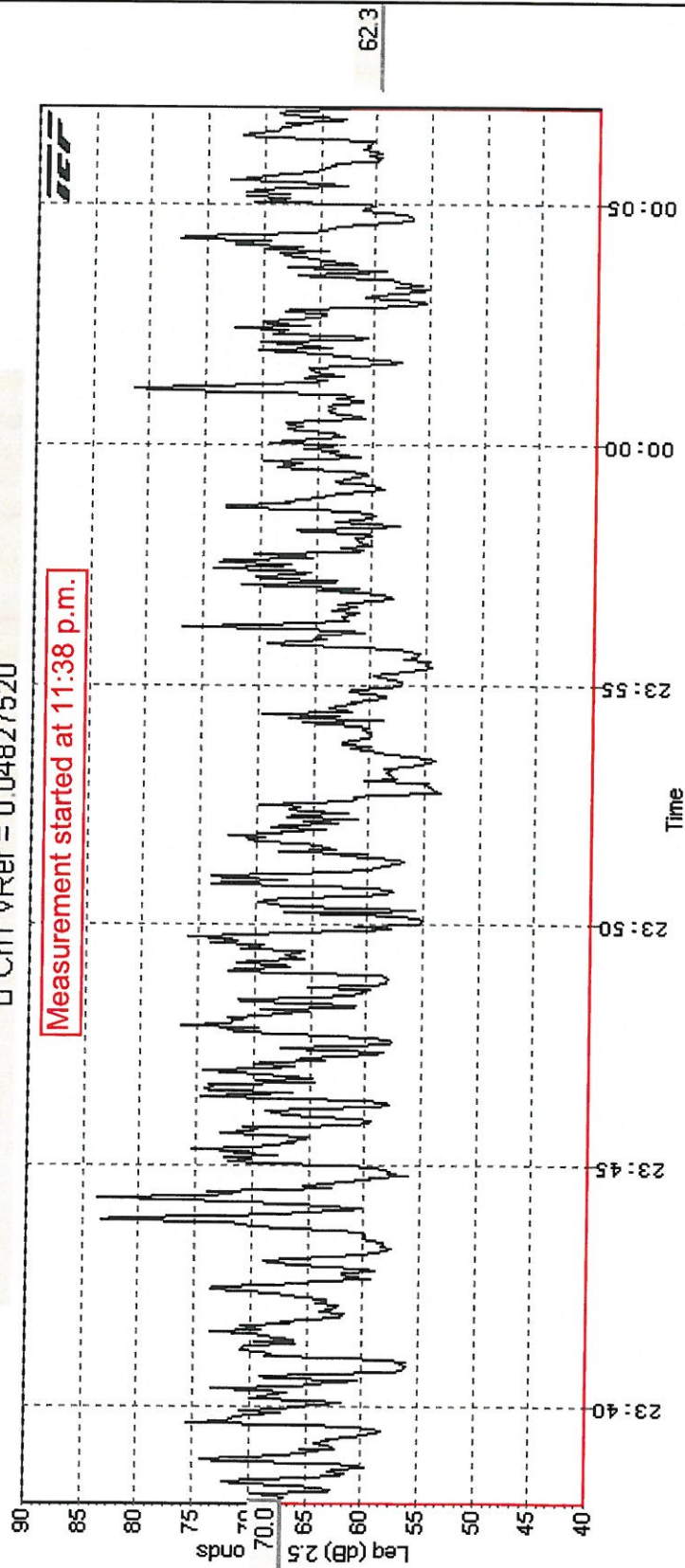
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Nighttime Ambient Sound Level Measurements

Instantaneous: min = 51.9 dB max = 88.5 dB Lmean = 64.0 dB
 Percentiles: L10 = 71.1 dB L50 = 63.5 dB L90 = 57.4 dB

Weighting = A
 Lmin = 53.5 dB, Lmax = 83.6 dB, Leq = 68.0 dB between cursors
 □ Ch1 VRef = 0.04827520



23:38:00

00:06:57

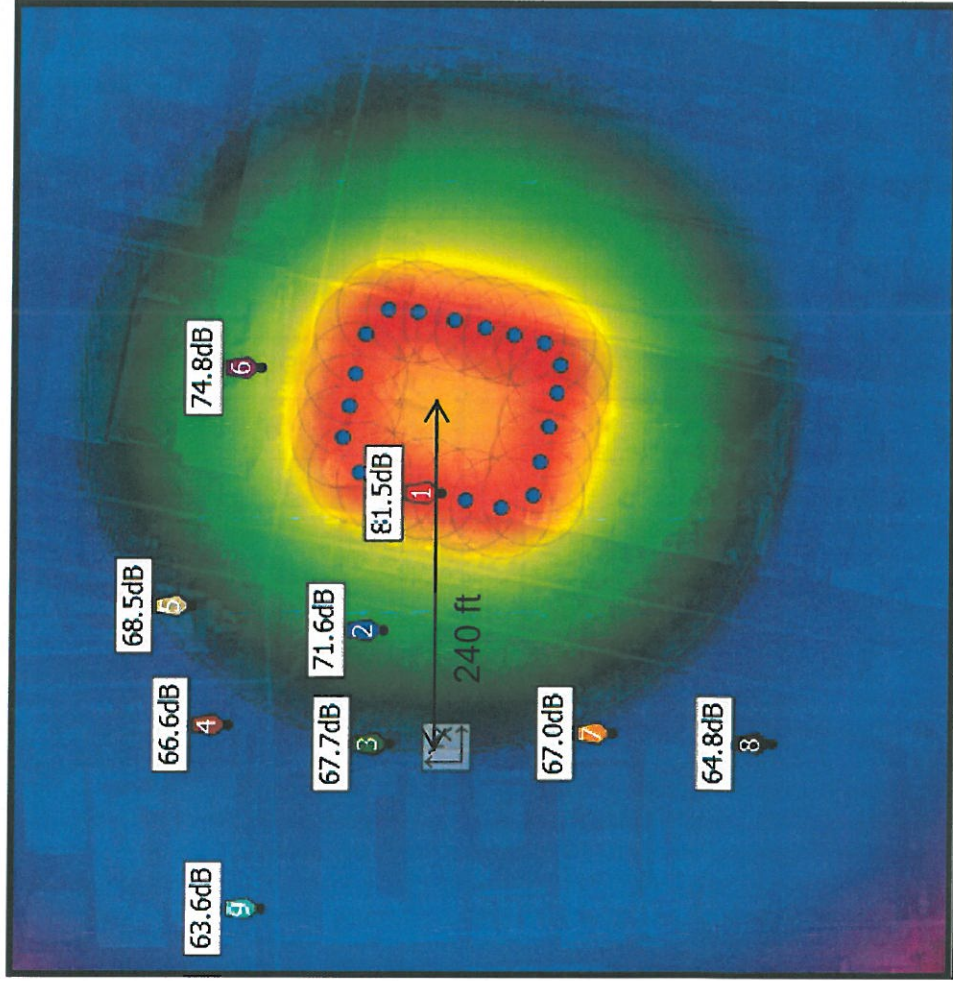
30-minute LAeq at intersection of 7th Street and Washington Avenue, Miami Beach, FL



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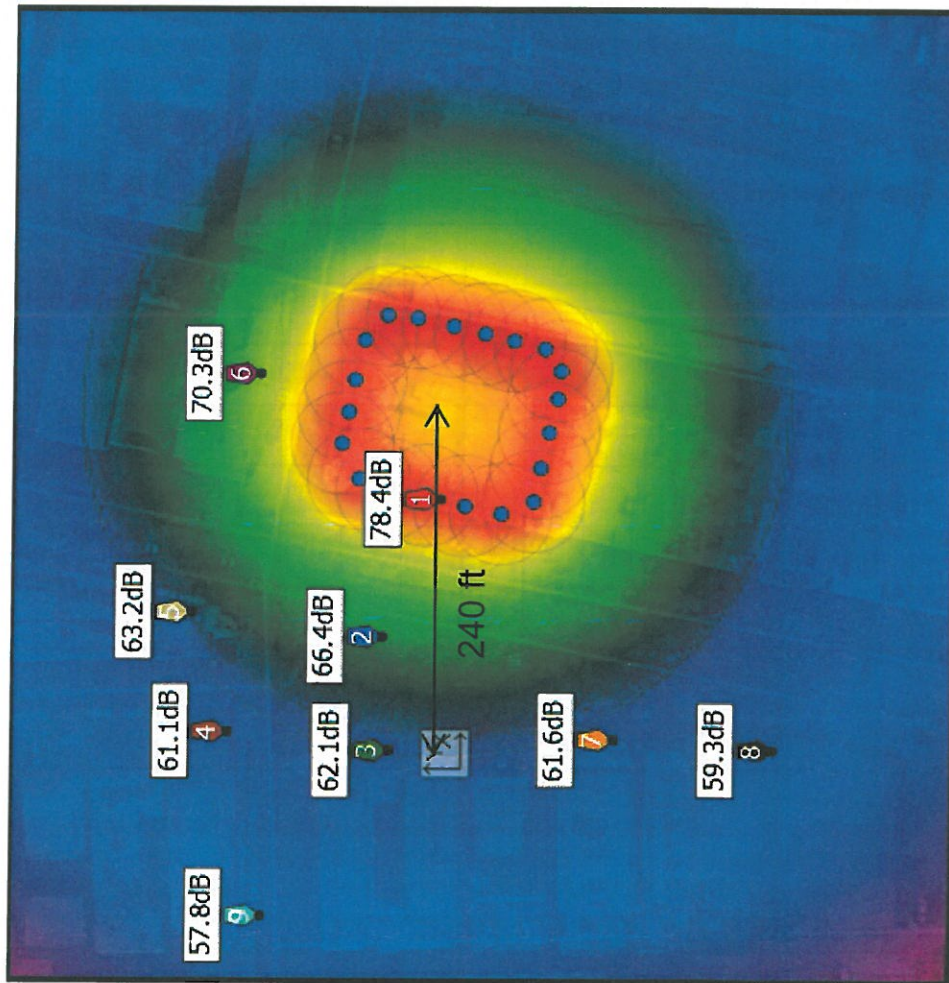
Sound Propagation Map 601 Washington Avenue, Miami Beach, Florida (Unweighted)



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Sound Propagation Map 601 Washington Avenue, Miami Beach, Florida (A-Weighted)



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Rooftop Sound System Specification

601 Washington Avenue, Miami Beach, Florida

Systems for the rooftop outdoor venue shall be designed to fully comply with local noise ordinances, employing several special techniques to accomplish this goal. These techniques include:

- A. Deployment of multiple small, closely spaced speakers driven at low individual volumes. The system design is intended to physically distribute sound uniformly within the listening area in such a manner as not to interfere with normal conversational level of the clientele. Maximum long-term system levels will be limited to LeqA 78 dB/LeqC 82 dB (measured at 10 ft.) with user access restricted to the selection of program material and manual reduction only of system levels. No increase above maximum design sound levels shall be possible.
- B. Size of outdoor speakers shall be limited to small woofers (not to exceed 8" nominal) incapable of producing appreciable levels of low frequency energy, as lower frequencies (longer wavelengths) can travel greater distances than higher frequencies (shorter wavelengths). The lowest frequencies, which are essential to the reproduction of musical styles such as hip-hop and rap, are to be significantly attenuated by electronic means.
- C. A BSS "Soundweb™ London" Digital Signal Processing System (or approved equal), a centralized computer control and digital signal processor, shall form the heart of each system. With this device, the system is equipped with the following functions:
 - 1. All controls under lock and key, with limited access via password security.
 - 2. The system will provide for preset maximum level and equalization.
 - 3. Local control will consist only of source selection and the ability to turn the system down.
 - 4. A leveling program which will minimize the inevitable disparities between source and selection volumes, further ensuring consistent playback levels.
- D. All outdoor speakers shall be oriented in such a way as to minimize sound propagation towards adjacent properties. A combination of ground-mounted and wall-mounted speaker systems shall be permitted as dictated by site conditions. Only the system installers and programmers shall have access to the full complement of controls and adjustments, ensuring compliance with the stated standard. Volume levels will be automated so as not to exceed the specified maximum, predetermined level. Once final adjustments have been made to the system, all controls are to be locked to prevent intentional or inadvertent adjustments.
- E. Live entertainers and DJs will be prohibited from bringing portable loudspeakers and amplifiers to the venue. They will only be permitted to provide their own music sources (computers, iPads, iPods, CD players, turntable) and mixing console. Connections will be provided at locations to be selected during the sound system design process.

The system, once completely installed, shall be tested and adjusted under the supervision of Don Washburn of the Audio Bug, Inc. to ensure that all aspects of the system's performance comply with the design intent, City Ordinance and good technical practices.



Property Records 601 Washington Avenue, Miami Beach, Florida

PROPERTY INFORMATION

Folio: 02-4203-208-0001 (Reference)

Sub-Division:
ARCADIA HOUSE CONDO

Property Address

Owner
REFERENCE ONLY

Mailing Address

Primary Zone
4700 MULTI-FAMILY - CO-OPS

Primary Land Use
0000 REFERENCE FOLIO

Beds / Baths / Half	0 / 0 / 0
Floors	0
Living Units	0
Actual Area	0
Living Area	0
Adjusted Area	0
Lot Size	0 Sq.Ft
Year Built	0

2015 Aerial Photography 60ft

PROPERTY INFORMATION

Folio: 02-4203-009-1650

Sub-Division:
OCEAN BEACH ADDN NO 3 PB 2-81

Property Address
650 WASHINGTON AVE
MIAMI BEACH, FL 33139-6208

Owner
ANGLERS RESORT LLC

Mailing Address
650 WASHINGTON AVE
MIAMI BEACH, FL 33139

Primary Zone
4000 MULTI-FAMILY - 63-100 U/A

Primary Land Use
3921 HOTEL OR MOTEL : HOTEL

Beds / Baths / Half	28 / 52 / 12
Floors	3
Living Units	45
Actual Area	
Living Area	
Adjusted Area	32,722 Sq.Ft
Lot Size	21,000 Sq.Ft
Year Built	1923

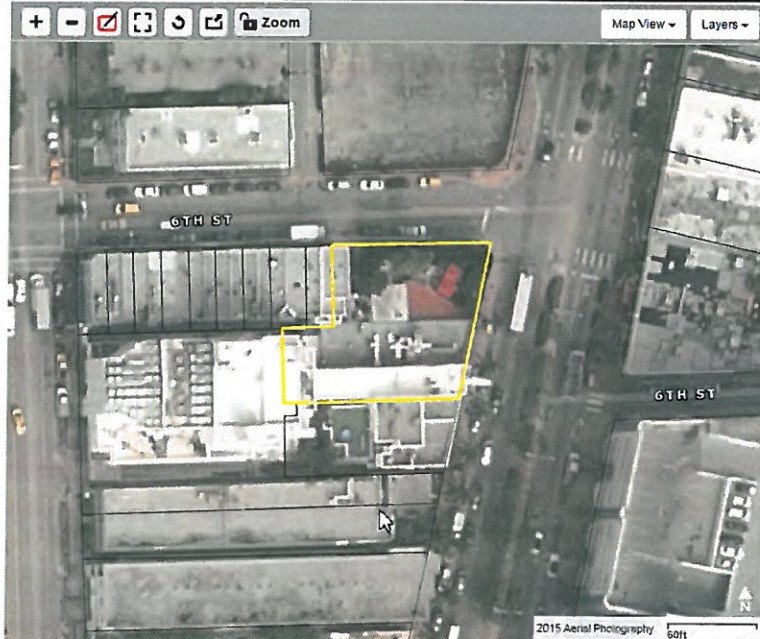
2015 Aerial Photography 60ft

THE AUDIO BUG, INC.

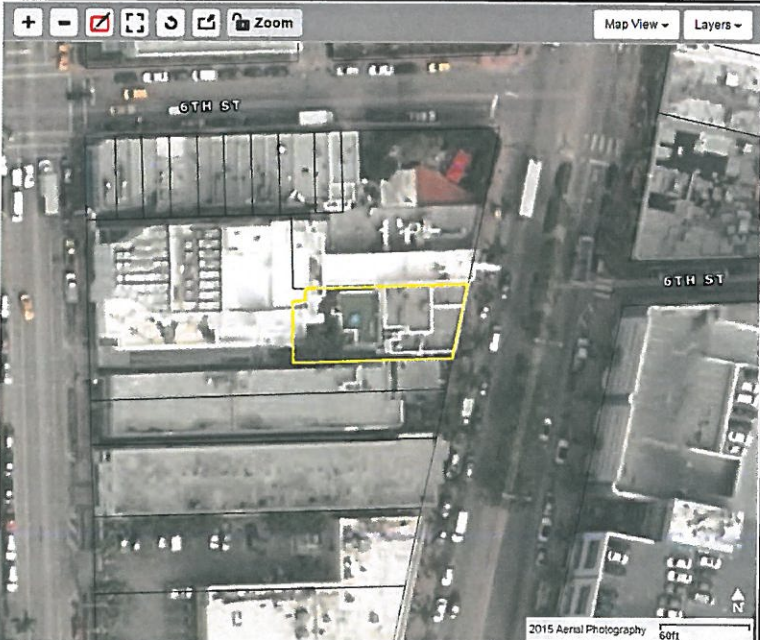
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Property Records 601 Washington Avenue, Miami Beach, Florida

PROPERTY INFORMATION
Folio: 02-4203-009-1890
Sub-Division:
OCEAN BEACH ADDN NO 3 PB 2-81
Property Address
550 WASHINGTON AVE
Miami Beach, FL 33139-6604
Owner
LION 590 LLC
Mailing Address
301 WEST 41 ST #406
MIAMI BEACH, FL 33140
Primary Zone
6503 COMMERCIAL
Primary Land Use
2111 RESTAURANT OR CAFETERIA : RETAIL OUTLET
Beds / Baths / Half 0 / 0 / 0
Floors 1
Living Units 0
Actual Area
Living Area
Adjusted Area 3,762 Sq Ft
Lot Size 8,175 Sq.Ft
Year Built 1935



PROPERTY INFORMATION
Folio: 02-4203-009-1910
Sub-Division:
OCEAN BEACH ADDN NO 3 PB 2-81
Property Address
540 WASHINGTON AVE
Miami Beach, FL 33139-6604
Owner
BERACHA 72 LLC
C/O ISAAC BENMERGUI P A
Mailing Address
1150 KAHIE CONCOURSE 2 FLOOR
BAY HARBOR, FL 33154
Primary Zone
6503 COMMERCIAL
Primary Land Use
1209 MIXED USE-STORE/RESIDENTIAL : MIXED USE - RESIDENTIAL
Beds / Baths / Half 0 / 0 / 0
Floors 2
Living Units 0
Actual Area
Living Area
Adjusted Area 5,034 Sq Ft
Lot Size 5,276 Sq.Ft
Year Built 1935



Property Records 601 Washington Avenue, Miami Beach, Florida

PROPERTY INFORMATION

Folio: 02-4203-004-0800

Sub-Division:
OCEAN BEACH ADDN NO 1

Property Address
215 6 ST
Miami Beach, FL 33139-6605

Owner
600 COLLINS LLC
C/O FUNARO AND CO

Mailing Address
1111 BRICKELL AVE #2650
MIAMI, FL 33131

Primary Zone
6501 COMMERCIAL - MIXED USE ENTERTAINMENT

Primary Land Use
1111 STORE, RETAIL OUTLET

Beds / Baths / Half 5 / 2 / 1

Floors 1

Living Units 1

Actual Area

Living Area

Adjusted Area 4,301 Sq Ft

Lot Size 5,944 Sq Ft

Year Built 1925

PROPERTY INFORMATION

Folio: 02-4203-004-0750

Sub-Division:
OCEAN BEACH ADDN NO 1

Property Address
604 COLLINS AVE
Miami Beach, FL 33139-6214

Owner
600 COLLINS LLC
C/O FUNARO AND CO

Mailing Address
1111 BRICKELL AVE #2650
MIAMI, FL 33131

Primary Zone
6501 COMMERCIAL - MIXED USE ENTERTAINMENT

Primary Land Use
1111 STORE, RETAIL OUTLET

Beds / Baths / Half 0 / 0 / 0

Floors 1

Living Units 0

Actual Area

Living Area

Adjusted Area 3,639 Sq Ft

Lot Size 7,000 Sq Ft

Year Built 1930

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Property Records 601 Washington Avenue, Miami Beach, Florida

PROPERTY INFORMATION

Folio: 02-4203-004-0730

Sub-Division:
OCEAN BEACH ADDN NO 1

Property Address
634 COLLINS AVE
Miami Beach, FL 33139-6281

Owner
THE BALLET VALET PARKING CO LTD

Mailing Address
804 OCEAN DRIVE
MIAMI BEACH, FL 33139

Primary Zone
6501 COMMERCIAL - MIXED USE ENTERTAINMENT

Primary Land Use
1111 STORE - RETAIL OUTLET

Beds / Baths / Half 0 / 0 / 0

Floors 1

Living Units 0

Actual Area

Living Area

Adjusted Area 19,674 Sq Ft

Lot Size 23,537 Sq Ft

Year Built 1996



PROPERTY INFORMATION

Folio: 02-4203-004-0630

Sub-Division:
OCEAN BEACH ADDN NO 1

Property Address
700 COLLINS AVE
Miami Beach, FL 33139-6216

Owner
ERNEST BLUM
LOIS BLUM

Mailing Address
10101 SW 142 ST
MIAMI, FL 33176

Primary Zone
6501 COMMERCIAL - MIXED USE ENTERTAINMENT

Primary Land Use
1111 STORE - RETAIL OUTLET

Beds / Baths / Half 0 / 0 / 0

Floors 1

Living Units 0

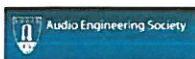
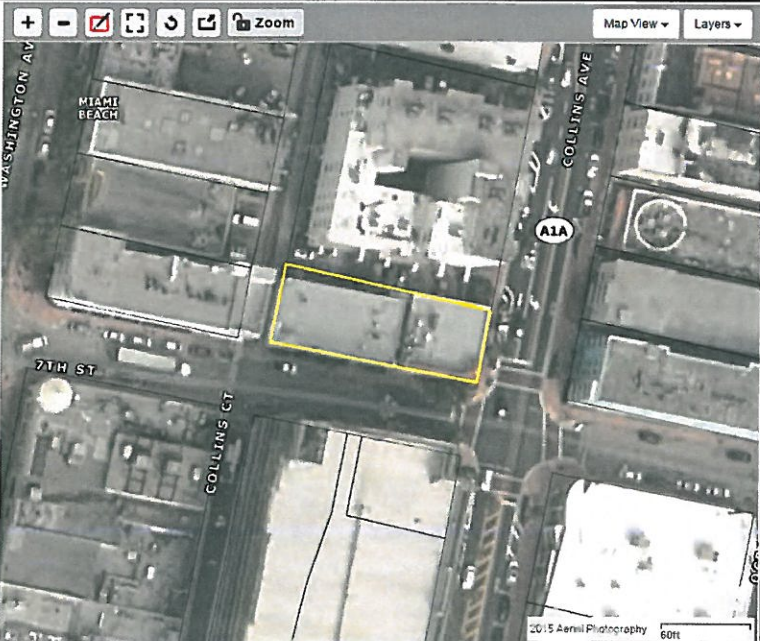
Actual Area

Living Area

Adjusted Area 6,020 Sq Ft

Lot Size 7,000 Sq Ft

Year Built 1925



Property Records 601 Washington Avenue, Miami Beach, Florida

PROPERTY INFORMATION

Folio: 02-4203-004-0650

Sub-Division:
OCEAN BEACH ADDN NO 1

Property Address
709 WASHINGTON AVE
Miami Beach, FL 33139-6209

Owner
WASHINGTON SQUARED OWNER 700 LLC

Mailing Address
1691 MICHIGAN AVE STE 445
MIAMI, FL 33139

Primary Zone
6400 COMMERCIAL - CENTRAL

Primary Land Use
1111 STORE - RETAIL OUTLET

Beds / Baths / Half 0 / 0 / 0

Floors 1

Living Units 0

Actual Area

Living Area

Adjusted Area 4,694 Sq Ft

Lot Size 6,500 Sq Ft

Year Built 2000

PROPERTY INFORMATION

Folio: 02-4203-171-0001 (Reference)

Sub-Division:
HAMPTON ON WASHINGTON AVE CONDO

Property Address

Owner
REFERENCE ONLY

Mailing Address

Primary Zone
6400 COMMERCIAL - CENTRAL

Primary Land Use
0000 REFERENCE FOLIO

Beds / Baths / Half 0 / 0 / 0

Floors 0

Living Units 0

Actual Area 0

Living Area 0

Adjusted Area 0

Lot Size 0 Sq Ft

Year Built 0

NOISE LEVEL ANALYSIS TERMS

Sound Pressure Level (SPL) = The RMS sound pressure expressed in dB re 20 microPa, the lowest threshold of hearing for 1 kHz for a healthy auditory system. [As points of reference, 0 dB-SPL equals the threshold of hearing, while 140 dB-SPL equals irreparable hearing damage.] See: **inverse square law** below. 1 Pascal = 94 dB SPL. Average face-to-face conversation equals approximately 65 dB SPL.

Decibel (dB) = means of expressing power ratios, i.e. the difference between two sound levels, or an absolute sound level expressed in Sound Pressure Level (SPL) referenced to a standard pressure, i.e. 94 dB SPL = 1 Pascal.

dBA = "A" weighted sound pressure level. Please refer to the attached discussion of weighting filters and their applications.

SLM = Sound Level Meter. Device used to measure sound pressure levels.

L_{min} = Lowest, or softest, Sound Pressure Level measured during the test period.

L_{max} = Highest, or loudest, Sound Pressure Level measured during the test period.

L_{eq} = Equivalent continuous sound level. The steady level which would produce the same sound energy over the test period as the specified time-varying sound. This figure is useful for studying long-term trends in environmental noise. A single L_{eq} number is often used to define an entire measurement period.

L₁₀ = Sound level exceeded 10% of the measurement period. Highest of the L_n figures.

L₅₀ = Sound level exceeded 50% of the measurement period. Median of the L_n figures.

L₉₀ = Sound level exceeded 90% of the measurement period. Lowest of the L_n figures. This figure is most commonly used in estimating true ambient noise level.

L_{mean} = Mathematically averaged Sound Pressure Level.

NC = Noise Criteria, a standardized method of characterizing noise loudness. Extensively used in the analysis of noise and vibration.

Sone = a subjective unit of loudness for an average listener equal to the loudness of a 1 kHz. sound that has an intensity 40 decibels above the listener's own threshold of hearing.

Phon = the unit of loudness on a scale beginning at zero for the faintest audible sound (0.00002 Pascals) and corresponding to the decibel scale of sound intensity with the number of phons of a given sound being equal to the decibels of a pure 1 kHz tone judged by the average listener to be equal in loudness to the given sound.

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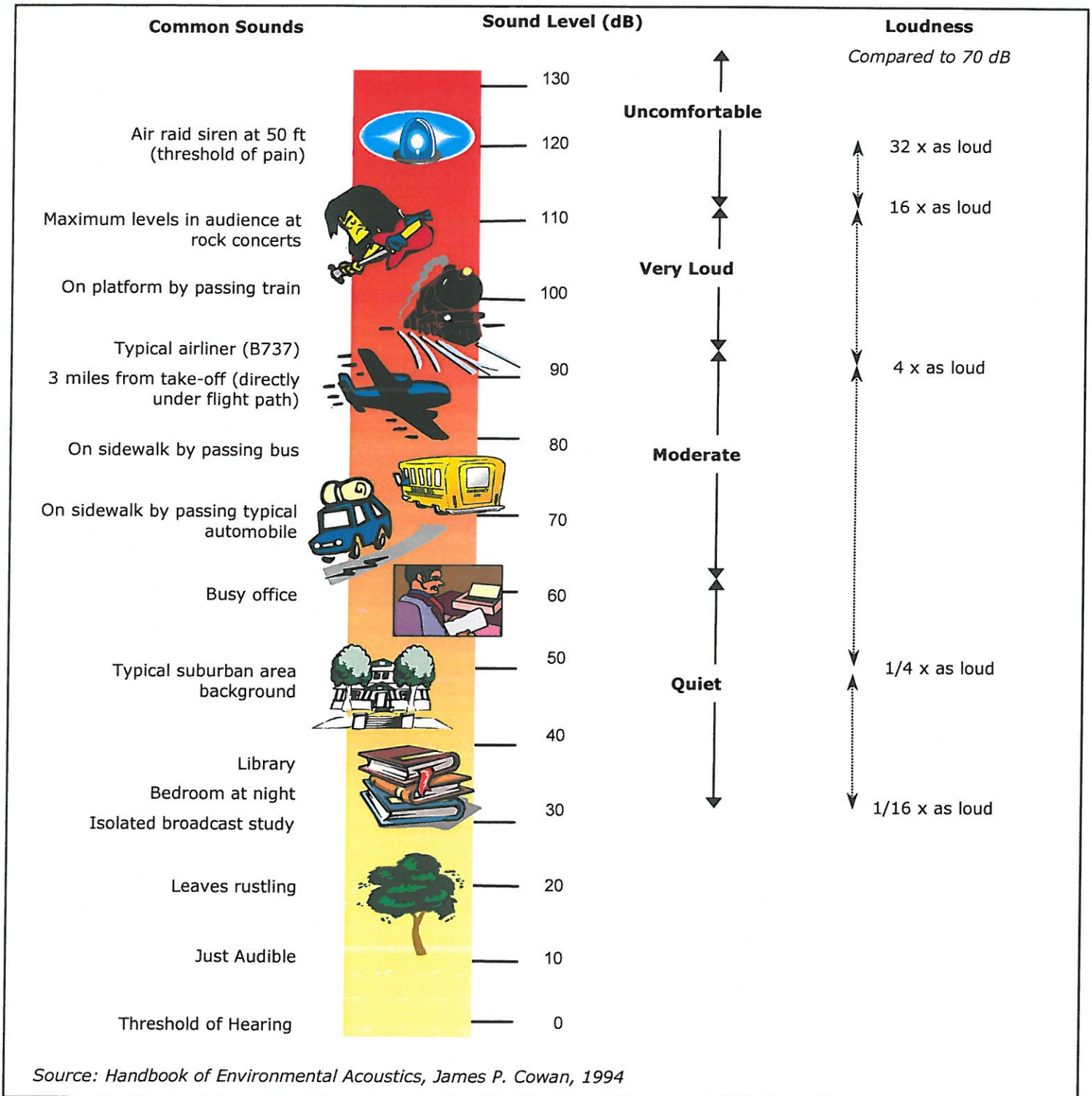
3800 Hillcrest Drive, # 102 • Hollywood, FL 33021-7937

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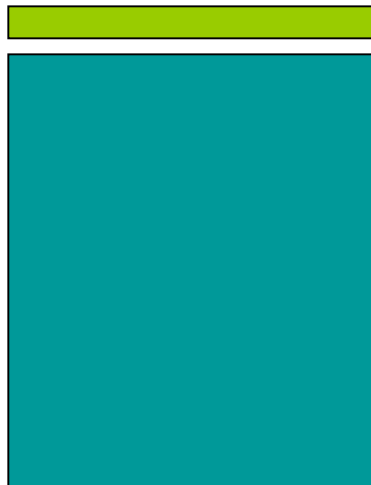
- 11) **auditory**: of, relating to, or experienced through the sense of hearing
- 12) **acoustic**: of or relating to the sense or organs of hearing, to sound, or to the science of sounds
- 13) **vibration**: a periodic motion of the particles of an elastic body or medium in alternately opposite directions from the position of equilibrium when that equilibrium has been disturbed (as when a stretched cord produces musical tones or particles of air transmit sounds to the ear)
- 14) **noise**:
 - 1 loud, confused, or senseless shouting or outcry
 - 2 **a**: SOUND; *esp.* : one that lacks agreeable musical quality or is noticeably unpleasant
 - b**: any sound that is undesired or interferes with one's hearing of something
 - c**: an unwanted signal or a disturbance (as static or a variation of voltage) in an electronic device or instrument (as radio or television); *broadly* : a disturbance interfering with the operation of a usu. mechanical device or system
 - d**: electromagnetic radiation (as light or radio waves) that is composed of several frequencies and that involves random changes in frequency or amplitude
 - e**: irrelevant or meaningless data or output occurring along with desired information

Typical Sound Levels



601 Washington Miami Beach, Florida

traffic study



prepared for:
Imperial Companies

Traf Tech
ENGINEERING, INC.

January 2016
(Revised April 11, 2016)

April 11, 2016

Mr. Charlie Loskant
Senior Vice President, Construction & Development Services
Imperial Companies
888 7th Avenue, 27th Floor
New York, NY 10019

Re: 601 Washington Avenue –Traffic Study (April Update)

Dear Charlie:

Traf Tech Engineering, Inc. is pleased to provide you with the results of the updated traffic study undertaken for the proposed 601 Washington project planned to be located east side of Washington Avenue between 6th Street and 7th Street in the City of Miami Beach in Miami-Dade County, Florida. The revised study addresses the traffic comments provided by the City of Miami Beach's Transportation Consultant.

It has been a pleasure working with Imperial Companies on this project.

Sincerely,

TRAF TECH ENGINEERING, INC.

Joaquin E. Vargas, P.E.
Senior Transportation Engineer

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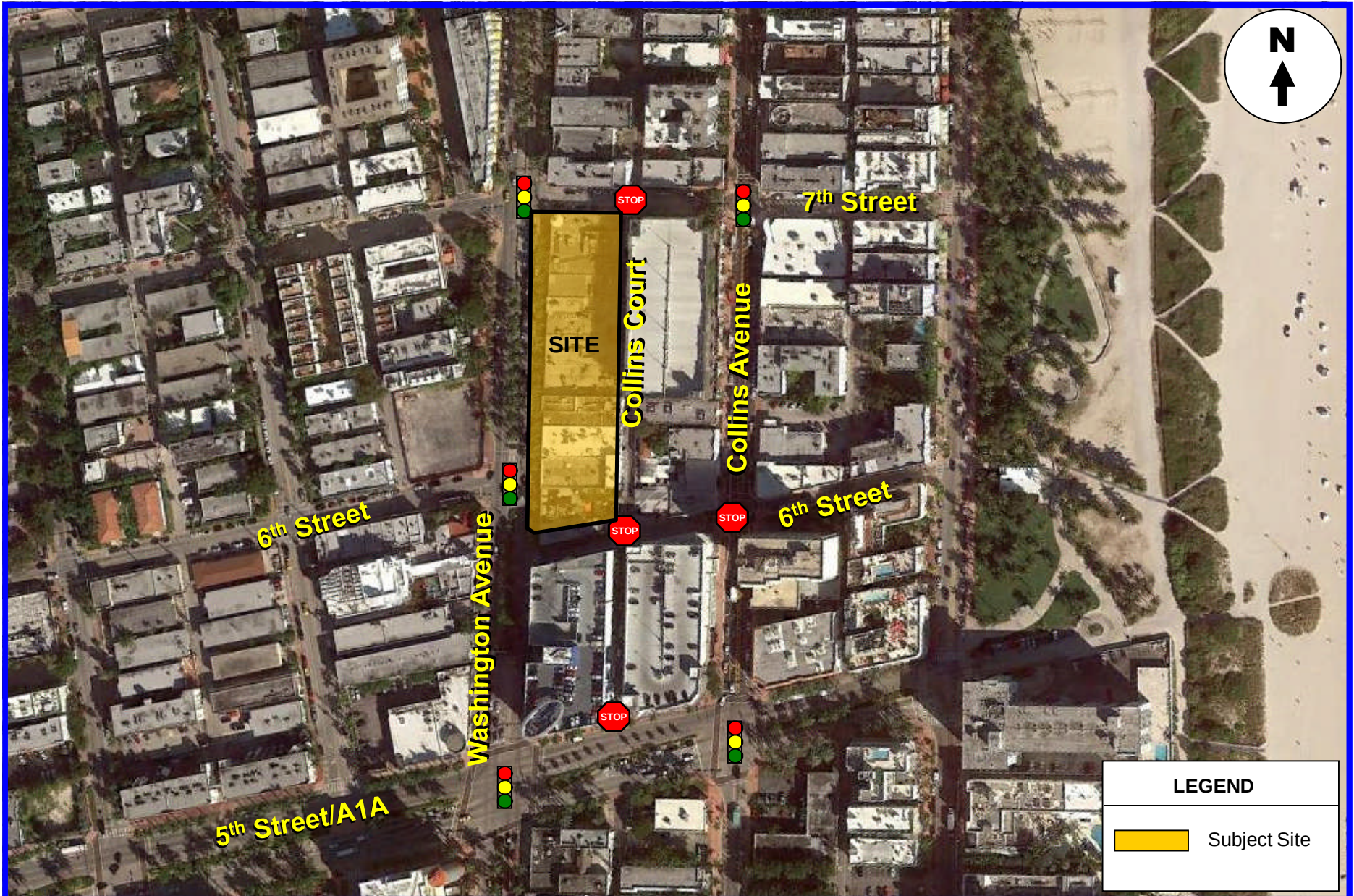
INTRODUCTION

601 Washington is a proposed development planned to be located at 601 Washington Avenue in the City of Miami Beach in Miami-Dade County, Florida. The location of the project site is illustrated in Figure 1 on the following page.

Traf Tech Engineering, Inc. was retained by Imperial Companies to conduct a traffic study ¹ in connection with the proposed project. The study addresses trip generation and the traffic impacts created by the proposed project on the nearby transportation network. This study is divided into seven (7) sections, as listed below:

1. Inventory
2. Existing Conditions
3. Traffic Counts
4. Trip Generation
5. Trip Distribution and Traffic Assignment
6. Traffic Impact Analysis
7. Conclusions and Recommendations

¹ The traffic methodology was discussed and agreed with the City of Miami Beach staff and is included in Appendix A



INVENTORY

Existing Land Use

The site is currently developed with commercial uses.

Proposed Land Uses and Access to Parking Garage

The proposed site will be re-developed with the following land uses and intensity:

- Retail – 55,425 square feet
- Hotel – 316 Rooms
- Restaurant – 472 seats

Access to the proposed parking structure will be provided via Collins Court (the alley located on the east side of the site). Appendix B contains a copy of the proposed site plan for the project site.

EXISTING CONDITIONS

This section addresses the existing roadway system located in the vicinity of the project site and nearby intersections.

Roadway System

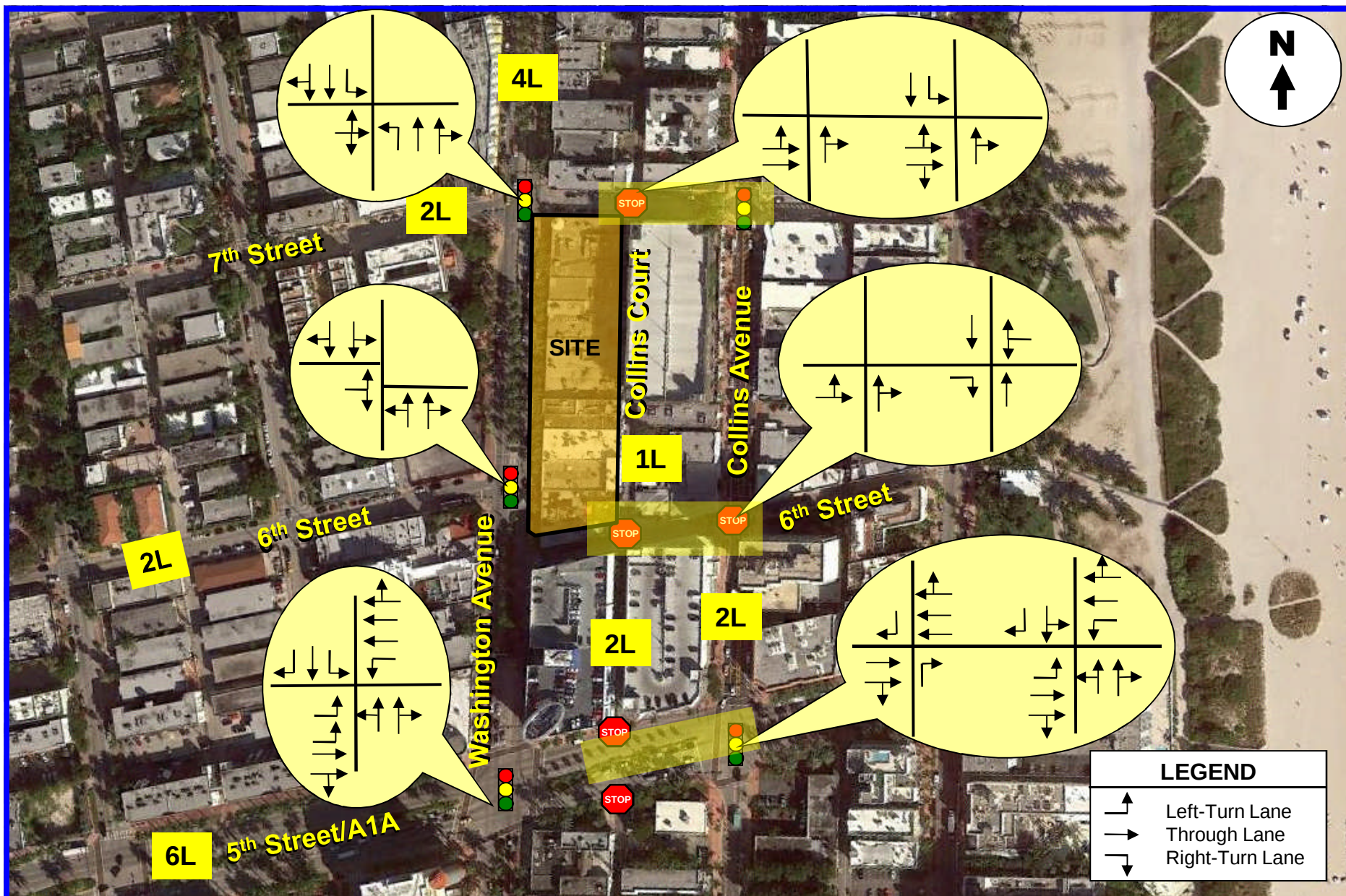
The roadway system located near the project site includes Collins Avenue, Washington Avenue, Collins Court, 5th Street/A1A, 6th Street, and 7th Street. Near the project site, Collins Avenue and Washington Avenue are two-lane and four-lane facilities in the north and south directions, respectively. Collins Court is a one-way, one-lane facility in the northbound direction between 6th Street and 7th Street. 5th Street/A1A is a six-lane facility in the east and west directions. 6th Street and 7th Street are one-way facilities in the east direction near the project site.

Nearby Intersections

With the assistance of City of Miami Beach staff, nine intersections/driveways were identified as the locations that will be impacted the most by the proposed project. These intersections/driveways include:

1. Collins Avenue and 5th Street/A1A (signalized)
2. Collins Avenue and 6th Street (stop controlled)
3. Collins Avenue and 7th Street (signalized)
4. Washington Avenue and 5th Street/A1A (signalized)
5. Washington Avenue and 6th Street (signalized)
6. Washington Avenue and 7th Street (signalized)
7. Collins Court and 5th Street/A1A (stop controlled)
8. Collins Court and 6th Street (stop controlled)
9. Collins Court and 7th Street (stop controlled)

Figure 2 shows the existing lane geometry of the nine intersections selected for analysis purposes. The number of lanes on the street system surrounding the project site is also depicted in the figure.



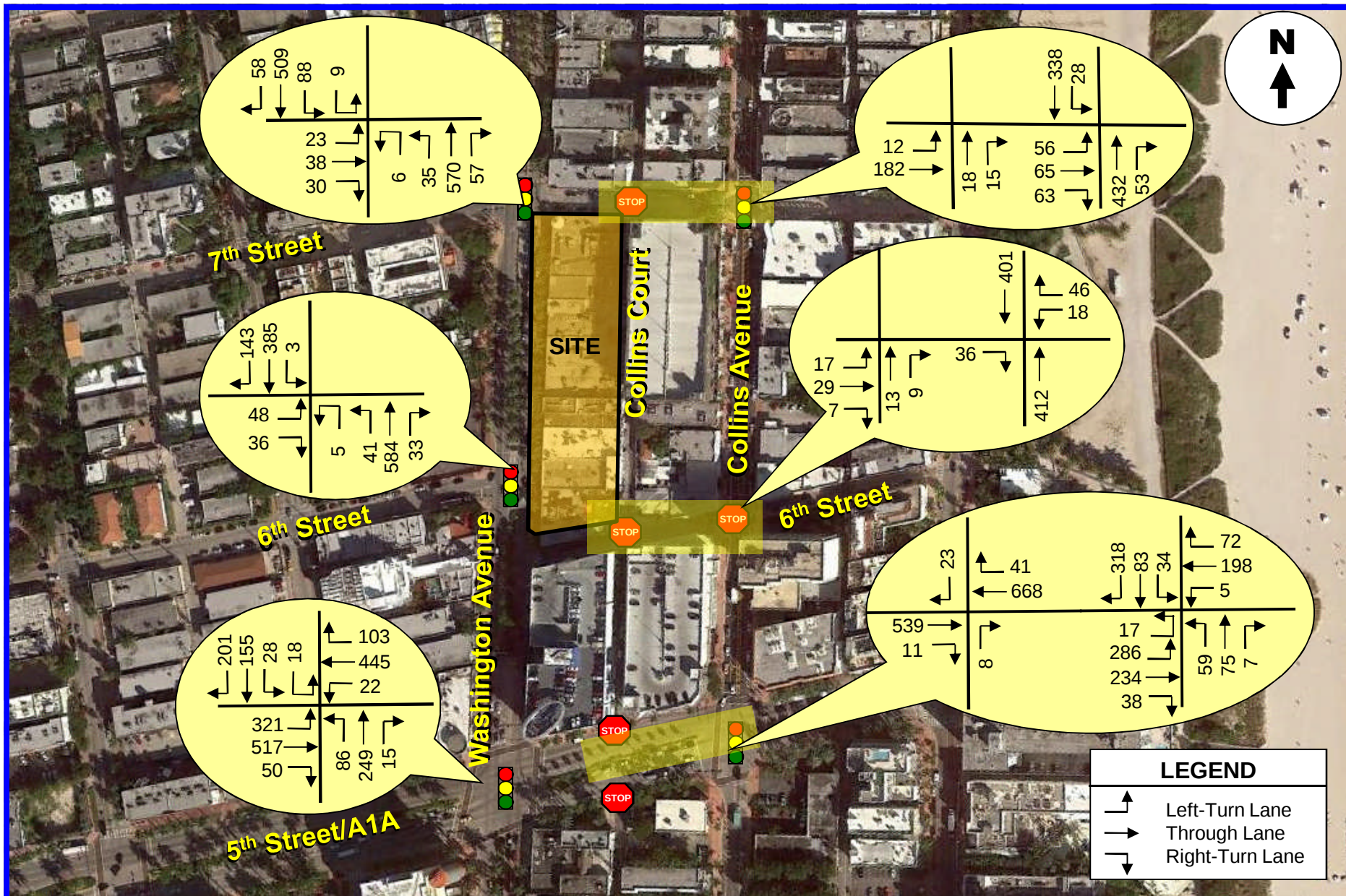
TRAFFIC COUNTS

Traf Tech Engineering, Inc., in association with Traffic Survey Specialists, Inc., collected traffic data at the following locations:

1. Collins Avenue and 5th Street/A1A (signalized)
2. Collins Avenue and 6th Street (stop controlled)
3. Collins Avenue and 7th Street (signalized)
4. Washington Avenue and 5th Street/A1A (signalized)
5. Washington Avenue and 6th Street (signalized)
6. Washington Avenue and 7th Street (signalized)
7. Collins Court and 5th Street/A1A (stop controlled)
8. Collins Court and 6th Street (stop controlled)
9. Collins Court and 7th Street (stop controlled)

The intersection turning movement counts performed by Traffic Survey Specialists, Inc., were collected on Friday, December 11, 2015 during the PM peak period (4:00 PM to 6:00 PM).

Figure 3 summarizes the results of the intersection turning movement counts undertaken during the weekday peak hour. Appendix C contains the intersection turning movement counts, as collected in the field. The signal timing plans were obtained from the Miami-Dade County's web site and are also contained in Appendix C.



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 include Land Use 826 –Specialty Retail, Land Use 310 – Hotel, and Land Use 931 – Quality Restaurant. Table 1 summarizes the external trips associated with the proposed development.

TABLE 1 Trip Generation Summary (Proposed Uses) 601 Washington					
Land Use	Size	Daily Trips	PM Peak Hour		
			Total Trips	Inbound	Outbound
Retail (LUC 826)	55,425	2,409	155	68	87
Hotel (LUC 310)	316	2,819	221	108	113
Restaurant/Bar (LUC 931)	472	1,350	123	83	40
Gross Trips		6,578	499	259	240
Restaurant Internal Trips (-30%)		-405	-37	-25	-12
External Trips		6,173	462	234	228
Pass-by (Retail - 25%) ⁽¹⁾		-602	-40	-20	-20
Pass-by (Restaurant/Bar - 25%) ⁽¹⁾		-236	-22	-11	-11
Subtotal		5,335	400	203	197
Transit and Pedestrian Reduction (-10%) ⁽¹⁾		-534	-40	-20	-20
Net New Vehicular Trips		4,801	360	183	177

Source: ITE Trip Generation Manual (9th Edition)

As indicated in Table 1, the external trips anticipated to be generated by the proposed 601 Washington project consist of approximately 6,173 daily trips and approximately 462 trips during the weekday peak hour (234 inbound and 228 outbound).

The trip generation rates used to determine the trips associated with the proposed use are presented below:

ITE Land Use 826 – Specialty Retail

Daily Trips

$$T = 42.78 (X) + 37.66$$

Where T = number of daily trips

X = 1,000 Square feet gross leasable area

PM Peak Hour of Adjacent Street (Typical Afternoon Peak Hour)

$$T = 2.40 (X) + 21.48 \text{ (44\% inbound and 56\% outbound)}$$

Where T = number of PM peak hour trips

X = 1,000 Square feet gross leasable area

ITE Land Use 310 – Hotel

Daily Trips

$$T = 8.92 (X)$$

Where T = average daily vehicle trip ends

X = number of rooms on a weekday

PM Peak Hour of Adjacent Street (Typical Afternoon Peak Hour)

$$T = 0.70 (X) \text{ (49\% inbound and 51\% outbound)}$$

Where T = average AM peak hour vehicle trip ends

X = number of rooms on a weekday

ITE Land Use 931 – Quality Restaurant

Weekday Daily Trip Generation

$$T = 2.86 (X)$$

Where T = number of weekday daily trips and

X = number of seats

PM Peak Hour of Adjacent Street (Typical Afternoon Peak Hour)

$$T = 0.26 (X) \text{ (67\% inbound and 33\% outbound)}$$

Where T = number of weekday peak hour trips and

X = number of seats

TRIP DISTRUBUTION AND TRAFFIC ASSIGNMENT

The trip distribution and traffic assignment for the project were based on Miami-Dade County's Cardinal Distribution information for the study area. Table 2 summarizes the County's cardinal distribution data for Traffic Analysis Zone 655, which is applicable to the project site from the latest SERPM data published by Miami-Dade County.

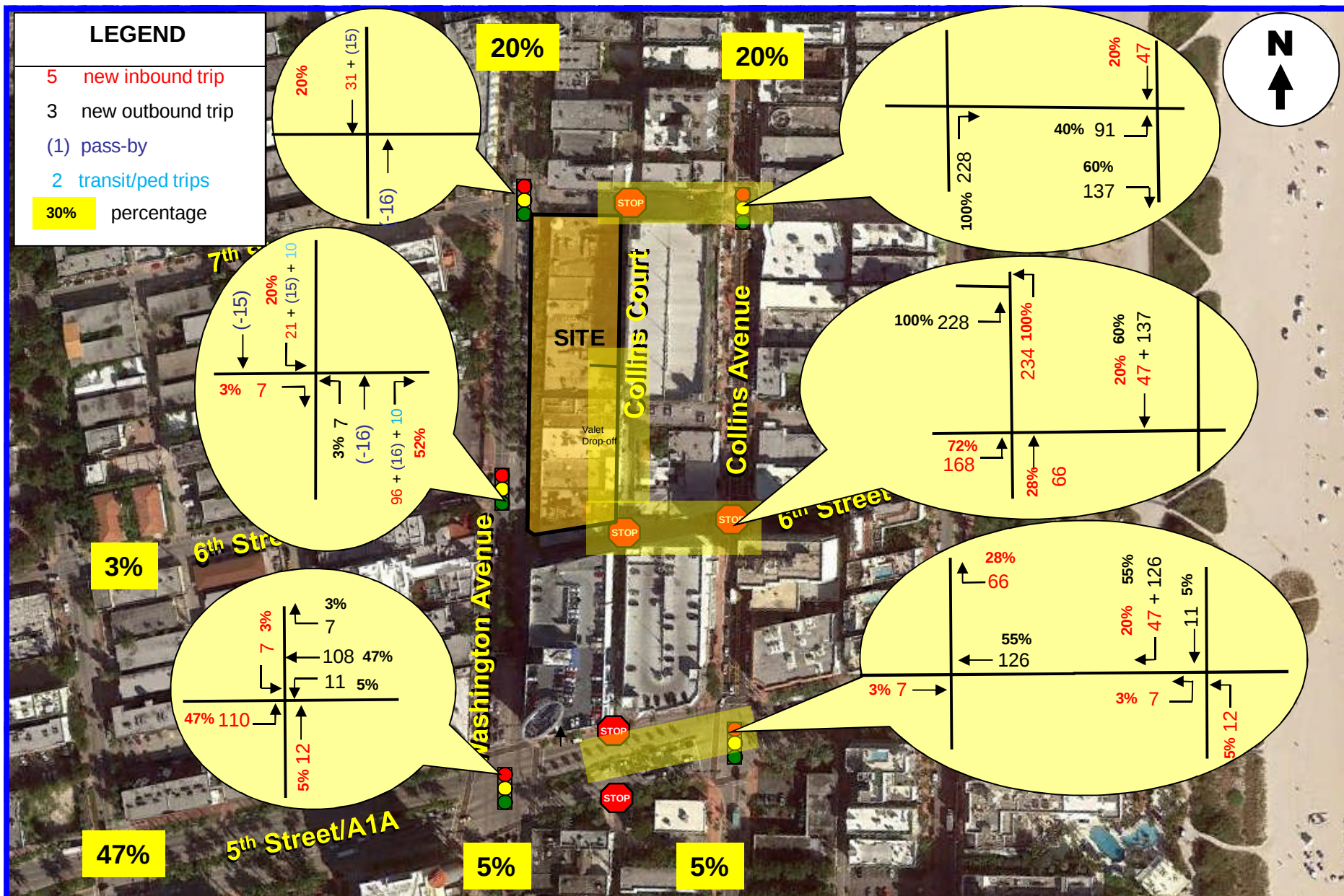
TABLE 2		
Project Trip Distribution		
601 Washington		
Direction		% of Total Trips
North:	Northwest	21.0
	Northeast	20.9
South:	Southwest	7.7
	Southeast	0.00
East:	Northeast	0.00
	Southeast	0.00
West:	Northwest	31.8
	Southwest	18.7
Total		100.00%

Source: Miami-Dade County (2040 SERPM)

Based on the above, the following traffic assignment was assumed for the proposed 601 Washington project:

- o 20% to and from the north via Collins Avenue
- o 5% to and from the south via Collins Avenue
- o 20% to and from the north via Washington Avenue
- o 5% to and from the south via Washington Avenue
- o 3% to and from the west via 6th Street
- o 47% to and from the west via 5th Street/A1A

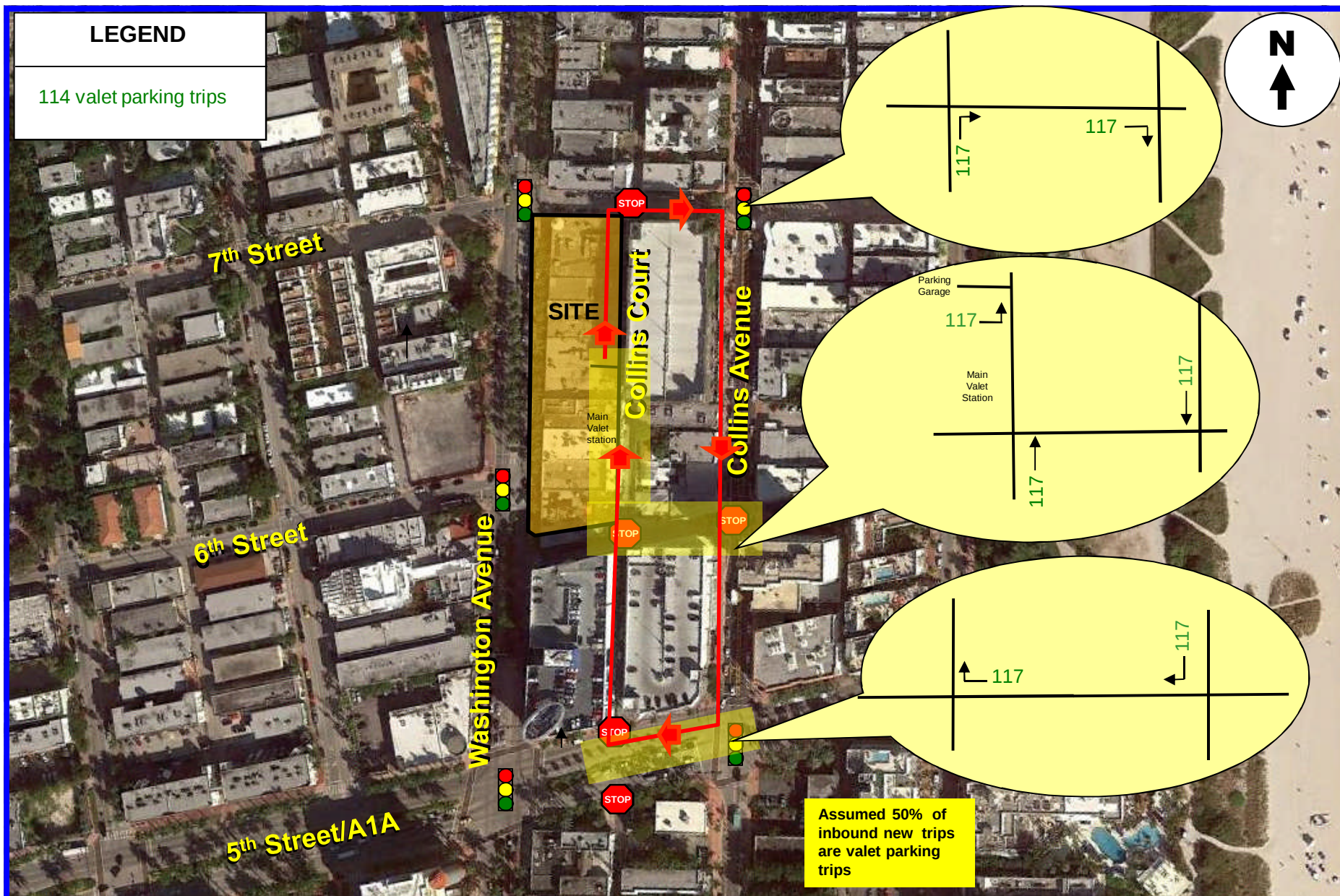
The new peak hour traffic generated by the project was assigned to the nearby transportation network using the traffic assignment documented above. The new project traffic assignment is summarized in Figures 4 and 4A.



LEGEND

114 valet parking trips

114 valet parking trips



Traf Tech
ENGINEERING, INC.

**VALET PARKING OPERATIONS
(Weekday New Peak Hour Trips)**

FIGURE 4A
601 Washington
Miami Beach, Florida

TRAFFIC ANALYSIS

This section of the study is divided into four parts. The first part consists of developing the future conditions traffic volumes for the study area. The second part includes level-of-service analyses for existing and future conditions. The third section addresses the projected operating conditions of the project's access driveways. The final section focusses on valet parking.

Future Conditions Traffic Volumes

Two sets of future traffic volumes were developed. The first set includes project buildout conditions without the proposed project and the second set adds the new trips anticipated to be generated by the project.

In order to develop year 2018 traffic volumes (project anticipated to be built and occupied by the year 2018), without the proposed project, two separate analyses were undertaken. The first analysis converts the existing peak hour traffic counts collected in the field during the month of December to average peak season conditions. Based on FDOT's Peak Season Factor Category report, a factor of 1.05 is required to convert traffic counts collected in third week of December to average peak season conditions (refer to Appendix D). The second analysis includes a growth factor to project 2015 peak season traffic volumes to the year 2018. Based on traffic growth data published by the FDOT for a nearby traffic count stations, minimal traffic growth has occurred during the past five years (refer to Appendix D). However, in order to assess impacts with a conservative approach, and to account for unforeseen approved project (committed trips) that may impact the study intersections, a one percent (1.0%) growth rate was used for purposes of this study. Additionally, trips associated with future developments; The Anglers Hotel addition (660 Washington Avenue), The Torino (400 Collins Avenue) and, The Savoy Hotel were added to the background traffic. Committed development information is included in Appendix D.

The new trips generated by the 601 Washington project (refer to Figure 4) were added to the 2018 background traffic in order to develop total traffic conditions.

The future traffic projections for the study intersections (peak season adjustments, growth rates, committed developments and project traffic) are presented in tabular format in Appendix E. Figures 5 and 6 present the year 2018 future traffic volumes for the study area.

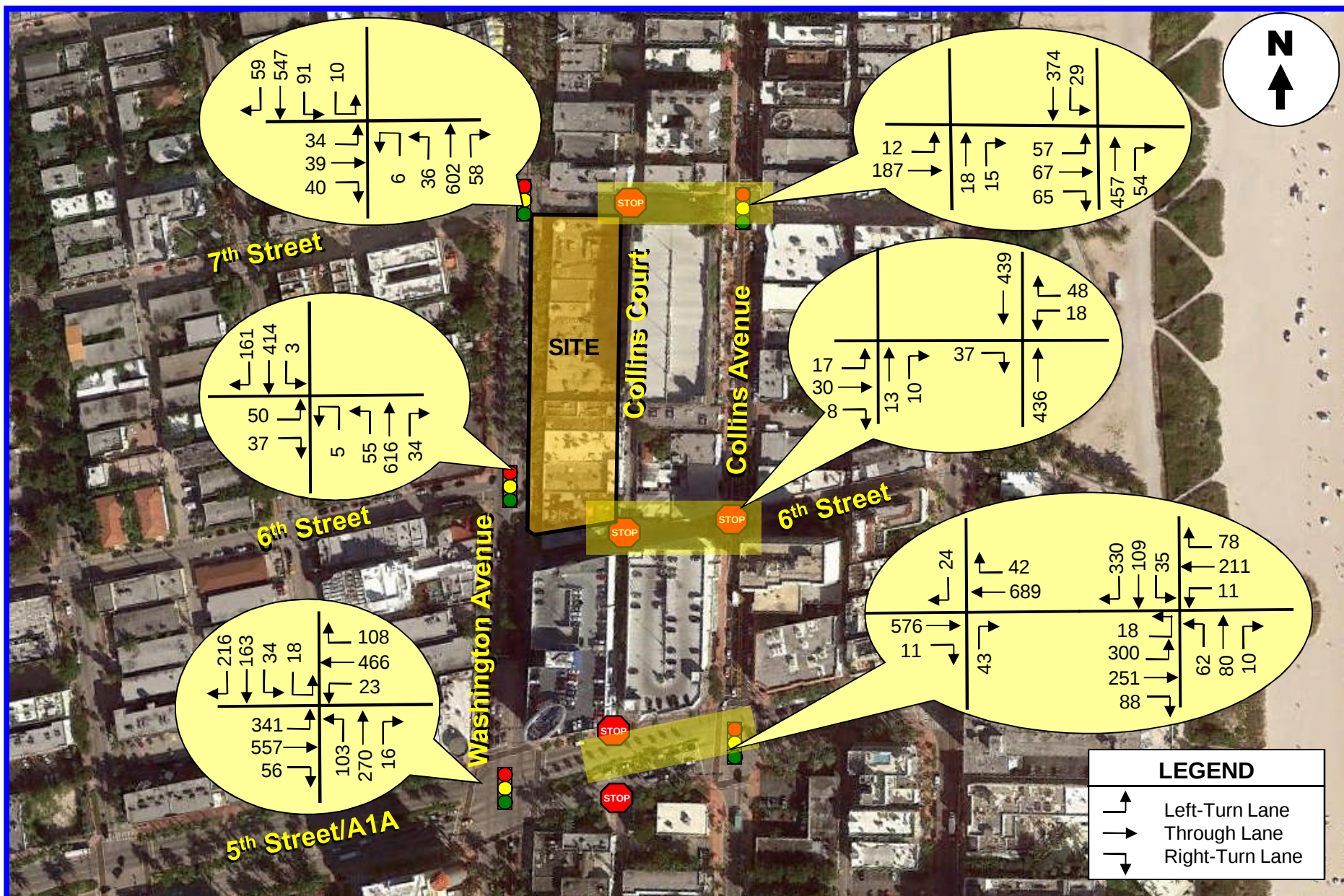
Figure 5 includes background traffic only (without the proposed project) and Figure 6 includes the additional traffic anticipated to be generated by the 601 Washington project.

Level of Service Analyses

Intersection capacity/level of service analyses were conducted for the nine study intersections. The analyses were undertaken following the capacity/level of service procedures outlined in the Highway Capacity Manual (HCS) using the SYNCHRO software. The results of the capacity analyses are summarized in Tables 3 and 4. As indicated in Tables 3 and 4, all study intersections are currently operating adequately and will continue to operate at a acceptable level of service in the year 2018 with the proposed project in place, with one exception (Collins Avenue and 5th Street). Note that the level of service at the intersection of Collins Avenue and 5th Street could be improved to LOS “D” by optimizing the intersection’s splits and offset.

Access Driveway

The project access driveway is projected to operate at level of service “B”



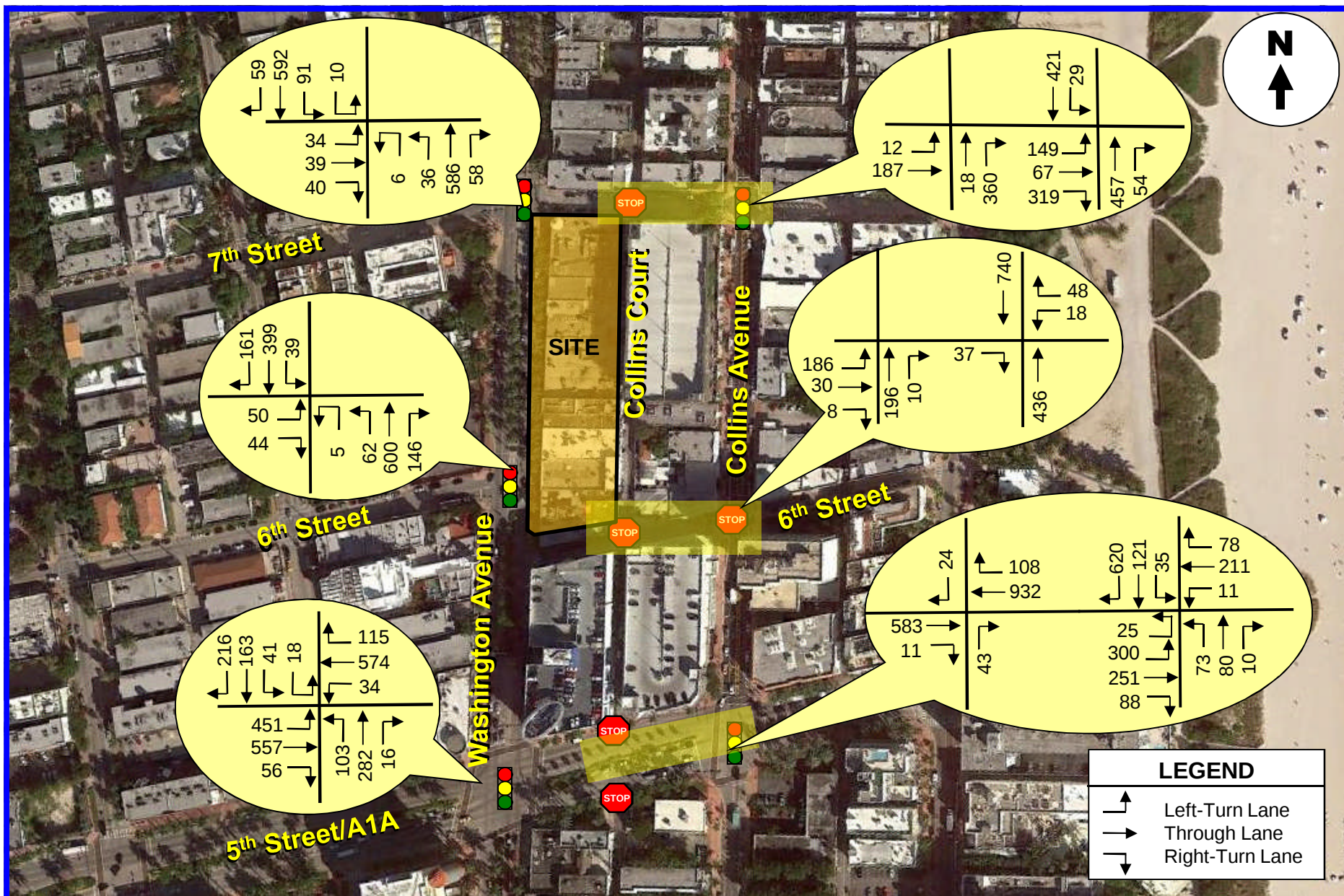


TABLE 3 Intersection Level of Service 601 Washington – Signalized Intersections			
		Future Traffic Conditions	
Intersection	2015 Existing	2018 w/o Project	2018 With Project
Collins Avenue & 5 th Street	C	C	E
Collins Avenue & 7 th Street	B	B	B
Washington Avenue & 5 th Street	D	D	D
Washington Avenue & 6 th Street	B	B	B
Washington Avenue & 7 th Street	B	B	B

Source: *Highway Capacity Manual*

TABLE 4 Intersection Level of Service 601 Washington – Unsignalized Intersections			
		Future Traffic Conditions	
Intersection	2015 Existing	2018 w/o Project	2018 With Project
Collins Avenue & 6 th Street			
- EB	B	B	C
- WB	B	B	C
Collins Court & 5 th Street			
- NB	B	B	B
- SB	B	B	B
Collins Court & 6 th Street			
- NB	A	A	A
Collins Court & 7 th Street			
- NB	A	A	B

Source: *Highway Capacity Manual*

The computer printouts of the intersection capacity analyses are contained in Appendix F.

Valet Operation

The 601 Washington project will provide three (3) valet service areas. The valet areas on Washington Street and 7th Street are UBER drop-off and the valet area on Collins Court is the main valet drop-off/pick up area. All vehicles served by valet parking will stop at the valet station on Collins Court.

.

In order to determine the stacking requirements associated with the valet operation, a queuing analysis was undertaken. As indicated in Table 1, the maximum number of inbound vehicles associated with this project, during a one-hour period is approximately 234 vehicles.

A queuing analysis was conducted in order to ensure that the on-street stacking is sufficient to accommodate the maximum inbound vehicular demand anticipated at this facility. The length of queue anticipated on Collins Court was determined using information contained in ITE's *Transportation and Land Development*, Chapter 8 – Drive-In Facilities². For this analysis, the following input variables were used:

Service Rate: is the average time to park/unpark a vehicle by a valet runner. A weighted average service rate was determined based on the service rate for standard parking spaces and the service rate for tandem (mechanical lift) parking spaces. The average time by a valet runner is approximately 5 minutes, or 12 vehicles per hour per valet runner. Assuming up to 15 valet runners, the maximum service rate of the facility is 180 vehicles in a one-hour period.

Demand Rate: As indicated above, a maximum of 234 vehicles will arrive during the highest hour. Assuming 50% valet usage, the inbound vehicular traffic at the valet station is approximately 117 vehicles.

Using equation 8-9b and Table 8-11 of ITE's *Transportation and Land Development*, the maximum length of queue anticipated on Collins Court, at the 90% confidence level, is four (4) vehicles. Therefore, the valet station on Collins Court should provide parking for at least four (4) vehicles. The service rate calculations and results of the ITE queuing procedure are contained in Appendix G.

² By Vergil G. Stover and Frank J. Koepke.

CONCLUSIONS AND RECOMMENDATIONS

601 Washington is a proposed re-development project planned to be located on the east side of Washington Avenue between 6th Street and 7th Street in the City of Miami Beach in Miami-Dade County, Florida. The project site currently consists of commercial uses. The proposed project will be developed with the following land uses and intensity:

- Retail – 55,425 square feet
- Hotel – 316 Rooms
- Restaurant – 472 seats

Access to the proposed parking garage will be provided via Collins Court.

Traf Tech Engineering, Inc. was retained by Imperial Companies to conduct a traffic study in connection with the 601 Washington project. The study addresses trip generation and the traffic impacts created by the proposed project on the nearby transportation network. The conclusions and recommendations of the traffic study are presented below:

- o The external trips anticipated to be generated by the proposed 601 Washington project consist of approximately 6,173 daily trips and approximately 462 trips during the weekday peak hour (234 inbound and 228 outbound).

All study intersections are currently operating adequately and will continue to operate at an acceptable level of service in the year 2018 with the proposed project in place, with one exception (Collins Avenue and 5th Street). Note that the level of service at the intersection of Collins Avenue and 5th Street could be improved to LOS “D” by optimizing the intersection’s splits and offset.

o

-
- o The project access driveway on Collins Court is projected to operate at level of service “B”.
 - o The valet station on Collins Court should provide parking for at least four (4) vehicles.
 - o Up to 15 valet runners should be assigned to this facility during the anticipated peak periods.

Transportation Demand Management (TDM)

There are numerous Transportation Demand Management (TDM) strategies to influence travel decision. Some improve the transportation options available; some provide incentives to change travel mode, time or destination; others improve land use accessibility; some involve transportation policy reforms and new programs that provide a foundation for TDM. Some benefits provided by a well-thought TDM program include:

- | | |
|------------------------------------|----------------------------|
| o Congestion reduction | o Environmental protection |
| o Road and parking savings | o Improved quality of life |
| o Transportation Options (choices) | o Economic development |
| o Road safety | o Healthy lifestyles |

The 601 Washington project proposes the following incentives in order to provide an effective TDM plan for the project:

Bicycling

Bicycle racks are being proposed at the site in order to encourage non-automobile modes of transportation.

Carpool

The proposed hotel will encourage employees to carpool. The hotel will provide a minimum of one (1) complimentary valet parking for High Occupancy Vehicle being used for Carpooling.

Transit Use

The hotel will have an informational kiosk within the lobby of the hotel with information relative to bus schedules and routes (two bus routes travel along Washington Avenue and two along nearby Collins Avenue) and the location of the two closest City Bike Station 123 and 124 near the intersection of 7th Street and Washington Avenue.

APPENDIX A

Traffic Methodology

TO: 601 Washington Avenue

FROM: Joaquin Vargas

DATE: January 10, 2016

SUBJECT: Traffic Methodology for 601 Washington

601 Washington is a proposed mixed-use development consisting of retail, hotel and restaurant uses including a parking garage.

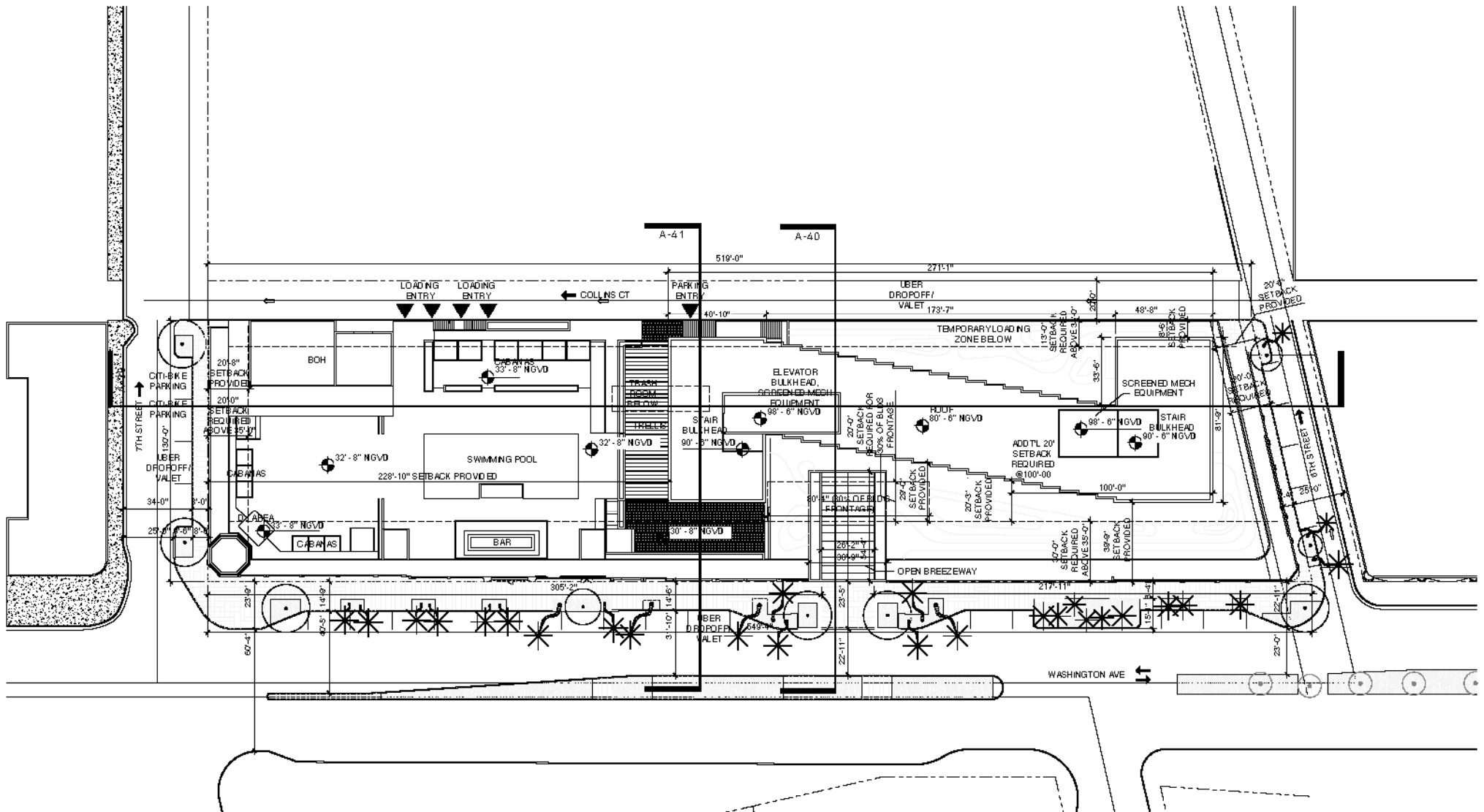
The proposed mixed-use project will have a driveway into the parking garage off of the Collins Court. The following is our proposed methodology for the traffic study associated with this project:

- o The trip generation for the proposed facilities will be based on ITE's *Trip Generation Manual* (9th Edition). For the proposed restaurant seats, quality restaurant will be assumed (LUC 931). For the hotel use, LUC 310 will be used and for the retail LUC 826 (specialty retail), which is consistent with other commercial development within Miami Beach.
- o The traffic study will evaluate nine (9) intersections in the immediate vicinity of the project. The analyses will be undertaken for the critical PM peak hour. These intersections are:
 - 1. Collins Avenue and 5th Street/A1A (signalized)
 - 2. Collins Avenue and 6th Street (stop controlled)
 - 3. Collins Avenue and 7th Street (signalized)
 - 4. Washington Avenue and 5th Street/A1A (signalized)
 - 5. Washington Avenue and 6th Street (signalized)
 - 6. Washington Avenue and 7th Street (signalized)
 - 7. Collins Court and 5th Street/A1A (stop controlled)
 - 8. Collins Court and 6th Street (stop controlled)
 - 9. Collins Court and 7th Street (stop controlled)
- o Traffic circulation will be evaluated in the traffic study, including its impact to the surrounding street system and adjacent driveways, if any.
- o The drop-off and pick-up lane will be evaluated from a queuing standpoint.
- o For purposes of the traffic study, the build-out year will be 2017. For purposes of traffic growth, FDOT historical traffic data will be used.
- o Existing traffic signal timing data and traffic counts will be included in the appendix of the traffic study.

- o The traffic study will address any anticipated / proposed impacts onto the existing on-street vehicular parking, if applicable. Any impacts to on-street parking will be discussed with the City's Parking Department.
- o Traffic figures will be prepared for the following trip generation scenarios for each of the intersections analyzed:
 - 1. Existing trips
 - 2. Proposed site trips distribution
 - 3. Existing + traffic growth
 - 4. Future or build-out + traffic growth + site trips
- o The presence of transit and nearby routes will be discussed as will the provision and location of bicycle racks.
- o Provide bicycle racks at the site to encourage other modes of transportation.
- o The site plan will show the location of pick up/drop off for valet parking purposes.
- o The site plan will also include the location of bicycle parking, garbage pick-up area and place designated for deliveries.
- o The submittal of the study will include LOS calculations for review by the peer reviewer.

APPENDIX B

Site Plan 601 Washington



Morris Adjmi Architects
www.ma.com
O'Brien Lighting Inc

Washington Squared LLC
Ken Fulk

Raymond Jungles Inc.
Nichols Brosch
Wurst Wolfe &
Associates

801-685 Washington Ave.
Miami Beach, FL

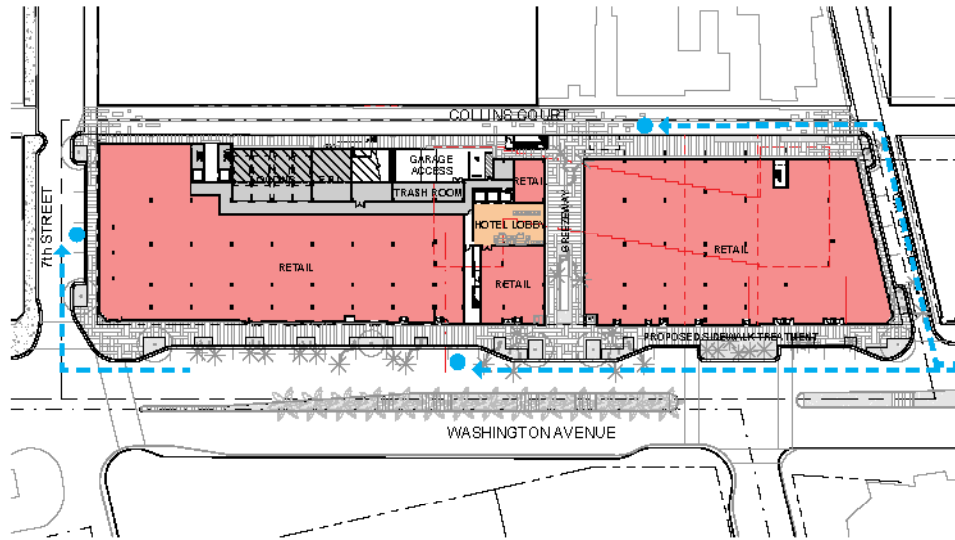
Proposed Site Plan

Planning Board Final Submittal / 2 March 2016

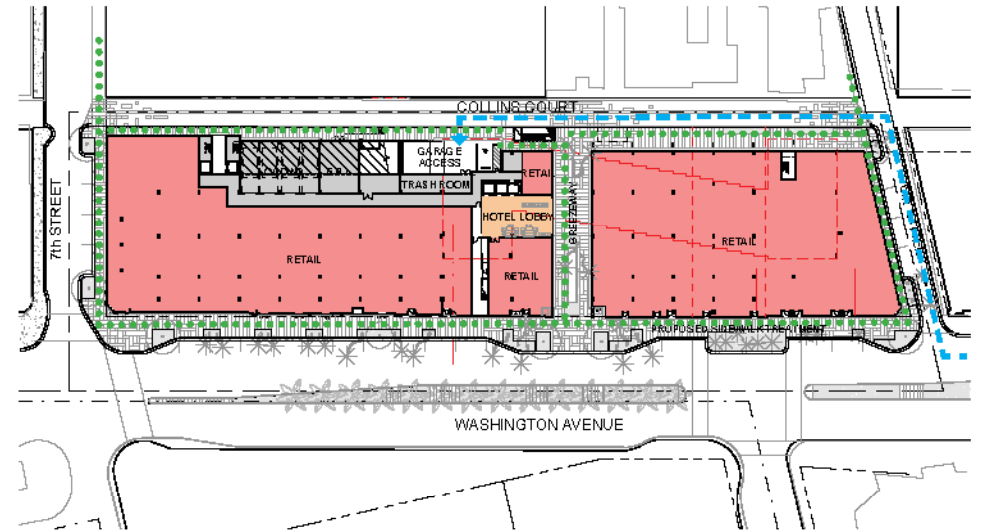
0' 10' 20' 50' 100'



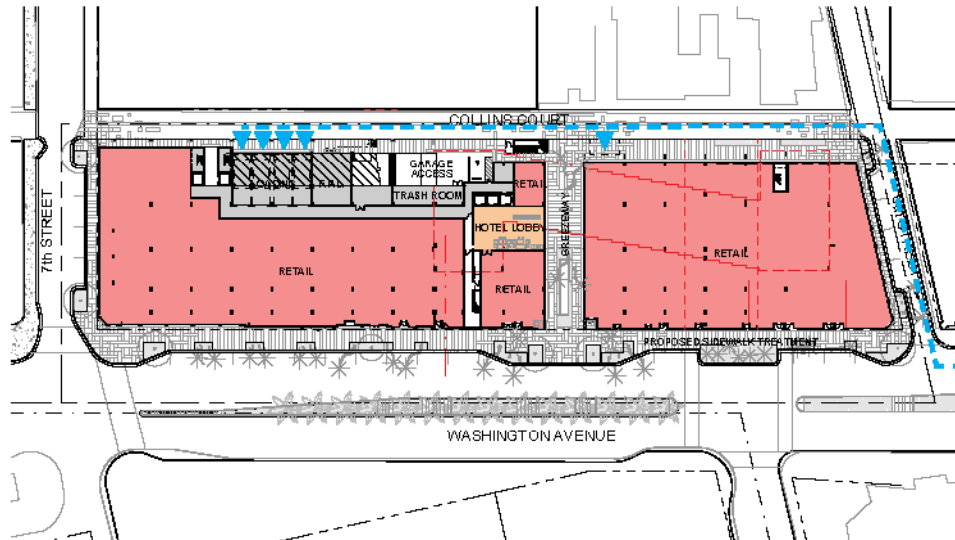
A - 30



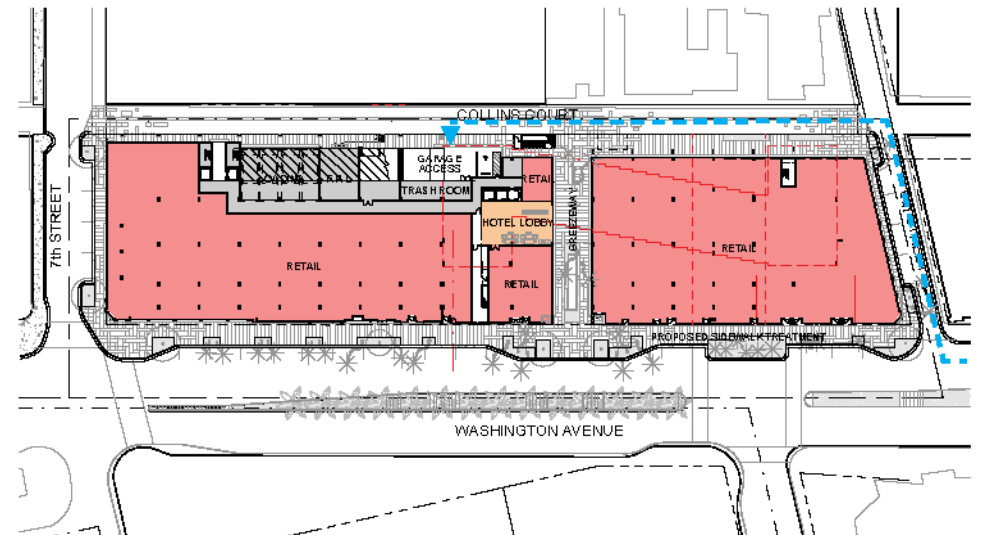
6 VALET DROP-OFF
A-29 1" = 40'-0"



5 CIRCULATION DIAGRAM
A-29 1" = 40'-0"



8 DELIVERY ROUTE
A-29 1" = 40'-0"



7 TRASH COLLECTION
A-29 1" = 40'-0"



Morris Adjmi Architects
www.ma.com
O'Brien Lighting Inc

Washington
Squared LLC
Ken Fulk

Raymond Jungles
Inc.
Nichols Brosch
Wurst Wolfe &
Associates

601-685 Washington Ave.
Miami Beach, FL

Site Circulation Diagrams

Planning Board Final Submittal / 2 March 2016



APPENDIX C

Signal Timing Plan and Traffic Counts

TOD Schedule Report
for 2658: Collins Av&5 St

Print Date:
3/5/2014

Print Time:
8:09 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD</u> <u>Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD</u> <u>Setting</u>	<u>Active</u> <u>PhaseBank</u>	<u>Active</u> <u>Maximum</u>
2658	Collins Av&5 St	DOW-4		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>
-	EBT	-	NBT	EBL	WBT	-	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 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 EBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	20 - 20 - 20	0 - 20 - 20	4	2.3
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 NBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 7 - 7	55 - 20 - 20	4	3.2
5 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	11 - 7 - 7	25 - 15 - 15	4	2
6 WBT	0 - 0 - 0	0 - 0 - 0	16 - 16 - 16	1 - 1 - 1	20 - 20 - 20	0 - 20 - 20	4	2.3
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 SBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	5 - 2.5 - 2.5	12 - 7 - 7	55 - 20 - 20	4	3.2

Last In Service Date: unknown

Permitted Phases

	<u>12345678</u>
Default	-23456-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

<u>Current</u> TOD Schedule		Green Time									<u>Ring Offset</u>	<u>Offset</u>
		<u>Plan</u>	<u>Cycle</u>	1 -	2 EBT	3 -	4 NBT	5 EBL	6 WBT	7 -		
	1	120	0	47	0	60	13	28	0	60	0	52
	2	110	0	46	0	51	6	34	0	51	0	95
	3	110	0	46	0	51	6	34	0	51	0	36
	4	130	0	66	0	51	6	54	0	51	0	61
	5	130	0	44	0	73	19	19	0	73	0	39
	6	110	0	46	0	51	6	34	0	51	0	42
	7	120	0	47	0	60	13	28	0	60	0	57
	8	110	0	46	0	51	6	34	0	51	0	72
	9	160	0	76	0	71	6	64	0	71	0	39
	10	160	0	66	0	81	6	54	0	81	0	130
	11	160	0	96	0	51	6	84	0	51	0	6
	12	160	0	96	0	51	6	84	0	51	0	42
	13	160	0	96	0	51	6	84	0	51	0	130
	14	120	0	56	0	51	6	44	0	51	0	57
	15	130	0	46	0	71	16	24	0	71	0	51
	16	120	0	47	0	60	13	28	0	60	0	90
	21	110	0	46	0	51	6	34	0	51	0	95
	22	110	0	46	0	51	6	34	0	51	0	95
	23	110	0	46	0	51	6	34	0	51	0	73
	25	140	0	65	0	62	6	53	0	62	0	0
	26	180	0	105	0	62	6	93	0	62	0	0
	27	140	0	65	0	62	6	53	0	62	0	37

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	Free	Su M	S
0000	1	T W Th F	
0030	1	Su M	S
0300	22	Su M T W Th F	S
0500	1	Su M T W Th F	S
0700	22	Su	S
0800	5	M T W Th F	
0800	5		S
1000	5	Su	
1800	16	Su	S
1800	15	M T W Th F	
2200	1	M T W Th F	
2300	Free	Su	S

<u>Current Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>Local Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>* Settings</u>
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

<i>No Calendar Defined/Enabled</i>

TOD Schedule Report

for 2794: Washington Av&5 St

Print Date:
12/31/2013

Print Time:
8:15 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD</u> <u>Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD</u> <u>Setting</u>	<u>Active</u> <u>PhaseBank</u>	<u>Active</u> <u>Maximum</u>
2794	Washington Av&5 St	DOW-3		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	-	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

Phase	<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 EBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	2	-	2	-	2	8	-	8	-	8	20	-	17	-	17	3.4	2.9
2 WBT	4	-	4	-	4	-	4	-	4	4	-	4	-	4	1	-	1	-	1	39	-	39	-	39	0	-	39	-	39	4	2
3 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	0
4 NBT	4	-	4	-	4	-	4	-	4	7	-	7	-	7	2.5	-	2.5	-	2.5	12	-	33	-	12	24	-	33	-	33	4	2.4
5 WBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	2	-	2	-	2	5	-	5	-	5	8	-	8	-	8	3.4	2.5
6 EBT	4	-	4	-	4	-	4	-	4	4	-	4	-	4	1	-	1	-	1	39	-	39	-	39	0	-	39	-	39	4	2
7 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	0
8 SBT	4	-	4	-	4	-	4	-	4	7	-	7	-	7	2.5	-	2.5	-	2.5	12	-	17	-	12	24	-	33	-	33	4	2.4

Last In Service Date: unknown

Permitted Phases

	<u>12345678</u>
Default	12-456-8
External Permit 0	-----
External Permit 1	-----
External Permit 2	-----

TOD Schedule Report

for 2796: Washington Av&7 St

Print Date:
3/24/2014

Print Time:
8:05 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD</u> <u>Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD</u> <u>Setting</u>	<u>Active</u> <u>PhaseBank</u>	<u>Active</u> <u>Maximum</u>
2796	Washington Av&7 St	HOLIDAY-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>
-	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 NBT	7 - 7 - 7	16 - 16 - 16	7 - 7 - 7	1 - 1 - 1	52 - 50 - 50	0 - 50 - 50	4	1
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	17 - 17 - 17	7 - 7 - 7	1 - 1 - 1	24 - 24 - 24	24 - 24 - 24	4	1
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 SBT	7 - 7 - 7	16 - 16 - 16	7 - 7 - 7	1 - 1 - 1	52 - 50 - 50	0 - 50 - 50	4	1
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 -2-4-6--
External Permit 0 -----
External Permit 1 -----
External Permit 2 -----

<u>Current</u> TOD Schedule	<u>Plan</u>	<u>Cycle</u>	<u>Green Time</u>								<u>Ring Offset</u>	<u>Offset</u>
			1 -	2 NBT	3 -	4 EBT	5 -	6 SBT	7 -	8 -		
	1	70	0	36	0	24	0	36	0	0	0	14
	2	90	0	56	0	24	0	56	0	0	0	11
	3	80	0	46	0	24	0	46	0	0	0	26
	4	90	0	56	0	24	0	56	0	0	0	76
	5	90	0	56	0	24	0	56	0	0	0	74
	6	90	0	56	0	24	0	56	0	0	0	74
	7	90	0	56	0	24	0	56	0	0	0	33
	8	80	0	46	0	24	0	46	0	0	0	59
	9	80	0	46	0	24	0	46	0	0	0	59
	10	80	0	46	0	24	0	46	0	0	0	59
	11	100	0	66	0	24	0	66	0	0	0	73
	12	90	0	56	0	24	0	56	0	0	0	44
	13	80	0	46	0	24	0	46	0	0	0	59
	14	90	0	56	0	24	0	56	0	0	0	74
	15	110	0	76	0	24	0	76	0	0	0	99
	16	150	0	116	0	24	0	116	0	0	0	76
	18	90	0	56	0	24	0	56	0	0	0	76
	19	100	0	64	0	26	0	64	0	0	0	0
	20	110	0	74	0	26	0	74	0	0	0	0
	21	110	0	74	0	26	0	74	0	0	0	0
	22	70	0	36	0	24	0	36	0	0	0	14
	23	70	0	36	0	24	0	36	0	0	0	14

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	22	Su	S
0000	10	M T W Th F	
0100	23	M T W Th F	
0530	1	Su	S
0600	1	M T W Th F	
0715	2	M T W Th F	
0800	11	M T W Th F	
0900	4	M T W Th F	
1000	4	Su	S
1330	12	M T W Th F	
1530	6	M T W Th F	
1800	8	M T W Th F	
2000	10	Su	S

<u>Current Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>Local Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>* Settings</u>
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

<i>No Calendar Defined/Enabled</i>

Green Time												
<u>Current</u> TOD Schedule	<u>Plan</u>	<u>Cycle</u>	1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT	<u>Ring Offset</u>	<u>Offset</u>
1		120	14	42	0	46	7	49	0	46	0	51
2		110	7	39	0	46	7	39	0	46	0	74
3		110	7	39	0	46	7	39	0	46	0	15
4		130	7	59	0	46	7	59	0	46	0	113
5		110	7	39	0	46	7	39	0	46	0	35
6		110	7	39	0	46	7	39	0	46	0	84
7		110	7	39	0	46	7	39	0	46	0	23
8		110	7	39	0	46	7	39	0	46	0	69
9		160	7	89	0	46	7	89	0	46	0	29
10		160	7	89	0	46	7	89	0	46	0	145
11		160	7	89	0	46	7	89	0	46	0	15
12		160	7	89	0	46	7	89	0	46	0	37
13		160	7	89	0	46	7	89	0	46	0	145
14		120	7	49	0	46	7	49	0	46	0	43
15		130	18	48	0	46	7	59	0	46	0	46
16		120	7	49	0	46	7	49	0	46	0	101
17		130	18	48	0	46	7	59	0	46	0	46
22		110	9	39	0	44	9	39	0	44	0	102
23		110	7	39	0	46	7	39	0	46	0	80
25		140	7	69	0	46	7	69	0	46	0	18
26		180	7	109	0	46	7	109	0	46	0	17
27		140	7	69	0	46	7	69	0	46	0	46

Local TOD Schedule			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	Free	Su M	S
0000	1	T W Th F	
0030	1	Su M	S
0300	22	Su M T W Th F	S
0500	1	Su M T W Th F	S
0700	22	Su	S
0800	4	M T W Th F	
0800	14		S
1000	14	Su	
1500	16	Su	S
1500	15	M T W Th F	
2200	1	M T W Th F	
2300	Free	Su	S

Current Time of Day Function			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	8-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
1800	TOD OUTPUTS	8-----	M T W ThF

Local Time of Day Function			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	8-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----1	Su S
0800	TOD OUTPUTS	-----	Su S
1800	TOD OUTPUTS	8-----	M T W ThF
1900	TOD OUTPUTS	8-----	Su S

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

No Calendar Defined/Enabled

TOD Schedule Report
for 2795: Washington Av&6 St

Print Date:
3/24/2014

Print Time:
8:05 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>
2795	Washington Av&6 St	HOLIDAY-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>
-	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 2 3	
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	11 - 11 - 11	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	40 - 40 - 40	4	1
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	19 - 19 - 19	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 12	12 - 12 - 12	4	1
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 SBT	7 - 7 - 7	11 - 11 - 11	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	40 - 40 - 40	4	1
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 -2-4-6--
 External Permit 0 -----
 External Permit 1 -----
 External Permit 2 -----

		Green Time										
Current TOD Schedule	Plan	Cycle	1 -	2 NBT	3 -	4 EBT	5 -	6 SBT	7 -	8 -	Ring Offset	Offset
	1	70	0	34	0	26	0	34	0	0	0	16
	2	90	0	54	0	26	0	54	0	0	0	13
	3	80	0	44	0	26	0	44	0	0	0	28
	4	90	0	54	0	26	0	54	0	0	0	78
	5	90	0	54	0	26	0	54	0	0	0	78
	6	90	0	54	0	26	0	54	0	0	0	76
	7	90	0	54	0	26	0	54	0	0	0	38
	8	80	0	44	0	26	0	44	0	0	0	59
	9	80	0	44	0	26	0	44	0	0	0	59
	10	80	0	44	0	26	0	44	0	0	0	59
	11	100	0	64	0	26	0	64	0	0	0	76
	12	90	0	54	0	26	0	54	0	0	0	44
	13	80	0	44	0	26	0	44	0	0	0	61
	14	90	0	54	0	26	0	54	0	0	0	76
	15	110	0	74	0	26	0	74	0	0	0	101
	16	150	0	114	0	26	0	114	0	0	0	83
	18	90	0	54	0	26	0	54	0	0	0	78
	19	100	0	64	0	26	0	64	0	0	0	0
	20	110	0	74	0	26	0	74	0	0	0	0
	21	110	0	74	0	26	0	74	0	0	0	0
	22	70	0	34	0	26	0	34	0	0	0	12
	23	70	0	34	0	26	0	34	0	0	0	12

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	22	Su	S
0000	10	M T W Th F	
0100	23	M T W Th F	
0530	1	Su	S
0600	1	M T W Th F	
0715	2	M T W Th F	
0800	11	M T W Th F	
0900	4	M T W Th F	
1000	4	Su	S
1330	12	M T W Th F	
1530	6	M T W Th F	
1800	8	M T W Th F	
2000	10	Su	S

<u>Current Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>Local Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S

<u>* Settings</u>
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

<i>No Calendar Defined/Enabled</i>

TOD Schedule Report
for 6006: Collins Av&7 St

Print Date:
3/5/2014

Print Time:
8:41 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>
6006	Collins Av&7 St	DOW-4		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>
-	SBT	-	-	-	NBT	-	EBT
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 SBT	7 - 7 - 7	6 - 6 - 6	7 - 7 - 7	1 - 1 - 1	50 - 50 - 50	0 - 0 - 0	4	0
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
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	8 - 8 - 8	7 - 7 - 7	1 - 1 - 1	50 - 50 - 50	0 - 0 - 0	4	2
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 EBT	10 - 10 - 10	10 - 10 - 10	7 - 7 - 7	2.5 - 2.5 - 2.5	10 - 7 - 7	23 - 24 - 24	4	2

Last In Service Date: unknown

Permitted Phases

12345678

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

<u>Current TOD Schedule</u>	<u>Plan</u>	<u>Cycle</u>	<u>Green Time</u>								<u>Ring Offset</u>	<u>Offset</u>
			1	2	3	4	5	6	7	8		
			-	SBT	-	-	-	NBT	-	EBT		
1		100	0	64	0	0	0	64	0	24	0	17
2		95	0	59	0	0	0	59	0	24	0	39
3		100	0	64	0	0	0	64	0	24	0	22
4		90	0	54	0	0	0	54	0	24	0	85
5		110	0	74	0	0	0	74	0	24	0	89
6		120	0	84	0	0	0	84	0	24	0	27
7		120	0	84	0	0	0	84	0	24	0	22
9		65	0	29	0	0	0	29	0	24	0	62
22		100	0	64	0	0	0	64	0	24	0	22

Local TOD Schedule

<u>Time</u>	<u>Plan</u>	<u>DOW</u>
0000	1	Su M T W Th
0000	7	F S
0300	1	F S
0300	4	Su
0300	22	M T W Th
0700	1	M T W Th F S
0800	9	M T W Th
0800	5	Su
1000	5	Su F S
1800	1	M T W Th
1800	6	Su F S

Current Time of Day Function			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S
0800	PED RECALL	8---4---	M T W ThF
1800	PED RECALL	-----	M T W ThF

Local Time of Day Function			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	-----	SuM T W ThF S
0800	PED RECALL	8---4---	M T W ThF
1800	PED RECALL	-----	M T W ThF

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

No Calendar Defined/Enabled

5TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & C. AUDIFFRED
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_COLL
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North				5TH STREET From East				COLLINS AVENUE From South				5TH STREET From West					
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total	
Date 12/11/15																	
16:00	0	4	16	98	0	1	61	16	0	14	12	3	6	84	69	10	394
16:15	0	10	18	78	0	0	45	13	0	17	17	0	5	55	43	8	309
16:30	0	12	24	66	0	3	48	23	0	18	24	2	2	67	60	8	357
16:45	0	6	21	61	0	1	35	17	0	7	18	2	4	66	51	10	299
Hr Total	0	32	79	303	0	5	189	69	0	56	71	7	17	272	223	36	1359
17:00	0	9	28	64	0	5	42	13	0	4	22	4	4	66	43	10	314
17:15	0	9	25	74	0	5	28	18	0	5	14	3	3	53	37	8	282
17:30	0	6	20	64	0	6	41	21	0	6	19	2	6	51	34	10	286
17:45	0	9	22	90	0	1	34	12	0	10	22	2	13	61	46	4	326
Hr Total	0	33	95	292	0	17	145	64	0	25	77	11	26	231	160	32	1208
TOTAL	0	65	174	595	0	22	334	133	0	81	148	18	43	503	383	68	2567

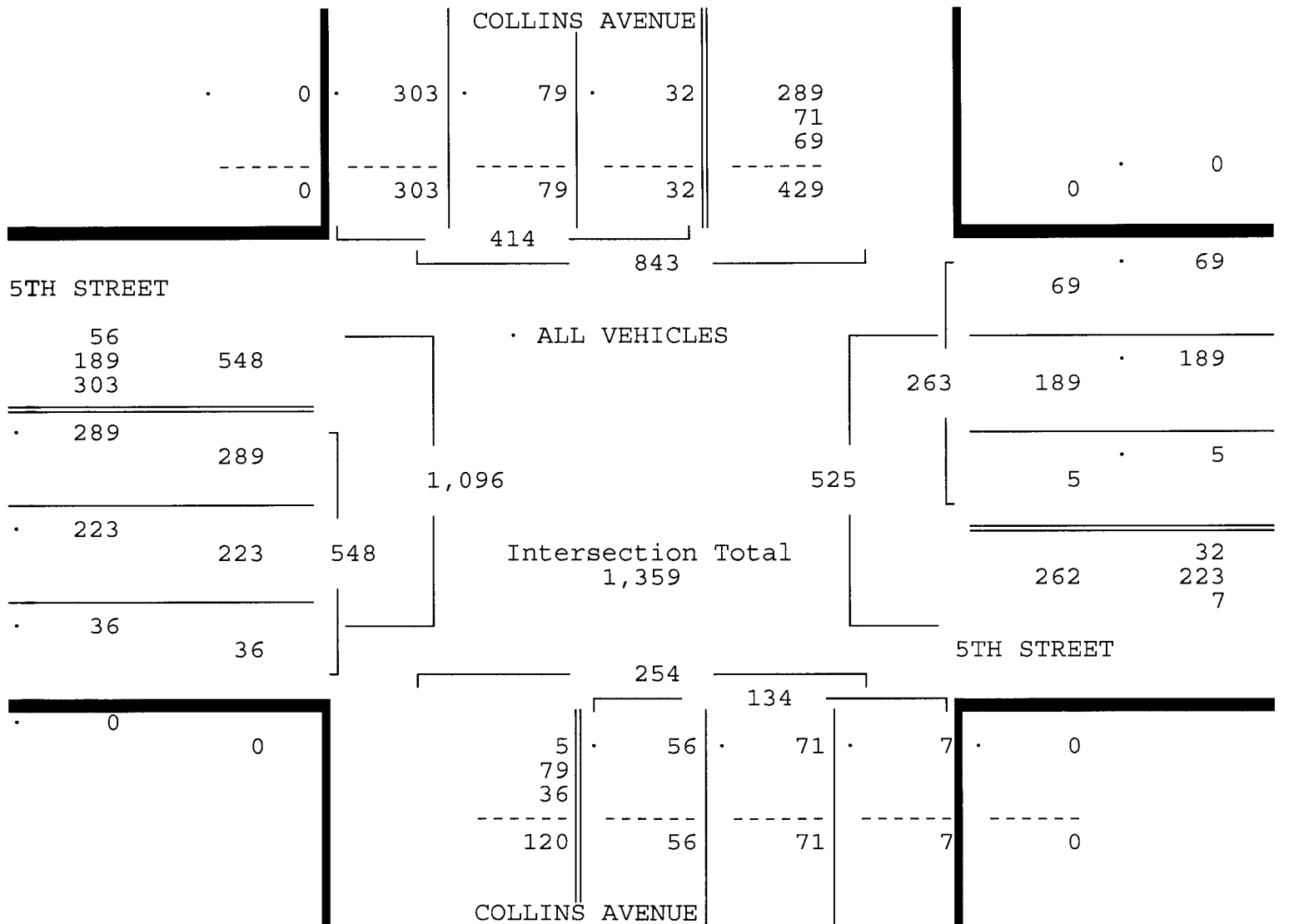
5TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & C. AUDIFFRED
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_COLL
 Page : 2

ALL VEHICLES

COLLINS AVENUE				5TH STREET				COLLINS AVENUE				5TH 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	Right	
Date 12/11/15 -----																
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																
Peak start 16:00				16:00				16:00				16:00				
Volume	0	32	79	303	0	5	189	69	0	56	71	7	17	272	223	36
Percent	0%	8%	19%	73%	0%	2%	72%	26%	0%	42%	53%	5%	3%	50%	41%	7%
Pk total	414				263				134				548			
Highest	16:00				16:00				16:30				16:00			
Volume	0	4	16	98	0	1	61	16	0	18	24	2	6	84	69	10
Hi total	118				78				44				169			
PHF	.88				.84				.76				.81			



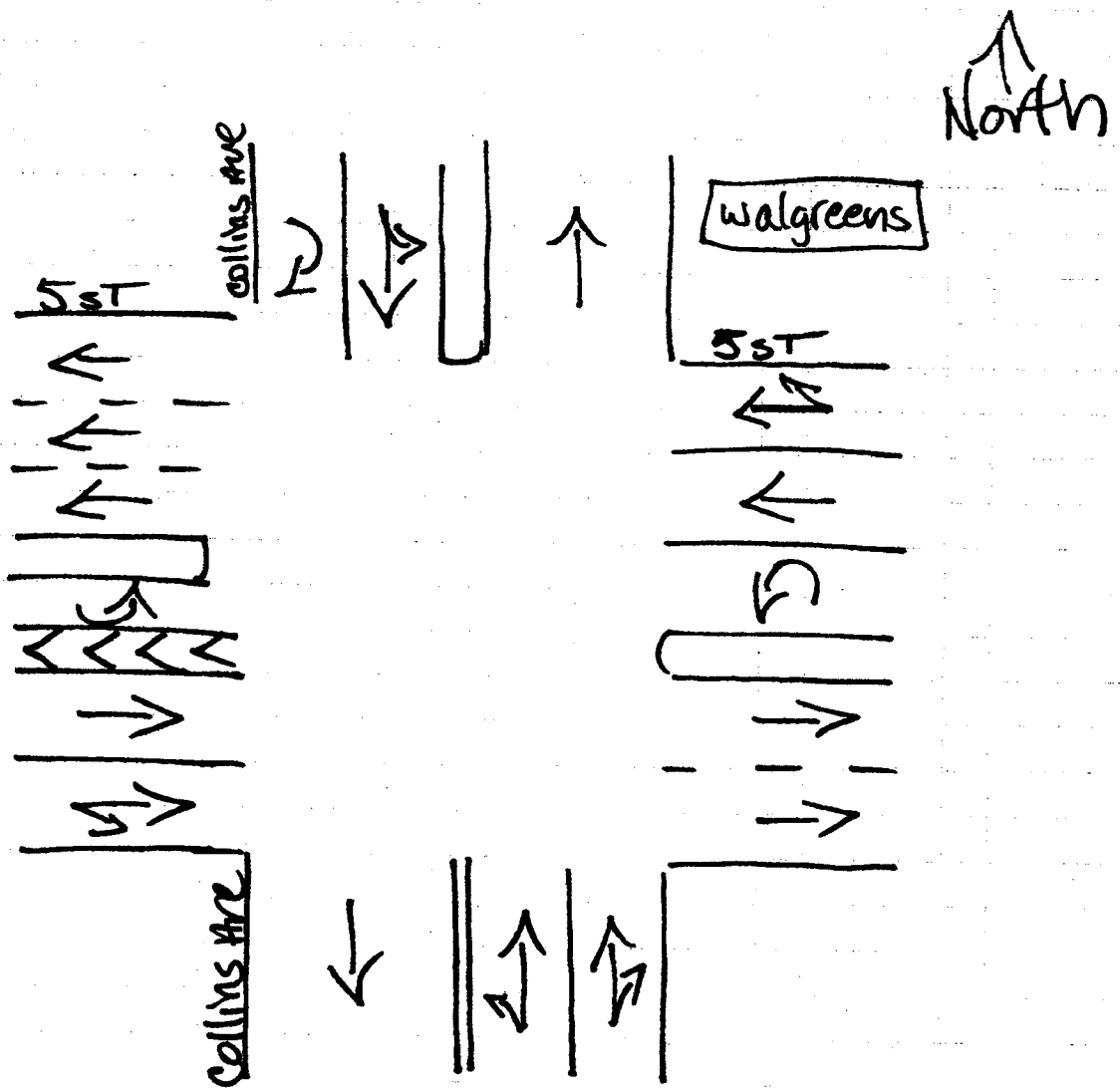
5TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & C. AUDIFFRED
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_COLL
 Page : 1

PEDESTRIANS & BIKES

Date	COLLINS AVENUE From North				5TH STREET From East				COLLINS AVENUE From South				5TH STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
12/11/15																	
16:00	0	0	0	61	0	0	0	24	0	0	0	11	0	2	0	16	114
16:15	0	0	0	66	0	0	0	30	0	1	0	12	0	2	0	8	119
16:30	0	0	0	67	0	0	0	12	0	3	0	20	0	1	0	15	118
16:45	0	0	0	99	0	0	0	24	0	1	0	13	0	2	0	16	155
Hr Total	0	0	0	293	0	0	0	90	0	5	0	56	0	7	0	55	506
17:00	0	0	0	91	0	0	0	23	0	3	0	19	0	1	0	9	146
17:15	0	0	0	91	0	0	0	29	0	0	0	14	0	4	0	16	154
17:30	0	0	0	91	0	0	0	37	0	2	0	18	0	4	0	13	165
17:45	0	0	0	79	0	0	0	25	0	2	0	2	0	1	0	21	130
Hr Total	0	0	0	352	0	0	0	114	0	7	0	53	0	10	0	59	595
TOTAL	0	0	0	645	0	0	0	204	0	12	0	109	0	17	0	114	1101



Miami beach, Florida
March 31, 2015
drawn by: Luis Palomino ✓
signalized

6TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: CRISTIAN PALOMINO
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6ST_COLL
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North				6TH STREET From East				COLLINS AVENUE From South				6TH STREET From West					
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total	
Date 12/11/15																	
16:00	0	1	97	1	0	6	0	10	0	0	98	0	0	2	0	13	228
16:15	0	0	104	0	0	3	0	14	0	0	87	0	0	2	0	8	218
16:30	2	0	91	1	0	1	1	11	0	0	111	0	0	1	0	10	229
16:45	0	0	90	0	0	7	0	9	0	0	96	0	0	1	0	3	206
Hr Total	2	1	382	2	0	17	1	44	0	0	392	0	0	6	0	34	881
17:00	0	0	79	1	0	1	0	7	0	0	94	1	0	0	0	5	188
17:15	0	0	99	0	0	6	0	6	0	0	85	0	0	0	0	12	208
17:30	0	0	84	0	0	5	0	12	0	0	86	0	0	0	0	10	197
17:45	0	0	99	2	0	3	0	11	0	0	91	1	0	3	0	12	222
Hr Total	0	0	361	3	0	15	0	36	0	0	356	2	0	3	0	39	815
TOTAL	2	1	743	5	0	32	1	80	0	0	748	2	0	9	0	73	1696

6TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: CRISTIAN PALOMINO
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6ST_COLL
 Page : 2

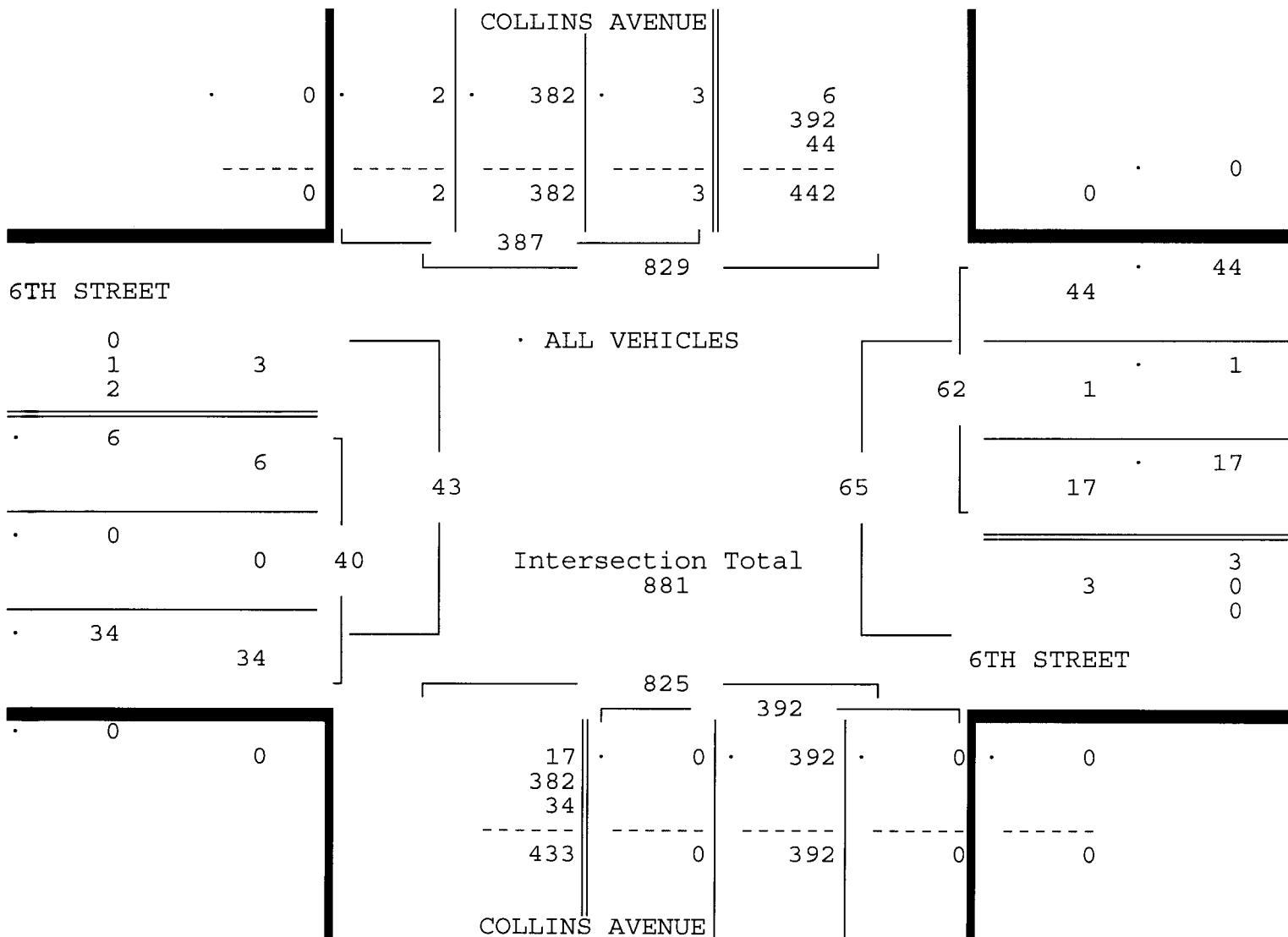
ALL VEHICLES

COLLINS AVENUE From North				6TH STREET From East				COLLINS AVENUE From South				6TH STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 12/11/15

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15

Peak start 16:00	16:00				16:00				16:00				16:00			
Volume	2	1	382	2	0	17	1	44	0	0	392	0	0	6	0	34
Percent	1%	0%	99%	1%	0%	27%	2%	71%	0%	0%	100%	0%	0%	15%	0%	85%
Pk total	387				62				392				40			
Highest	16:15				16:15				16:30				16:00			
Volume	0	0	104	0	0	3	0	14	0	0	111	0	0	2	0	13
Hi total	104				17				111				15			
PHF	.93				.91				.88				.67			



6TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: CRISTIAN PALOMINO
 NOT SIGNALIZED

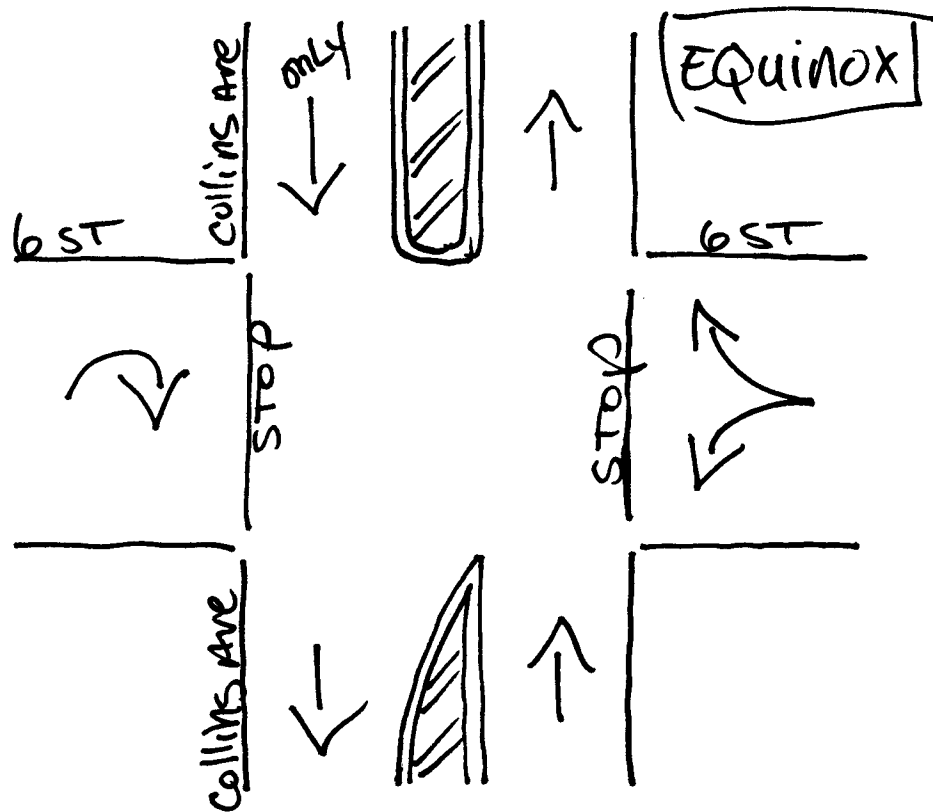
Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6ST_COLL
 Page : 1

PEDESTRIANS & BIKES

Date	COLLINS AVENUE				6TH STREET				COLLINS AVENUE				6TH STREET				Total
	From North				From East				From South				From West				
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
12/11/15																	
16:00	0	0	0	33	0	1	0	34	0	3	0	4	0	3	0	60	138
16:15	0	0	0	20	0	3	0	29	0	2	0	2	0	2	0	46	104
16:30	0	2	0	29	0	1	0	32	0	0	0	1	0	4	0	47	116
16:45	0	1	0	50	0	2	0	22	0	1	0	0	0	1	0	75	152
Hr Total	0	3	0	132	0	7	0	117	0	6	0	7	0	10	0	228	510
17:00	0	4	0	34	0	2	0	15	0	0	0	0	0	0	0	57	112
17:15	0	1	0	31	0	0	0	21	0	0	0	5	0	5	0	49	112
17:30	0	2	0	27	0	2	0	30	0	0	0	2	0	4	0	48	115
17:45	0	0	0	37	0	4	0	14	0	0	0	0	0	3	0	71	129
Hr Total	0	7	0	129	0	8	0	80	0	0	0	7	0	12	0	225	468
TOTAL	0	10	0	261	0	15	0	197	0	6	0	14	0	22	0	453	978

North ↑



Miami Beach, Florida
December 15, 2015
drawn by: Luis Palomino
NOT SIGNALIZED

7TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: LUIS PALOMINO
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7ST_COLL
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North					7TH STREET From East				COLLINS AVENUE From South				7TH STREET From West						
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	Total
Date 12/11/15																			
16:00	0	6	81	0	0	0	0	0	0	0	0	103	17	0	0	16	13	11	247
16:15	0	6	83	0	0	0	0	0	0	0	0	102	7	0	0	12	22	16	248
16:30	0	4	76	0	0	0	0	0	0	0	1	105	9	0	0	7	12	14	228
16:45	0	11	82	0	0	0	0	0	1	0	0	101	17	0	0	18	15	19	264
Hr Total	0	27	322	0	0	0	0	0	1	0	1	411	50	0	0	53	62	60	987
17:00	0	4	79	0	0	0	0	0	0	0	0	107	6	0	0	12	17	9	234
17:15	0	9	73	0	0	0	0	0	1	0	1	86	3	0	0	17	15	12	217
17:30	2	5	84	0	0	0	0	0	0	0	0	84	20	3	0	11	10	14	233
17:45	0	9	67	0	0	0	0	0	0	0	0	95	7	0	0	8	13	16	215
Hr Total	2	27	303	0	0	0	0	0	1	0	1	372	36	3	0	48	55	51	899
TOTAL	2	54	625	0	0	0	0	0	2	0	2	783	86	3	0	101	117	111	1886

7TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: LUIS PALOMINO
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7ST_COLL
 Page : 2

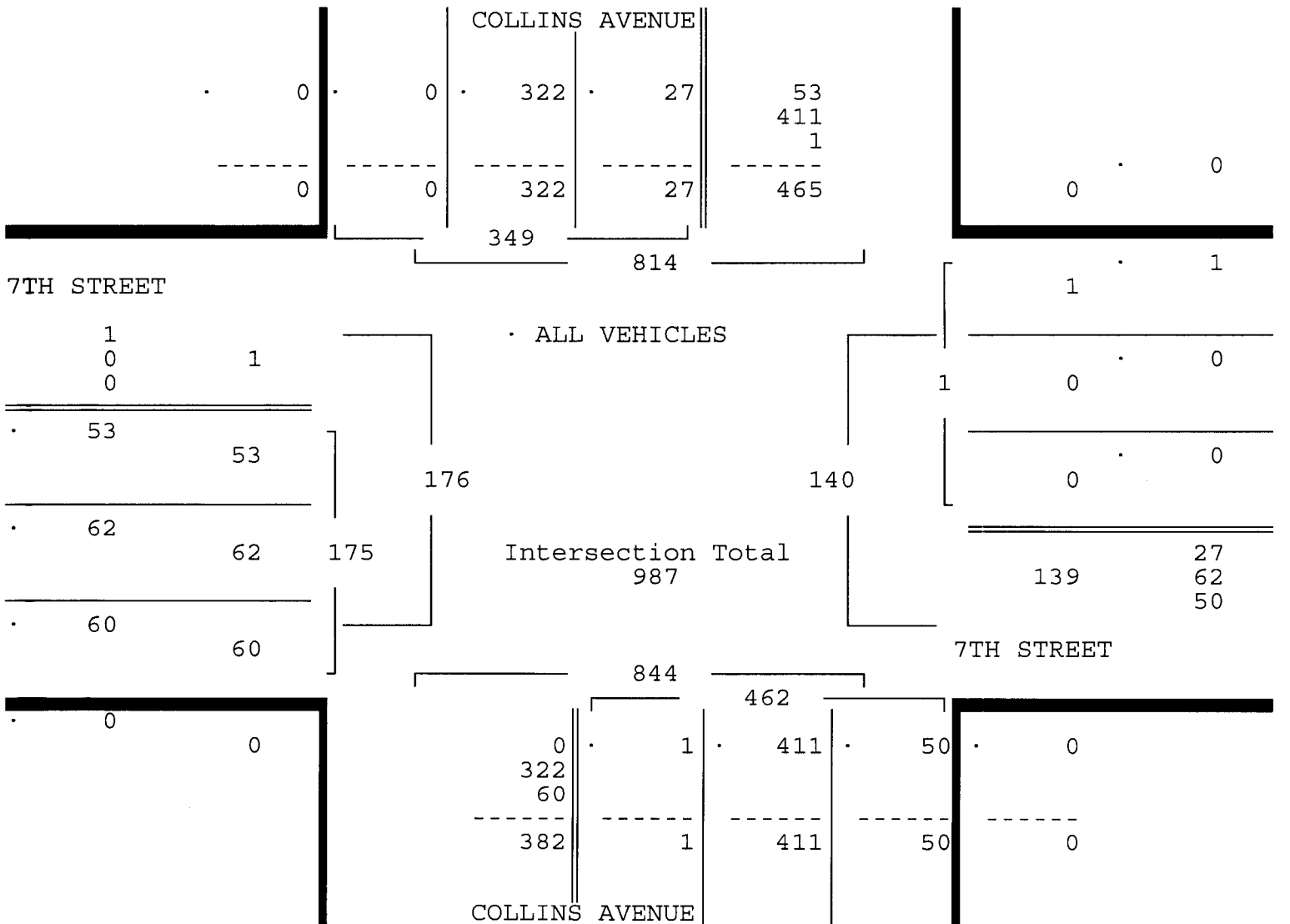
ALL VEHICLES

COLLINS AVENUE From North				7TH STREET From East				COLLINS AVENUE From South				7TH STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 12/11/15

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15

Peak start 16:00	16:00				16:00				16:00				16:00			
Volume	0	27	322	0	0	0	0	1	0	1	411	50	0	53	62	60
Percent	0%	8%	92%	0%	0%	0%	0%	100%	0%	0%	89%	11%	0%	30%	35%	34%
Pk total	349	1				462				175						
Highest	16:45	16:45				16:00				16:45						
Volume	0	11	82	0	0	0	0	1	0	0	103	17	0	18	15	19
Hi total	93	1				120				52						
PHF	.94	.25				.96				.84						



7TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: LUIS PALOMINO
 SIGNALIZED

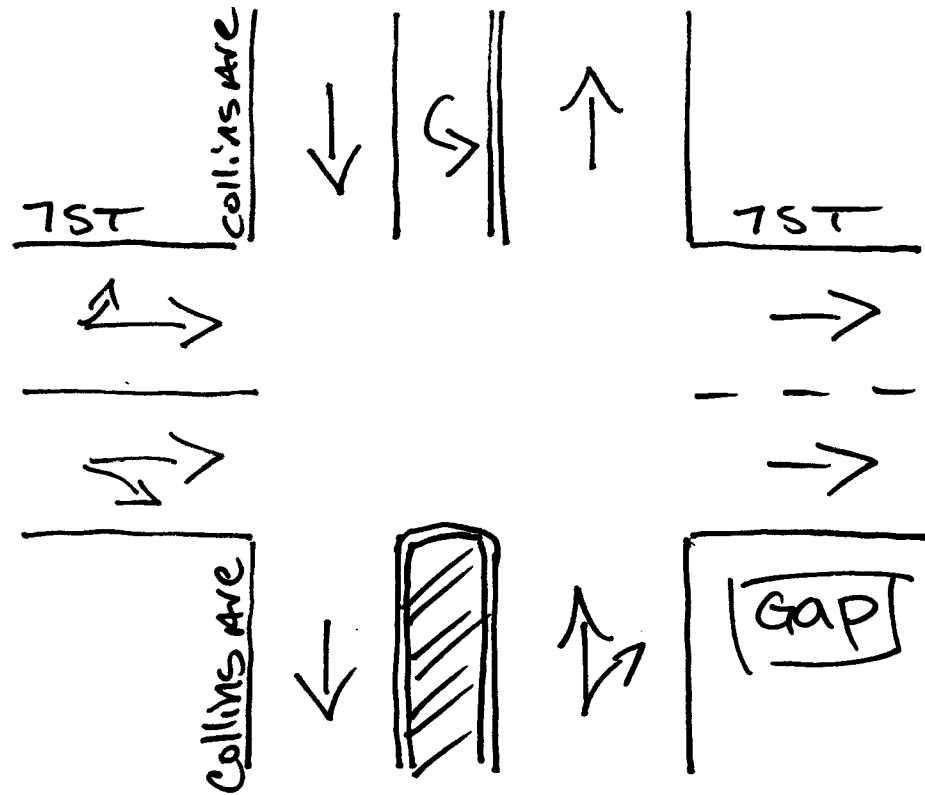
Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7ST_COLL
 Page : 1

PEDESTRIANS & BIKES

	COLLINS AVENUE				7TH STREET				COLLINS AVENUE				7TH 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 12/11/15																	
16:00	0	0	0	15	0	2	0	47	0	0	0	63	0	2	0	57	186
16:15	0	2	0	22	0	3	0	66	0	1	0	67	0	3	0	38	202
16:30	0	1	0	22	0	0	0	56	0	2	0	54	0	3	0	72	210
16:45	0	5	0	11	0	3	0	66	0	3	0	64	0	2	0	52	206
Hr Total	0	8	0	70	0	8	0	235	0	6	0	248	0	10	0	219	804
17:00	0	4	0	22	0	0	0	60	0	7	0	42	0	4	0	45	184
17:15	0	2	0	28	0	0	0	61	0	2	0	60	0	7	0	86	246
17:30	0	0	0	30	0	1	0	72	0	2	0	59	0	3	0	88	255
17:45	0	2	0	31	0	6	0	49	0	0	0	61	0	1	0	92	242
Hr Total	0	8	0	111	0	7	0	242	0	11	0	222	0	15	0	311	927
TOTAL	0	16	0	181	0	15	0	477	0	17	0	470	0	25	0	530	1731

North



Miami Beach, Florida
December 15, 2015
Drawn by: Luis Palomino
Signalized

5TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. GONZALEZ & I. GONZALEZ
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_WASH
 Page : 1

ALL VEHICLES

WASHINGTON AVENUE From North					5TH STREET From East				WASHINGTON AVENUE From South				5TH STREET From West						
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	Total
Date 12/11/15																			
16:00	2	5	36	64	0	2	151	20	0	34	54	6	0	71	147	14	606		
16:15	7	9	47	63	0	4	125	24	0	18	60	1	0	88	105	12	563		
16:30	4	3	31	36	0	8	70	33	0	17	60	2	1	67	124	8	464		
16:45	4	10	34	28	0	7	78	21	0	13	63	5	0	79	116	14	472		
Hr Total	17	27	148	191	0	21	424	98	0	82	237	14	1	305	492	48	2105		
17:00	4	9	34	48	0	3	104	23	1	20	49	3	2	94	102	9	505		
17:15	1	11	40	44	1	2	89	28	1	12	43	2	0	73	91	13	451		
17:30	5	7	49	47	0	4	93	30	0	14	49	3	2	69	95	15	482		
17:45	4	7	50	85	0	6	100	24	0	18	47	8	0	80	109	7	545		
Hr Total	14	34	173	224	1	15	386	105	2	64	188	16	4	316	397	44	1983		
TOTAL	31	61	321	415	1	36	810	203	2	146	425	30	5	621	889	92	4088		

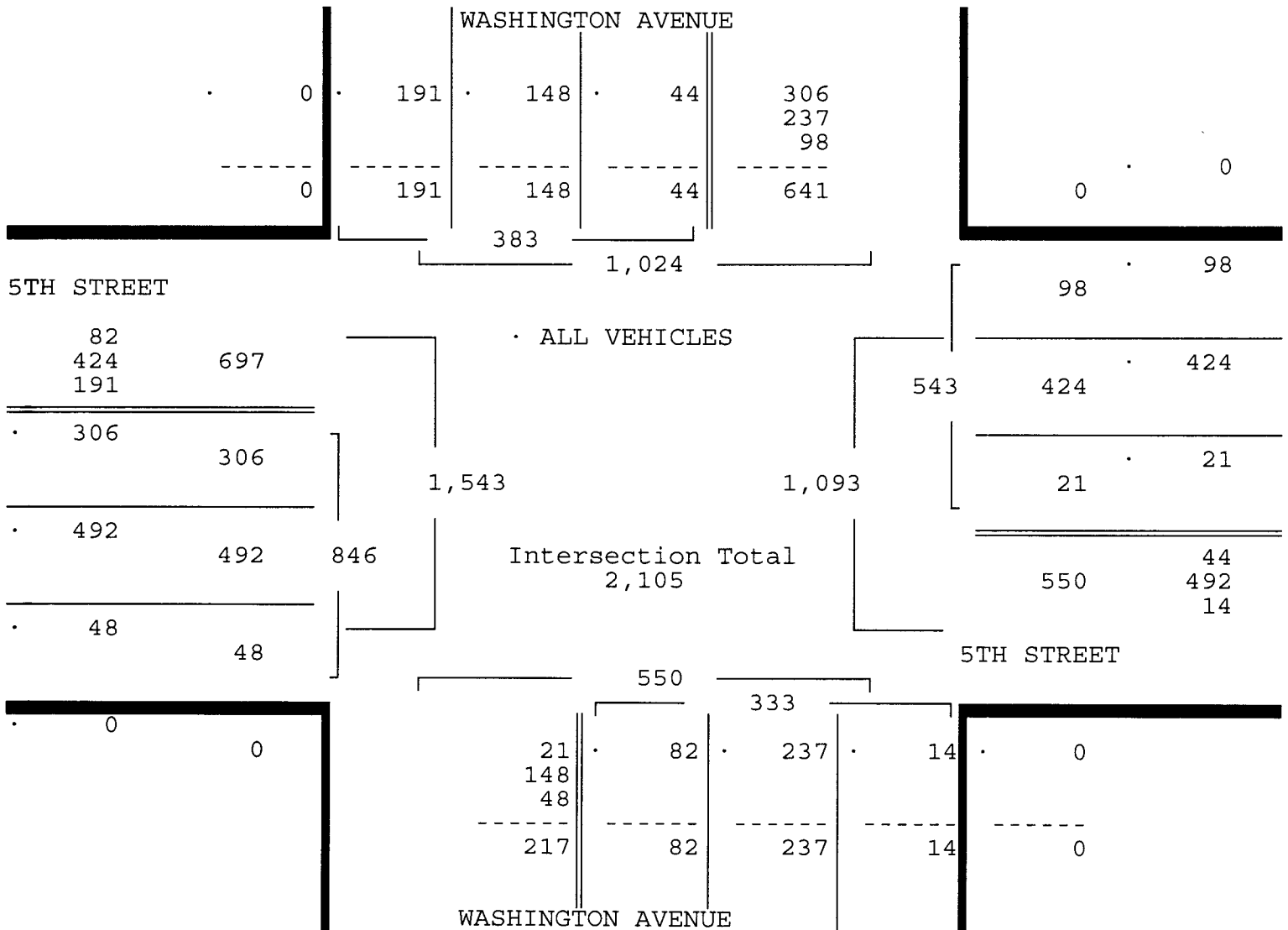
5TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. GONZALEZ & I. GONZALEZ
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_WASH
 Page : 2

ALL VEHICLES

WASHINGTON AVENUE				5TH STREET				WASHINGTON AVENUE				5TH 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 12/11/15 -----																	
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																	
Peak start 16:00				16:00				16:00				16:00					
Volume	17	27	148	191	0	21	424	98	0	82	237	14	1	305	492	48	
Percent	4%	7%	39%	50%	0%	4%	78%	18%	0%	25%	71%	4%	0%	36%	58%	6%	
Pk total	383			543				333				846					
Highest	16:15			16:00				16:00				16:00					
Volume	7	9	47	63	0	2	151	20	0	34	54	6	0	71	147	14	
Hi total	126			173				94				232					
PHF	.76			.78				.89				.91					



5TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: A. GONZALEZ & I. GONZALEZ
 SIGNALIZED

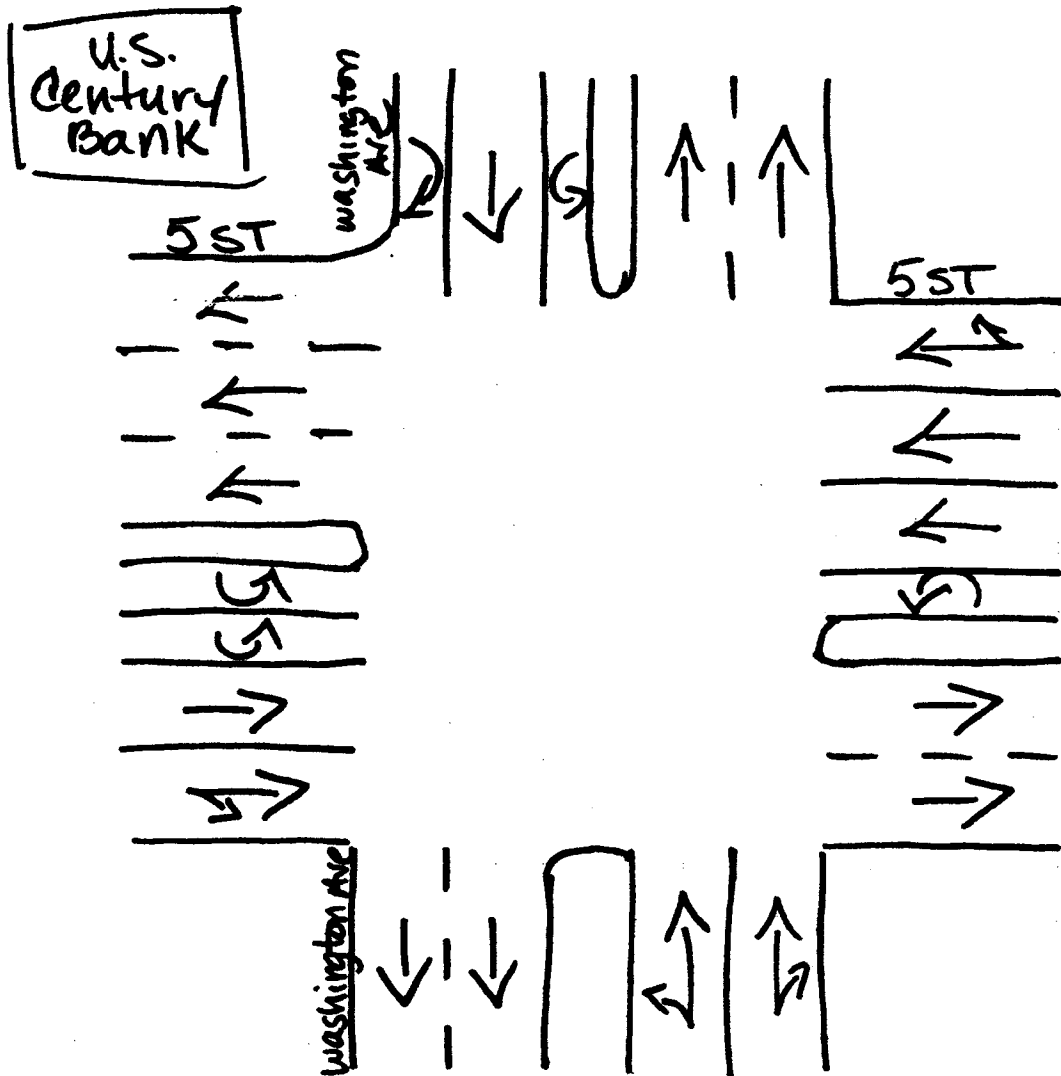
Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 5ST_WASH
 Page : 1

PEDESTRIANS & BIKES

Date	WASHINGTON AVENUE				5TH STREET				WASHINGTON AVENUE				5TH STREET				Total
	From North				From East				From South				From West				
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
12/11/15																	
16:00	0	0	0	33	0	1	0	6	0	5	0	22	0	2	0	11	80
16:15	0	3	0	49	0	1	0	12	0	2	0	16	0	4	0	14	101
16:30	0	2	0	60	0	3	0	8	0	0	0	20	0	1	0	4	98
16:45	0	16	0	58	0	1	0	16	0	3	0	30	0	4	0	10	138
Hr Total	0	21	0	200	0	6	0	42	0	10	0	88	0	11	0	39	417
17:00	0	5	0	86	0	2	0	9	0	2	0	12	0	4	0	25	145
17:15	0	1	0	64	0	1	0	24	0	4	0	13	0	1	0	26	134
17:30	0	5	0	55	0	1	0	25	0	4	0	15	0	2	0	19	126
17:45	0	4	0	52	0	1	0	13	0	5	0	2	0	1	0	19	97
Hr Total	0	15	0	257	0	5	0	71	0	15	0	42	0	8	0	89	502
TOTAL	0	36	0	457	0	11	0	113	0	25	0	130	0	19	0	128	919

↑
North



Miami beach, Florida
December 16, 2013
drawn by: Luis Palomino ✓
Signalized

6TH STREET & WASHINGTON 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 : 00150258
Start Date: 12/11/15
File I.D. : 6ST_WASH
Page : 1

ALL VEHICLES

WASHINGTON AVENUE					6TH STREET					WASHINGTON AVENUE					6TH 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	Right		
Date 12/11/15																				
16:00	0	0	103	31	0	0	0	0		3	4	129	6		0	13	0	3		292
16:15	1	0	117	28	0	0	0	0		2	7	153	15		0	8	0	14		345
16:30	1	0	72	36	0	0	0	0		0	16	135	6		0	7	0	13		286
16:45	1	0	75	41	0	0	0	0		0	12	139	4		0	18	0	4		294
Hr Total	3	0	367	136	0	0	0	0		5	39	556	31		0	46	0	34		1217
17:00	3	0	86	27	0	0	0	0		1	13	141	8		0	7	0	10		296
17:15	2	0	87	27	0	0	0	0		1	10	134	8		0	11	0	12		292
17:30	1	0	93	33	0	0	0	0		1	10	124	8		0	7	0	6		283
17:45	1	0	119	14	0	0	0	0		3	7	131	7		0	12	0	4		298
Hr Total	7	0	385	101	0	0	0	0		6	40	530	31		0	37	0	32		1169
TOTAL	10	0	752	237	0	0	0	0		11	79	1086	62		0	83	0	66		2386

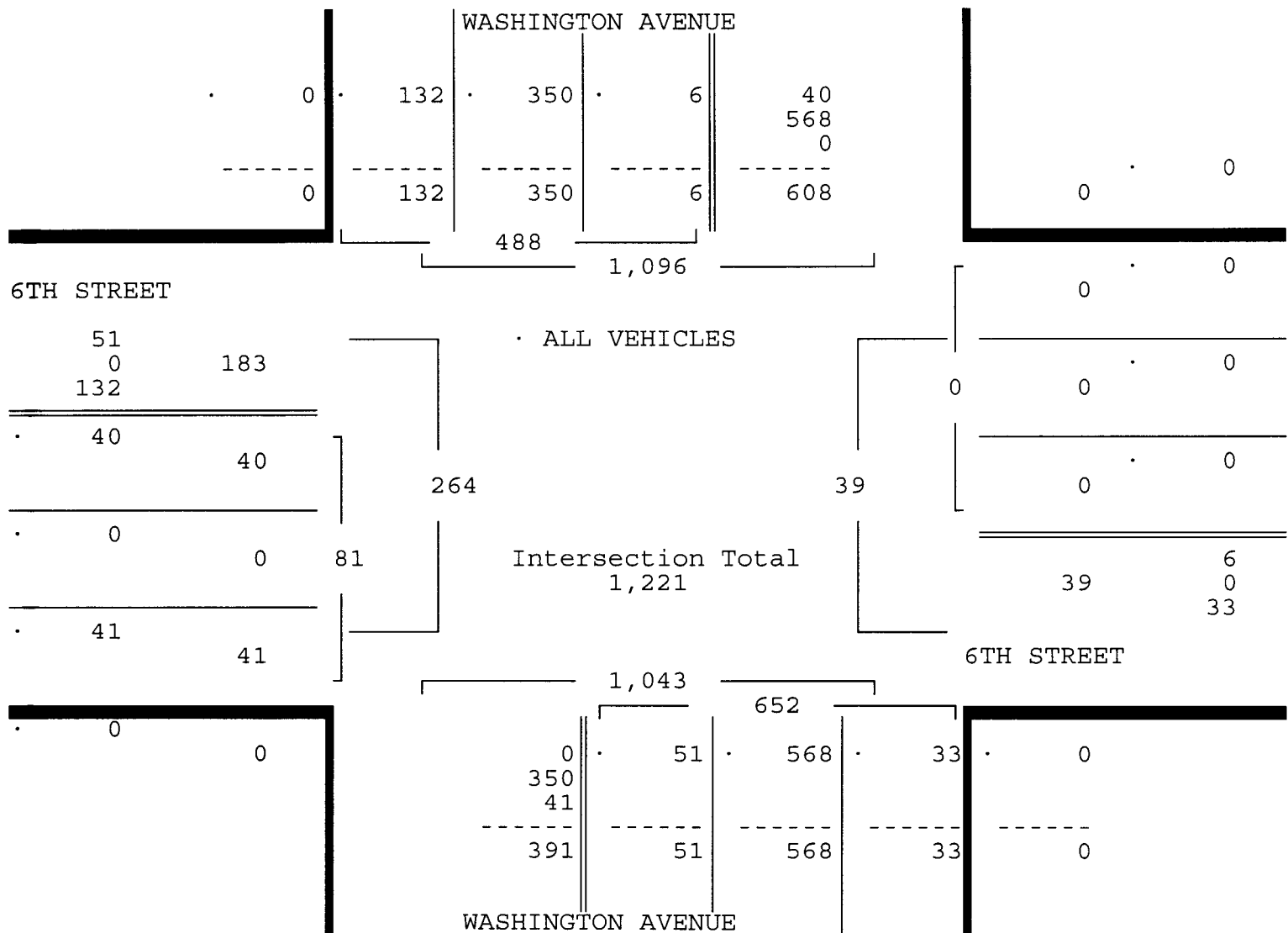
6TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6ST_WASH
 Page : 2

ALL VEHICLES

WASHINGTON AVENUE				6TH STREET				WASHINGTON AVENUE				6TH 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 12/11/15																	
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																	
Peak start 16:15				16:15				16:15				16:15					
Volume	6	0	350	132	0	0	0	0	3	48	568	33	0	40	0	41	
Percent	1%	0%	72%	27%	0%	0%	0%	0%	0%	7%	87%	5%	0%	49%	0%	51%	
Pk total	488				0				652				81				
Highest	16:15				16:00				16:15				16:15				
Volume	1	0	117	28	0	0	0	0	2	7	153	15	0	8	0	14	
Hi total	146				0				177				22				
PHF	.84				.0				.92				.92				



6TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ROLANDO MARTINEZ
 SIGNALIZED

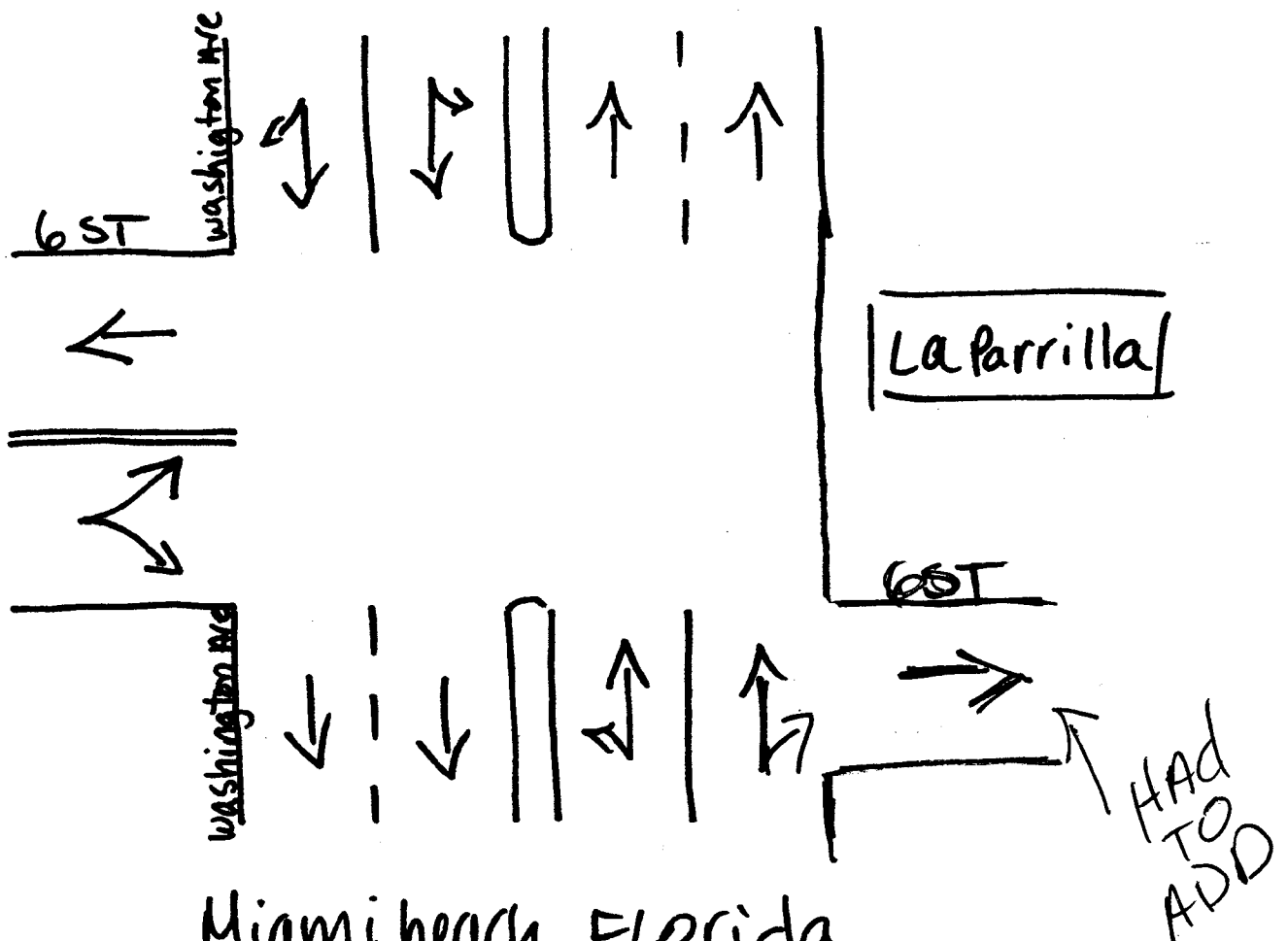
Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6ST_WASH
 Page : 1

PEDESTRIANS & BIKES

Date 12/11/15	WASHINGTON AVENUE From North				6TH STREET From East				WASHINGTON AVENUE From South				6TH STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
16:00	0	0	0	6	0	8	0	26	0	3	0	22	0	2	0	21	88
16:15	0	1	0	3	0	5	0	13	0	9	0	15	0	3	0	17	66
16:30	0	0	0	2	0	6	0	39	0	2	0	26	0	0	0	10	85
16:45	0	2	0	0	0	3	0	25	0	2	0	14	0	0	0	6	52
Hr Total	0	3	0	11	0	22	0	103	0	16	0	77	0	5	0	54	291
17:00	0	0	0	2	0	7	0	18	0	2	0	10	0	0	0	10	49
17:15	0	0	0	1	0	2	0	31	0	2	0	33	0	0	0	5	74
17:30	0	0	0	9	0	5	0	25	0	1	0	20	0	0	0	14	74
17:45	0	0	0	4	0	4	0	54	0	0	0	17	0	4	0	17	100
Hr Total	0	0	0	16	0	18	0	128	0	5	0	80	0	4	0	46	297
TOTAL	0	3	0	27	0	40	0	231	0	21	0	157	0	9	0	100	588

↑
North



Miami beach, Florida
December 16, 2013
drawn by: Luis Palomino ✓
Signalized

7TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7ST_WASH
 Page : 1

ALL VEHICLES

WASHINGTON AVENUE					7TH STREET				WASHINGTON AVENUE				7TH 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 12/11/15																			
16:00	3	19	138	6	0	0	0	0		3	7	130	12		0	5	7	6	336
16:15	3	26	127	7	0	0	0	0		2	7	142	7		0	7	11	12	351
16:30	2	20	122	21	0	0	0	0		0	13	133	11		0	4	9	7	342
16:45	1	19	98	21	0	0	0	0		1	6	138	24		0	6	9	4	327
Hr Total	9	84	485	55	0	0	0	0		6	33	543	54		0	22	36	29	1356
17:00	2	14	107	17	0	0	0	0		1	7	129	12		0	6	11	4	310
17:15	5	14	111	9	0	0	0	0		1	6	134	13		0	10	12	2	317
17:30	8	21	108	13	0	0	0	0		0	5	125	6		0	2	5	5	298
17:45	4	21	126	9	0	0	0	0		1	4	126	12		0	6	8	5	322
Hr Total	19	70	452	48	0	0	0	0		3	22	514	43		0	24	36	16	1247
TOTAL	28	154	937	103	0	0	0	0		9	55	1057	97		0	46	72	45	2603

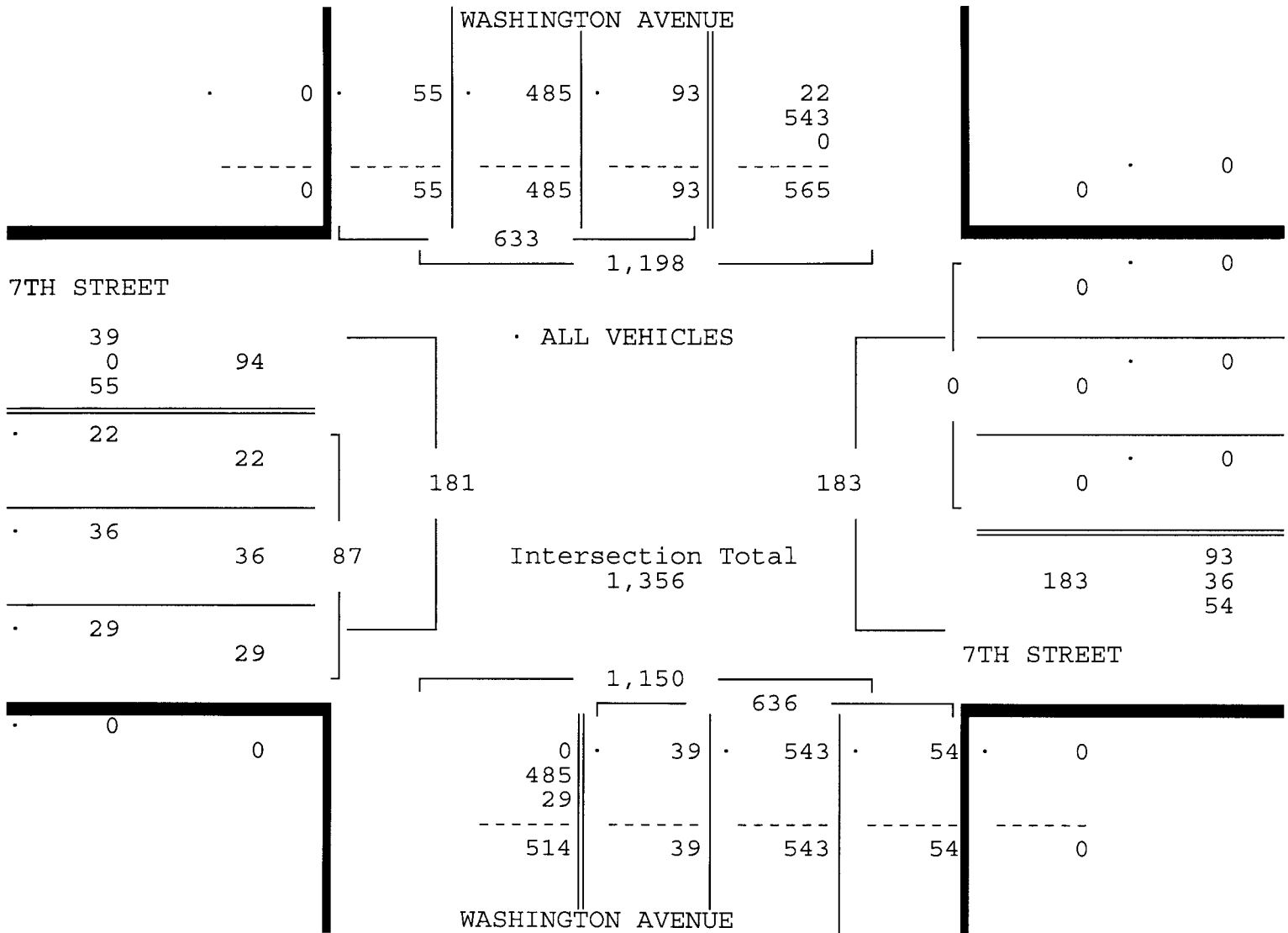
7TH STREET & WASHINGTON AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARCELLO MINO-WILZEK
 SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7ST_WASH
 Page : 2

ALL VEHICLES

WASHINGTON AVENUE					7TH STREET					WASHINGTON AVENUE					7TH 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 12/11/15																				
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																				
Peak start 16:00					16:00					16:00					16:00					
Volume	9	84	485	55	0	0	0	0	6	33	543	54	0	22	36	29				
Percent	1%	13%	77%	9%	0%	0%	0%	0%	1%	5%	85%	8%	0%	25%	41%	33%				
Pk total	633				0				636				87							
Highest	16:00				16:00				16:45				16:15							
Volume	3	19	138	6	0	0	0	0	1	6	138	24	0	7	11	12				
Hi total	166				0				169				30							
PHF	.95				.0				.94				.72							



Traffic Survey Specialists, Inc.

7TH STREET & WASHINGTON AVENUE
MIAMI BEACH, FLORIDA
COUNTED BY: MARCELLO MINO-WILZEK
SIGNALIZED

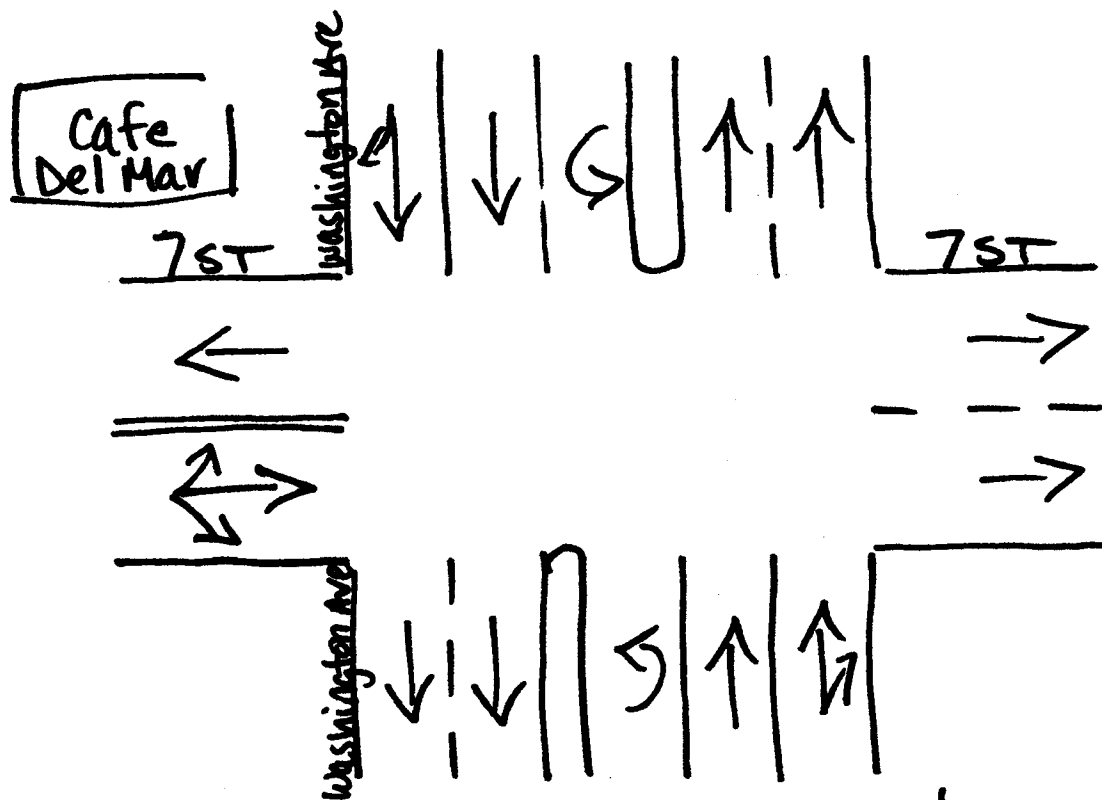
85 SE 4th Avenue, Unit 109
Delray Beach, Florida 33483
Phone (561) 272-3255

Site Code : 00150258
Start Date: 12/11/15
File I.D. : 7ST_WASH
Page : 1

PEDESTRIANS & BIKES

	WASHINGTON AVENUE				7TH STREET				WASHINGTON AVENUE				7TH STREET				Total
	From North				From East				From South				From West				
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
Date 12/11/15																	
16:00	0	3	0	14	0	4	0	7	0	3	0	19	0	4	0	21	
16:15	0	2	0	18	0	2	0	14	0	4	0	12	0	0	0	14	
16:30	0	0	0	22	0	1	0	0	0	1	0	11	0	0	0	16	
16:45	0	0	0	7	0	4	0	11	0	2	0	17	0	0	0	5	
Hr Total	0	5	0	61	0	11	0	32	0	10	0	59	0	4	0	56	
17:00	0	1	0	15	0	0	0	11	0	4	0	6	0	0	0	2	
17:15	0	1	0	2	0	0	0	11	0	0	0	9	0	0	0	5	
17:30	0	0	0	5	0	0	0	14	0	1	0	9	0	2	0	1	
17:45	0	0	0	0	0	1	0	17	0	0	0	7	0	0	0	0	
Hr Total	0	2	0	22	0	1	0	53	0	5	0	31	0	2	0	8	
TOTAL	0	7	0	83	0	12	0	85	0	15	0	90	0	6	0	64	

↑
North



Miami beach, Florida
December 16, 2013
drawn by: Luis Palomino ✓
Signalized

5TH STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: ISIDRO GONZALEZ
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/18/15
 File I.D. : 5S_COLCT
 Page : 1

ALL VEHICLES

COLLINS COURT From North					5TH STREET From East				COLLINS COURT From South				5TH STREET From West				
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total
Date 12/18/15																	
16:00	0	0	0	4	0	0	161	12	0	0	0	1	0	0	142	2	322
16:15	0	0	0	5	0	0	157	12	0	0	0	2	0	0	132	0	308
16:30	0	0	0	5	1	0	160	11	0	0	0	2	0	0	120	5	304
16:45	0	0	0	8	0	0	158	4	1	0	0	3	1	0	119	3	297
Hr Total	0	0	0	22	1	0	636	39	1	0	0	8	1	0	513	10	1231
17:00	1	0	0	2	1	0	149	9	0	0	0	2	1	0	125	2	292
17:15	0	0	0	9	0	0	151	10	0	0	0	0	0	1	124	6	301
17:30	4	0	0	12	1	0	142	15	0	0	0	3	0	1	128	2	308
17:45	0	0	0	4	0	0	155	5	0	0	0	5	1	1	140	5	316
Hr Total	5	0	0	27	2	0	597	39	0	0	0	10	2	3	517	15	1217
TOTAL	5	0	0	49	3	0	1233	78	1	0	0	18	3	3	1030	25	2448

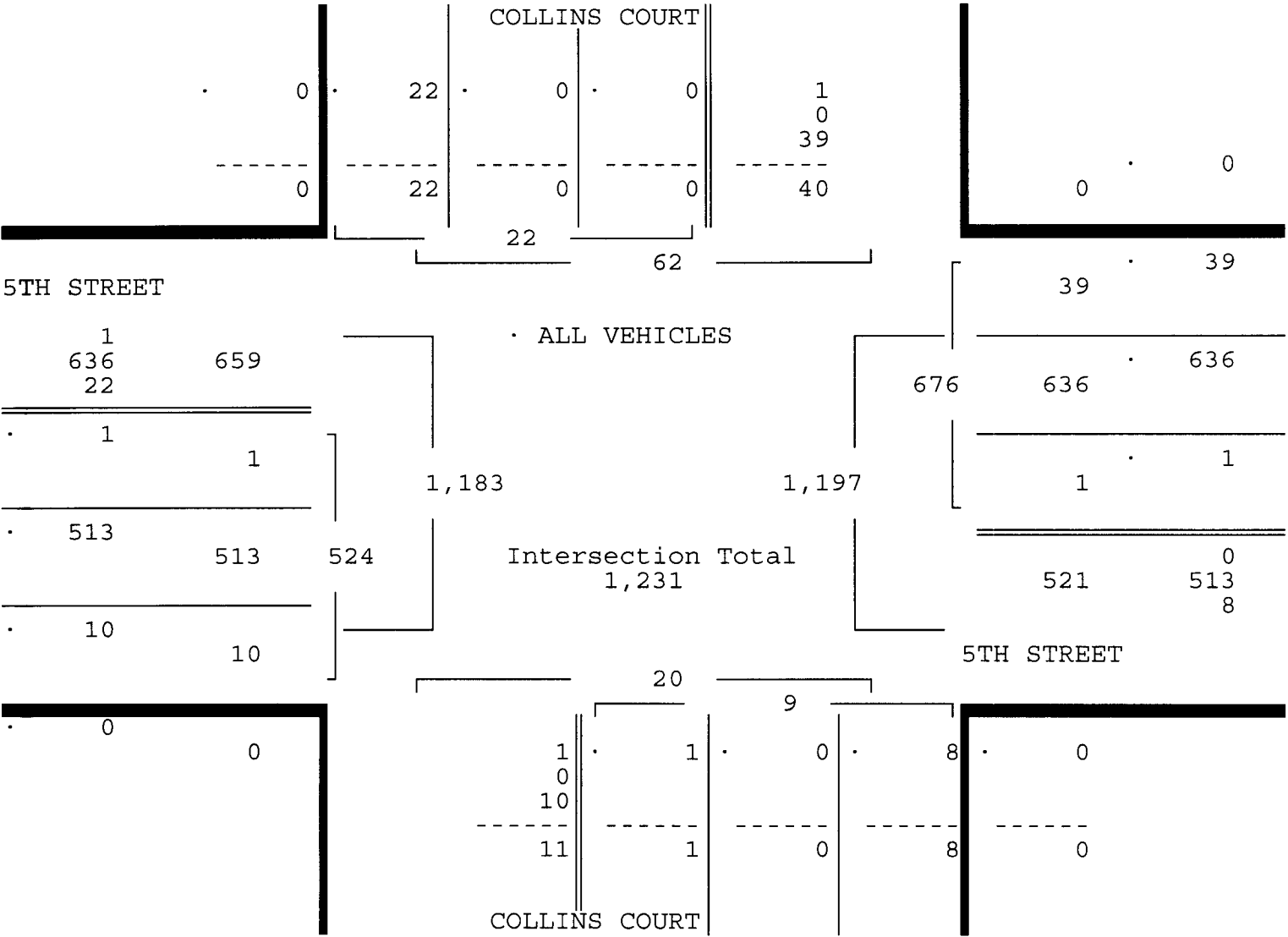
5TH STREET & COLLINS COURT
MIAMI BEACH, FLORIDA
COUNTED BY: ISIDRO GONZALEZ
NOT SIGNALIZED

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

Site Code : 00150258
Start Date: 12/18/15
File I.D. : 5S_COLCT
Page : 2

ALL VEHICLES

COLLINS COURT From North					5TH STREET From East					COLLINS COURT From South					5TH STREET From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		
Date 12/18/15																				Total
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/18/15																				
Peak start 16:00					16:00					16:00					16:00					
Volume	0	0	0	22	1	0	636	39	1	0	0	8	1	0	513	10				
Percent	0%	0%	0%	100%	0%	0%	94%	6%	11%	0%	0%	89%	0%	0%	98%	2%				
Pk total	22				676				9					524						
Highest	16:45				16:00				16:45					16:00						
Volume	0	0	0	8	0	0	161	12	1	0	0	3	0	0	142	2				
Hi total	8				173				4					144						
PHF	.69				.98				.56					.91						



5TH STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: ISIDRO GONZALEZ
 NOT SIGNALIZED

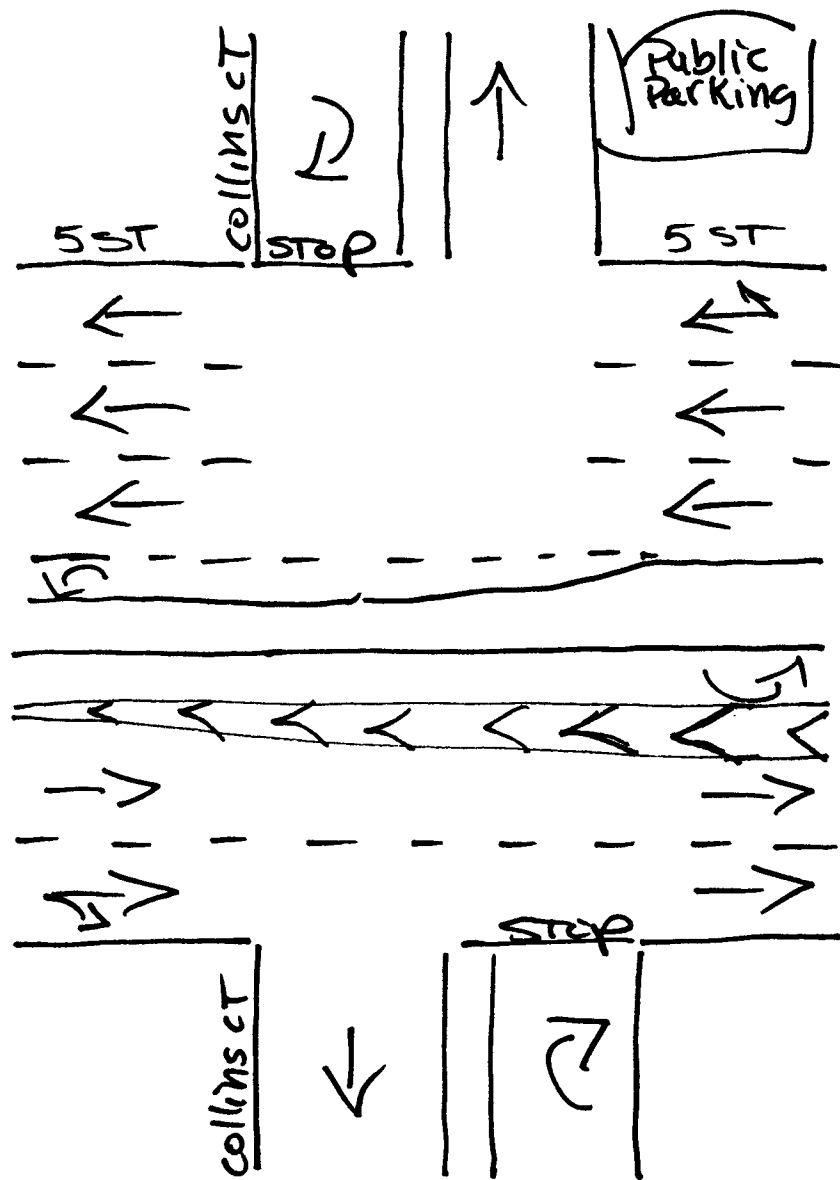
Traffic Survey Specialists, Inc.
 85 SE 4th Avenue, Unit 109
 Delray Beach, Florida 33483
 Phone (561) 272-3255

Site Code : 00150258
 Start Date: 12/18/15
 File I.D. : 5S_COLCT
 Page : 1

PEDESTRIANS & BIKES

Date 12/18/15	COLLINS COURT From North				5TH STREET From East				COLLINS COURT From South				5TH STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
16:00	0	15	0	81	0	0	0	0	0	8	0	17	0	0	0	3	124
16:15	0	10	0	74	0	0	0	1	0	1	0	24	0	0	0	2	112
16:30	0	9	0	98	0	0	0	3	0	8	0	11	0	0	0	2	131
16:45	0	7	0	51	0	0	0	0	0	3	0	12	0	2	0	1	76
Hr Total	0	41	0	304	0	0	0	4	0	20	0	64	0	2	0	8	443
17:00	0	5	0	44	0	0	0	1	0	5	0	23	0	2	0	1	81
17:15	0	9	0	68	0	0	0	0	0	5	0	21	0	1	0	0	104
17:30	0	10	0	64	0	0	0	0	0	7	0	24	0	2	0	4	111
17:45	0	7	0	21	0	0	0	0	0	3	0	20	0	1	0	1	53
Hr Total	0	31	0	197	0	0	0	1	0	20	0	88	0	6	0	6	349
TOTAL	0	72	0	501	0	0	0	5	0	40	0	152	0	8	0	14	792

↑
NORTH



Miami Beach, Florida
December 15, 2015
drawn by: Luis Palomino
NOT signalized

6 STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARISA CRUZ
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6STCOLCT
 Page : 1

ALL VEHICLES

COLLINS COURT From North					6TH STREET From East				COLLINS COURT From South				6TH STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 12/11/15																				
16:00	0	1	0	0	0	0	0	0	0	0	1	2	4		0	3	8	2		21
16:15	0	0	1	0	0	0	1	0		0	1	4	2		0	2	8	3		22
16:30	0	0	0	0	0	0	1	1		0	2	2	3		0	7	8	1		25
16:45	0	0	0	0	0	0	0	0		0	2	4	0		0	4	4	1		15
Hr Total	0	1	1	0	0	0	2	1		0	6	12	9		0	16	28	7		83
17:00	0	1	1	0	0	0	0	1		0	0	2	4		0	9	2	2		22
17:15	0	0	0	0	0	0	0	0		0	3	3	1		0	0	8	2		17
17:30	0	0	0	0	0	0	0	0		0	3	3	3		0	4	6	2		21
17:45	0	1	0	0	0	1	0	0		0	0	2	4		0	3	9	6		26
Hr Total	0	2	1	0	0	1	0	1		0	6	10	12		0	16	25	12		86
TOTAL	0	3	2	0	0	1	2	2		0	12	22	21		0	32	53	19		169

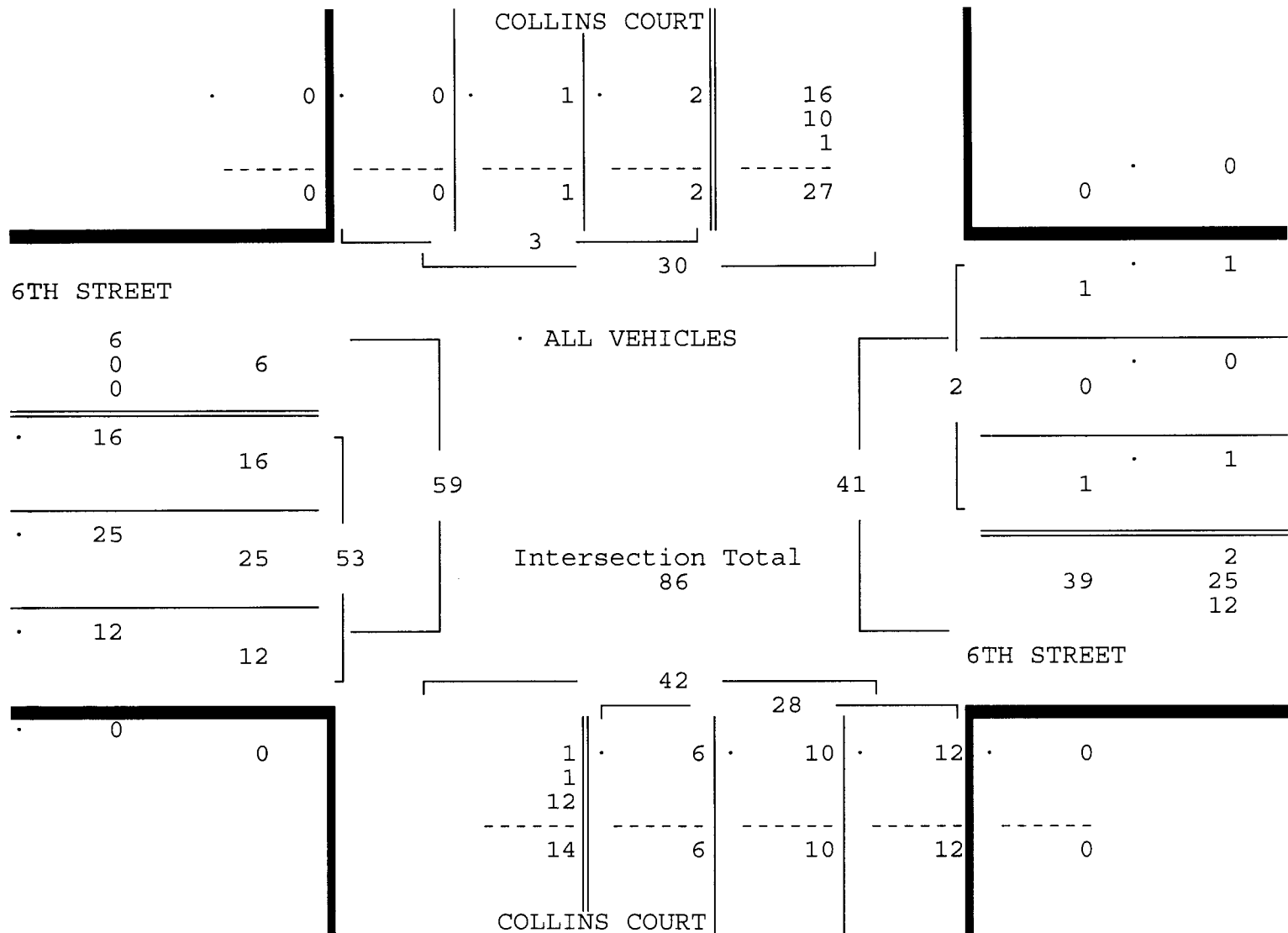
6 STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARISA CRUZ
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6STCOLCT
 Page : 2

ALL VEHICLES

COLLINS COURT From North					6TH STREET From East					COLLINS COURT From South					6TH STREET From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		
Date 12/11/15																				
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																				
Peak start 17:00					17:00					17:00					17:00					
Volume	0	2	1	0	0	1	0	1		0	6	10	12		0	16	25	12		
Percent	0%	67%	33%	0%	0%	50%	0%	50%		0%	21%	36%	43%		0%	30%	47%	23%		
Pk total	3				2					28					53					
Highest	17:00				17:00					17:30					17:45					
Volume	0	1	1	0	0	0	0	1		0	3	3	3		0	3	9	6		
Hi total	2				1					9					18					
PHF	.38				.50					.78					.74					



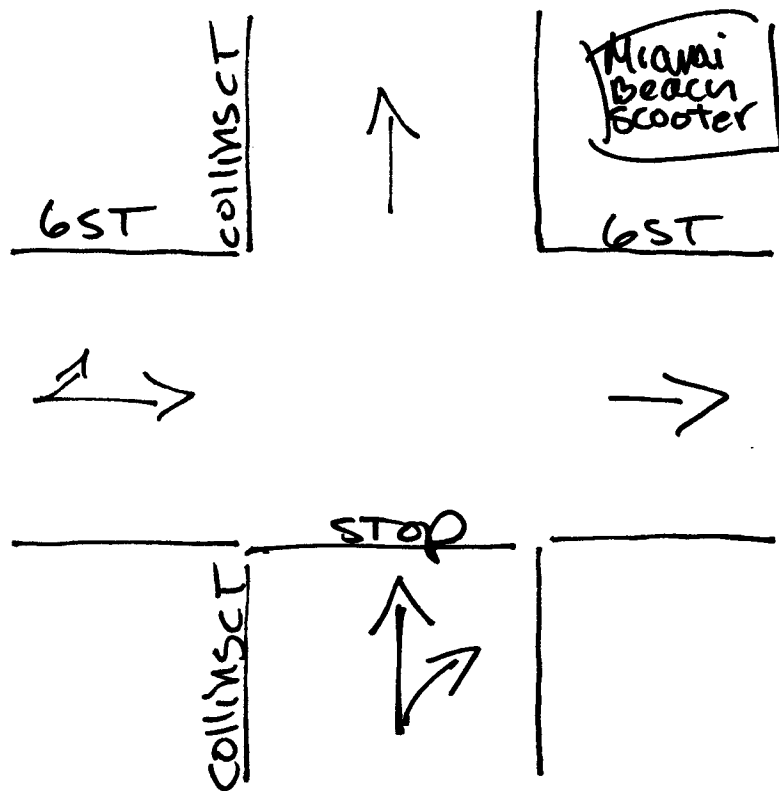
6 STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: MARISA CRUZ
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 6STCOLCT
 Page : 1

PEDESTRIANS & BIKES

Date 12/11/15	COLLINS COURT From North				6TH STREET From East				COLLINS COURT From South				6TH STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
16:00	0	0	0	24	0	0	0	2	0	2	0	19	0	2	0	1	50
16:15	0	1	0	26	0	0	0	1	0	0	0	11	0	0	0	8	47
16:30	0	1	0	27	0	0	0	1	0	2	0	20	0	0	0	0	51
16:45	0	0	0	26	0	0	0	0	0	2	0	18	0	0	0	0	46
Hr Total	0	2	0	103	0	0	0	4	0	6	0	68	0	2	0	9	194
17:00	0	2	0	33	0	1	0	0	0	5	0	14	0	0	0	0	55
17:15	0	0	0	14	0	0	0	0	0	0	0	8	0	0	0	1	23
17:30	0	2	0	13	0	0	0	3	0	2	0	12	0	0	0	4	36
17:45	0	3	0	21	0	0	0	0	0	0	0	13	0	0	0	1	38
Hr Total	0	7	0	81	0	1	0	3	0	7	0	47	0	0	0	6	152
TOTAL	0	9	0	184	0	1	0	7	0	13	0	115	0	2	0	15	346



Miami Beach, Florida
December 15, 2015
drawn by: Luis Palomino
NOT Signalized

7TH STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 NOT SIGNALIZED

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

Site Code : 00150258
 Start Date: 12/11/15
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ALL VEHICLES

COLLINS COURT From North					7TH STREET From East				COLLINS COURT From South				7TH STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 12/11/15																				
16:00	0	0	0	0	0	0	0	2		0	0	3	3		0	3	46	0		57
16:15	0	0	0	0	0	0	0	2		2	0	2	4		0	5	41	0		56
16:30	0	0	0	0	0	0	1	0		0	0	6	3		0	2	37	0		49
16:45	0	0	1	0	0	0	0	0		0	0	6	4		0	1	49	0		61
Hr Total	0	0	1	0	0	0	1	4		2	0	17	14		0	11	173	0		223
17:00	0	0	1	0	0	0	0	0		0	0	6	5		0	3	33	0		48
17:15	0	0	0	0	0	0	0	2		0	0	1	2		0	5	43	1		54
17:30	0	0	0	0	0	0	1	1		0	0	7	1		0	2	27	0		39
17:45	0	0	0	0	0	0	0	1		0	0	3	1		0	5	41	1		52
Hr Total	0	0	1	0	0	0	1	4		0	0	17	9		0	15	144	2		193
TOTAL	0	0	2	0	0	0	2	8		2	0	34	23		0	26	317	2		416

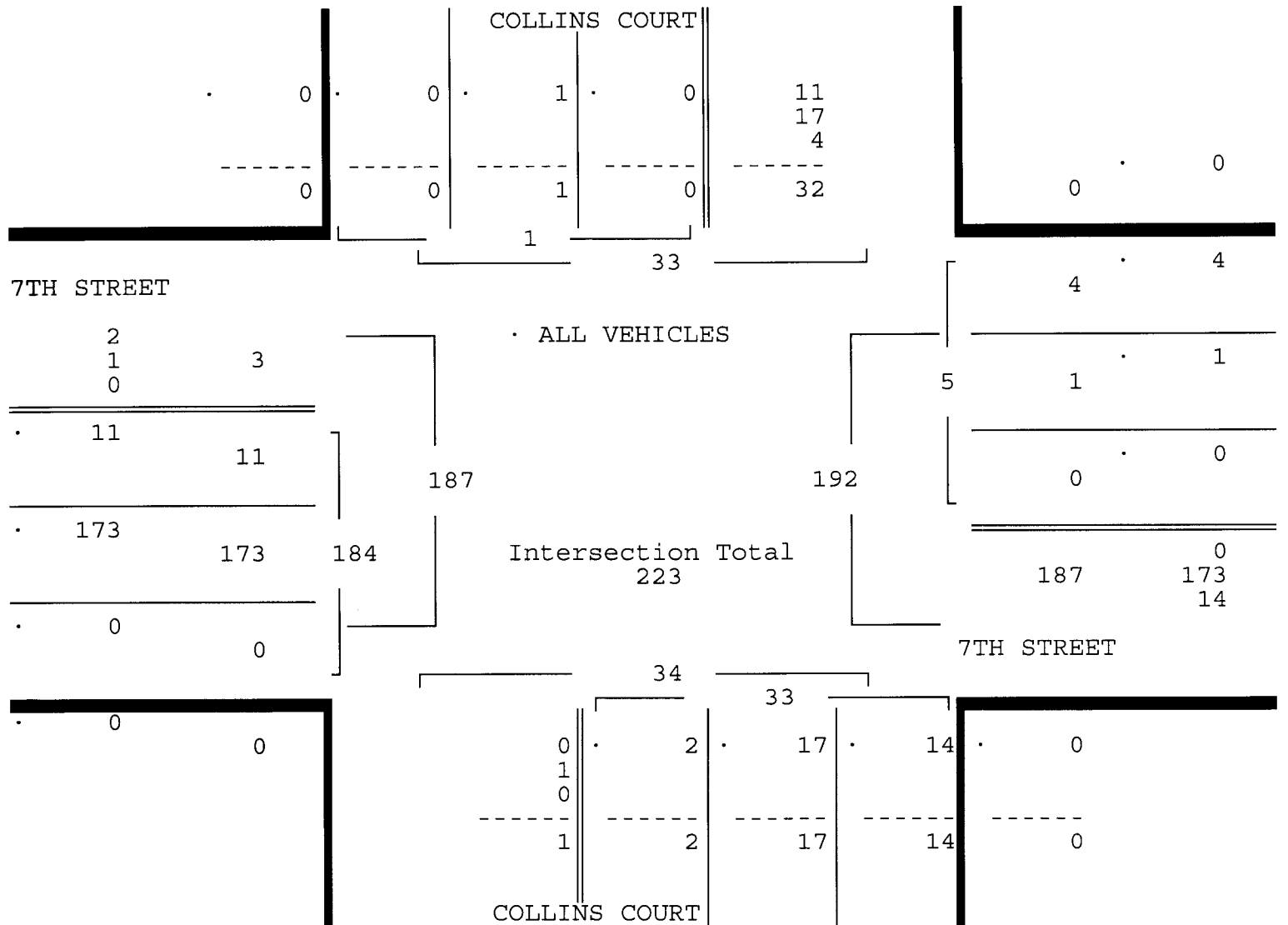
7TH STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 NOT SIGNALIZED

Traffic Survey Specialists, Inc.
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Site Code : 00150258
 Start Date: 12/11/15
 File I.D. : 7STCOLCT
 Page : 2

ALL VEHICLES

COLLINS COURT				7TH STREET				COLLINS COURT				7TH 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 12/11/15																
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 12/11/15																
Peak start 16:00				16:00				16:00				16:00				
Volume	0	0	1	0	0	0	1	4	2	0	17	14	0	11	173	0
Percent	0%	0%	100%	0%	0%	0%	20%	80%	6%	0%	52%	42%	0%	6%	94%	0%
Pk total	1				5				33				184			
Highest	16:45				16:00				16:45				16:45			
Volume	0	0	1	0	0	0	0	2	0	0	6	4	0	1	49	0
Hi total	1				2				10				50			
PHF	.25				.62				.82				.92			



7TH STREET & COLLINS COURT
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 NOT SIGNALIZED

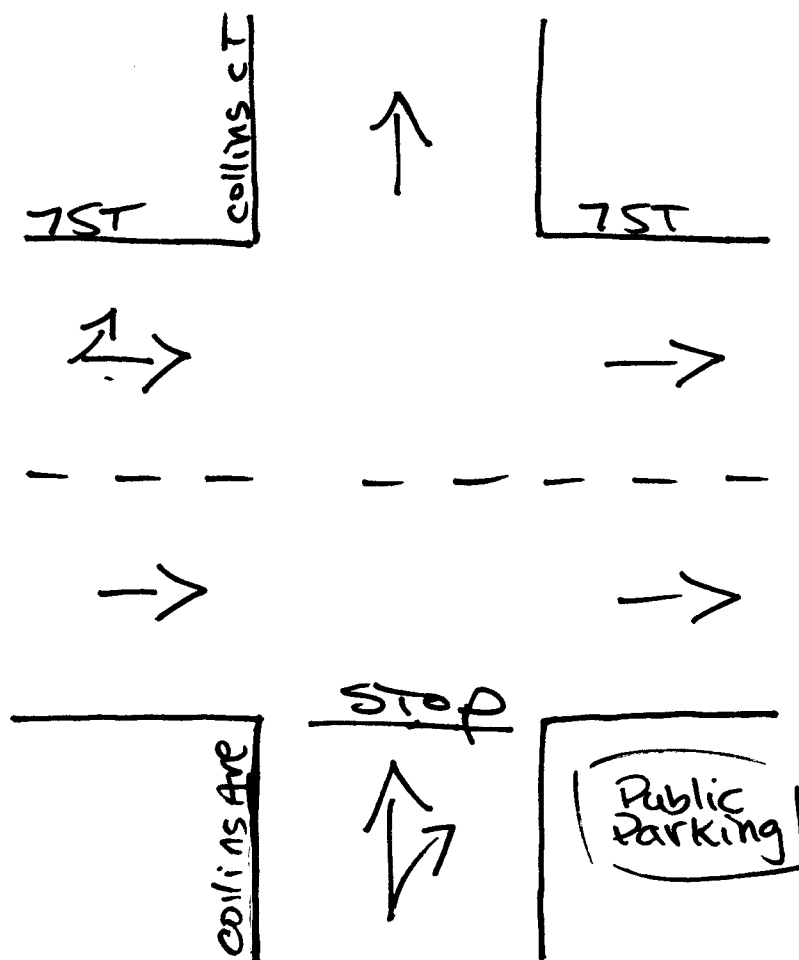
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 Start Date: 12/11/15
 File I.D. : 7STCOLCT
 Page : 1

PEDESTRIANS & BIKES

Date	COLLINS COURT From North				7TH STREET From East				COLLINS COURT From South				7TH STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
16:00	0	1	0	19	0	1	0	4	0	0	0	23	0	2	0	4	54
16:15	0	4	0	31	0	0	0	0	0	1	0	33	0	1	0	6	76
16:30	0	5	0	36	0	1	0	6	0	4	0	18	0	2	0	6	78
16:45	0	7	0	27	0	0	0	4	0	5	0	25	0	3	0	3	74
Hr Total	0	17	0	113	0	2	0	14	0	10	0	99	0	8	0	19	282
17:00	0	7	0	29	0	1	0	6	0	4	0	31	0	0	0	5	83
17:15	0	3	0	20	0	0	0	3	0	1	0	31	0	0	0	8	66
17:30	0	0	0	45	0	0	0	7	0	3	0	50	0	0	0	4	109
17:45	0	1	0	44	0	0	0	3	0	2	0	30	0	1	0	8	89
Hr Total	0	11	0	138	0	1	0	19	0	10	0	142	0	1	0	25	347
TOTAL	0	28	0	251	0	3	0	33	0	20	0	241	0	9	0	44	629

North ↑



Miami Beach, Florida
December 15, 2015
drawn by: Luis Palomino
not signalized

APPENDIX D

Peak Season Conversion Factors Historical Traffic Data, and Committed Developments

2013 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 8700 MIAMI-DADE NORTH

WEEK	DATES	SF	MOCF: 0.97	
			PSCF	
1	01/01/2013 - 01/05/2013	1.03	1.06	
2	01/06/2013 - 01/12/2013	1.03	1.06	
3	01/13/2013 - 01/19/2013	1.03	1.06	
4	01/20/2013 - 01/26/2013	1.01	1.04	
5	01/27/2013 - 02/02/2013	1.00	1.03	
6	02/03/2013 - 02/09/2013	0.99	1.02	
* 7	02/10/2013 - 02/16/2013	0.97	1.00	
* 8	02/17/2013 - 02/23/2013	0.96	0.99	
* 9	02/24/2013 - 03/02/2013	0.96	0.99	
*10	03/03/2013 - 03/09/2013	0.96	0.99	
*11	03/10/2013 - 03/16/2013	0.96	0.99	
*12	03/17/2013 - 03/23/2013	0.97	1.00	
*13	03/24/2013 - 03/30/2013	0.97	1.00	
*14	03/31/2013 - 04/06/2013	0.97	1.00	
*15	04/07/2013 - 04/13/2013	0.98	1.01	
*16	04/14/2013 - 04/20/2013	0.98	1.01	
*17	04/21/2013 - 04/27/2013	0.98	1.01	
*18	04/28/2013 - 05/04/2013	0.99	1.02	
*19	05/05/2013 - 05/11/2013	0.99	1.02	
20	05/12/2013 - 05/18/2013	1.00	1.03	
21	05/19/2013 - 05/25/2013	1.00	1.03	
22	05/26/2013 - 06/01/2013	1.00	1.03	
23	06/02/2013 - 06/08/2013	1.01	1.04	
24	06/09/2013 - 06/15/2013	1.01	1.04	
25	06/16/2013 - 06/22/2013	1.02	1.05	
26	06/23/2013 - 06/29/2013	1.02	1.05	
27	06/30/2013 - 07/06/2013	1.03	1.06	
28	07/07/2013 - 07/13/2013	1.04	1.07	
29	07/14/2013 - 07/20/2013	1.05	1.08	
30	07/21/2013 - 07/27/2013	1.04	1.07	
31	07/28/2013 - 08/03/2013	1.03	1.06	
32	08/04/2013 - 08/10/2013	1.03	1.06	
33	08/11/2013 - 08/17/2013	1.02	1.05	
34	08/18/2013 - 08/24/2013	1.02	1.05	
35	08/25/2013 - 08/31/2013	1.02	1.05	
36	09/01/2013 - 09/07/2013	1.02	1.05	
37	09/08/2013 - 09/14/2013	1.02	1.05	
38	09/15/2013 - 09/21/2013	1.02	1.05	
39	09/22/2013 - 09/28/2013	1.02	1.05	
40	09/29/2013 - 10/05/2013	1.01	1.04	
41	10/06/2013 - 10/12/2013	1.01	1.04	
42	10/13/2013 - 10/19/2013	1.01	1.04	
43	10/20/2013 - 10/26/2013	1.01	1.04	
44	10/27/2013 - 11/02/2013	1.01	1.04	
45	11/03/2013 - 11/09/2013	1.01	1.04	
46	11/10/2013 - 11/16/2013	1.01	1.04	
47	11/17/2013 - 11/23/2013	1.02	1.05	
48	11/24/2013 - 11/30/2013	1.02	1.05	
49	12/01/2013 - 12/07/2013	1.02	1.05	
50	12/08/2013 - 12/14/2013	1.02	1.05	
51	12/15/2013 - 12/21/2013	1.03	1.06	
52	12/22/2013 - 12/28/2013	1.03	1.06	
53	12/29/2013 - 12/31/2013	1.03	1.06	

* PEAK SEASON

18-FEB-2014 08:46:31

830UPD

6_8700_PKSEASON.TXT

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2014 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2528 - SR A1A/MACARTHUR CSWY, 150' N OF MERIDIAN AVE

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2014	33000	C	E 17000		W 16000	9.00	54.30	5.10
2013	34000	C	E 17500		W 16500	9.00	54.10	6.10
2012	32500	C	E 14500		W 18000	9.00	53.40	8.40
2011	35000	C	E 16500		W 18500	9.00	51.90	7.50
2010	35000	C	E 16500		W 18500	7.16	52.27	8.80
2009	35500	C	E 16500		W 19000	9.21	57.60	8.40
2008	34500	C	E 16000		W 18500	7.42	52.15	5.30
2007	34000	C	E 16500		W 17500	7.11	53.51	4.90
2006	40500	C	E 19500		W 21000	7.18	52.50	2.20
2005	35000	C	E 16000		W 19000	7.30	52.50	5.50
2004	41500	C	E 20500		W 21000	7.40	52.00	8.20
2003	40500	C	E 18500		W 22000	7.30	54.00	4.90
2002	43500	C	E 21000		W 22500	9.20	68.00	2.60
2001	45500	C	E 22000		W 23500	8.20	53.50	3.00
2000	37000	C	E 18500		W 18500	8.20	53.10	3.50
1999	46000	C	E 24500		W 21500	9.10	52.70	3.20

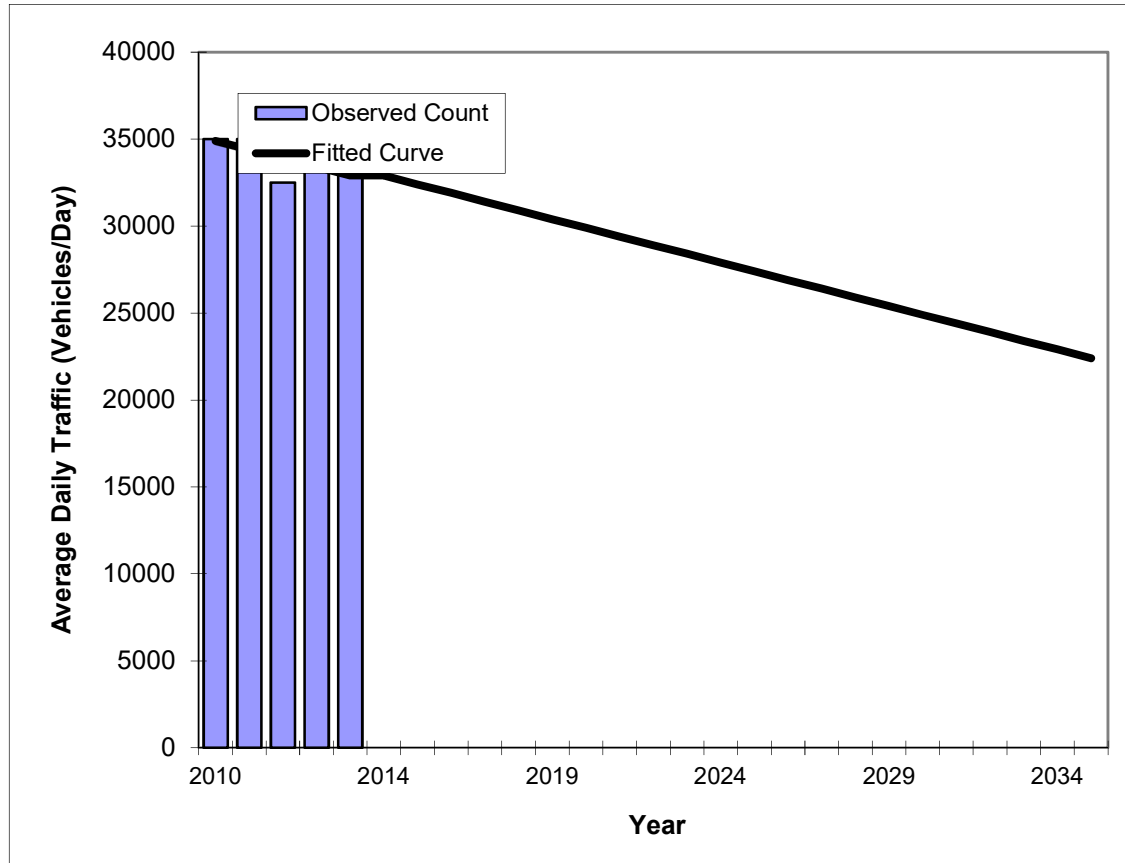
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; F = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
 *K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V2.0

SR A1A/MACARTHUR CSWY -- N OF MERIDIAN AVENUE

PIN#	0
Location	1

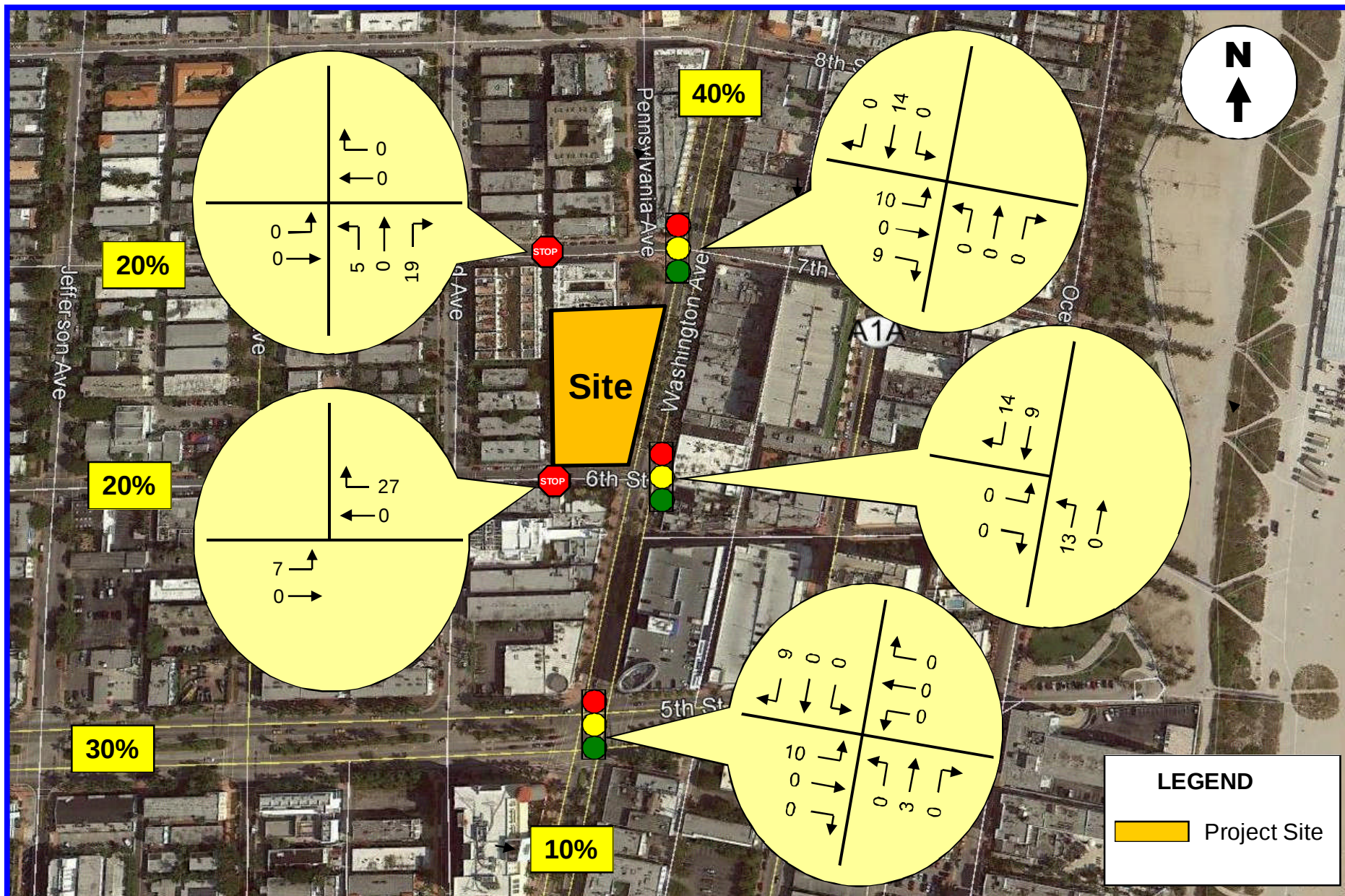
County:	Miami-dade
Station #:	2528
Highway:	SR A1A/MACARTHUR CSWY

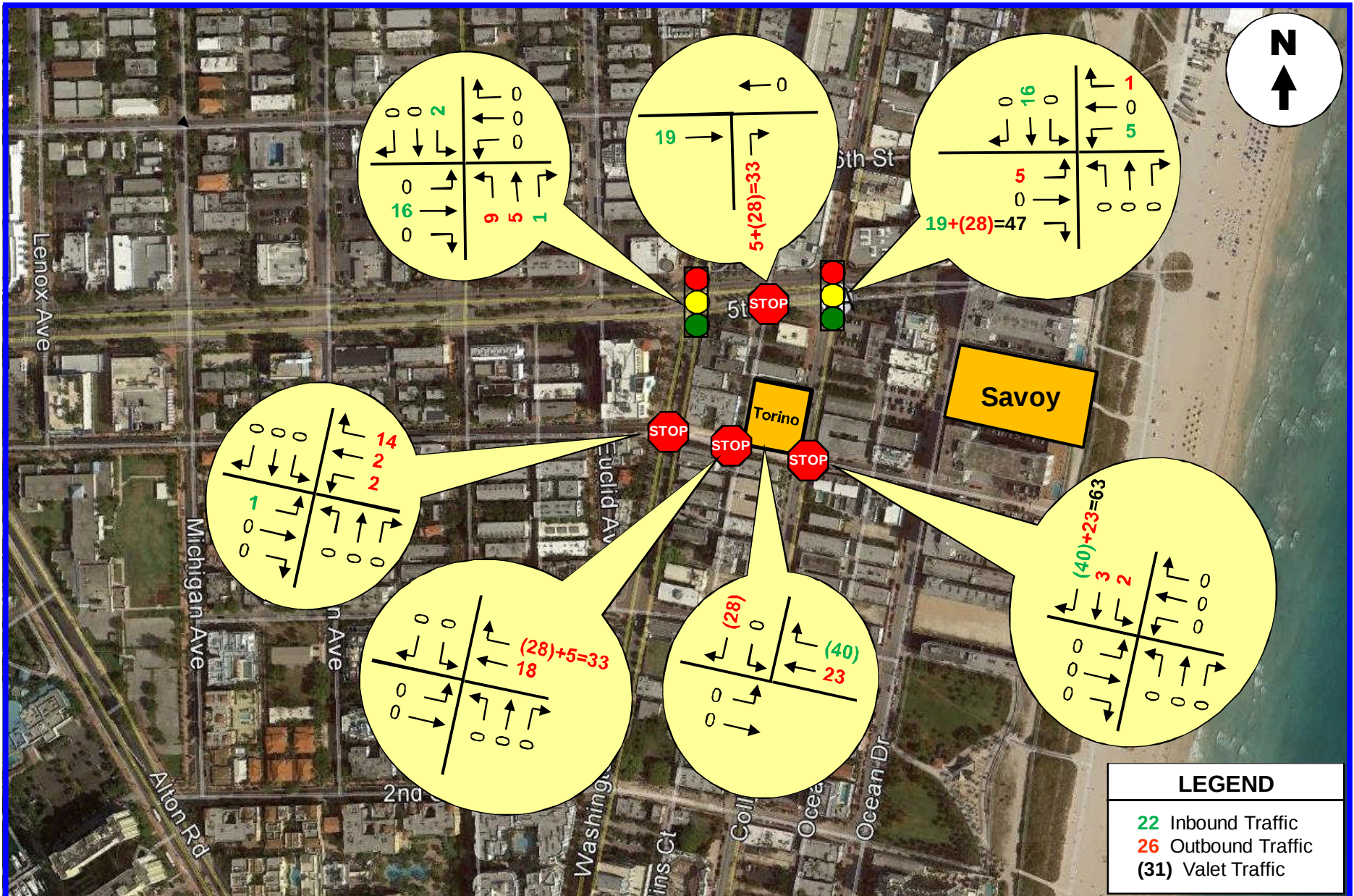


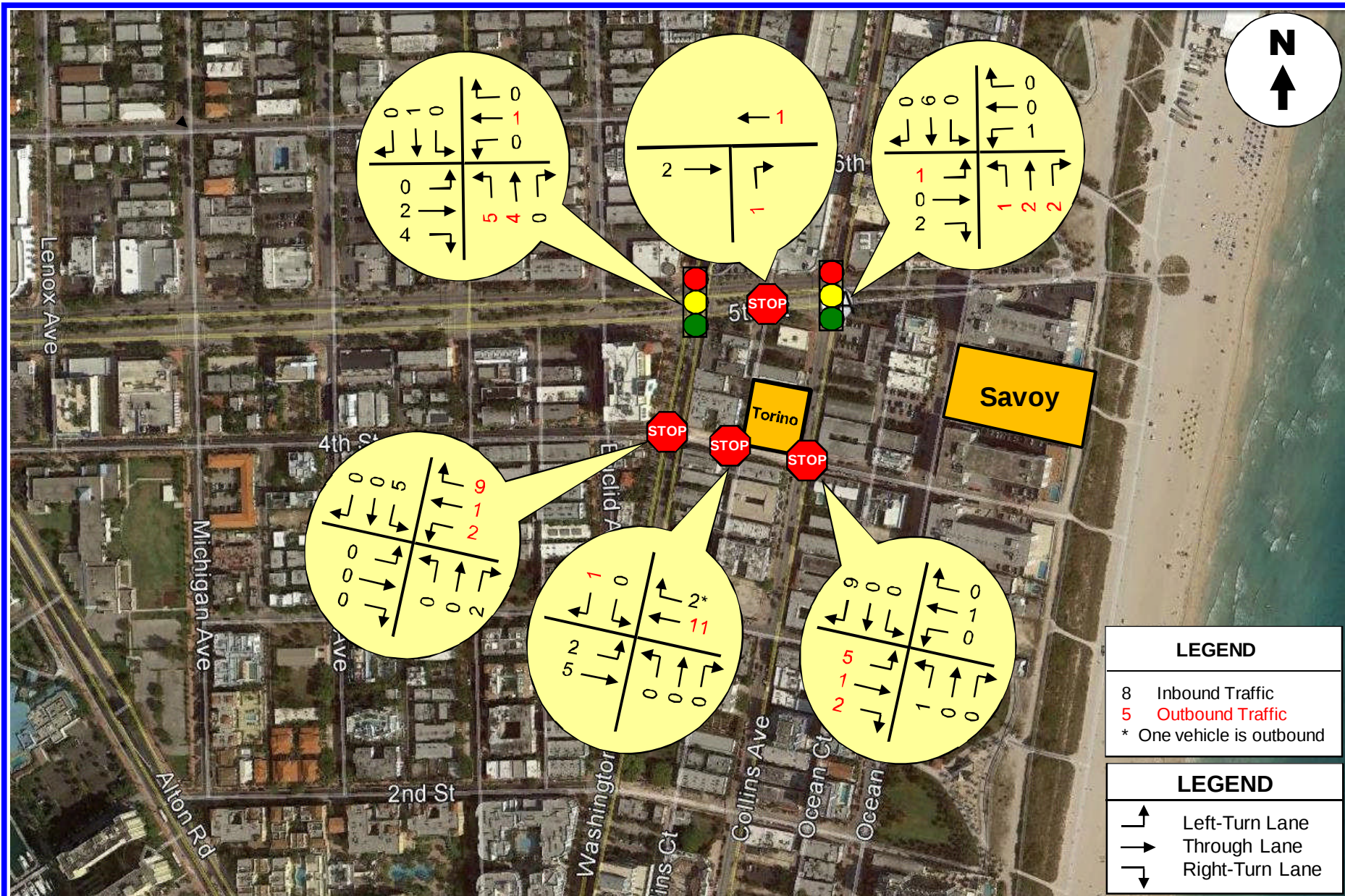
Year	Traffic (ADT/AADT)	
	Count*	Trend**
2010	35000	34900
2011	35000	34400
2012	32500	33900
2013	34000	33400
2014	33000	32900
2015 Opening Year Trend		
2015	N/A	32400
2016 Mid-Year Trend		
2016	N/A	31900
2017 Design Year Trend		
2017	N/A	31400
TRANPLAN Forecasts/Trends		

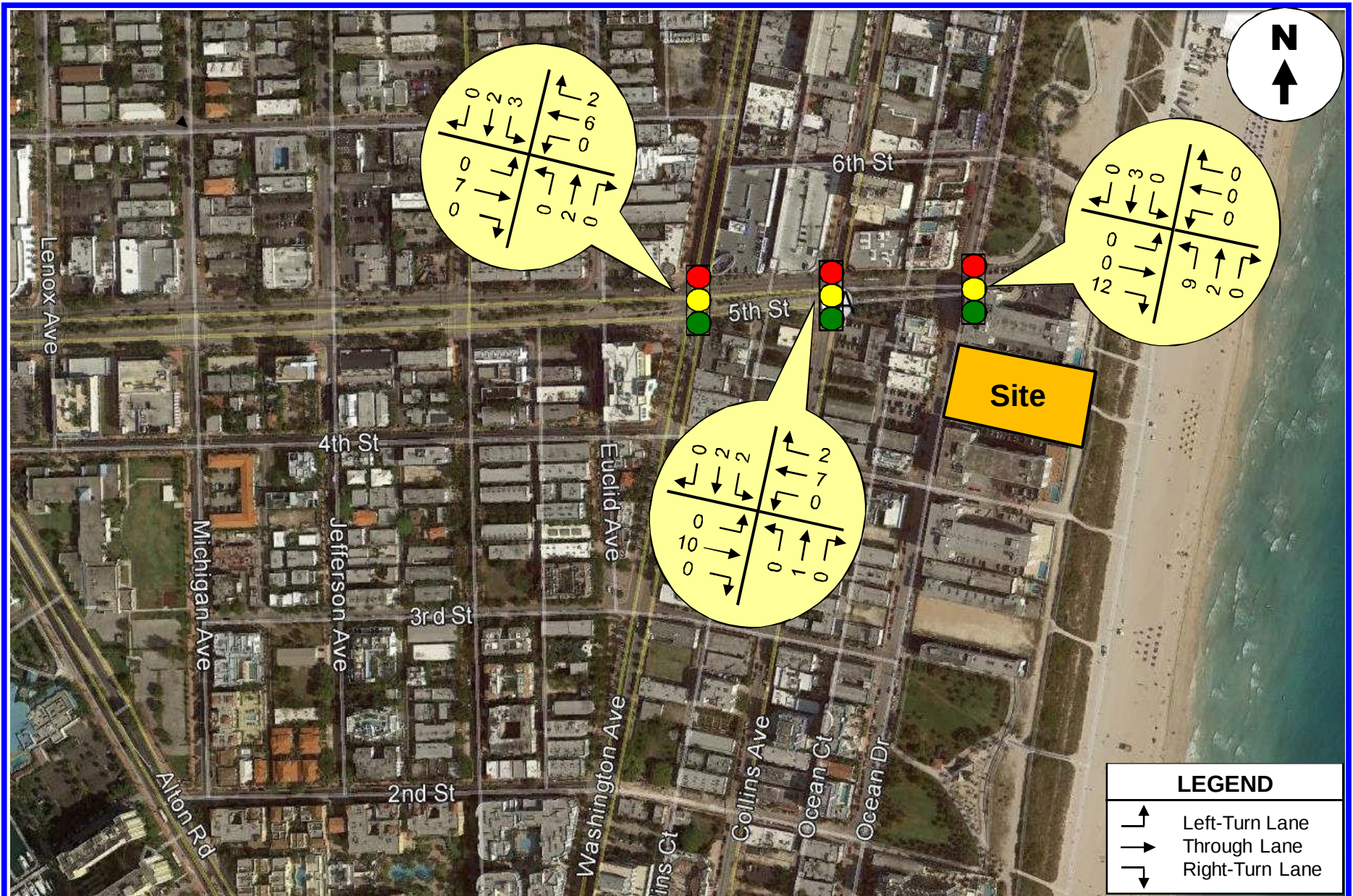
** Annual Trend Increase:	-500
Trend R-squared:	48.08%
Trend Annual Historic Growth Rate:	-1.43%
Trend Growth Rate (2014 to Design Year):	-1.52%
Printed:	23-Mar-16
Straight Line Growth Option	

*Axle-Adjusted









APPENDIX E

Future Turning Movement Volumes

INTERSECTION PEAK HOUR FACTOR CALCULATION

	INTERSECTION								
TIME	Collins& 5 st	Collins 6 st	Collins & 7 St	Wash & 5 st	Wash& 6 st	Wash& 7 st	Collins& 5 st	collins ct & 6 st	Collins CT & 7 st
16:00	394	228	247	606	292	336	322	21	57
16:15	309	218	248	563	345	351	308	22	56
16:30	357	229	228	464	286	342	304	25	49
16:45	299	206	264	472	294	327	297	15	61
Total Hr	1359	881	987	2105	1217	1356	1231	83	223
Max 15-min	394	229	264	606	345	351	322	25	61
PHF	0.86	0.96	0.93	0.87	0.88	0.97	0.96	0.83	0.91

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 5th Street
PM Peak Hour (4:00 PM - 5:00 PM)

Description	Collins Avenue Northbound			Collins Avenue Southbound			5th Street Eastbound				5th Street Westbound		
	Left	Through	Right	Left	Through	Right	U-turn	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	56	71	7	32	79	303	17	272	223	36	5	189	69
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	59	75	7	34	83	318	18	286	234	38	5	198	72
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:													
• The Anglers Hotel addition													
• The Torino (400 Collins Avenue)	1	2	2		22			6		49	6		1
• The Savoy Hotel		1			2	2			10			7	2
2018 Background Traffic	62	80	10	35	109	330	18	300	251	88	11	211	78
601 Washington													
- Percentages (Ins/Out)	5%				5%	20%/55%	3%						
- Trips	12				11	173	7						
- Valet Parking Trips						117							
2018 Total Traffic	73	80	10	35	121	620	25	300	251	88	11	211	78

	PM Peak		
	INS	OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Avenue and 6th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Collins Avenue Northbound			Collins Avenue Southbound			6th Street Eastbound			6th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	0	392	0	0	382	0	0	0	34	17	0	44
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	0	412	0	0	401	0	0	0	36	18	0	46
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Anglers Hotel addition												
• The Torino (400 Collins Avenue)		9			22							
• The Savoy Hotel		3			4							
2018 Background Traffic	0	436	0	0	439	0	0	0	37	18	0	48
601 Washington												
- Percentages (Ins/Out)					20%/60%							
- Trips					184							
- Valet Parking Trips					117							
2018 Total Traffic	0	436	0	0	740	0	0	0	37	18	0	48

	INS	PM Peak OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Avenue and 7th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Collins Avenue Northbound			Collins Avenue Southbound			7th Street Eastbound			7th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	0	411	50	27	322	0	53	62	60	0	0	0
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	0	432	53	28	338	0	56	65	63	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Anglers Hotel addition												
• The Torino (400 Collins Avenue)		9			22							
• The Savoy Hotel		3			4							
2018 Background Traffic	0	457	54	29	374	0	57	67	65	0	0	0
601 Washington												
- Percentages (Ins/Out)					20%		40%		60%			
- Trips					47		91		137			
- Valet Parking Trips									117			
- Pass-by												
2018 Total Traffic	0	457	54	29	421	0	149	67	319	0	0	0

	INS	PM Peak OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Washington Avenue and 5th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Washington Avenue Northbound			Washington Avenue Southbound				5th Street Eastbound			5th Street Westbound		
	Left	Through	Right	U-turn	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	82	237	14	17	27	148	191	306	492	48	21	424	98
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	86	249	15	18	28	155	201	321	517	50	22	445	103
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:													
• The Anglers Hotel addition		3					9	10					
• The Torino (400 Collins Avenue)	14	9	1		2	1			18	4		1	
• The Savoy Hotel		2			3	2			7			6	2
2018 Background Traffic	103	270	16	18	34	163	216	341	557	56	23	466	108
601 Washington													
- Percentages (Ins/Out)		5%			3%			47%			5%	47%	3%
- Trips		12			7			110			11	108	7
- Valet Parking Trips													
2018 Total Traffic	103	282	16	18	41	163	216	451	557	56	34	574	115

	PM Peak		
	INS	OUT	Total
New External Trips	234	228	462

**Washington Avenue and 6th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Washington Avenue Northbound				Washington Avenue Southbound			6th Street Eastbound			6th Street Westbound		
	U-turn	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	5	39	556	31	3	367	136	46	0	34	0	0	0
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	5	41	584	33	3	385	143	48	0	36	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:													
• The Anglers Hotel addition		13				9	14						
• The Torino (400 Collins Avenue)			11			3							
• The Savoy Hotel			4			5							
2018 Background Traffic	5	55	616	34	3	414	161	50	0	37	0	0	0
601 Washington													
- Percentages (Ins/Out)		3%								3%			
- Trips		7		96	21					7			
- Valet Parking Trips													
- Pass-by Trips			-16	16	15	-15							
- Ped/Transit				10	10								
2018 Total Traffic	5	62	600	146	39	399	161	50	0	44	0	0	0

	PM Peak		
	OUT	Total	
New External Trips	183	177	360

	PM Peak		
	INS	OUT	Total
Pass-by	31	31	62

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Washington Avenue and 7th Street
PM Peak Hour (4:00 PM - 5:00 PM)

Description	Washington Avenue Northbound				Washington Avenue Southbound				7th Street Eastbound			7th Street Westbound		
	U-Turn	Left	Through	Right	U-turn	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	6	33	543	54	9	84	485	55	22	36	29	0	0	0
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	6	35	570	57	9	88	509	58	23	38	30	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:														
• The Anglers Hotel addition							14		10		9			
• The Torino (400 Collins Avenue)			11				3							
• The Savoy Hotel			4				5							
2018 Background Traffic	6	36	602	58	10	91	547	59	34	39	40	0	0	0
601 Washington														
- Percentages (Ins/Out)							20%							
- Trips							31							
- Valet Parking Trips														
- Pass-by Trips			-16				15							
2018 Total Traffic	6	36	586	58	10	91	592	59	34	39	40	0	0	0

	PM Peak		
	INS	OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Court and 5th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Collins Court Northbound			Collins Court Southbound			5th Street Eastbound			5th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	0	0	8	0	0	22	0	513	10	0	636	39
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	0	0	8	0	0	23	0	539	11	0	668	41
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Anglers Hotel addition												
• The Torino (400 Collins Avenue)			34					21			1	
• The Savoy Hotel												
2018 Background Traffic	0	0	43	0	0	24	0	576	11	0	689	42
601 Washington												
- Percentages (Ins/Out)								3%			55%	28%
- Trips								7			126	66
- Valet Parking Trips											117	
2018 Total Traffic	0	0	43	0	0	24	0	583	11	0	932	108

	INS	PM Peak OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Court and 6th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Collins Court Northbound			Collins Court Southbound			6th Street Eastbound			6th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	0	12	9	0	0	0	16	28	7	0	0	0
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	0	13	9	0	0	0	17	29	7	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Anglers Hotel addition												
• The Torino (400 Collins Avenue)												
• The Savoy Hotel												
2018 Background Traffic	0	13	10	0	0	0	17	30	8	0	0	0
601 Washington												
- Percentages (Ins/Out)		28%					72%					
- Trips		66					168					
- Valet Parking Trips		117										
- Pass-by												
2018 Total Traffic	0	196	10	0	0	0	186	30	8	0	0	0

	INS	PM Peak OUT	Total
New External Trips	234	228	462

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Court and 7th Street
PM Peak Hour (4:00 PM - 5:00 PM)**

Description	Collins Court Northbound			Collins Court Southbound			7th Street Eastbound			7th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (12/11/2015)	0	17	14	0	0	0	11	173	0	0	0	0
Season Adjustment Factor	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
2015 Peak Season Traffic	0	18	15	0	0	0	12	182	0	0	0	0
Annual Growth Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Committed Developments:												
• The Anglers Hotel addition												
• The Torino (400 Collins Avenue)												
• The Savoy Hotel												
2018 Background Traffic	0	18	15	0	0	0	12	187	0	0	0	0
601 Washington												
- Percentages (Ins/Out)			100%									
- Trips			228									
- Valet Parking Trips			117									
2018 Total Traffic	0	18	360	0	0	0	12	187	0	0	0	0

	INS	PM Peak OUT	Total
New External Trips	234	228	462

APPENDIX F

Intersection Capacity Analyses

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	286	234	38	5	198	72	59	75	7	34	83
Future Volume (vph)	18	286	234	38	5	198	72	59	75	7	34	83
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Lane Util. Factor		1.00	0.95		1.00	0.95			0.95			1.00
Frpb, ped/bikes		1.00	0.99		1.00	0.95			1.00			1.00
Flpb, ped/bikes		0.98	1.00		0.94	1.00			0.91			0.99
Frt		1.00	0.98		1.00	0.96			0.99			1.00
Flt Protected		0.95	1.00		0.95	1.00			0.98			0.99
Satd. Flow (prot)		1553	3069		1481	2892			2787			1623
Flt Permitted		0.43	1.00		0.56	1.00			0.77			0.87
Satd. Flow (perm)		707	3069		873	2892			2200			1429
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	21	333	272	44	6	230	84	69	87	8	40	97
RTOR Reduction (vph)	0	0	7	0	0	25	0	0	4	0	0	0
Lane Group Flow (vph)	0	354	309	0	6	289	0	0	160	0	0	137
Confl. Peds. (#/hr)		90		55	55		90	293		56	56	
Confl. Bikes (#/hr)				7						5		
Turn Type	custom	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases		5	2			6			4			8
Permitted Phases	5	2			6			4			8	
Actuated Green, G (s)		73.2	73.2		35.5	35.5			43.3			43.3
Effective Green, g (s)		73.2	73.2		35.5	35.5			43.3			43.3
Actuated g/C Ratio		0.56	0.56		0.27	0.27			0.33			0.33
Clearance Time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Vehicle Extension (s)		2.0	1.0		1.0	1.0			2.5			5.0
Lane Grp Cap (vph)		602	1728		238	789			732			475
v/s Ratio Prot		c0.14	0.10			0.10						
v/s Ratio Perm		c0.19			0.01				0.07			0.10
v/c Ratio		0.59	0.18		0.03	0.37			0.22			0.29
Uniform Delay, d1		16.6	13.8		34.6	38.2			31.2			32.0
Progression Factor		0.56	0.45		1.00	1.00			1.00			1.15
Incremental Delay, d2		0.9	0.2		0.2	1.3			0.1			0.7
Delay (s)		10.2	6.4		34.8	39.5			31.3			37.4
Level of Service		B	A		C	D			C			D
Approach Delay (s)			8.4			39.4			31.3			62.6
Approach LOS			A			D			C			E
Intersection Summary												
HCM 2000 Control Delay			33.2		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				19.8			
Intersection Capacity Utilization			91.1%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

Existing 2015

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	318
Future Volume (vph)	318
Ideal Flow (vphpl)	1700
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frbp, ped/bikes	0.73
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1033
Flt Permitted	1.00
Satd. Flow (perm)	1033
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	370
RTOR Reduction (vph)	69
Lane Group Flow (vph)	301
Confl. Peds. (#/hr)	293
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	43.3
Effective Green, g (s)	43.3
Actuated g/C Ratio	0.33
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	344
v/s Ratio Prot	
v/s Ratio Perm	0.29
v/c Ratio	0.87
Uniform Delay, d1	40.8
Progression Factor	1.22
Incremental Delay, d2	22.1
Delay (s)	72.0
Level of Service	E
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	65	63	0	0	0	0	432	53	28	338	0
Future Volume (vph)	56	65	63	0	0	0	0	432	53	28	338	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.0						6.0		6.0	6.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frbp, ped/bikes		0.85						0.97		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.86	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		2505						1586		1369	1667	
Flt Permitted		0.99						1.00		0.44	1.00	
Satd. Flow (perm)		2505						1586		640	1667	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	60	70	68	0	0	0	0	465	57	30	363	0
RTOR Reduction (vph)	0	59	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	139	0	0	0	0	0	518	0	30	363	0
Confl. Peds. (#/hr)			219	219		235	70		248	248		70
Confl. Bikes (#/hr)			10			8			6			8
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		8						6			2	
Permitted Phases	8									2		
Actuated Green, G (s)		8.8						44.2		44.2	44.2	
Effective Green, g (s)		8.8						44.2		44.2	44.2	
Actuated g/C Ratio		0.14						0.68		0.68	0.68	
Clearance Time (s)		6.0						6.0		6.0	6.0	
Vehicle Extension (s)		2.5						2.5		2.5	2.5	
Lane Grp Cap (vph)		339						1078		435	1133	
v/s Ratio Prot								c0.33			0.22	
v/s Ratio Perm		0.06								0.05		
v/c Ratio		0.41						0.48		0.07	0.32	
Uniform Delay, d1		25.7						4.9		3.5	4.3	
Progression Factor		1.00						1.59		1.00	1.00	
Incremental Delay, d2		0.6						1.4		0.3	0.7	
Delay (s)		26.3						9.3		3.8	5.0	
Level of Service		C						A		A	A	
Approach Delay (s)		26.3			0.0			9.3			4.9	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay		10.8						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.47										
Actuated Cycle Length (s)		65.0						Sum of lost time (s)		12.0		
Intersection Capacity Utilization		54.1%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

Existing 2015

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	321	517	50	22	445	103	86	249	15	18	28	155
Future Volume (vph)	321	517	50	22	445	103	86	249	15	18	28	155
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Width	11	11	11	11	11	11	11	11	11	12	11	11
Total Lost time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99			0.99			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.96			0.95	1.00
Frt	1.00	0.99		1.00	0.97			0.99			1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.95	1.00
Satd. Flow (prot)	2969	2992		1511	4220			2683			1448	1611
Flt Permitted	0.95	1.00		0.40	1.00			0.77			0.42	1.00
Satd. Flow (perm)	2969	2992		643	4220			2081			638	1611
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.87	0.87
Adj. Flow (vph)	369	594	57	25	511	118	99	286	17	19	32	178
RTOR Reduction (vph)	0	4	0	0	26	0	0	3	0	0	0	0
Lane Group Flow (vph)	369	647	0	25	603	0	0	399	0	0	51	178
Confl. Peds. (#/hr)	42		39	39		42	200		88		88	
Confl. Bikes (#/hr)			11			6			10			
Parking (#/hr)								5	5			
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	Perm	NA
Protected Phases	1	6		5	2			4				8
Permitted Phases				2			4			8	8	
Actuated Green, G (s)	21.5	72.2		61.3	55.8			34.0			34.0	34.0
Effective Green, g (s)	21.5	72.2		61.3	55.8			34.0			34.0	34.0
Actuated g/C Ratio	0.17	0.56		0.47	0.43			0.26			0.26	0.26
Clearance Time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5			2.5	2.5
Lane Grp Cap (vph)	491	1661		339	1811			544			166	421
v/s Ratio Prot	c0.12	c0.22		0.00	0.14							0.11
v/s Ratio Perm				0.03				c0.19			0.08	
v/c Ratio	0.75	0.39		0.07	0.33			0.73			0.31	0.42
Uniform Delay, d1	51.7	16.4		18.5	24.7			43.9			38.5	39.9
Progression Factor	1.00	1.00		1.38	1.36			1.00			1.00	1.00
Incremental Delay, d2	5.7	0.7		0.0	0.5			4.8			0.8	0.5
Delay (s)	57.4	17.1		25.6	34.1			48.7			39.3	40.4
Level of Service	E	B		C	C			D			D	D
Approach Delay (s)		31.7			33.8			48.7				39.1
Approach LOS		C			C			D				D
Intersection Summary												
HCM 2000 Control Delay			36.2			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.7			
Intersection Capacity Utilization			110.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Existing 2015

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	201
Future Volume (vph)	201
Ideal Flow (vphpl)	1700
Lane Width	11
Total Lost time (s)	6.4
Lane Util. Factor	1.00
Frbp, ped/bikes	0.75
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1021
Flt Permitted	1.00
Satd. Flow (perm)	1021
Peak-hour factor, PHF	0.87
Adj. Flow (vph)	231
RTOR Reduction (vph)	171
Lane Group Flow (vph)	60
Confl. Peds. (#/hr)	200
Confl. Bikes (#/hr)	21
Parking (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	34.0
Effective Green, g (s)	34.0
Actuated g/C Ratio	0.26
Clearance Time (s)	6.4
Vehicle Extension (s)	2.5
Lane Grp Cap (vph)	267
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.23
Uniform Delay, d1	37.7
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	38.0
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

104: Washington Avenue & 6 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	48	36	46	584	385	143
Future Volume (vph)	48	36	46	584	385	143
Ideal Flow (vphpl)	1700	1700	1200	1700	1700	1700
Lane Width	12	12	11	11	11	11
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.97			1.00	0.99	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.96	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1481			2828	2869	
Flt Permitted	0.97			0.87	1.00	
Satd. Flow (perm)	1481			2463	2869	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	55	41	52	664	438	162
RTOR Reduction (vph)	31	0	0	0	38	0
Lane Group Flow (vph)	65	0	0	716	563	0
Confl. Peds. (#/hr)	103	54	11			11
Confl. Bikes (#/hr)		5				3
Bus Blockages (#/hr)	0	0	0	5	5	0
Parking (#/hr)		5		5		
Turn Type	Prot		Perm	NA	NA	
Protected Phases	8			6	2	
Permitted Phases			6			
Actuated Green, G (s)	22.2			57.8	57.8	
Effective Green, g (s)	22.2			57.8	57.8	
Actuated g/C Ratio	0.25			0.64	0.64	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			1.0	1.0	
Lane Grp Cap (vph)	365			1581	1842	
v/s Ratio Prot	c0.04				0.20	
v/s Ratio Perm				c0.29		
v/c Ratio	0.18			0.45	0.31	
Uniform Delay, d1	26.7			8.1	7.2	
Progression Factor	1.00			1.00	1.87	
Incremental Delay, d2	0.2			0.9	0.4	
Delay (s)	26.9			9.1	13.8	
Level of Service	C			A	B	
Approach Delay (s)	26.9			9.1	13.8	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay			12.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			68.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Existing 2015

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	23	38	30	0	0	0	6	35	570	57	9	88
Future Volume (vph)	23	38	30	0	0	0	6	35	570	57	9	88
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1200	1700	1700	1700	1700
Lane Width	12	12	12	12	12	12	12	10	11	12	12	12
Total Lost time (s)		5.0						5.0	5.0			5.0
Lane Util. Factor		1.00						1.00	0.95			1.00
Frpb, ped/bikes		0.97						1.00	0.99			1.00
Flpb, ped/bikes		0.99						0.95	1.00			0.97
Frt		0.96						1.00	0.99			1.00
Flt Protected		0.99						0.95	1.00			0.95
Satd. Flow (prot)		1518						989	2781			1541
Flt Permitted		0.99						0.42	1.00			0.39
Satd. Flow (perm)		1518						439	2781			635
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.97
Adj. Flow (vph)	24	39	31	0	0	0	6	36	588	59	9	91
RTOR Reduction (vph)	0	21	0	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	73	0	0	0	0	0	42	640	0	0	100
Confl. Peds. (#/hr)	32		56	56		32		61		59		59
Confl. Bikes (#/hr)			4			11				10		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	0
Parking (#/hr)									5			
Turn Type	custom	NA						Perm	NA			Perm
Protected Phases		8							2			
Permitted Phases	4							2				6
Actuated Green, G (s)		20.6						59.4	59.4			59.4
Effective Green, g (s)		20.6						59.4	59.4			59.4
Actuated g/C Ratio		0.23						0.66	0.66			0.66
Clearance Time (s)		5.0						5.0	5.0			5.0
Vehicle Extension (s)		2.5						1.0	1.0			1.0
Lane Grp Cap (vph)		347						289	1835			419
v/s Ratio Prot									c0.23			
v/s Ratio Perm		0.05						0.10				0.16
v/c Ratio		0.21						0.15	0.35			0.24
Uniform Delay, d1		28.1						5.8	6.8			6.2
Progression Factor		1.00						1.89	1.81			1.00
Incremental Delay, d2		0.2						1.0	0.5			1.3
Delay (s)		28.3						11.8	12.7			7.5
Level of Service		C						B	B			A
Approach Delay (s)		28.3			0.0				12.7			
Approach LOS		C			A				B			
Intersection Summary												
HCM 2000 Control Delay			11.0							HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.31									
Actuated Cycle Length (s)			90.0							Sum of lost time (s)		10.0
Intersection Capacity Utilization			57.6%							ICU Level of Service		B
Analysis Period (min)			15									
c Critical Lane Group												

Existing 2015

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (vph)	509	58
Future Volume (vph)	509	58
Ideal Flow (vphpl)	1700	1700
Lane Width	11	11
Total Lost time (s)	5.0	
Lane Util. Factor	0.95	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.98	
Flt Protected	1.00	
Satd. Flow (prot)	2971	
Flt Permitted	1.00	
Satd. Flow (perm)	2971	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	525	60
RTOR Reduction (vph)	9	0
Lane Group Flow (vph)	576	0
Confl. Peds. (#/hr)		61
Confl. Bikes (#/hr)		5
Bus Blockages (#/hr)	0	5
Parking (#/hr)		5
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	59.4	
Effective Green, g (s)	59.4	
Actuated g/C Ratio	0.66	
Clearance Time (s)	5.0	
Vehicle Extension (s)	1.0	
Lane Grp Cap (vph)	1960	
v/s Ratio Prot	0.19	
v/s Ratio Perm		
v/c Ratio	0.29	
Uniform Delay, d1	6.5	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	6.8	
Level of Service	A	
Approach Delay (s)	6.9	
Approach LOS	A	
Intersection Summary		

HCM 2010 TWSC
106: Collins Avenue & 6 Street

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	36	18	0	46	0	412	0	0	401	0
Future Vol, veh/h	0	0	36	18	0	46	0	412	0	0	401	0
Conflicting Peds, #/hr	117	0	228	228	0	117	132	0	7	7	0	132
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	38	19	0	48	0	429	0	0	418	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1303	1303	778	1303	1303	789	646	0	0	657	0	0
Stage 1	646	646	-	657	657	-	-	-	-	-	-	-
Stage 2	657	657	-	646	646	-	-	-	-	-	-	-
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	138	161	396	138	161	391	939	-	-	931	-	-
Stage 1	460	467	-	454	462	-	-	-	-	-	-	-
Stage 2	454	462	-	460	467	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	83	106	285	86	106	282	836	-	-	829	-	-
Mov Cap-2 Maneuver	83	106	-	86	106	-	-	-	-	-	-	-
Stage 1	373	378	-	368	374	-	-	-	-	-	-	-
Stage 2	335	374	-	356	378	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	19.5			31			0			0		
HCM LOS	C			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	836	-	-	285	86	282	829	-	-			
HCM Lane V/C Ratio	-	-	-	0.132	0.218	0.17	-	-	-			
HCM Control Delay (s)	0	-	-	19.5	58.2	20.4	0	-	-			
HCM Lane LOS	A	-	-	C	F	C	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.4	0.8	0.6	0	-	-			

Existing 2015

HCM 2010 TWSC
107: SR-A1A & Collins Ct

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	539	11	0	668	41	0	0	8	0	0	23
Future Vol, veh/h	0	539	11	0	668	41	0	0	8	0	0	23
Conflicting Peds, #/hr	4	0	2	0	0	4	304	0	34	0	0	304
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	561	11	0	696	43	0	0	8	0	0	24

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1043	0	0	877	0	0	1453	1914	594	1606	1898	677
Stage 1	-	-	-	-	-	-	871	871	-	1021	1021	-
Stage 2	-	-	-	-	-	-	582	1043	-	585	877	-
Critical Hdwy	5.34	-	-	4.14	-	-	6.99	6.54	6.94	6.99	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.54	5.54	-
Follow-up Hdwy	3.12	-	-	2.22	-	-	3.67	4.02	3.32	3.67	4.02	3.92
Pot Cap-1 Maneuver	373	-	-	766	-	-	112	67	448	88	69	339
Stage 1	-	-	-	-	-	-	304	367	-	197	312	-
Stage 2	-	-	-	-	-	-	437	305	-	450	364	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	372	-	-	763	-	-	75	37	333	64	38	252
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	37	-	64	38	-
Stage 1	-	-	-	-	-	-	227	274	-	147	233	-
Stage 2	-	-	-	-	-	-	394	228	-	437	272	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	16.1	20.8
HCM LOS			C	C

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	372	-	-	763	-	-	252
HCM Lane V/C Ratio	0.025	-	-	-	-	-	-	0.095
HCM Control Delay (s)	16.1	0	-	-	0	-	-	20.8
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.3

HCM 2010 TWSC
108: Collins Ct & 6 Street

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	17	29	7	0	0	0	0	13	9	0	0	0
Future Vol, veh/h	17	29	7	0	0	0	0	13	9	0	0	0
Conflicting Peds, #/hr	4	0	9	9	0	4	103	0	68	68	0	103
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	35	8	0	0	0	0	16	11	0	0	0
Major/Minor	Major1						Minor1					
Conflicting Flow All	0	0	0				183	183	142			
Stage 1	-	-	-				183	183	-			
Stage 2	-	-	-				0	0	-			
Critical Hdwy	-	-	-				7.12	6.52	6.22			
Critical Hdwy Stg 1	-	-	-				6.12	5.52	-			
Critical Hdwy Stg 2	-	-	-				-	-	-			
Follow-up Hdwy	-	-	-				3.518	4.018	3.318			
Pot Cap-1 Maneuver	-	-	-				778	711	906			
Stage 1	-	-	-				819	748	-			
Stage 2	-	-	-				-	-	-			
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	-	-	-				706	0	828			
Mov Cap-2 Maneuver	-	-	-				706	0	-			
Stage 1	-	-	-				749	0	-			
Stage 2	-	-	-				-	0	-			
Approach	EB						NB					
HCM Control Delay, s							9.5					
HCM LOS							A					
Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR								
Capacity (veh/h)	828	-	-	-								
HCM Lane V/C Ratio	0.032	-	-	-								
HCM Control Delay (s)	9.5	-	-	-								
HCM Lane LOS	A	-	-	-								
HCM 95th %tile Q(veh)	0.1	-	-	-								

HCM 2010 TWSC
109: Collins Ct & 7 Street

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	12	182	0	0	0	0	0	18	15	0	0	0
Future Vol, veh/h	12	182	0	0	0	0	0	18	15	0	0	0
Conflicting Peds, #/hr	14	0	19	19	0	14	113	0	99	99	0	113
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	1080	434	688	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	200	0	0	0	0	0	20	16	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	0	339	339	212
Stage 1	-	-	-	339	339	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	-	-	-	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	-	-	-	591	581	793
Stage 1	-	-	-	649	638	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	527	0	718
Mov Cap-2 Maneuver	-	-	-	527	0	-
Stage 1	-	-	-	588	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s	10.3	
HCM LOS	B	

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR
Capacity (veh/h)	718	-	-	-
HCM Lane V/C Ratio	0.051	-	-	-
HCM Control Delay (s)	10.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Existing 2015

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	18	300	251	88	11	211	78	62	80	10	35	109
Future Volume (vph)	18	300	251	88	11	211	78	62	80	10	35	109
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Lane Util. Factor		1.00	0.95		1.00	0.95			0.95			1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.94			1.00			1.00
Flpb, ped/bikes		0.98	1.00		0.93	1.00			0.92			0.99
Frt		1.00	0.96		1.00	0.96			0.99			1.00
Flt Protected		0.95	1.00		0.95	1.00			0.98			0.99
Satd. Flow (prot)		1557	2985		1470	2858			2817			1632
Flt Permitted		0.38	1.00		0.52	1.00			0.76			0.88
Satd. Flow (perm)		619	2985		804	2858			2181			1459
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	21	349	292	102	13	245	91	72	93	12	41	127
RTOR Reduction (vph)	0	0	19	0	0	26	0	0	6	0	0	0
Lane Group Flow (vph)	0	370	375	0	13	310	0	0	171	0	0	168
Confl. Peds. (#/hr)		90		55	55		90	293		56	56	
Confl. Bikes (#/hr)				7						5		
Turn Type	custom	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases		5	2			6			4			8
Permitted Phases	5	2			6			4			8	
Actuated Green, G (s)		70.8	70.8		28.9	28.9			45.7			45.7
Effective Green, g (s)		70.8	70.8		28.9	28.9			45.7			45.7
Actuated g/C Ratio		0.54	0.54		0.22	0.22			0.35			0.35
Clearance Time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Vehicle Extension (s)		2.0	1.0		1.0	1.0			2.5			5.0
Lane Grp Cap (vph)		593	1625		178	635			766			512
v/s Ratio Prot		c0.17	0.13			0.11						
v/s Ratio Perm		c0.17			0.02				0.08			0.12
v/c Ratio		0.62	0.23		0.07	0.49			0.22			0.33
Uniform Delay, d1		18.5	15.4		40.0	44.1			29.7			30.9
Progression Factor		0.56	0.44		1.00	1.00			1.00			1.17
Incremental Delay, d2		1.4	0.3		0.8	2.7			0.1			0.8
Delay (s)		11.8	7.1		40.8	46.8			29.8			37.0
Level of Service		B	A		D	D			C			D
Approach Delay (s)			9.4			46.5			29.8			58.4
Approach LOS			A			D			C			E
Intersection Summary												
HCM 2000 Control Delay			33.1		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				19.8			
Intersection Capacity Utilization			92.8%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	330
Future Volume (vph)	330
Ideal Flow (vphpl)	1700
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frbp, ped/bikes	0.74
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1053
Flt Permitted	1.00
Satd. Flow (perm)	1053
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	384
RTOR Reduction (vph)	66
Lane Group Flow (vph)	318
Confl. Peds. (#/hr)	293
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	45.7
Effective Green, g (s)	45.7
Actuated g/C Ratio	0.35
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	370
v/s Ratio Prot	
v/s Ratio Perm	0.30
v/c Ratio	0.86
Uniform Delay, d1	39.2
Progression Factor	1.25
Incremental Delay, d2	18.8
Delay (s)	67.8
Level of Service	E
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	67	65	0	0	0	0	457	54	29	374	0
Future Volume (vph)	57	67	65	0	0	0	0	457	54	29	374	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.0						6.0		6.0	6.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		0.85						0.97		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.87	1.00	
Frt		0.95						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		2503						1589		1382	1667	
Flt Permitted		0.99						1.00		0.43	1.00	
Satd. Flow (perm)		2503						1589		620	1667	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	61	72	70	0	0	0	0	491	58	31	402	0
RTOR Reduction (vph)	0	60	0	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	143	0	0	0	0	0	545	0	31	402	0
Confl. Peds. (#/hr)			219	219		235	70		248	248		70
Confl. Bikes (#/hr)			10			8			6			8
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		8						6			2	
Permitted Phases	8									2		
Actuated Green, G (s)		8.9						44.1		44.1	44.1	
Effective Green, g (s)		8.9						44.1		44.1	44.1	
Actuated g/C Ratio		0.14						0.68		0.68	0.68	
Clearance Time (s)		6.0						6.0		6.0	6.0	
Vehicle Extension (s)		2.5						2.5		2.5	2.5	
Lane Grp Cap (vph)		342						1078		420	1130	
v/s Ratio Prot								c0.34			0.24	
v/s Ratio Perm		0.06								0.05		
v/c Ratio		0.42						0.51		0.07	0.36	
Uniform Delay, d1		25.7						5.1		3.5	4.4	
Progression Factor		1.00						1.61		1.00	1.00	
Incremental Delay, d2		0.6						1.6		0.3	0.9	
Delay (s)		26.3						9.8		3.9	5.3	
Level of Service		C						A		A	A	
Approach Delay (s)		26.3			0.0			9.8			5.2	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay		10.9						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.49										
Actuated Cycle Length (s)		65.0						Sum of lost time (s)		12.0		
Intersection Capacity Utilization		55.6%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	341	557	56	23	466	108	103	270	16	18	34	163
Future Volume (vph)	341	557	56	23	466	108	103	270	16	18	34	163
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Width	11	11	11	11	11	11	11	11	11	12	11	11
Total Lost time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.96			0.95	1.00
Frt	1.00	0.99		1.00	0.97			0.99			1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.95	1.00
Satd. Flow (prot)	2969	2989		1513	4219			2676			1455	1611
Flt Permitted	0.95	1.00		0.38	1.00			0.75			0.39	1.00
Satd. Flow (perm)	2969	2989		612	4219			2043			590	1611
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.87	0.87
Adj. Flow (vph)	392	640	64	26	536	124	118	310	18	19	39	187
RTOR Reduction (vph)	0	5	0	0	27	0	0	3	0	0	0	0
Lane Group Flow (vph)	392	699	0	26	633	0	0	443	0	0	58	187
Confl. Peds. (#/hr)	42		39	39		42	200		88		88	
Confl. Bikes (#/hr)			11			6			10			
Parking (#/hr)								5	5			
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	Perm	NA
Protected Phases	1	6		5	2			4				8
Permitted Phases				2			4			8	8	
Actuated Green, G (s)	23.3	70.8		58.1	52.6			35.4			35.4	35.4
Effective Green, g (s)	23.3	70.8		58.1	52.6			35.4			35.4	35.4
Actuated g/C Ratio	0.18	0.54		0.45	0.40			0.27			0.27	0.27
Clearance Time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5			2.5	2.5
Lane Grp Cap (vph)	532	1627		311	1707			556			160	438
v/s Ratio Prot	c0.13	c0.23		0.00	0.15							0.12
v/s Ratio Perm				0.03				c0.22			0.10	
v/c Ratio	0.74	0.43		0.08	0.37			0.80			0.36	0.43
Uniform Delay, d1	50.5	17.6		20.2	27.1			44.0			38.2	38.9
Progression Factor	1.00	1.00		1.49	1.43			1.00			1.00	1.00
Incremental Delay, d2	4.6	0.8		0.0	0.6			7.6			1.0	0.5
Delay (s)	55.0	18.4		30.1	39.2			51.5			39.2	39.4
Level of Service	E	B		C	D			D			D	D
Approach Delay (s)		31.5			38.9			51.5				38.3
Approach LOS		C			D			D				D
Intersection Summary												
HCM 2000 Control Delay			37.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.7			
Intersection Capacity Utilization			111.0%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	216
Future Volume (vph)	216
Ideal Flow (vphpl)	1700
Lane Width	11
Total Lost time (s)	6.4
Lane Util. Factor	1.00
Frbp, ped/bikes	0.75
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1022
Flt Permitted	1.00
Satd. Flow (perm)	1022
Peak-hour factor, PHF	0.87
Adj. Flow (vph)	248
RTOR Reduction (vph)	180
Lane Group Flow (vph)	68
Confl. Peds. (#/hr)	200
Confl. Bikes (#/hr)	21
Parking (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	35.4
Effective Green, g (s)	35.4
Actuated g/C Ratio	0.27
Clearance Time (s)	6.4
Vehicle Extension (s)	2.5
Lane Grp Cap (vph)	278
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.24
Uniform Delay, d1	36.9
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	37.2
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

104: Washington Avenue & 6 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	37	60	601	417	161
Future Volume (vph)	50	37	60	601	417	161
Ideal Flow (vphpl)	1700	1700	1200	1700	1700	1700
Lane Width	12	12	11	11	11	11
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.97			1.00	0.99	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.96	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1481			2826	2865	
Flt Permitted	0.97			0.83	1.00	
Satd. Flow (perm)	1481			2353	2865	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	57	42	68	683	474	183
RTOR Reduction (vph)	31	0	0	0	40	0
Lane Group Flow (vph)	68	0	0	751	617	0
Confl. Peds. (#/hr)	103	54	11			11
Confl. Bikes (#/hr)		5				3
Bus Blockages (#/hr)	0	0	0	5	5	0
Parking (#/hr)		5		5		
Turn Type	Prot		Perm	NA	NA	
Protected Phases	8			6	2	
Permitted Phases			6			
Actuated Green, G (s)	22.2			57.8	57.8	
Effective Green, g (s)	22.2			57.8	57.8	
Actuated g/C Ratio	0.25			0.64	0.64	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			1.0	1.0	
Lane Grp Cap (vph)	365			1511	1839	
v/s Ratio Prot	c0.05				0.22	
v/s Ratio Perm				c0.32		
v/c Ratio	0.19			0.50	0.34	
Uniform Delay, d1	26.8			8.5	7.3	
Progression Factor	1.00			1.00	1.82	
Incremental Delay, d2	0.2			1.2	0.5	
Delay (s)	27.0			9.6	13.9	
Level of Service	C			A	B	
Approach Delay (s)	27.0			9.6	13.9	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay			12.6		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			71.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	39	40	0	0	0	6	36	602	58	10	91
Future Volume (vph)	34	39	40	0	0	0	6	36	602	58	10	91
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1200	1700	1700	1700	1700
Lane Width	12	12	12	12	12	12	12	10	11	12	12	12
Total Lost time (s)		5.0						5.0	5.0			5.0
Lane Util. Factor		1.00						1.00	0.95			1.00
Frpb, ped/bikes		0.97						1.00	0.99			1.00
Flpb, ped/bikes		0.99						0.95	1.00			0.97
Frt		0.95						1.00	0.99			1.00
Flt Protected		0.99						0.95	1.00			0.95
Satd. Flow (prot)		1504						993	2783			1543
Flt Permitted		0.99						0.40	1.00			0.38
Satd. Flow (perm)		1504						420	2783			610
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.97
Adj. Flow (vph)	35	40	41	0	0	0	6	37	621	60	11	94
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	93	0	0	0	0	0	43	674	0	0	105
Confl. Peds. (#/hr)	32		56	56		32		61		59		59
Confl. Bikes (#/hr)			4			11				10		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	0
Parking (#/hr)									5			
Turn Type	custom	NA						Perm	NA			Perm
Protected Phases		8							2			
Permitted Phases	4							2				6
Actuated Green, G (s)		20.6						59.4	59.4			59.4
Effective Green, g (s)		20.6						59.4	59.4			59.4
Actuated g/C Ratio		0.23						0.66	0.66			0.66
Clearance Time (s)		5.0						5.0	5.0			5.0
Vehicle Extension (s)		2.5						1.0	1.0			1.0
Lane Grp Cap (vph)		344						277	1836			402
v/s Ratio Prot									c0.24			
v/s Ratio Perm		0.06						0.10				0.17
v/c Ratio		0.27						0.16	0.37			0.26
Uniform Delay, d1		28.5						5.8	6.9			6.3
Progression Factor		1.00						1.96	1.90			1.00
Incremental Delay, d2		0.3						1.1	0.5			1.6
Delay (s)		28.8						12.4	13.6			7.9
Level of Service		C						B	B			A
Approach Delay (s)		28.8			0.0				13.5			
Approach LOS		C			A				B			
Intersection Summary												
HCM 2000 Control Delay			11.7									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.34									
Actuated Cycle Length (s)			90.0							10.0		
Intersection Capacity Utilization			59.1%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (vph)	547	59
Future Volume (vph)	547	59
Ideal Flow (vphpl)	1700	1700
Lane Width	11	11
Total Lost time (s)	5.0	
Lane Util. Factor	0.95	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	2975	
Flt Permitted	1.00	
Satd. Flow (perm)	2975	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	564	61
RTOR Reduction (vph)	8	0
Lane Group Flow (vph)	617	0
Confl. Peds. (#/hr)		61
Confl. Bikes (#/hr)		5
Bus Blockages (#/hr)	0	5
Parking (#/hr)		5
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	59.4	
Effective Green, g (s)	59.4	
Actuated g/C Ratio	0.66	
Clearance Time (s)	5.0	
Vehicle Extension (s)	1.0	
Lane Grp Cap (vph)	1963	
v/s Ratio Prot	0.21	
v/s Ratio Perm		
v/c Ratio	0.31	
Uniform Delay, d1	6.6	
Progression Factor	1.00	
Incremental Delay, d2	0.4	
Delay (s)	7.0	
Level of Service	A	
Approach Delay (s)	7.1	
Approach LOS	A	
Intersection Summary		

HCM 2010 TWSC
106: Collins Avenue & 6 Street

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	37	18	0	48	0	436	0	0	439	0
Future Vol, veh/h	0	0	37	18	0	48	0	436	0	0	439	0
Conflicting Peds, #/hr	117	0	228	228	0	117	132	0	7	7	0	132
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	39	19	0	50	0	454	0	0	457	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1367	1367	817	1367	1367	814	685	0	0	682	0	0
Stage 1	685	685	-	682	682	-	-	-	-	-	-	-
Stage 2	682	682	-	685	685	-	-	-	-	-	-	-
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	124	147	376	124	147	378	908	-	-	911	-	-
Stage 1	438	448	-	440	450	-	-	-	-	-	-	-
Stage 2	440	450	-	438	448	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	73	96	271	77	96	273	808	-	-	811	-	-
Mov Cap-2 Maneuver	73	96	-	77	96	-	-	-	-	-	-	-
Stage 1	355	363	-	356	365	-	-	-	-	-	-	-
Stage 2	320	365	-	334	363	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	20.5			33.4			0			0		
HCM LOS	C			D								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	808	-	-	271	77	273	811	-	-			
HCM Lane V/C Ratio	-	-	-	0.142	0.244	0.183	-	-	-			
HCM Control Delay (s)	0	-	-	20.5	66.2	21.1	0	-	-			
HCM Lane LOS	A	-	-	C	F	C	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.5	0.9	0.7	0	-	-			

HCM 2010 TWSC
107: SR-A1A & Collins Ct

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	576	11	0	689	42	0	0	43	0	0	24
Future Vol, veh/h	0	576	11	0	689	42	0	0	43	0	0	24
Conflicting Peds, #/hr	4	0	2	0	0	4	304	0	34	64	0	304
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	600	11	0	718	44	0	0	45	0	0	25
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1065	0	0	915	0	0	1501	1975	614	1648	1959	689
Stage 1	-	-	-	-	-	-	910	910	-	1044	1044	-
Stage 2	-	-	-	-	-	-	591	1065	-	604	915	-
Critical Hdwy	5.34	-	-	4.14	-	-	6.99	6.54	6.94	6.99	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.54	5.54	-
Follow-up Hdwy	3.12	-	-	2.22	-	-	3.67	4.02	3.32	3.67	4.02	3.92
Pot Cap-1 Maneuver	364	-	-	741	-	-	104	61	435	83	63	333
Stage 1	-	-	-	-	-	-	288	352	-	190	304	-
Stage 2	-	-	-	-	-	-	432	297	-	438	350	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	363	-	-	739	-	-	70	34	324	53	35	248
Mov Cap-2 Maneuver	-	-	-	-	-	-	70	34	-	53	35	-
Stage 1	-	-	-	-	-	-	215	263	-	142	227	-
Stage 2	-	-	-	-	-	-	387	222	-	376	261	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			17.9			21.1		
HCM LOS							C			C		
Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	324	363	-	-	739	-	-	248				
HCM Lane V/C Ratio	0.138	-	-	-	-	-	-	0.101				
HCM Control Delay (s)	17.9	0	-	-	0	-	-	21.1				
HCM Lane LOS	C	A	-	-	A	-	-	C				
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.3				

HCM 2010 TWSC
108: Collins Ct & 6 Street

Intersection

Int Delay, s/veh 2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	17	30	8	0	0	0	0	13	10	0	0	0
Future Vol, veh/h	17	30	8	0	0	0	0	13	10	0	0	0
Conflicting Peds, #/hr	4	0	9	9	0	4	103	0	68	68	0	103
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	36	10	0	0	0	0	16	12	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	0	185	185	144
Stage 1	-	-	-	185	185	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	-	-	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	-	-	-	776	709	903
Stage 1	-	-	-	817	747	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	704	0	825
Mov Cap-2 Maneuver	-	-	-	704	0	-
Stage 1	-	-	-	747	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s	9.5	
HCM LOS	A	

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR
Capacity (veh/h)	825	-	-	-
HCM Lane V/C Ratio	0.034	-	-	-
HCM Control Delay (s)	9.5	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

HCM 2010 TWSC
109: Collins Ct & 7 Street

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	12	187	0	0	0	0	0	18	15	0	0	0
Future Vol, veh/h	12	187	0	0	0	0	0	18	15	0	0	0
Conflicting Peds, #/hr	14	0	19	19	0	14	113	0	99	99	0	113
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	1080	434	688	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	205	0	0	0	0	0	20	16	0	0	0
Major/Minor	Major1						Minor1					
Conflicting Flow All	0	0	0				345	345	215			
Stage 1	-	-	-				345	345	-			
Stage 2	-	-	-				0	0	-			
Critical Hdwy	-	-	-				7.54	6.54	6.94			
Critical Hdwy Stg 1	-	-	-				6.54	5.54	-			
Critical Hdwy Stg 2	-	-	-				-	-	-			
Follow-up Hdwy	-	-	-				3.52	4.02	3.32			
Pot Cap-1 Maneuver	-	-	-				585	577	790			
Stage 1	-	-	-				644	635	-			
Stage 2	-	-	-				-	-	-			
Platoon blocked, %		-	-									
Mov Cap-1 Maneuver	-	-	-				522	0	716			
Mov Cap-2 Maneuver	-	-	-				522	0	-			
Stage 1	-	-	-				583	0	-			
Stage 2	-	-	-				-	0	-			
Approach	EB						NB					
HCM Control Delay, s							10.3					
HCM LOS							B					
Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR								
Capacity (veh/h)	716	-	-	-								
HCM Lane V/C Ratio	0.051	-	-	-								
HCM Control Delay (s)	10.3	-	-	-								
HCM Lane LOS	B	-	-	-								
HCM 95th %tile Q(veh)	0.2	-	-	-								

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	300	251	88	11	211	78	73	80	10	35	121
Future Volume (vph)	25	300	251	88	11	211	78	73	80	10	35	121
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Lane Util. Factor		1.00	0.95		1.00	0.95			0.95			1.00
Frpb, ped/bikes		1.00	0.97		1.00	0.91			1.00			1.00
Flpb, ped/bikes		0.98	1.00		0.88	1.00			0.95			0.99
Frt		1.00	0.96		1.00	0.96			0.99			1.00
Flt Protected		0.95	1.00		0.95	1.00			0.98			0.99
Satd. Flow (prot)		1557	2957		1396	2752			2896			1640
Flt Permitted		0.27	1.00		0.52	1.00			0.75			0.90
Satd. Flow (perm)		437	2957		763	2752			2224			1486
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	29	349	292	102	13	245	91	85	93	12	41	141
RTOR Reduction (vph)	0	0	28	0	0	29	0	0	4	0	0	0
Lane Group Flow (vph)	0	378	366	0	13	307	0	0	186	0	0	182
Confl. Peds. (#/hr)		90		55	55		90	293		56	56	
Confl. Bikes (#/hr)				7						5		
Turn Type	custom	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases		5	2			6			4			8
Permitted Phases	5	2			6			4			8	
Actuated Green, G (s)		42.5	42.5		17.5	17.5			74.0			74.0
Effective Green, g (s)		42.5	42.5		17.5	17.5			74.0			74.0
Actuated g/C Ratio		0.33	0.33		0.13	0.13			0.57			0.57
Clearance Time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Vehicle Extension (s)		2.0	1.0		1.0	1.0			2.5			5.0
Lane Grp Cap (vph)		303	966		102	370			1265			845
v/s Ratio Prot		c0.18	0.12			0.11						
v/s Ratio Perm		c0.23			0.02				0.08			0.12
v/c Ratio		1.25	0.38		0.13	0.83			0.15			0.22
Uniform Delay, d1		39.0	33.6		49.5	54.8			13.2			13.7
Progression Factor		0.76	0.68		1.00	1.00			1.00			1.06
Incremental Delay, d2		135.0	1.1		2.6	18.9			0.0			0.2
Delay (s)		164.7	23.9		52.1	73.7			13.2			14.8
Level of Service		F	C		D	E			B			B
Approach Delay (s)			92.8			72.9			13.2			55.0
Approach LOS			F			E			B			D
Intersection Summary												
HCM 2000 Control Delay			67.4									
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			130.0						19.8			
Intersection Capacity Utilization			113.3%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	620
Future Volume (vph)	620
Ideal Flow (vphpl)	1700
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frbp, ped/bikes	0.84
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1185
Flt Permitted	1.00
Satd. Flow (perm)	1185
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	721
RTOR Reduction (vph)	41
Lane Group Flow (vph)	680
Confl. Peds. (#/hr)	293
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	74.0
Effective Green, g (s)	74.0
Actuated g/C Ratio	0.57
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	674
v/s Ratio Prot	
v/s Ratio Perm	c0.57
v/c Ratio	1.01
Uniform Delay, d1	28.0
Progression Factor	1.08
Incremental Delay, d2	34.8
Delay (s)	65.1
Level of Service	E
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	25	300	251	88	11	211	78	73	80	10	35	121
Future Volume (vph)	25	300	251	88	11	211	78	73	80	10	35	121
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Lane Util. Factor		1.00	0.95		1.00	0.95			0.95			1.00
Frpb, ped/bikes		1.00	0.97		1.00	0.91			1.00			1.00
Flpb, ped/bikes		0.97	1.00		0.90	1.00			0.94			0.99
Frt		1.00	0.96		1.00	0.96			0.99			1.00
Flt Protected		0.95	1.00		0.95	1.00			0.98			0.99
Satd. Flow (prot)		1541	2967		1421	2757			2878			1639
Flt Permitted		0.41	1.00		0.40	1.00			0.75			0.89
Satd. Flow (perm)		672	2967		593	2757			2205			1483
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	29	349	292	102	13	245	91	85	93	12	41	141
RTOR Reduction (vph)	0	0	28	0	0	30	0	0	4	0	0	0
Lane Group Flow (vph)	0	378	366	0	13	306	0	0	186	0	0	182
Confl. Peds. (#/hr)		90		55	55		90	293		56	56	
Confl. Bikes (#/hr)				7						5		
Turn Type	pm+pt	pm+pt	NA		Perm	NA		Perm	NA		Perm	NA
Protected Phases	5	5	2			6			4			8
Permitted Phases	2	2			6			4			8	
Actuated Green, G (s)		49.3	49.3		17.8	17.8			67.2			67.2
Effective Green, g (s)		49.3	49.3		17.8	17.8			67.2			67.2
Actuated g/C Ratio		0.38	0.38		0.14	0.14			0.52			0.52
Clearance Time (s)		6.3	6.3		6.3	6.3			7.2			7.2
Vehicle Extension (s)		2.0	1.0		1.0	1.0			2.5			5.0
Lane Grp Cap (vph)		423	1125		81	377			1139			766
v/s Ratio Prot		c0.17	0.12			0.11						
v/s Ratio Perm		c0.17			0.02				0.08			0.12
v/c Ratio		0.89	0.33		0.16	0.81			0.16			0.24
Uniform Delay, d1		39.8	28.6		49.5	54.5			16.6			17.3
Progression Factor		0.93	0.82		1.00	1.00			1.00			1.00
Incremental Delay, d2		19.5	0.7		4.2	17.1			0.0			0.3
Delay (s)		56.7	24.1		53.7	71.5			16.6			17.7
Level of Service		E	C		D	E			B			B
Approach Delay (s)			40.0			70.9			16.6			69.1
Approach LOS			D			E			B			E
Intersection Summary												
HCM 2000 Control Delay			54.7		HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			130.0		Sum of lost time (s)				19.8			
Intersection Capacity Utilization			113.3%		ICU Level of Service				H			
Analysis Period (min)			15									
c Critical Lane Group												

Future 2018 + OPT

HCM Signalized Intersection Capacity Analysis

101: Collins Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	620
Future Volume (vph)	620
Ideal Flow (vphpl)	1700
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frbp, ped/bikes	0.82
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1164
Flt Permitted	1.00
Satd. Flow (perm)	1164
Peak-hour factor, PHF	0.86
Adj. Flow (vph)	721
RTOR Reduction (vph)	85
Lane Group Flow (vph)	636
Confl. Peds. (#/hr)	293
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	67.2
Effective Green, g (s)	67.2
Actuated g/C Ratio	0.52
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	601
v/s Ratio Prot	
v/s Ratio Perm	0.55
v/c Ratio	1.06
Uniform Delay, d1	31.4
Progression Factor	0.98
Incremental Delay, d2	51.3
Delay (s)	82.0
Level of Service	F
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	67	319	0	0	0	0	457	54	29	421	0
Future Volume (vph)	149	67	319	0	0	0	0	457	54	29	421	0
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Total Lost time (s)		6.0						6.0		6.0	6.0	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frbp, ped/bikes		0.74						0.97		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.89	1.00	
Frt		0.91						0.99		1.00	1.00	
Flt Protected		0.99						1.00		0.95	1.00	
Satd. Flow (prot)		2100						1589		1411	1667	
Flt Permitted		0.99						1.00		0.37	1.00	
Satd. Flow (perm)		2100						1589		545	1667	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	160	72	343	0	0	0	0	491	58	31	453	0
RTOR Reduction (vph)	0	139	0	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	436	0	0	0	0	0	543	0	31	453	0
Confl. Peds. (#/hr)			219	219		235	70		248	248		70
Confl. Bikes (#/hr)			10			8			6			8
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		8						6			2	
Permitted Phases	8									2		
Actuated Green, G (s)		17.8						35.2		35.2	35.2	
Effective Green, g (s)		17.8						35.2		35.2	35.2	
Actuated g/C Ratio		0.27						0.54		0.54	0.54	
Clearance Time (s)		6.0						6.0		6.0	6.0	
Vehicle Extension (s)		2.5						2.5		2.5	2.5	
Lane Grp Cap (vph)		575						860		295	902	
v/s Ratio Prot								c0.34			0.27	
v/s Ratio Perm		0.21								0.06		
v/c Ratio		0.76						0.63		0.11	0.50	
Uniform Delay, d1		21.6						10.4		7.2	9.4	
Progression Factor		1.00						1.41		1.00	1.00	
Incremental Delay, d2		5.4						2.0		0.7	2.0	
Delay (s)		27.1						16.6		8.0	11.4	
Level of Service		C						B		A	B	
Approach Delay (s)		27.1			0.0			16.6			11.2	
Approach LOS		C			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		18.7						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.67										
Actuated Cycle Length (s)		65.0						Sum of lost time (s)		12.0		
Intersection Capacity Utilization		68.0%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	451	557	56	34	574	115	103	282	16	18	41	163
Future Volume (vph)	451	557	56	34	574	115	103	282	16	18	41	163
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Lane Width	11	11	11	11	11	11	11	11	11	12	11	11
Total Lost time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95			1.00	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99			1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00		0.99	1.00			0.96			0.95	1.00
Frt	1.00	0.99		1.00	0.97			0.99			1.00	1.00
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.95	1.00
Satd. Flow (prot)	2969	2989		1513	4239			2681			1457	1611
Flt Permitted	0.95	1.00		0.38	1.00			0.76			0.38	1.00
Satd. Flow (perm)	2969	2989		612	4239			2057			575	1611
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.95	0.87	0.87
Adj. Flow (vph)	518	640	64	39	660	132	118	324	18	19	47	187
RTOR Reduction (vph)	0	5	0	0	26	0	0	2	0	0	0	0
Lane Group Flow (vph)	518	699	0	39	766	0	0	458	0	0	66	187
Confl. Peds. (#/hr)	42		39	39		42	200		88		88	
Confl. Bikes (#/hr)			11			6			10			
Parking (#/hr)								5	5			
Turn Type	Prot	NA		pm+pt	NA		Perm	NA		Perm	Perm	NA
Protected Phases	1	6		5	2			4				8
Permitted Phases				2			4			8	8	
Actuated Green, G (s)	35.7	70.0		45.7	39.8			35.8			35.8	35.8
Effective Green, g (s)	35.7	70.0		45.7	39.8			35.8			35.8	35.8
Actuated g/C Ratio	0.27	0.54		0.35	0.31			0.28			0.28	0.28
Clearance Time (s)	6.3	6.0		5.9	6.0			6.4			6.4	6.4
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5			2.5	2.5
Lane Grp Cap (vph)	815	1609		256	1297			566			158	443
v/s Ratio Prot	c0.17	0.23		0.01	c0.18							0.12
v/s Ratio Perm				0.05				c0.22			0.11	
v/c Ratio	0.64	0.43		0.15	0.59			0.81			0.42	0.42
Uniform Delay, d1	41.4	18.1		28.1	38.2			43.9			38.6	38.6
Progression Factor	1.00	1.00		1.34	1.36			1.00			1.00	1.00
Incremental Delay, d2	1.2	0.9		0.0	0.9			8.1			1.3	0.5
Delay (s)	42.6	18.9		37.6	53.1			52.0			39.9	39.1
Level of Service	D	B		D	D			D			D	D
Approach Delay (s)		29.0			52.3			52.0				38.1
Approach LOS		C			D			D				D
Intersection Summary												
HCM 2000 Control Delay			40.5			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			18.7			
Intersection Capacity Utilization			114.5%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Future 2018

HCM Signalized Intersection Capacity Analysis

103: Washington Avenue & SR-A1A

Movement	SBR
Lane Configurations	↗
Traffic Volume (vph)	216
Future Volume (vph)	216
Ideal Flow (vphpl)	1700
Lane Width	11
Total Lost time (s)	6.4
Lane Util. Factor	1.00
Frbp, ped/bikes	0.75
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1022
Flt Permitted	1.00
Satd. Flow (perm)	1022
Peak-hour factor, PHF	0.87
Adj. Flow (vph)	248
RTOR Reduction (vph)	180
Lane Group Flow (vph)	68
Confl. Peds. (#/hr)	200
Confl. Bikes (#/hr)	21
Parking (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	8
Actuated Green, G (s)	35.8
Effective Green, g (s)	35.8
Actuated g/C Ratio	0.28
Clearance Time (s)	6.4
Vehicle Extension (s)	2.5
Lane Grp Cap (vph)	281
v/s Ratio Prot	
v/s Ratio Perm	0.07
v/c Ratio	0.24
Uniform Delay, d1	36.6
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	36.9
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

104: Washington Avenue & 6 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	44	67	600	399	161
Future Volume (vph)	50	44	67	600	399	161
Ideal Flow (vphpl)	1700	1700	1200	1700	1700	1700
Lane Width	12	12	11	11	11	11
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	1.00			0.95	0.95	
Frpb, ped/bikes	0.97			1.00	0.99	
Flpb, ped/bikes	1.00			1.00	1.00	
Frt	0.94			1.00	0.96	
Flt Protected	0.97			1.00	1.00	
Satd. Flow (prot)	1471			2824	2859	
Flt Permitted	0.97			0.82	1.00	
Satd. Flow (perm)	1471			2319	2859	
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	57	50	76	682	453	183
RTOR Reduction (vph)	37	0	0	0	43	0
Lane Group Flow (vph)	70	0	0	758	593	0
Confl. Peds. (#/hr)	103	54	11			11
Confl. Bikes (#/hr)		5				3
Bus Blockages (#/hr)	0	0	0	5	5	0
Parking (#/hr)		5		5		
Turn Type	Prot		Perm	NA	NA	
Protected Phases	8			6	2	
Permitted Phases			6			
Actuated Green, G (s)	22.2			57.8	57.8	
Effective Green, g (s)	22.2			57.8	57.8	
Actuated g/C Ratio	0.25			0.64	0.64	
Clearance Time (s)	5.0			5.0	5.0	
Vehicle Extension (s)	2.5			1.0	1.0	
Lane Grp Cap (vph)	362			1489	1836	
v/s Ratio Prot	c0.05				0.21	
v/s Ratio Perm				c0.33		
v/c Ratio	0.19			0.51	0.32	
Uniform Delay, d1	26.8			8.6	7.3	
Progression Factor	1.00			1.00	1.95	
Incremental Delay, d2	0.2			1.2	0.4	
Delay (s)	27.0			9.8	14.6	
Level of Service	C			A	B	
Approach Delay (s)	27.0			9.8	14.6	
Approach LOS	C			A	B	
Intersection Summary						
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			71.0%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Future 2018

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	34	39	40	0	0	0	6	36	586	58	10	91
Future Volume (vph)	34	39	40	0	0	0	6	36	586	58	10	91
Ideal Flow (vphpl)	1700	1700	1700	1700	1700	1700	1700	1200	1700	1700	1700	1700
Lane Width	12	12	12	12	12	12	12	10	11	12	12	12
Total Lost time (s)		5.0						5.0	5.0			5.0
Lane Util. Factor		1.00						1.00	0.95			1.00
Frpb, ped/bikes		0.97						1.00	0.99			1.00
Flpb, ped/bikes		0.99						0.96	1.00			0.97
Frt		0.95						1.00	0.99			1.00
Flt Protected		0.99						0.95	1.00			0.95
Satd. Flow (prot)		1504						997	2782			1542
Flt Permitted		0.99						0.38	1.00			0.38
Satd. Flow (perm)		1504						399	2782			622
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.95	0.97
Adj. Flow (vph)	35	40	41	0	0	0	6	37	604	60	11	94
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	7	0	0	0
Lane Group Flow (vph)	0	93	0	0	0	0	0	43	657	0	0	105
Confl. Peds. (#/hr)	32		56	56		32		61		59		59
Confl. Bikes (#/hr)			4			11				10		
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	5	0	0	0
Parking (#/hr)									5			
Turn Type	custom	NA						Perm	NA			Perm
Protected Phases		8							2			
Permitted Phases	4							2				6
Actuated Green, G (s)		20.6						59.4	59.4			59.4
Effective Green, g (s)		20.6						59.4	59.4			59.4
Actuated g/C Ratio		0.23						0.66	0.66			0.66
Clearance Time (s)		5.0						5.0	5.0			5.0
Vehicle Extension (s)		2.5						1.0	1.0			1.0
Lane Grp Cap (vph)		344						263	1836			410
v/s Ratio Prot									c0.24			
v/s Ratio Perm		0.06						0.11				0.17
v/c Ratio		0.27						0.16	0.36			0.26
Uniform Delay, d1		28.5						5.8	6.8			6.3
Progression Factor		1.00						1.97	1.93			1.00
Incremental Delay, d2		0.3						1.2	0.5			1.5
Delay (s)		28.8						12.7	13.6			7.8
Level of Service		C						B	B			A
Approach Delay (s)		28.8			0.0				13.6			
Approach LOS		C			A				B			
Intersection Summary												
HCM 2000 Control Delay			11.6							HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			90.0							Sum of lost time (s)	10.0	
Intersection Capacity Utilization			58.6%							ICU Level of Service	B	
Analysis Period (min)			15									
c Critical Lane Group												

Future 2018

HCM Signalized Intersection Capacity Analysis

105: Washington Avenue & 7 Street

	↓	↙
Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (vph)	592	59
Future Volume (vph)	592	59
Ideal Flow (vphpl)	1700	1700
Lane Width	11	11
Total Lost time (s)	5.0	
Lane Util. Factor	0.95	
Frbp, ped/bikes	0.99	
Flpb, ped/bikes	1.00	
Frt	0.99	
Flt Protected	1.00	
Satd. Flow (prot)	2981	
Flt Permitted	1.00	
Satd. Flow (perm)	2981	
Peak-hour factor, PHF	0.97	0.97
Adj. Flow (vph)	610	61
RTOR Reduction (vph)	7	0
Lane Group Flow (vph)	664	0
Confl. Peds. (#/hr)		61
Confl. Bikes (#/hr)		5
Bus Blockages (#/hr)	0	5
Parking (#/hr)		5
Turn Type	NA	
Protected Phases	6	
Permitted Phases		
Actuated Green, G (s)	59.4	
Effective Green, g (s)	59.4	
Actuated g/C Ratio	0.66	
Clearance Time (s)	5.0	
Vehicle Extension (s)	1.0	
Lane Grp Cap (vph)	1967	
v/s Ratio Prot	0.22	
v/s Ratio Perm		
v/c Ratio	0.34	
Uniform Delay, d1	6.7	
Progression Factor	1.00	
Incremental Delay, d2	0.5	
Delay (s)	7.2	
Level of Service	A	
Approach Delay (s)	7.2	
Approach LOS	A	
Intersection Summary		

HCM 2010 TWSC
106: Collins Avenue & 6 Street

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	37	18	0	48	0	436	0	0	740	0
Future Vol, veh/h	0	0	37	18	0	48	0	436	0	0	740	0
Conflicting Peds, #/hr	117	0	228	228	0	117	132	0	7	7	0	132
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	39	19	0	50	0	454	0	0	771	0
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1681	1681	1131	1681	1681	814	999	0	0	682	0	0
Stage 1	999	999	-	682	682	-	-	-	-	-	-	-
Stage 2	682	682	-	999	999	-	-	-	-	-	-	-
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	75	95	248	75	95	378	693	-	-	911	-	-
Stage 1	293	321	-	440	450	-	-	-	-	-	-	-
Stage 2	440	450	-	293	321	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	62	179	42	62	273	617	-	-	811	-	-
Mov Cap-2 Maneuver	44	62	-	42	62	-	-	-	-	-	-	-
Stage 1	237	260	-	356	365	-	-	-	-	-	-	-
Stage 2	320	365	-	205	260	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	30.5			55.5			0			0		
HCM LOS	D			F								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	617	-	-	179	42	273	811	-	-			
HCM Lane V/C Ratio	-	-	-	0.215	0.446	0.183	-	-	-			
HCM Control Delay (s)	0	-	-	30.5	147.1	21.1	0	-	-			
HCM Lane LOS	A	-	-	D	F	C	A	-	-			
HCM 95th %tile Q(veh)	0	-	-	0.8	1.6	0.7	0	-	-			

Future 2018

HCM 2010 TWSC
107: SR-A1A & Collins Ct

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	583	11	0	932	108	0	0	43	0	0	24
Future Vol, veh/h	0	583	11	0	932	108	0	0	43	0	0	24
Conflicting Peds, #/hr	4	0	2	0	0	4	304	0	34	64	0	304
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	607	11	0	971	113	0	0	45	0	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1387	0	0	923	0	0	1609	2304	617	1939	2254	850
Stage 1	-	-	-	-	-	-	917	917	-	1331	1331	-
Stage 2	-	-	-	-	-	-	692	1387	-	608	923	-
Critical Hdwy	5.34	-	-	4.14	-	-	6.99	6.54	6.94	6.99	6.54	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	7.34	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.74	5.54	-	6.54	5.54	-
Follow-up Hdwy	3.12	-	-	2.22	-	-	3.67	4.02	3.32	3.67	4.02	3.92
Pot Cap-1 Maneuver	253	-	-	736	-	-	88	38	433	52	41	261
Stage 1	-	-	-	-	-	-	285	349	-	119	222	-
Stage 2	-	-	-	-	-	-	374	208	-	436	347	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	252	-	-	734	-	-	57	21	322	33	23	194
Mov Cap-2 Maneuver	-	-	-	-	-	-	57	21	-	33	23	-
Stage 1	-	-	-	-	-	-	213	261	-	89	166	-
Stage 2	-	-	-	-	-	-	325	155	-	374	259	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	18	26.3
HCM LOS			C	D

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	252	-	-	734	-	-	194
HCM Lane V/C Ratio	0.139	-	-	-	-	-	-	0.129
HCM Control Delay (s)	18	0	-	-	0	-	-	26.3
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	0.4

HCM 2010 TWSC
108: Collins Ct & 6 Street

Intersection

Int Delay, s/veh 5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	186	30	8	0	0	0	0	196	10	0	0	0
Future Vol, veh/h	186	30	8	0	0	0	0	196	10	0	0	0
Conflicting Peds, #/hr	4	0	9	9	0	4	103	0	68	68	0	103
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	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	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	224	36	10	0	0	0	0	236	12	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	0	592	592	144
Stage 1	-	-	-	592	592	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	-	-	-	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.518	4.018	3.318
Pot Cap-1 Maneuver	-	-	-	418	419	903
Stage 1	-	-	-	493	494	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	379	0	825
Mov Cap-2 Maneuver	-	-	-	379	0	-
Stage 1	-	-	-	451	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s	11.2	
HCM LOS	B	

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR
Capacity (veh/h)	825	-	-	-
HCM Lane V/C Ratio	0.301	-	-	-
HCM Control Delay (s)	11.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.3	-	-	-

HCM 2010 TWSC
109: Collins Ct & 7 Street

Intersection

Int Delay, s/veh 10.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	12	187	0	0	0	0	0	18	360	0	0	0
Future Vol, veh/h	12	187	0	0	0	0	0	18	360	0	0	0
Conflicting Peds, #/hr	14	0	19	19	0	14	113	0	99	99	0	113
Sign Control	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	1080	434	688	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	205	0	0	0	0	0	20	396	0	0	0

Major/Minor	Major1			Minor1		
Conflicting Flow All	0	0	0	345	345	215
Stage 1	-	-	-	345	345	-
Stage 2	-	-	-	0	0	-
Critical Hdwy	-	-	-	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	-	-	-	585	577	790
Stage 1	-	-	-	644	635	-
Stage 2	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	522	0	716
Mov Cap-2 Maneuver	-	-	-	522	0	-
Stage 1	-	-	-	583	0	-
Stage 2	-	-	-	-	0	-

Approach	EB	NB
HCM Control Delay, s	16.7	
HCM LOS	C	

Minor Lane/Major Mvm	NBLn1	EBL	EBT	EBR
Capacity (veh/h)	716	-	-	-
HCM Lane V/C Ratio	0.58	-	-	-
HCM Control Delay (s)	16.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	3.8	-	-	-

APPENDIX G

Queuing Analyses

Queuing Analysis based on ITE Procedures

$q = 117$ veh/hr (demand rate)

$Q = 12$ veh/hr (service rate)

$$p = \frac{q}{NQ} = 0.65 \text{ (N = 15 valet runners)}$$

$$Q_M = 0.65$$

Using Acceptable Probability of 10% (90% Confidence Level)

$$M = \left(\frac{\ln(x > M) - \ln(Q_M)}{\ln(p)} \right) - 1$$

$$M = \left(\frac{\ln(0.10) - \ln(0.65)}{\ln(0.65)} \right) - 1$$

$$M = \left(\frac{-2.3026 - (-0.4308)}{-0.4308} \right) - 1$$

$$M = 4.345 - 1 = 3.345, \text{ say 4 vehicles}$$

Service Rate Calculation

An average service rate was determined based on the service rate for standard parking spaces and the service rate for mechanical lift parking spaces.

The total service rate for standard parking spaces is the sum of the following times:

- Walking time: time for valet attendant to pick up vehicle within the garage at walking speed of 6 feet per second.
- Driving time: time to drive around on local roads at a speed of 25 miles per hour.

The total service rate for mechanical lift parking includes the same time processing times as for standard parking and also includes:

- Mechanical lift processing time: time for mechanical lift to descend from the most suspended position, load car and ascend for half of the lift space.

Valet Time (Standard Parking Spaces):

- Walking Time: $260 \text{ ft} * (1 \text{ sec}/6\text{ft}) * (1 \text{ min}/60\text{sec}) = 0.72 \text{ min}$
- Driving Time + Control Delay: $2,164.8 \text{ ft} * (1\text{mile}/5,280) * (1\text{hr}/25 \text{ miles}) * (60 \text{ min}/1\text{hr}) + 181.3 \text{ sec} * (1 \text{ min}/60 \text{ sec}) = 4.00$
- Total Time: 4.72 min

Valet Time (Lift Parking Spaces):

- Walking Time: $260 \text{ ft} * (1 \text{ sec}/6\text{ft}) * (1 \text{ min}/60\text{sec}) = 0.72 \text{ min}$
- Driving Time + Control Delay: $2,164.8 \text{ ft} * (1\text{mile}/5,280) * (1\text{hr}/25 \text{ miles}) * (60 \text{ min}/1\text{hr}) + 181.3 \text{ sec} * (1 \text{ min}/60 \text{ sec}) = 4.00$
- Lift Processing Time: $1 \text{ lift} * (30 \text{ sec}/\text{lift}) * (1 \text{ min}/60\text{sec}) = 0.50 \text{ min}$
- Total Time: 5.22 min

Average Valet Time:

$$(4.72 + 5.22)/2 = 4.97 \text{ min, say } 5 \text{ min}$$