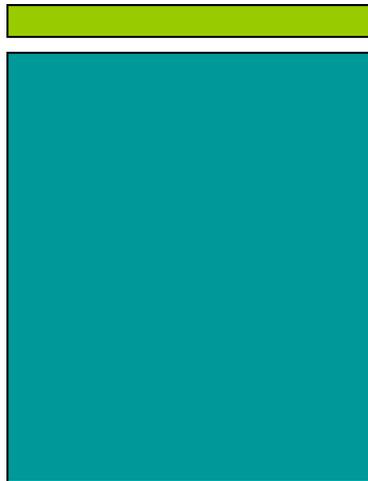


Torino at 400 Collins Avenue

Miami Beach, Florida

traffic study



prepared for:
Brandon Haw Architecture LLP

Traf Tech
ENGINEERING, INC.

February 2019
Revised April, 2019

Torino Garage at 400 Collins Avenue

Miami Beach, Florida

Traffic Impact Analysis

May 2016

Updated February 2019

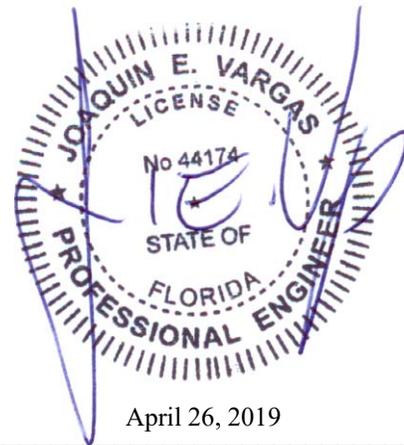
Updated April 2019

Prepared for:

Brandon Haw Architecture LLP

Prepared by:

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April 26, 2019

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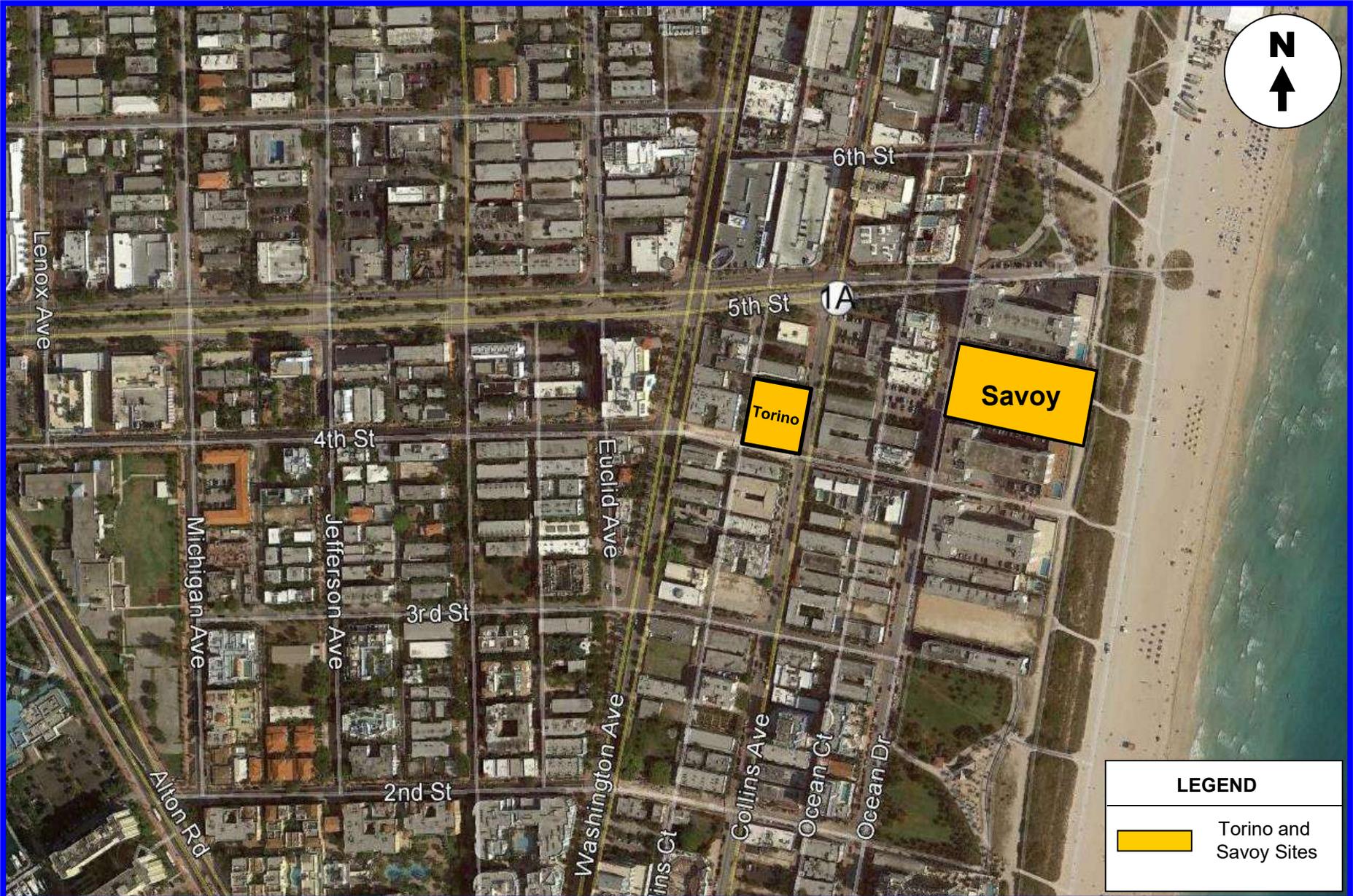
INTRODUCTION

The Torino Garage at 400 Collins Avenue is a proposed mixed-use garage condominium to be located in the northwest quadrant of the intersection at 4th Street and Collins Avenue in the City of Miami Beach, Miami-Dade County, Florida. More specifically, the subject site is located at 400-420 Collins Avenue. The subject site presently contains a surface parking lot that serves the existing Savoy Hotel located at 425 Ocean Drive. The proposed project involves the development of residential, retail/restaurant and parking facilities. The location of the project site (and the Savoy Hotel) is illustrated in Figure 1 on the following page.

Traf Tech Engineering, Inc. has been retained by Brandon Haw Architecture LLP to conduct a traffic impact study¹ in connection with the development of this mixed-use project. This study addresses trip generation and the traffic impacts created by the proposed project on the nearby transportation network as well as parking procedures and the availability of multi-modal opportunities. This study is divided into nine (9) sections, as listed below:

1. Inventory
2. Existing Conditions
3. Traffic Data
4. Trip Generation
5. Trip Distribution & Traffic Assignment
6. Traffic Analyses
7. Other Modes of Transportation
8. Parking & Queuing Analysis
9. Summary & Conclusions

¹ This traffic study methodology was discussed and agreed upon with City of Miami Beach staff. This traffic study followed the same traffic methodology used for the previously-approved traffic study for this site with minor changes as noted in this report. It is noted that the current development program represents a slight deviation from that previously considered in May 2016.



Traf Tech
ENGINEERING, INC.

Project Location Map

FIGURE 1
Torino at 400 Collins Avenue
Miami Beach, Florida

INVENTORY

Existing Land Use and Access

As mentioned previously, the subject site contains a surface parking lot that serves the existing Savoy Hotel. Vehicular access to the site is presently provided via a driveway located on Collins Court just north of 4th Street.

Proposed Land Uses and Access

The subject Torino Mixed-Use Garage Condominium development will consist of up to 18 residential condominium dwelling units, a 199-seat restaurant, and a parking garage that will consist of 120 parking spaces. Access to the parking garage will be provided via one driveway on 4th Street. The proposed project is anticipated to be built and occupied by 2022. Appendix A contains the proposed site plan for the Torino Garage at 400 Collins Avenue project.

EXISTING CONDITIONS

This section of the report addresses the transportation system located in the vicinity of the project site.

Roadway System

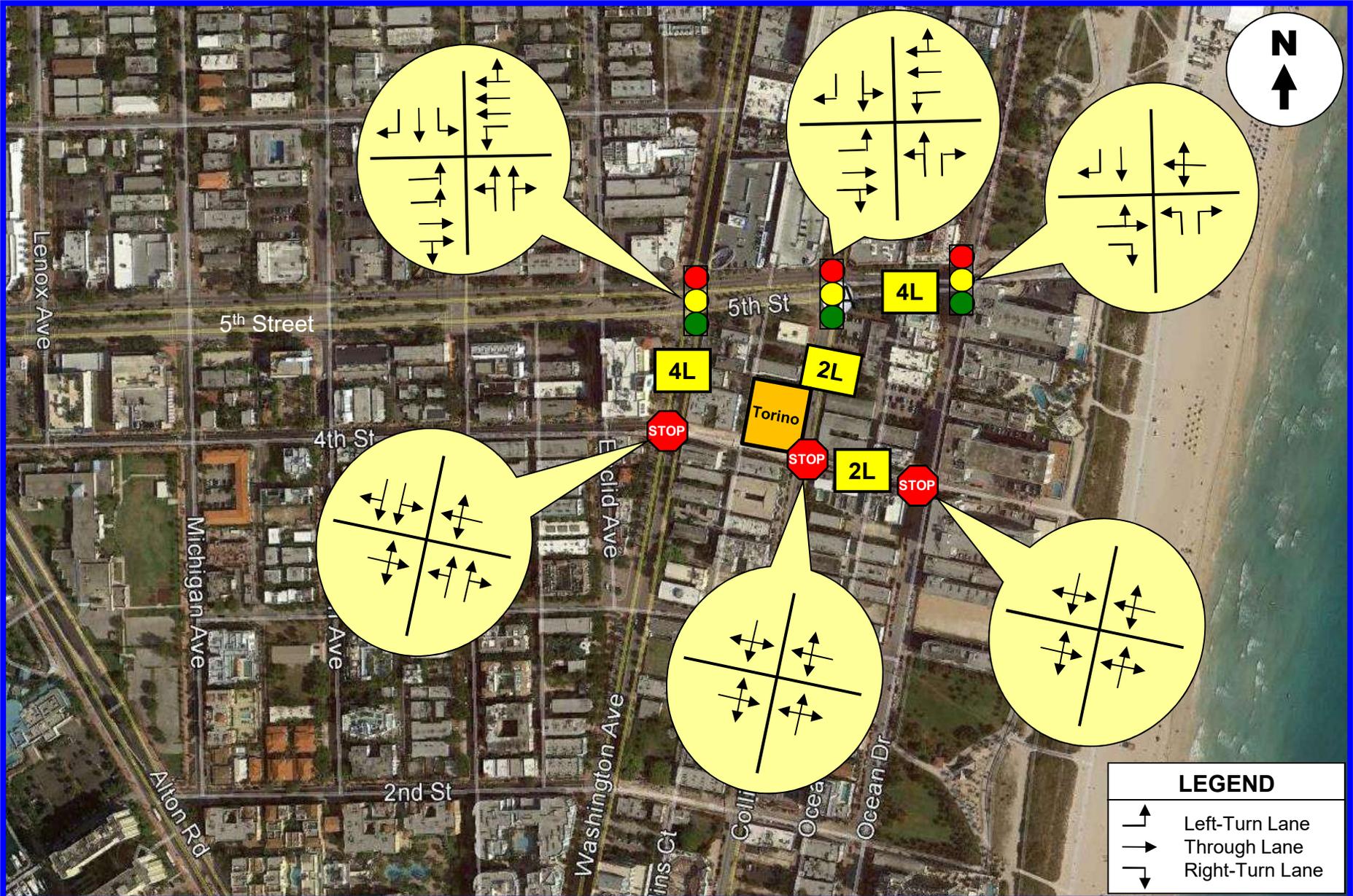
The roadway system located near the site includes 4th Street, 5th Street, Collins Avenue and Washington Avenue. Within the study area, Collins Avenue is a north-south arterial roadway with one (1) travel lane in each direction and on-street parking on both sides of the roadway. In the vicinity of Collins Avenue, 5th Street is an east-west arterial roadway with two (2) travel lanes in each direction. 4th Street is an east-west local roadway with on-street parking on both sides and one (1) travel lane in each direction. Washington Avenue is a four-lane divided arterial oriented in the north-south direction.

Nearby Intersections

With the assistance of City of Miami Beach staff, six (6) nearby intersections were identified as the locations that will be impacted most by the proposed development project. These intersections are:

- Collins Avenue and 5th Street (signalized)
- Ocean Avenue and 5th Street (signalized)
- Collins Avenue and 4th Street (unsignalized)
- Ocean Avenue and 4th Street (unsignalized)
- Washington Avenue and 4th Street (unsignalized)
- Washington Avenue and 5th Street (signalized)

Since this new development does not have access to Collins Court, the subject alley was not evaluated (intersections along Ocean Drive were included as part of this report). Figure 2 shows the existing lane geometry of the six (6) intersections selected for analysis purposes. The number of lanes on the street system surrounding the project site is also depicted in this figure.



Existing Lane Geometry

FIGURE 2
Torino at 400 Collins Avenue
Miami Beach, Florida

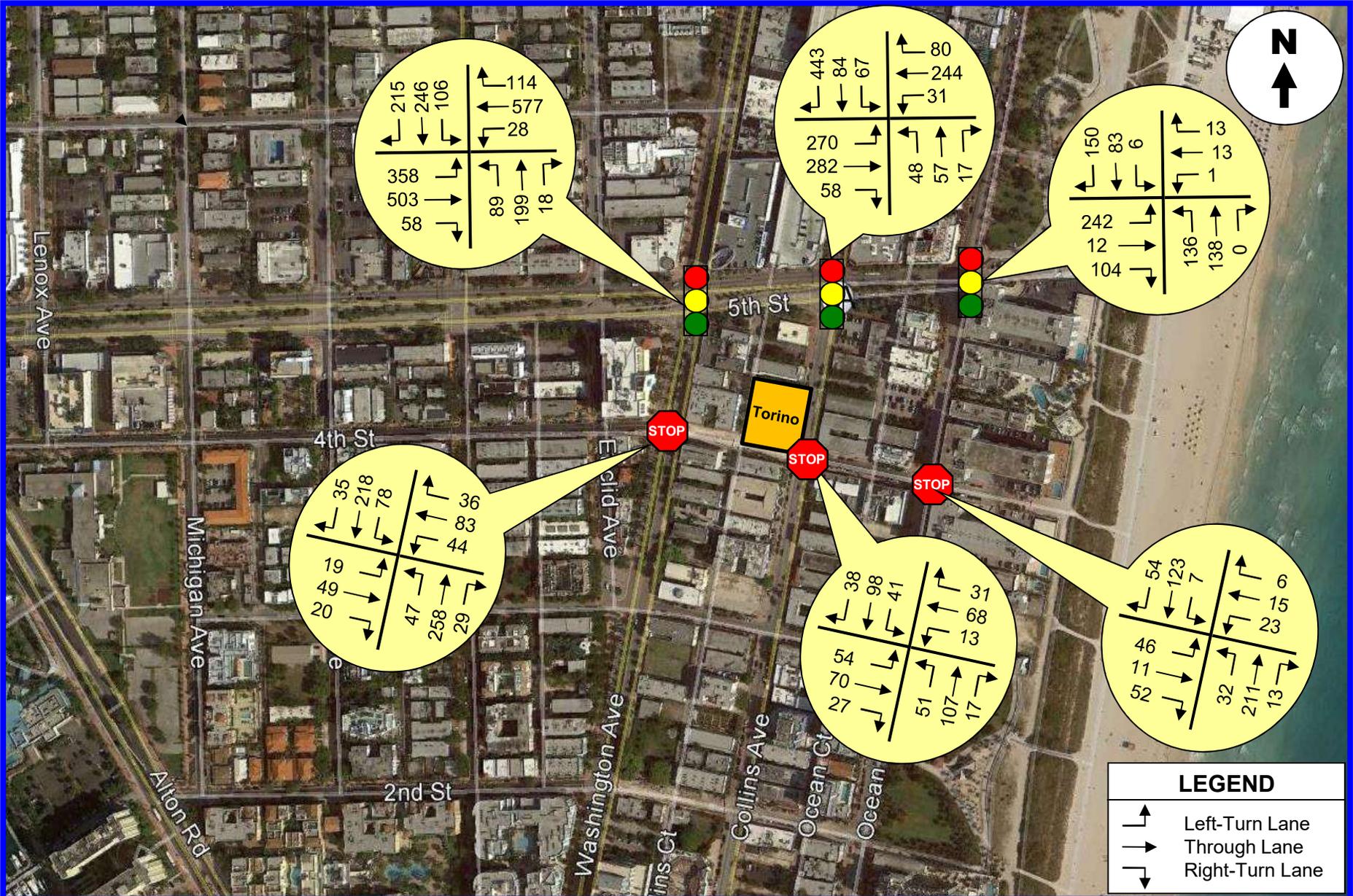
TRAFFIC COUNTS

Traf Tech Engineering, Inc., in association with Video Data Solutions collected 3-day machine traffic counts on 5th Street, west of Collins Avenue and on Collins Avenue, south of 5th Street. The 3-day counts were collected on Thursday through Saturday, February 7 through 9, 2019. The results of the 3-day counts indicate that the peak period is Saturday between 11:00 AM and 2:00 PM (6% higher than the Friday's peak hour and 18% higher volume than Thursday's peak hour). Based on the 3-day traffic counts, intersection turning movement counts were collected on Saturday, February 23, 2019 between 11:00 AM and 2:00 PM at the following six (6) study intersections:

- Collins Avenue and 5th Street
- Ocean Avenue and 5th Street
- Collins Avenue and 4th Street
- Ocean Avenue and 4th Street
- Washington Avenue and 4th Street
- Washington Avenue and 5th Street

Figure 3 summarizes the results of the intersection turning movement counts undertaken during the Saturday peak hour. Appendix B contains the intersection turning movement counts, as collected in the field.

The signalized intersections within the project study area (5th Street / Ocean Avenue, 5th Street / Collins Avenue and 5th Street / Washington Avenue) are maintained and operated by Miami-Dade County's Traffic Signals and Signs Division. The current signal timing plans for these intersections were obtained from the County and are included in Appendix B



TRIP GENERATION

The trip generation for The Torino Garage at 400 Collins Avenue mixed-use project was based upon information contained in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual (10th Edition)*. According to the subject ITE manual, the most appropriate land use categories for the proposed development are: Land Use #221 – Multifamily Housing (Mid-Rise) and Land Use #931 – Quality Restaurant. The trip generation rates and equations used to determine the vehicle trips associated with The Torino Garage at 400 Collins Avenue project are presented below.

ITE Land Use #221 – Multifamily Housing (Mid-Rise)

Weekday (Daily) Trip Generation

$$T = 5.44 (X)$$

Where T = number of weekday daily trips and X = number of dwelling units

Saturday Peak Hour of the Generator

$$T = 0.42 + 6.73 (X) \text{ (49\% inbound and 51\% outbound)}$$

Where T = number of PM peak hour trips and X = number of dwelling units

ITE Land Use #931 – Quality Restaurant

Weekday (Daily) Trip Generation

$$T = 2.60 (X)$$

Where T = number of weekday trips and X = number of seats

Saturday Peak Hour of the Generator

$$T = 0.33 (X) \text{ (59\% inbound and 41\% outbound)}$$

Where T = number of weekday peak hour trips and X = number of seats

Given the location of the Torino Garage, proximity to various Miami Beach attractions, and the likelihood that many guests will arrive and depart via other modes, a 10% reduction in vehicle trips was applied to reflect reduced vehicle usage and greater reliance on walking, bicycling and public transportation. Table 1 on the following page summarizes the gross and net new vehicle trips associated with the proposed Torino development.

TABLE 1					
Trip Generation Summary					
The Torino Garage at 400 Collins Avenue					
Miami Beach, Florida					
Land Use	Size	Daily Trips	Weekday PM Peak Hour Trips		
			Inbound	Outbound	Total
Condominium	18 Units	98	7	7	14
Restaurant	199 Seats	518	39	27	66
Gross New Trips	-	616	46	34	80
Other Modes (10%)	-	-62	-5	-3	-8
Net New Trips	-	554	41	31	72

Source: ITE Trip Generation Manual (9th Edition) and Traf Tech Engineering, Inc. (May 2016).

As indicated in Table 1 above, the net new external vehicle trips anticipated to be generated by the proposed Torino project consists of approximately 554 new weekday daily trips and approximately 72 vehicle trips during the Saturday peak hour (41 inbound and 31 outbound trips).

TRIP DISTRIBUTION AND TRAFFIC ASSIGNMENT

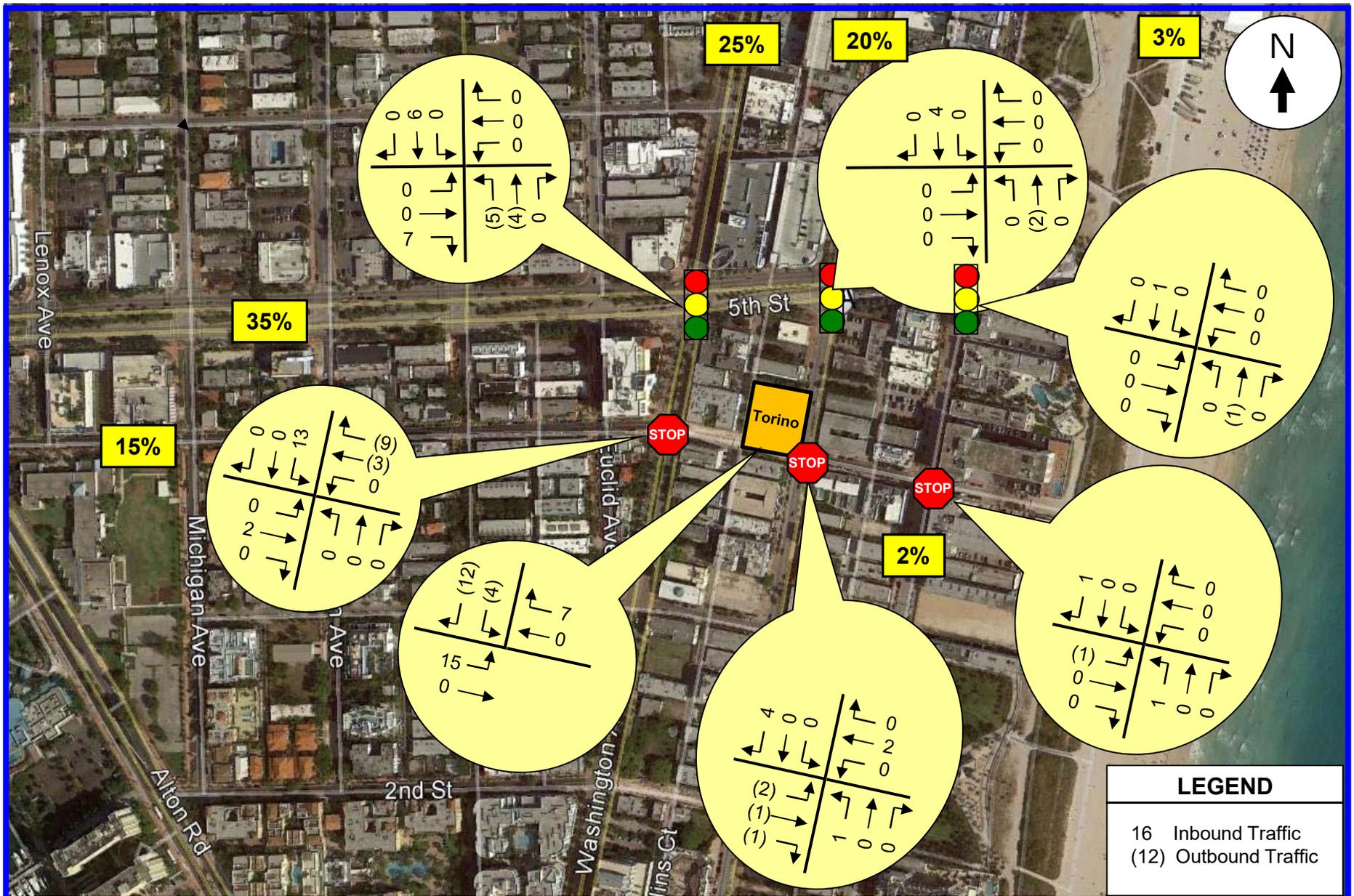
The trip distribution and traffic assignment for the project were based on Miami-Dade County’s Cardinal Distribution information for the study area. Table 2 summarizes the County’s cardinal distribution data for Traffic Analysis Zone (TAZ) 656, which is applicable to the project site from the latest SERPM data published by Miami-Dade County.

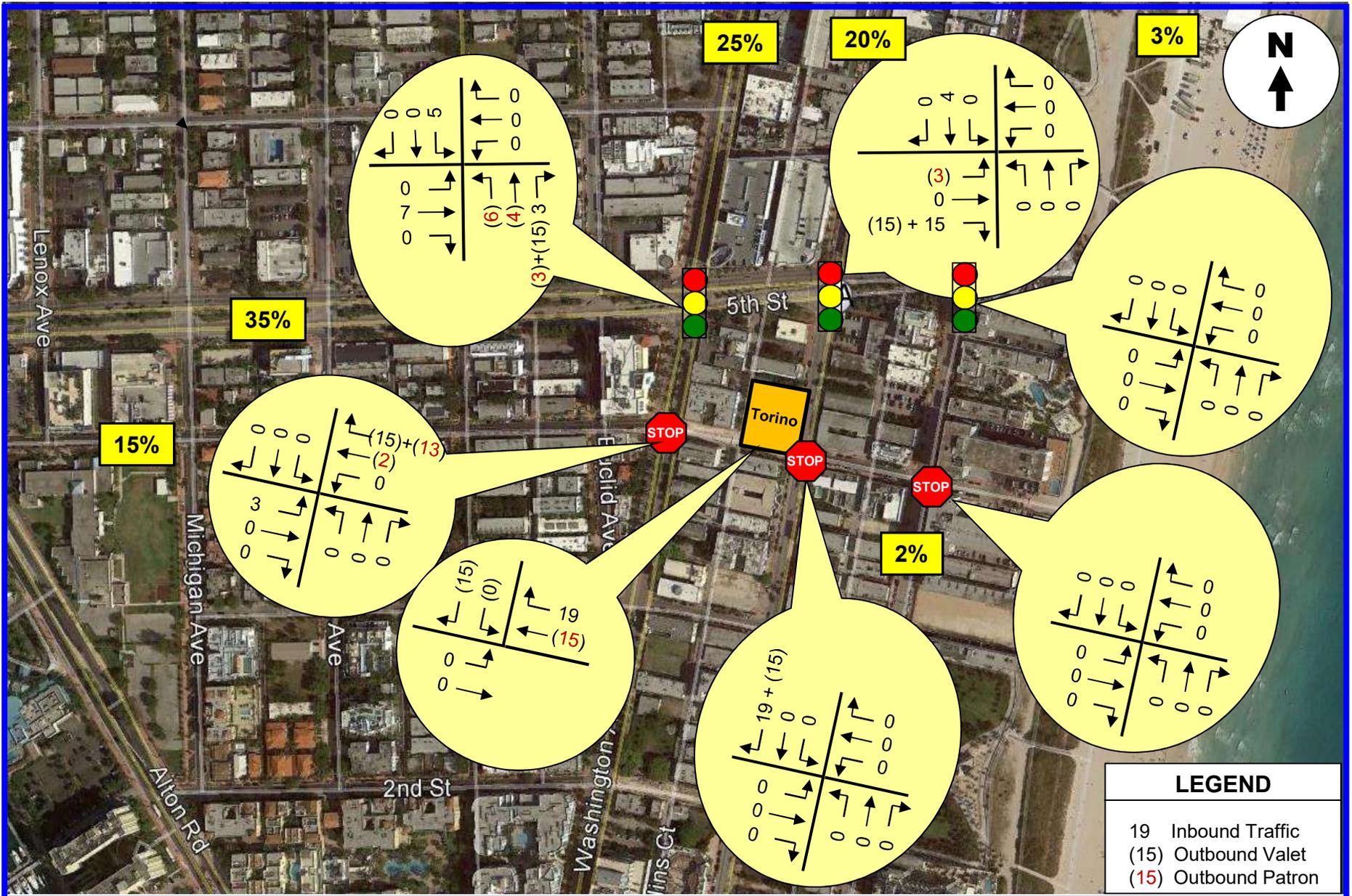
TABLE 2		
Project Trip Distribution		
The Torino Garage at 400 Collins Avenue		
Miami Beach, Florida		
Direction		% of Total Trips
North:	Northwest	26.00%
	Northeast	19.1%
South:	Southwest	3.70%
	Southeast	0.00%
East:	Northeast	0.00%
	Southeast	0.00%
West:	Northwest	34.60%
	Southwest	16.60%
Total:		100.00%

Source: Miami-Dade County (2040 LRTP Directional Distribution Report)

Using the trip distribution documented in Table 2 above, the nearby land uses, and the surrounding transportation network, the new peak hour traffic generated by the project was assigned to the study intersections. The project traffic assignment is summarized in Figures 4a and 4b on the following pages.

As mentioned previously, the existing surface parking lot on the subject site is utilized by the Savoy Hotel for off-site valet parking. As a result, the traffic associated with the existing Savoy are already on the local transportation network and are reflected in the existing traffic counts collected on February 23, 2019.





TRAFFIC ANALYSES

This section of the study is divided into two (2) parts. The first part consists of developing the future conditions traffic volumes (with and without the Torino project traffic) for the study area. The second part includes level-of-service analyses for existing and future conditions.

Future Conditions Traffic Volumes

Two (2) sets of future traffic volumes were developed. The first set includes project build-out conditions without the proposed mixed-use project and the second set adds the net new vehicle trips anticipated to be generated by The Torino Garage at 400 Collins Avenue project.

Peak Season Conversion Factor – In order to develop year 2022 traffic volumes, 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 February 2019 to average peak season conditions. Based on FDOT’s Peak Season Factor Category report, an adjustment factor for the February counts is 1.01. This factor is required to convert traffic counts collected in February to average peak season conditions (please see Appendix C).

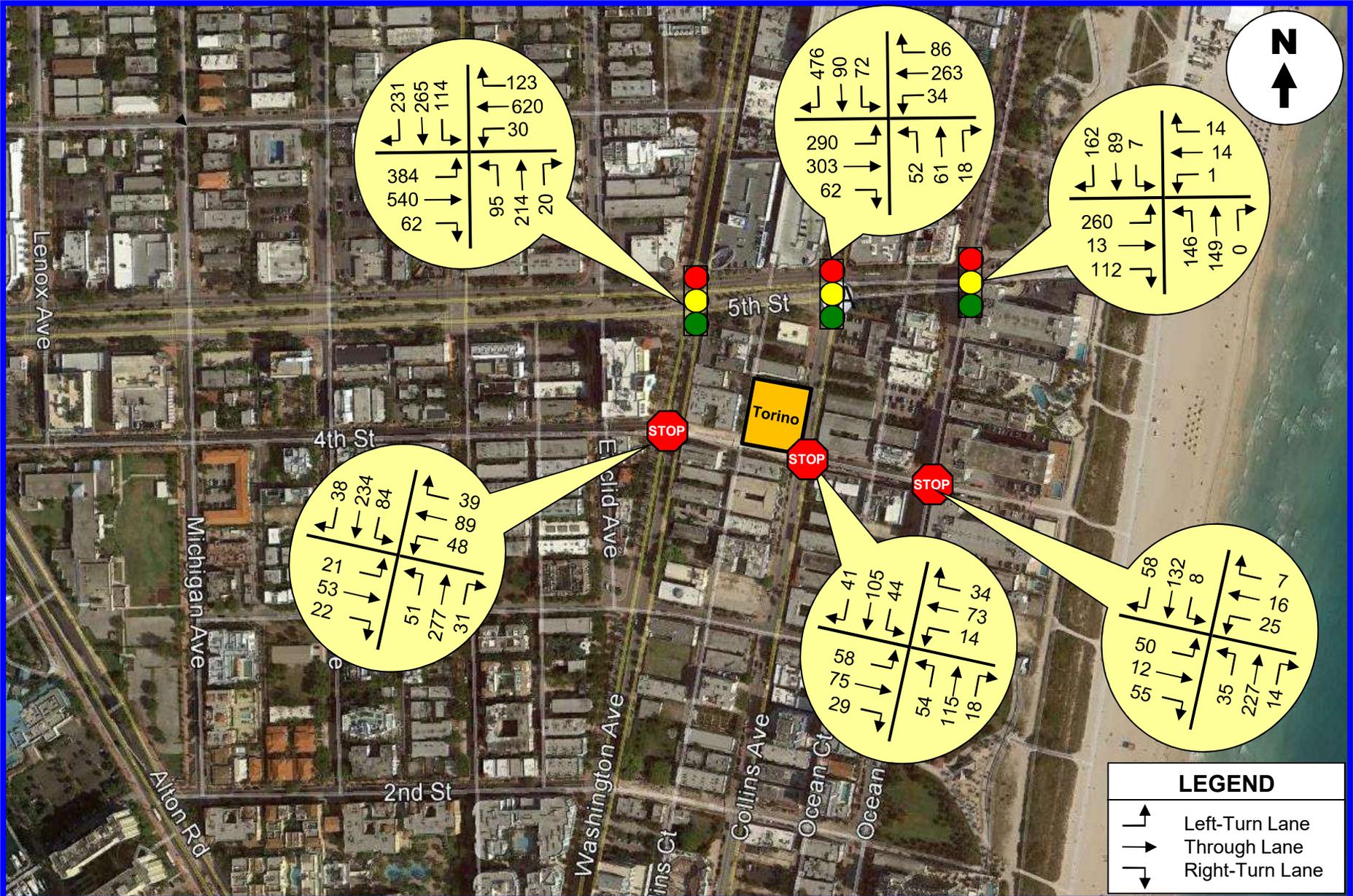
Growth Rate Analysis – The second analysis includes a growth factor to project 2019 peak season traffic volumes to the 2022 build-out year. Historical traffic data published by the FDOT for three (3) traffic count stations located near the project was reviewed for the purposes of developing a growth rate for the study area. Site #5159 (SR A1A / Collins Avenue, 200 feet north of 5th Street) has exhibited a decline in traffic over the past five (5) years (see Appendix C). Site #2528 (SR A1A / 5th Street, 150 feet east of Meridian Avenue) has also exhibited increase in traffic volumes over the past five (5) years (see Appendix C). Site # 8414 (Washington Avenue, 200 feet north of 12th Street) has exhibit a minor increase in traffic volumes over the past five (5) years (see Appendix C).

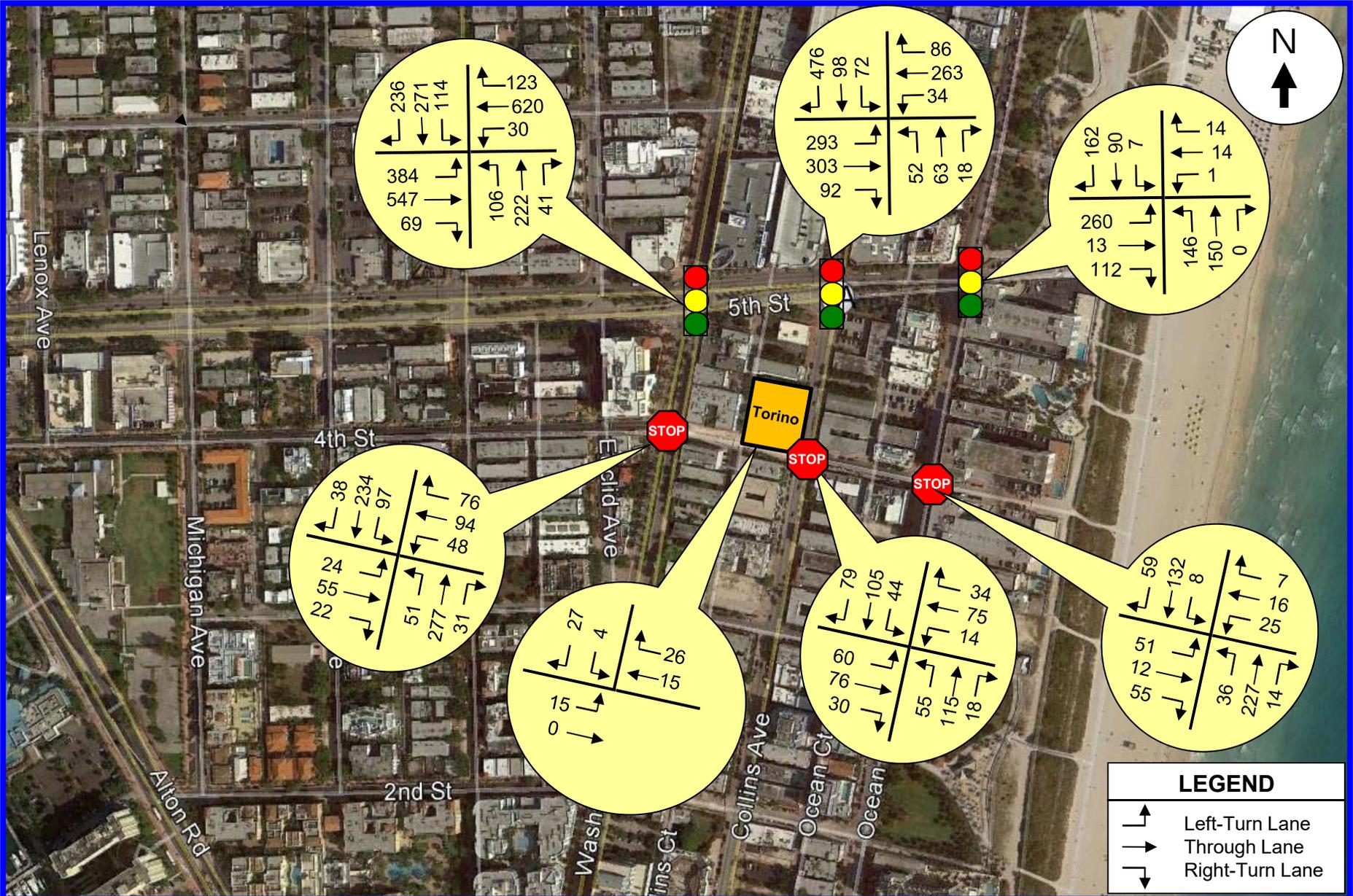
In order to assess traffic impacts with a conservative approach, and to account for approved (committed) trips that may impact the study intersections, a 2.42% growth rate per year was applied throughout the study area for purposes of this analysis.

Committed Project Traffic – Four (4) nearby projects have been identified with respect to this project. These projects are 49-53 Collins, 730-804 First Street, Block 1 (One Ocean) and Block 51 (Marea). The traffic volumes associated with these projects are included in the traffic analysis for the Torino. In addition, the project traffic associated with the Savoy Hotel expansion is included in this analysis.

Project (Torino) Traffic – The new trips generated by the Torino project (refer to Table 1 and Figure 4 of this report) were added to the 2022 background traffic in order to develop total traffic conditions. The future traffic projections for the study intersections (peak season adjustments, growth rates, committed project traffic and Torino project traffic) are presented in tabular format in Appendix D.

Figures 5 and 6 present the year 2022 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 Torino project.





Level of Service (LOS) Analyses

Intersection capacity/level of service (LOS) analyses were conducted for the six (6) study intersections and the project driveway on 4th Street. These analyses were undertaken following the capacity / level of service procedures outlined in the Highway Capacity Manual (HCM) using the SYNCHRO software. The results of the capacity analyses are summarized below in Table 3.

TABLE 3			
Intersection Levels of Service			
The Torino Garage at 400 Collins Avenue			
Miami Beach, Florida			
Intersection	2019 Existing	Future Traffic Conditions	
		2022 w/o Project	2022 With Project
Collins Ave / 5 th Street	C (27.8)	C (28.4)	C (28.2)
Ocean Ave / 5 th Street	C (23.4)	C (24.1)	C (24.1)
Collins Ave / 4 th Street ¹	A (9.4)	A (9.7)	B (10.1)
Ocean Ave / 4 th Street ¹	A (9.7)	B (10.1)	B (10.1)
Project Driveway (4 th Street) ¹	--	--	A (8.6)
Washington Ave / 5 th Street	E (61.2)	E (60.5)	E (59.7)
Washington Ave / 4 th Street	A (10.0)	B (10.6)	B (11.3)

Source: Highway Capacity Manual and SYNCHRO

¹ 4-Way stop control intersection.

Legend: LOS (Delay – sec/veh)

As indicated in Table 3, with the exception of the intersection at Washington Avenue and 5th Street each of the study intersections is currently operating adequately and will continue to do so in the buildout year of 2022 with the subject Torino project in place. The SYNCHRO printouts of the intersection capacity analyses are contained in Appendix E.

OTHER MODES OF TRANSPORTATION

Throughout much of Miami Beach, and specifically within the immediate area of the proposed Torino Garage Mixed-Use project, there are many convenient and cost-effective transportation alternatives for residents and visitors alike. As noted earlier in this report, a trip reduction factor of 10% has been incorporated into this traffic analysis to reflect those patrons that are likely to avail themselves of these alternative travel modes as opposed to the automobile. Several of the more prominent modes in this area include bus transit services, bicycling (including the Citi Bike), and the sidewalk network throughout the surrounding area. Each of these is explained in further detail below.

Miami-Dade Transit

Transit services on Miami Beach are provided by Miami-Dade Transit. There are numerous transit routes serving the immediate study area including 150 Miami Beach Airport Flyer, 103 Route C, 113 Route M, Route 120 Beach MAX and the 123 SB Local. These transit routes provide frequent service and access to all of Miami-Dade County as well as connections to other destinations outside of the County.

Airport Shuttle Service

Shuttle service to and from the Miami International Airport (MIA) is provided by Miami-Dade Transit via Route 150 which is also known as the Miami Beach Airport Flyer. This service is offered from 44th Street on the north to South Pointe Drive on the south. Within the Torino project study area, this service is provided along Washington Avenue with designated stops at 5th Street and 2nd Street. On weekdays, this service is provided every 30 minutes between 6:00 AM and 12:00 AM (midnight).

Bicycles

The study area is bicycle friendly and the Torino Garage project will provide 30 short-term bicycle spaces on the ground floor. One area will be provided for patrons and another area will be provided for employees.

Citi Bike

Citi Bike (formerly known as DecoBike) is a bicycle sharing and rental program on Miami Beach. This program offers a network of 100 solar-powered bicycle rental stations and a fleet of 1,000 bicycles which can be rented 24 hours per day. Within the immediate area of the Torino, there are four (4) convenient Citi Bike rental stations. These stations are as follows:

- Station 114: Ocean Drive and 5th Street
- Station 126: Meridian Avenue and 6th Street
- Station 112: Washington Avenue and 3rd Street
- Station 106: Ocean Drive and 2nd Street

Pedestrian Network

Most of Miami Beach is considered a very walkable environment. Specifically within the project study area, each of the existing roadways has sidewalks on both sides and crosswalks are present at each of the major signalized intersections. There are many attractive destinations within easy access to the Torino and the project has been designed in such a manner as to provide direct access to this sidewalk network.

In summary, this project is located within an area that provides excellent access to alternative modes of transportation. It is expected that many of the residents and patrons of the Torino will utilize these services as opposed to driving passenger vehicles.

PARKING & QUEUING ANALYSIS

Parking for the Torino project will be provided via a 120-space parking garage. There will be no mechanical lifts, vehicle elevators, or tandem parking within this parking garage. Valet operations for the restaurant will be provided along Collins Avenue. Four (4) on-street parking spaces along Collins Avenue just north of 4th Street will be designated for valet service and car share passenger loading.

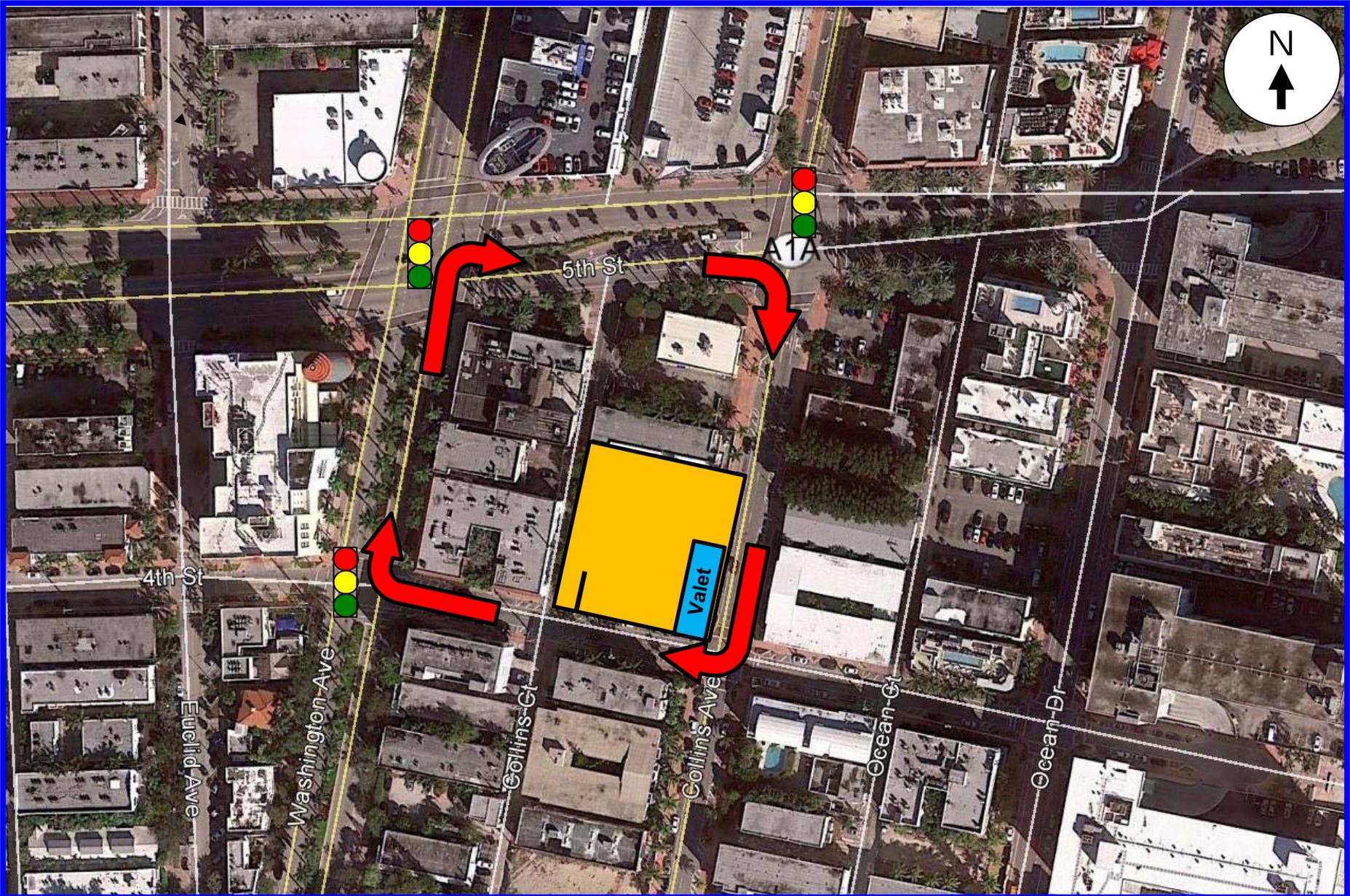
A queuing analysis has been conducted for the valet station for this project. For this analysis, it was conservatively estimated that 50% of the peak hour vehicles associated with the project will utilize the valet option. The vehicle storage (or queue) anticipated for this location was determined using information contained in ITE's *Transportation and Land Development*, Chapter 8 – Drive-In Facilities¹. For this analysis, the following input variables were used:

- **Service Rate:** Based on the assumption that a vehicle can be parked/un-parked within a 5-minute period (valet parking spaces will be located near the valet station), six (6) valet attendants will be able to park/un-park approximately 72 vehicles in a one-hour peak period.

- **Demand Rate:** Based on the assumption that 50% of all inbound and outbound vehicles will use the valet during the peak hour (highest volume peak), 34 vehicles will have to be parked/un-parked by valet staff.

Using equation 8-9b and Table 8-11 of ITE's *Transportation and Land Development*, the maximum valet demand anticipated at the Torino, at the 95% confidence level, is two (2) vehicles with the utilization of six (6) valet runners. This queue (or storage) can be accommodated by the proposed number of valet spaces on Collins Avenue. Therefore, the projected maximum valet demand at the Torino Garage at 400 Collins Avenue is projected to function adequately. A valet circulation plan is presented in Figure 7 on the following page and the results of this queuing analysis are contained in Appendix F.

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



Traf Tech
ENGINEERING, INC.

Valet Circulation Plan

FIGURE 7
Torino at 400 Collins Avenue
Miami Beach, Florida

SUMMARY & CONCLUSIONS

The Torino Garage is a proposed mixed-use garage condominium to be located in the northwest quadrant of the intersection at 4th Street and Collins Avenue in the City of Miami Beach, Miami-Dade County, Florida. More specifically, the subject site is located at 400-420 Collins Avenue. The subject site presently contains a surface parking lot that serves the existing Savoy Hotel located at 425 Ocean Drive. The proposed project involves the development of residential, restaurant, and parking facilities.

Traf Tech Engineering, Inc. has been retained by Brandon Haw Architecture LLP to conduct a traffic study in connection with the development of this mixed-use project. This study addresses trip generation and the traffic impacts created by the proposed project on the nearby transportation network as well as parking procedures and the availability of multi-modal opportunities. The conclusions of the traffic study are presented below:

- The net new external vehicle trips anticipated to be generated by the proposed Torino project consists of approximately 72 vehicle trips during the Saturday peak hour (41 inbound and 31 outbound trips).
- With the exception of the intersection at Washington Avenue and 5th Street, each of the study intersections is currently operating at an acceptable LOS and will continue to do so in 2018 with and without the project in place.
- A review of the subject valet drop-off / pick-up area indicates that one (1) parking space will be sufficient to accommodate the anticipated demand. It is recommended that up to six (6) valet attendants be stationed at this site during the peak time periods to ensure adequate operations and to minimize the possibility of occasional back-ups on the adjacent street system.

APPENDIX A
Site Plan – 400 Collins

TORINO GARAGE

400 COLLINS AVE., MIAMI BEACH, FL 33139

Owner:
Savoy Hotel Partners, LLC
c/o Allied Partners
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New York, NY 10065-8165

Architect:
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New York, NY 10152
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Civil Engineer:
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Geo-tech Engineer:
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Coral Gables, FL 33134

Parking Consultant:
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Miami, FL 33128

Elevator Consultant:
Van Deussen & Associates, Inc.
8201 Peters Road, Suite 1000
Plantation, FL 33324

Acoustic Consultant:
Electro-Media Design, Ltd.
973-C Russell Avenue
Gaithersburg, MD 20879

Landscape Architect:
Naturalraical, Inc.
6915 Red Road, Suite 224
Coral Gables, FL 33143
Contact: Andres Arcila
O: 786.717.6564 / M: 305.321.2341
Firm Reg. No. LC2600548

NO.	DESCRIPTION	DATE
0	Historic Preservation Board Final Submittal	May 23, 2016
1	Permit Application First Submittal	Nov 14, 2016
2	Progress Design Updates	Feb 28, 2017
3	Progress Design Set for Pricing	May 8, 2017
4	75% Detail Design	Nov 15, 2017
5	75% Detail Design Addendum	Dec 8, 2017
6	100% Detail Design	Feb 16, 2018

DATE OF ISSUE

11/14/16

SCALE

3/32" = 1'-0"

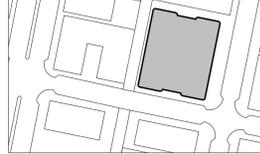
PROJECT NO. & TITLE

1507 TORINO GARAGE

PROJECT STATUS

100% DETAIL DESIGN

KEY PLAN



SCALE & ORIENTATION



SCALE AS NOTED
GRAPHIC SCALE (AS REQ'D)

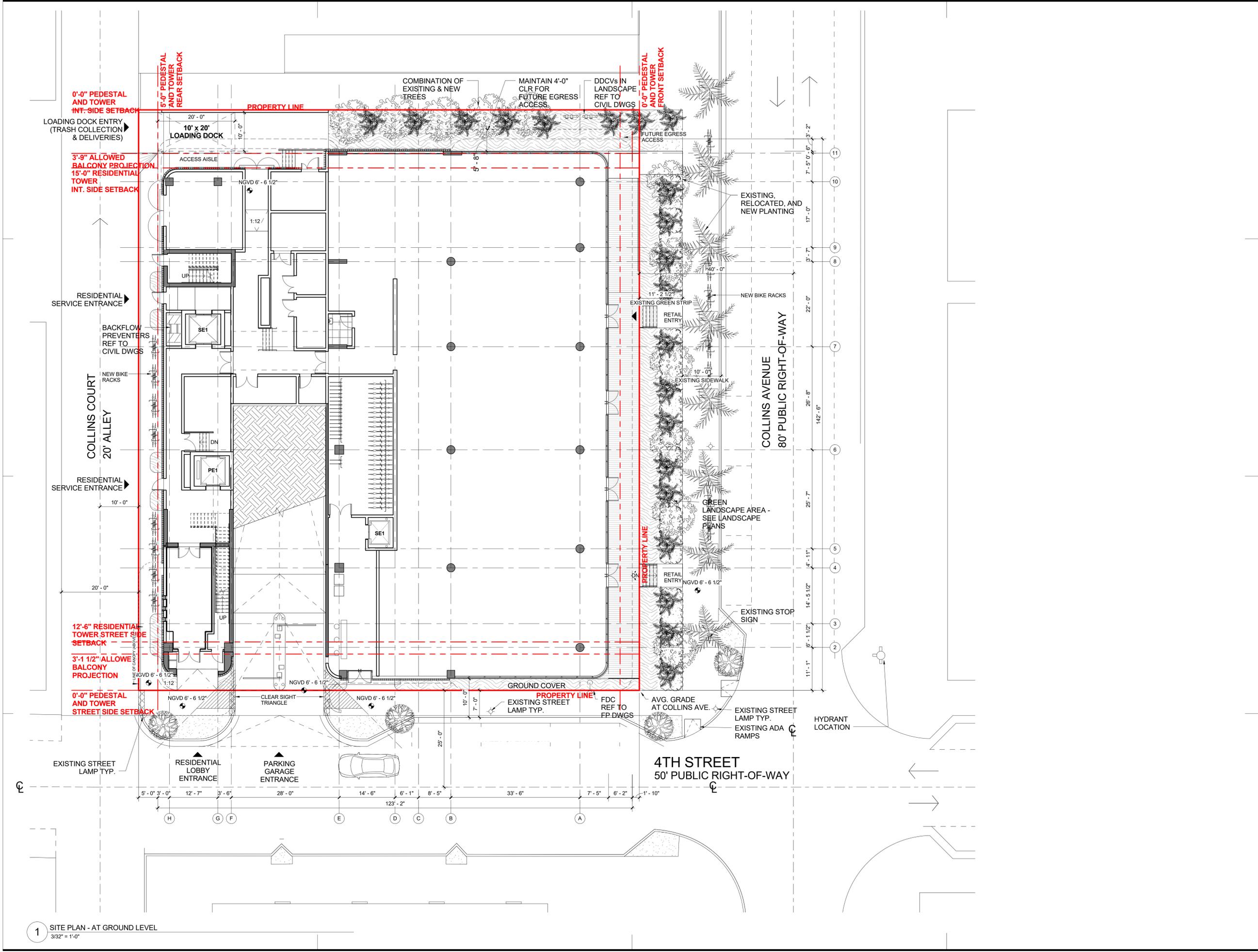
SEAL & SIGNATURE

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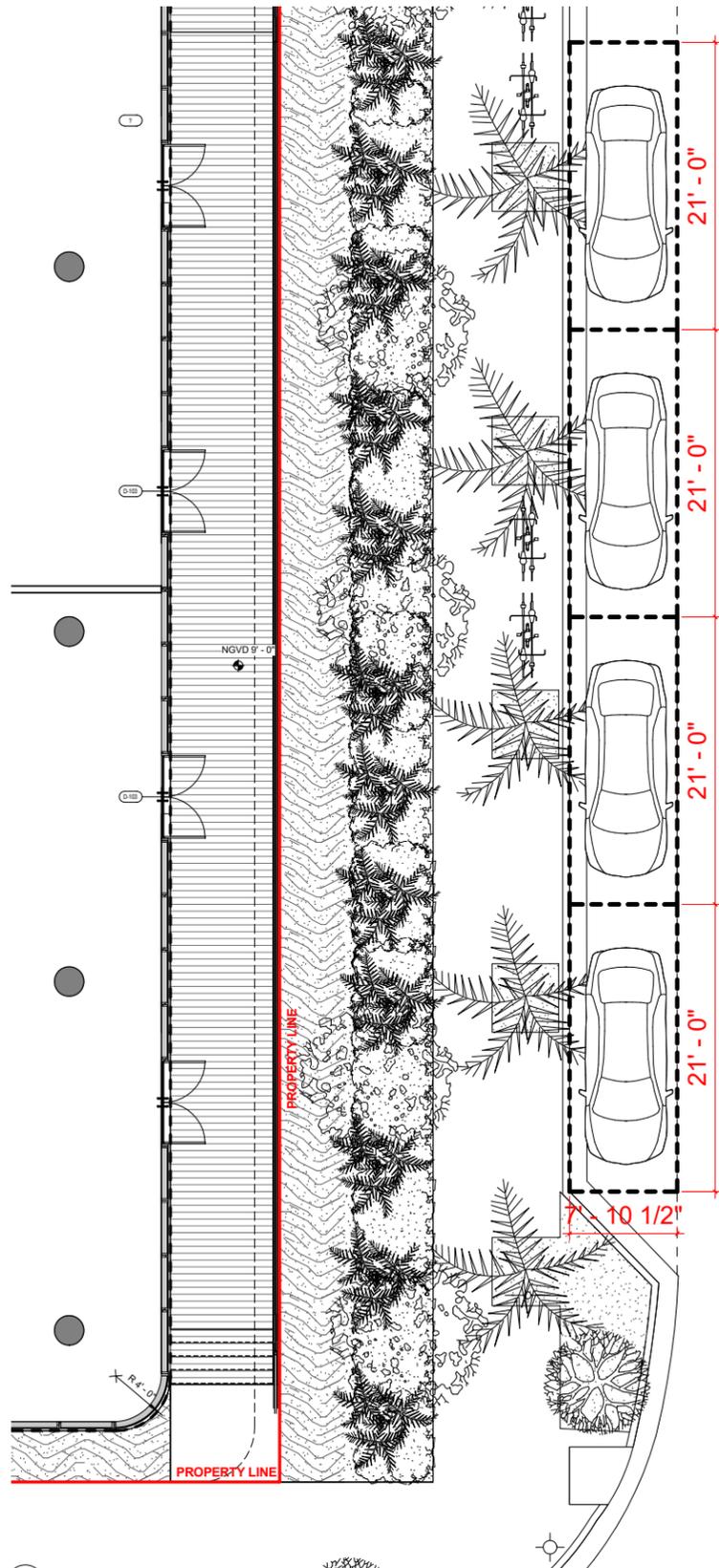


DRAWING TITLE

A-051
PROPOSED SITE PLAN - GROUND FLOOR



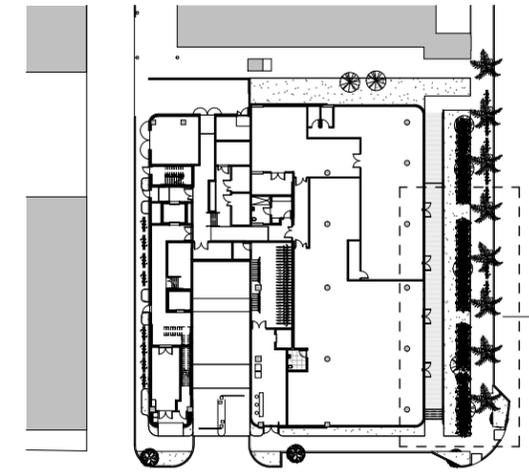
1 SITE PLAN - AT GROUND LEVEL
3/32" = 1'-0"



1 RIDE SHARING AND VALET SITE PLAN
3/16" = 1'-0"

VALET AND
CAR-SHARE
DROP OFF
SPACES

COLLINS AVENUE
80' PUBLIC RIGHT-OF-WAY



2 GROUND FLOOR KEY PLAN
1/32" = 1'-0"

PROJECT
TORINO GARAGE

400 COLLINS AVE., MIAMI BEACH,
FL 33139
Owner:
Savory Hotel Partners, LLC
c/o Allied Partners
770 Lexington Ave
17th Floor
New York, NY 10065-8165
Architect:
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O: 786.717.6564 / M: 305.321.2341
Firm Reg. No. LC26000548

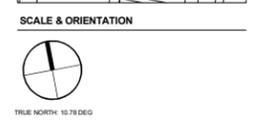
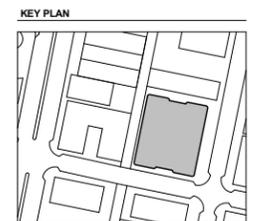
NO.	DESCRIPTION	DATE
A	HPB FIRST SUBMITTAL	April 15, 2019

DATE OF ISSUE	DRAWN BY
04/08/19	-

SCALE	CHECKED BY
As Indicated	-

PROJECT NO. & TITLE
1507 TORINO GARAGE

PROJECT STATUS
PLANNING BOARD FINAL SUBMITTAL



SCALE AS NOTED
GRAPHIC SCALE (AS NOTED)

SEAL & SIGNATURE

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DRAWING TITLE
PB A-045.2
RIDE SHARING AND VALET SITE PLAN

NOT FOR CONSTRUCTION

APPENDIX B

Signal Timing Plan and Traffic Counts

TOD Schedule Report
for 2658: Collins Av&5 St

Print Date:
5/22/2018

Print Time:
10:55 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>
2658	Collins 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>
-	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>
	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	85	20	20	4	3.2
5 EBL	0	0	0	0	0	0	5	5	5	2	2	2	11	7	7	40	40	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	85	20	20	4	3.2

Last In Service Date: unknown

Permitted Phases	
	12345678
Default	-23456-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

TOD Schedule Report
for 2658: Collins Av&5 St

Print Date:
5/22/2018

Print Time:
10:55 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 EBT	3 -	4 NBT	5 EBL	6 WBT	7 -	8 SBT		
1		170	0	97	0	60	13	78	0	60	0	106
2		150	0	76	0	61	6	64	0	61	0	22
3		120	0	54	0	53	11	37	0	53	0	30
4		150	0	78	0	59	16	56	0	59	0	120
5		150	0	72	0	65	26	40	0	65	0	64
6		180	0	104	0	63	14	84	0	63	0	177
7		170	0	97	0	60	13	78	0	60	0	130
8		160	0	91	0	56	13	72	0	56	0	60
9		150	0	72	0	65	26	40	0	65	0	64
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	14	45	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
28		220	0	145	0	62	34	105	0	62	0	0

Local TOD Schedule		
Time	Plan	DOW
0000	3	Su M T W Th F S
0500	2	M T W Th F
0500	3	Su S
0800	6	M T W Th F
1000	10	M T W Th F
1130	5	M T W Th F
1300	6	M T W Th F
1500	6	Su S
1615	25	M T W Th F
1800	1	M T W Th F
1800	7	Su S
2000	4	Su S
2200	8	M T W Th F

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0000	TOD LOCAL MULTIFU	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S

* 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

TOD Schedule Report
for 2658: Collins Av&5 St

Print Date:
5/22/2018

Print Time:
10:55 AM

No Calendar Defined/Enabled

TOD Schedule Report
for 2794: Washington Av&5 St

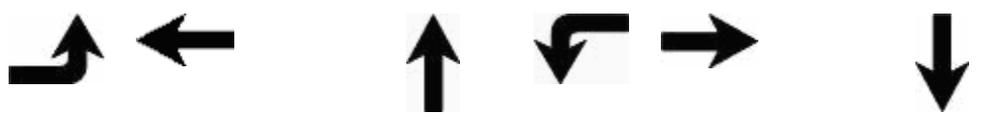
Print Date:
5/22/2018

Print Time:
11:17 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>
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

<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>
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	5	5	2	2	2	8	8	8	40	40	17	3.7	2.9
2 WBT	4	4	4	26	26	26	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	0
4 NBT	4	4	4	29	29	29	7	7	7	2.5	2.5	2.5	12	33	12	60	33	33	4	2.4
5 WBL	0	0	0	0	0	0	5	5	5	2	2	2	5	5	5	25	8	8	3.7	2.5
6 EBT	4	4	4	26	26	26	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	0
8 SBT	4	4	4	29	29	29	7	7	7	2.5	2.5	2.5	12	17	12	60	33	33	4	2.4

Last In Service Date: unknown

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

TOD Schedule Report
for 2794: Washington Av&5 St

Print Date:
5/22/2018

Print Time:
11:17 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		170	27	78	0	46	12	94	0	46	0	66
2		150	7	78	0	46	7	79	0	46	0	32
3		120	7	48	0	46	7	49	0	46	0	21
4		150	15	70	0	46	7	79	0	46	0	113
5		150	7	78	0	46	7	79	0	46	0	67
6		180	16	99	0	46	7	109	0	46	0	158
7		170	26	79	0	46	11	95	0	46	0	140
8		160	7	88	0	46	7	89	0	46	0	64
9		160	7	88	0	46	7	89	0	46	0	29
10		160	7	88	0	46	7	89	0	46	0	64
11		160	7	88	0	46	7	89	0	46	0	15
12		160	7	88	0	46	7	89	0	46	0	37
13		160	7	88	0	46	7	89	0	46	0	145
14		120	7	48	0	46	7	49	0	46	0	43
15		130	18	47	0	46	7	59	0	46	0	25
16		150	7	78	0	46	7	79	0	46	0	101
17		130	18	47	0	46	7	59	0	46	0	46
22		110	9	38	0	44	9	39	0	44	0	102
23		110	7	38	0	46	7	39	0	46	0	80
25		140	7	68	0	46	7	69	0	46	0	18
26		180	7	108	0	46	7	109	0	46	0	17
27		140	7	68	0	46	7	69	0	46	0	46
28		220	33	122	0	46	7	149	0	46	0	17

Local TOD Schedule		
Time	Plan	DOW
0000	3	Su M T W Th F S
0500	2	M T W Th F
0500	3	Su S
0800	6	M T W Th F
1000	7	M T W Th F
1000	10	Su S
1130	5	M T W Th F
1300	6	M T W Th F
1615	25	M T W Th F
1800	1	M T W Th F
1800	7	Su S
2000	4	Su S
2200	8	M T W Th F

TOD Schedule Report
for 2794: Washington Av&5 St

Print Date:
5/22/2018

Print Time:
11:17 AM

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-----	SuM T W ThF S
0000	TOD LOCAL MULTIFU	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
1800	PED RECALL	8--4---	M T W ThF
1800	TOD OUTPUTS	8-----	M T W ThF
2200	PED RECALL	-----	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	8-----	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0600	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----1	Su S
0800	TOD OUTPUTS	-----	Su S
1000	PED RECALL	8--4---	Su S
1800	PED RECALL	-----	Su S
1800	PED RECALL	8--4---	M T W ThF
1800	TOD OUTPUTS	8-----	M T W ThF
1900	TOD OUTPUTS	8-----	Su S
2200	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

TOD Schedule Report
for 4649: Ocean Dr&5 St

Print Date:
5/22/2018

Print Time:
3:31 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
4649	Ocean Dr&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>
-	SBT	WBT	EBT	-	NBT	-	-
0	0	0	0	0	0	0	0



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	<u>Phase Bank</u>																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 -	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	27	27	27	7	7	7	1	1	1	40	49	49	0	39	0	4	2
3 WBT	7	7	7	17	17	17	7	7	7	2.5	-2.5	-2.5	25	25	30	0	25	0	4	2
4 EBT	7	7	7	17	17	17	7	7	7	2.5	-2.5	-2.5	20	44	49	0	44	0	4	2
5 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 NBT	7	7	7	27	27	27	7	7	7	1	1	1	40	49	49	0	39	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 -	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	-234-6--
External Permit 0	-234-6--
External Permit 1	-234-6--
External Permit 2	-234-6--

<u>Current</u>	<u>Plan</u>	<u>Cycle</u>	1	2	3	4	5	6	7	8	<u>Ring Offset</u>	<u>Offset</u>
TOD Schedule			-	SBT	WBT	EBT	-	NBT	-	-		

Local TOD Schedule		
<u>Time</u>	<u>Plan</u>	<u>DOW</u>
0000	Free	Su M T W Th F S

TOD Schedule Report
for 4649: Ocean Dr&5 St

Print Date:
5/22/2018

Print Time:
3:31 PM

Current Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	T W ThF
0000	TOD LOCAL MULTIFU	----4---	SuM T W ThF S
0245	TOD OUTPUTS	-----2-	T
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0700	TOD OUTPUTS	-----1	M T W ThF
0715	TOD OUTPUTS	-----2-	M T W ThF
0845	TOD OUTPUTS	-----1	M T W ThF
1345	TOD OUTPUTS	-----2-	M T W ThF
1530	TOD OUTPUTS	-----1	M T ThF
2000	TOD OUTPUTS	----3--	M T W ThF

Local Time of Day Function			
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----2-	SuM S
0000	TOD OUTPUTS	-----1	T W ThF
0000	TOD LOCAL MULTIFUNCT	----4---	SuM T W ThF S
0245	TOD OUTPUTS	-----2-	T
0300	TOD OUTPUTS	-----2-	SuM W ThF S
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0700	TOD OUTPUTS	-----1	M T W ThF
0715	TOD OUTPUTS	-----2-	M T W ThF
0800	TOD OUTPUTS	-----1	S
0845	TOD OUTPUTS	-----1	M T W ThF
1000	TOD OUTPUTS	-----1	Su
1345	TOD OUTPUTS	-----2-	M T W ThF
1430	TOD OUTPUTS	-----1	W
1530	TOD OUTPUTS	-----1	M T ThF
2000	TOD OUTPUTS	----3--	M T W ThF
2300	TOD OUTPUTS	-----2-	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

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	07-Feb-19 Thu	EB	WB	Combined Total	
12:00 AM		388	276	664	██████████
01:00		312	250	562	██████████
02:00		219	233	452	██████████
03:00		188	192	380	██████████
04:00		207	232	439	██████████
05:00		248	201	449	██████████
06:00		744	252	996	██████████
07:00		722	470	1192	██████████
08:00		979	498	1477	██████████
09:00		1141	617	1758	██████████
10:00		1194	658	1852	██████████
11:00		1189	663	1852	██████████
12:00 PM		1005	680	1685	██████████
01:00		986	713	1699	██████████
02:00		965	569	1534	██████████
03:00		998	666	1664	██████████
04:00		852	561	1413	██████████
05:00		891	638	1529	██████████
06:00		989	615	1604	██████████
07:00		956	642	1598	██████████
08:00		915	541	1456	██████████
09:00		819	500	1319	██████████
10:00		770	454	1224	██████████
11:00		513	430	943	██████████
Total		18190	11551	29741	
Percent		61.2%	38.8%		

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	08-Feb-19 Fri	EB	WB	Combined Total	
12:00 AM		434	353	787	[REDACTED]
01:00		284	286	570	[REDACTED]
02:00		198	184	382	[REDACTED]
03:00		179	160	339	[REDACTED]
04:00		224	152	376	[REDACTED]
05:00		273	163	436	[REDACTED]
06:00		717	284	1001	[REDACTED]
07:00		711	436	1147	[REDACTED]
08:00		1222	570	1792	[REDACTED]
09:00		1167	675	1842	[REDACTED]
10:00		1342	731	2073	[REDACTED]
11:00		1334	769	2103	[REDACTED]
12:00 PM		1232	723	1955	[REDACTED]
01:00		1175	731	1906	[REDACTED]
02:00		1195	661	1856	[REDACTED]
03:00		1098	629	1727	[REDACTED]
04:00		970	666	1636	[REDACTED]
05:00		940	608	1548	[REDACTED]
06:00		986	574	1560	[REDACTED]
07:00		1143	579	1722	[REDACTED]
08:00		1097	599	1696	[REDACTED]
09:00		1124	550	1674	[REDACTED]
10:00		999	638	1637	[REDACTED]
11:00		876	618	1494	[REDACTED]
Total		20920	12339	33259	
Percent		62.9%	37.1%		

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	09-Feb-19 Sat	EB	WB	Combined Total	
12:00 AM		707	588	1295	[REDACTED]
01:00		465	412	877	[REDACTED]
02:00		366	337	703	[REDACTED]
03:00		339	344	683	[REDACTED]
04:00		296	290	586	[REDACTED]
05:00		283	206	489	[REDACTED]
06:00		444	182	626	[REDACTED]
07:00		537	348	885	[REDACTED]
08:00		725	506	1231	[REDACTED]
09:00		969	631	1600	[REDACTED]
10:00		1121	751	1872	[REDACTED]
11:00		1474	738	2212	[REDACTED]
12:00 PM		1256	693	1949	[REDACTED]
01:00		1240	804	2044	[REDACTED]
02:00		1214	719	1933	[REDACTED]
03:00		1262	867	2129	[REDACTED]
04:00		1152	818	1970	[REDACTED]
05:00		1109	712	1821	[REDACTED]
06:00		1035	653	1688	[REDACTED]
07:00		1138	589	1727	[REDACTED]
08:00		1090	640	1730	[REDACTED]
09:00		1075	633	1708	[REDACTED]
10:00		1036	659	1695	[REDACTED]
11:00		948	605	1553	[REDACTED]
Total		21281	13725	35006	
Percent		60.8%	39.2%		
Grand Total		60391	37615		
Percentage		61.6%	38.4%		

ADT

ADT 20,117

AADT 20,117

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	07-Feb-19 Thu	NB	SB	Combined Total	
12:00 AM		63	56	119	[REDACTED]
01:00		62	66	128	[REDACTED]
02:00		54	50	104	[REDACTED]
03:00		53	40	93	[REDACTED]
04:00		48	38	86	[REDACTED]
05:00		33	15	48	[REDACTED]
06:00		21	33	54	[REDACTED]
07:00		35	66	101	[REDACTED]
08:00		52	87	139	[REDACTED]
09:00		56	107	163	[REDACTED]
10:00		84	116	200	[REDACTED]
11:00		115	133	248	[REDACTED]
12:00 PM		101	136	237	[REDACTED]
01:00		86	124	210	[REDACTED]
02:00		84	106	190	[REDACTED]
03:00		103	100	203	[REDACTED]
04:00		85	128	213	[REDACTED]
05:00		94	120	214	[REDACTED]
06:00		94	114	208	[REDACTED]
07:00		101	130	231	[REDACTED]
08:00		87	128	215	[REDACTED]
09:00		75	79	154	[REDACTED]
10:00		58	100	158	[REDACTED]
11:00		67	83	150	[REDACTED]
Total		1711	2155	3866	
Percent		44.3%	55.7%		

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	08-Feb-19 Fri	NB	SB	Combined Total	
12:00 AM		62	67	129	[REDACTED]
01:00		54	69	123	[REDACTED]
02:00		50	50	100	[REDACTED]
03:00		42	20	62	[REDACTED]
04:00		24	25	49	[REDACTED]
05:00		18	23	41	[REDACTED]
06:00		34	51	85	[REDACTED]
07:00		43	70	113	[REDACTED]
08:00		35	105	140	[REDACTED]
09:00		52	111	163	[REDACTED]
10:00		78	106	184	[REDACTED]
11:00		97	130	227	[REDACTED]
12:00 PM		130	174	304	[REDACTED]
01:00		107	155	262	[REDACTED]
02:00		95	148	243	[REDACTED]
03:00		104	105	209	[REDACTED]
04:00		115	137	252	[REDACTED]
05:00		105	164	269	[REDACTED]
06:00		95	176	271	[REDACTED]
07:00		74	156	230	[REDACTED]
08:00		87	127	214	[REDACTED]
09:00		86	127	213	[REDACTED]
10:00		85	101	186	[REDACTED]
11:00		104	105	209	[REDACTED]
Total		1776	2502	4278	
Percent		41.5%	58.5%		

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	09-Feb-19 Sat	NB	SB	Combined Total	
12:00 AM		105	112	217	[REDACTED]
01:00		73	91	164	[REDACTED]
02:00		62	62	124	[REDACTED]
03:00		67	66	133	[REDACTED]
04:00		42	44	86	[REDACTED]
05:00		26	30	56	[REDACTED]
06:00		19	28	47	[REDACTED]
07:00		25	42	67	[REDACTED]
08:00		43	72	115	[REDACTED]
09:00		66	96	162	[REDACTED]
10:00		89	122	211	[REDACTED]
11:00		119	137	256	[REDACTED]
12:00 PM		106	148	254	[REDACTED]
01:00		110	143	253	[REDACTED]
02:00		109	131	240	[REDACTED]
03:00		127	143	270	[REDACTED]
04:00		103	149	252	[REDACTED]
05:00		115	129	244	[REDACTED]
06:00		102	137	239	[REDACTED]
07:00		87	135	222	[REDACTED]
08:00		94	125	219	[REDACTED]
09:00		115	134	249	[REDACTED]
10:00		119	108	227	[REDACTED]
11:00		90	111	201	[REDACTED]
Total		2013	2495	4508	
Percent		44.7%	55.3%		
Grand Total		5500	7152		
Percentage		43.5%	56.5%		

ADT

ADT 4,281

AADT 4,281

Trat Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	07-Feb-19 Thu	EB	WB	Combined Total	
12:00 AM		388	276	664	[REDACTED]
01:00		312	250	562	[REDACTED]
02:00		219	233	452	[REDACTED]
03:00		188	192	380	[REDACTED]
04:00		207	232	439	[REDACTED]
05:00		248	201	449	[REDACTED]
06:00		744	252	996	[REDACTED]
07:00		722	470	1192	[REDACTED]
08:00		979	498	1477	[REDACTED]
09:00		1141	617	1758	[REDACTED]
10:00		1194	658	1852	[REDACTED]
11:00		1189	663	1852	[REDACTED]
12:00 PM		1005	680	1685	[REDACTED]
01:00		986	713	1699	[REDACTED]
02:00		965	569	1534	[REDACTED]
03:00		998	666	1664	[REDACTED]
04:00		852	561	1413	[REDACTED]
05:00		891	638	1529	[REDACTED]
06:00		989	615	1604	[REDACTED]
07:00		956	642	1598	[REDACTED]
08:00		915	541	1456	[REDACTED]
09:00		819	500	1319	[REDACTED]
10:00		770	454	1224	[REDACTED]
11:00		513	430	943	[REDACTED]
Total		18190	11551	29741	
Percent		61.2%	38.8%		

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	08-Feb-19 Fri	EB	WB	Combined Total	
12:00 AM		434	353	787	
01:00		284	286	570	
02:00		198	184	382	
03:00		179	160	339	
04:00		224	152	376	
05:00		273	163	436	
06:00		717	284	1001	
07:00		711	436	1147	
08:00		1222	570	1792	
09:00		1167	675	1842	
10:00		1342	731	2073	
11:00		1334	769	2103	
12:00 PM		1232	723	1955	
01:00		1175	731	1906	
02:00		1195	661	1856	
03:00		1098	629	1727	
04:00		970	666	1636	
05:00		940	608	1548	
06:00		986	574	1560	
07:00		1143	579	1722	
08:00		1097	599	1696	
09:00		1124	550	1674	
10:00		999	638	1637	
11:00		876	618	1494	
Total		20920	12339	33259	
Percent		62.9%	37.1%		

Fri 10-2

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
5th Street W of Collins Ave

Start Time	09-Feb-19 Sat	EB	WB	Combined Total
12:00 AM		707	588	1295
01:00		465	412	877
02:00		366	337	703
03:00		339	344	683
04:00		296	290	586
05:00		283	206	489
06:00		444	182	626
07:00		537	348	885
08:00		725	506	1231
09:00		969	631	1600
10:00		1121	751	1872
11:00		1474	738	2212
12:00 PM		1256	693	1949
01:00		1240	804	2044
02:00		1214	719	1933
03:00		1262	867	2129
04:00		1152	818	1970
05:00		1109	712	1821
06:00		1035	653	1688
07:00		1138	589	1727
08:00		1090	640	1730
09:00		1075	633	1708
10:00		1036	659	1695
11:00		948	605	1553
Total		21281	13725	35006
Percent		60.8%	39.2%	
Grand Total		60391	37615	
Percentage		61.6%	38.4%	

ADT

ADT 20,117

AADT 20,117

Sat 11-5

Sat 11-2 Km

Trat Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	07-Feb-19 Thu	NB	SB	Combined Total
12:00 AM				
01:00		63	56	119
02:00		62	66	128
03:00		54	50	104
04:00		53	40	93
05:00		48	38	86
06:00		33	15	48
07:00		21	33	54
08:00		35	66	101
09:00		52	87	139
10:00		56	107	163
11:00		84	116	200
12:00 PM		115	133	248
01:00		101	136	237
02:00		86	124	210
03:00		84	106	190
04:00		103	100	203
05:00		85	128	213
06:00		94	120	214
07:00		94	114	208
08:00		101	130	231
09:00		87	128	215
10:00		75	79	154
11:00		58	100	158
12:00 AM		67	83	150
Total		1711	2155	3866
Percent		44.3%	55.7%	

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	08-Feb-19 Fri	NB	SB	Combined Total	
12:00 AM		62	67	129	[REDACTED]
01:00		54	69	123	[REDACTED]
02:00		50	50	100	[REDACTED]
03:00		42	20	62	[REDACTED]
04:00		24	25	49	[REDACTED]
05:00		18	23	41	[REDACTED]
06:00		34	51	85	[REDACTED]
07:00		43	70	113	[REDACTED]
08:00		35	105	140	[REDACTED]
09:00		52	111	163	[REDACTED]
10:00		78	106	184	[REDACTED]
11:00		97	130	227	[REDACTED]
12:00 PM		130	174	304	[REDACTED]
01:00		107	155	262	[REDACTED]
02:00		95	148	243	[REDACTED]
03:00		104	105	209	[REDACTED]
04:00		115	137	252	[REDACTED]
05:00		105	164	269	[REDACTED]
06:00		95	176	271	[REDACTED]
07:00		74	156	230	[REDACTED]
08:00		87	127	214	[REDACTED]
09:00		86	127	213	[REDACTED]
10:00		85	101	186	[REDACTED]
11:00		104	105	209	[REDACTED]
Total		1776	2502	4278	
Percent		41.5%	58.5%		

08-Feb-19
Fri

Fri 11-2 AM

Fri 12-2
5-7

Traf Tech Engineering Inc.

Date Start: 07-Feb-19
Collins Ave S of 5th Street

Start Time	09-Feb-19 Sat	NB	SB	Combined Total
12:00 AM	105	112	217	
01:00	73	91	164	
02:00	62	62	124	
03:00	67	66	133	
04:00	42	44	86	
05:00	26	30	56	
06:00	19	28	47	
07:00	25	42	67	
08:00	43	72	115	
09:00	66	96	162	
10:00	89	122	211	
11:00	119	137	256	
12:00 PM	106	148	254	
01:00	110	143	253	
02:00	109	131	240	
03:00	127	143	270	
04:00	103	149	252	
05:00	115	129	244	
06:00	102	137	239	
07:00	87	135	222	
08:00	94	125	219	
09:00	115	134	249	
10:00	119	108	227	
11:00	90	111	201	
Total	2013	2495	4508	
Percent	44.7%	55.3%		
Grand Total	5500	7152		
Percentage	43.5%	56.5%		

ADT

ADT 4,281

AADT 4,281

Sat 11-1
3-5

Traf Tech Engineering Inc.

File Name : 1-Washington & 5th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 1

Groups Printed- Peds & Bikes

Start Time	Washington Ave From North				5th Street From East				Washington Ave From South				5th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	6	0	0	56	1	0	0	51	2	0	0	28	1	0	0	5	150
11:15	2	0	0	30	9	0	0	38	5	0	0	20	1	0	0	0	105
11:30	0	0	0	43	9	0	0	51	15	0	0	23	0	0	0	7	148
11:45	7	0	0	43	1	0	0	34	1	0	0	20	0	0	0	0	106
Total	15	0	0	172	20	0	0	174	23	0	0	91	2	0	0	12	509
12:00	3	0	0	30	1	0	0	37	2	0	0	20	0	0	0	1	94
12:15	1	0	0	59	3	0	0	32	2	0	0	12	2	0	0	5	116
12:30	1	0	0	52	2	0	0	31	1	0	0	16	0	0	0	8	111
12:45	0	0	0	36	9	0	0	54	2	0	0	25	0	0	0	4	130
Total	5	0	0	177	15	0	0	154	7	0	0	73	2	0	0	18	451
13:00	0	0	0	33	1	0	0	55	1	0	0	33	1	0	0	10	134
13:15	2	0	0	31	5	0	0	56	8	0	0	52	2	0	0	0	156
13:30	3	0	0	30	2	0	0	23	6	0	0	34	0	0	0	14	112
13:45	1	0	0	16	0	0	0	31	3	0	0	24	1	0	0	0	76
Total	6	0	0	110	8	0	0	165	18	0	0	143	4	0	0	24	478
Grand Total	26	0	0	459	43	0	0	493	48	0	0	307	8	0	0	54	1438
Apprch %	5.4	0	0	94.6	8	0	0	92	13.5	0	0	86.5	12.9	0	0	87.1	
Total %	1.8	0	0	31.9	3	0	0	34.3	3.3	0	0	21.3	0.6	0	0	3.8	

Traf Tech Engineering Inc.

File Name : 1-Washington & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Washington Ave From North					5th Street From East					Washington Ave From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	61	55	17	25	158	30	103	1	1	135	5	39	20	3	67	12	155	73	2	242	602
11:15	60	36	11	11	118	23	98	1	0	122	2	29	22	0	53	12	130	67	0	209	502
11:30	63	53	10	4	130	40	106	4	1	151	2	46	15	0	63	17	146	118	1	282	626
11:45	57	33	6	11	107	23	138	2	2	165	6	51	18	0	75	12	139	85	0	236	583
Total	241	177	44	51	513	116	445	8	4	573	15	165	75	3	258	53	570	343	3	969	2313
12:00	51	72	10	10	143	39	191	0	1	231	11	48	18	0	77	8	110	89	0	207	658
12:15	59	53	15	3	130	17	150	8	0	175	1	39	25	0	65	17	123	94	3	237	607
12:30	51	63	17	19	150	23	121	10	0	154	5	62	22	3	92	9	115	93	2	219	615
12:45	52	56	21	10	139	34	109	9	0	152	1	48	20	0	69	23	150	78	0	251	611
Total	213	244	63	42	562	113	571	27	1	712	18	197	85	3	303	57	498	354	5	914	2491
13:00	49	70	38	16	173	27	125	2	0	154	7	48	27	2	84	12	137	94	3	246	657
13:15	52	64	30	17	163	33	109	1	1	144	5	56	17	2	80	11	133	67	1	212	599
13:30	48	42	18	4	112	35	111	5	0	151	6	66	21	1	94	8	148	98	0	254	611
13:45	41	79	34	14	168	39	96	8	1	144	8	45	28	2	83	18	103	92	1	214	609
Total	190	255	120	51	616	134	441	16	2	593	26	215	93	7	341	49	521	351	5	926	2476
Grand Total	644	676	227	144	1691	363	1457	51	7	1878	59	577	253	13	902	159	1589	1048	13	2809	7280
Approch %	38.1	40	13.4	8.5		19.3	77.6	2.7	0.4		6.5	64	28	1.4		5.7	56.6	37.3	0.5		
Total %	8.8	9.3	3.1	2	23.2	5	20	0.7	0.1	25.8	0.8	7.9	3.5	0.2	12.4	2.2	21.8	14.4	0.2	38.6	
Autos	624	663	227	144	1658	360	1432									1571	1032				
% Autos	96.9	98.1	100	100	98	99.2	98.3	98	100	98.5	100	95	96.4	100	95.8	100	98.9	98.5	100	98.8	98.2
Heavy Vehicles																					
% Heavy Vehicles	3.1	1.9	0	0	2	0.8	1.7	2	0	1.5	0	5	3.6	0	4.2	0	1.1	1.5	0	1.2	1.8

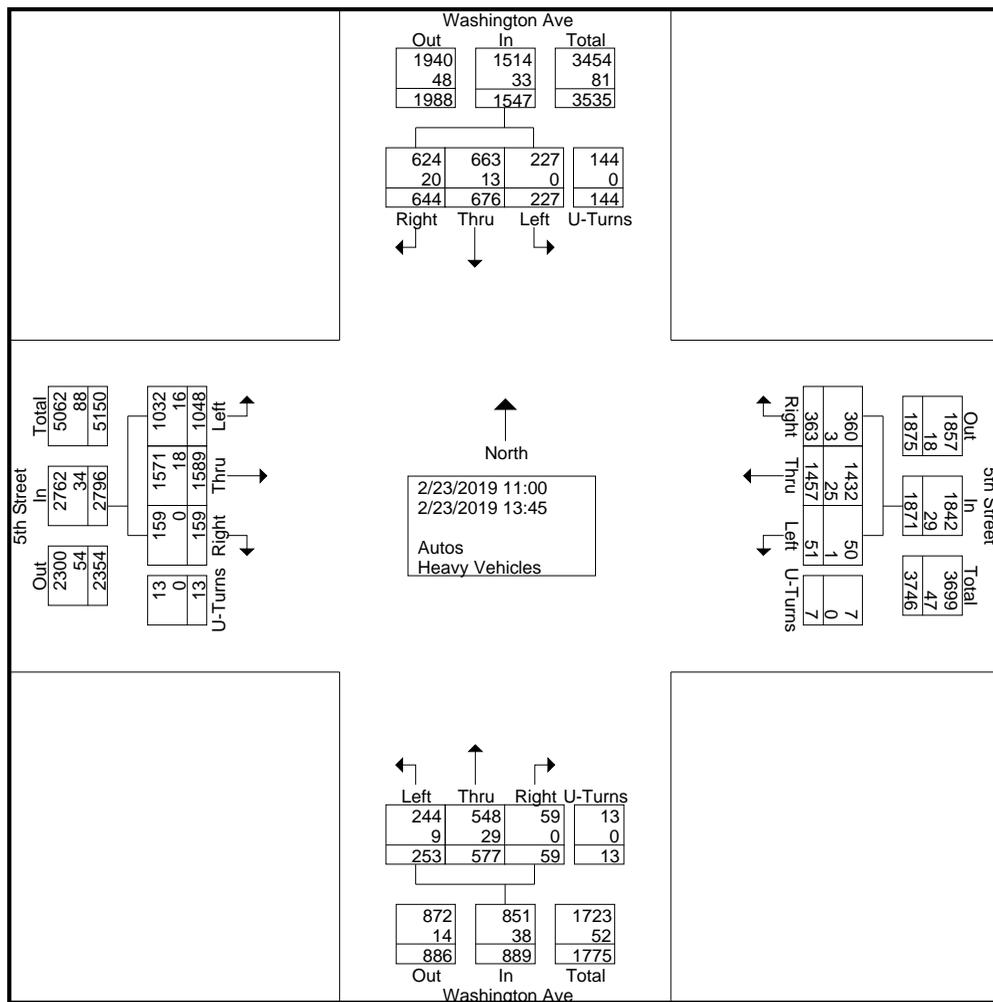
Traf Tech Engineering Inc.

File Name : 1-Washington & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 2



Traf Tech Engineering Inc.

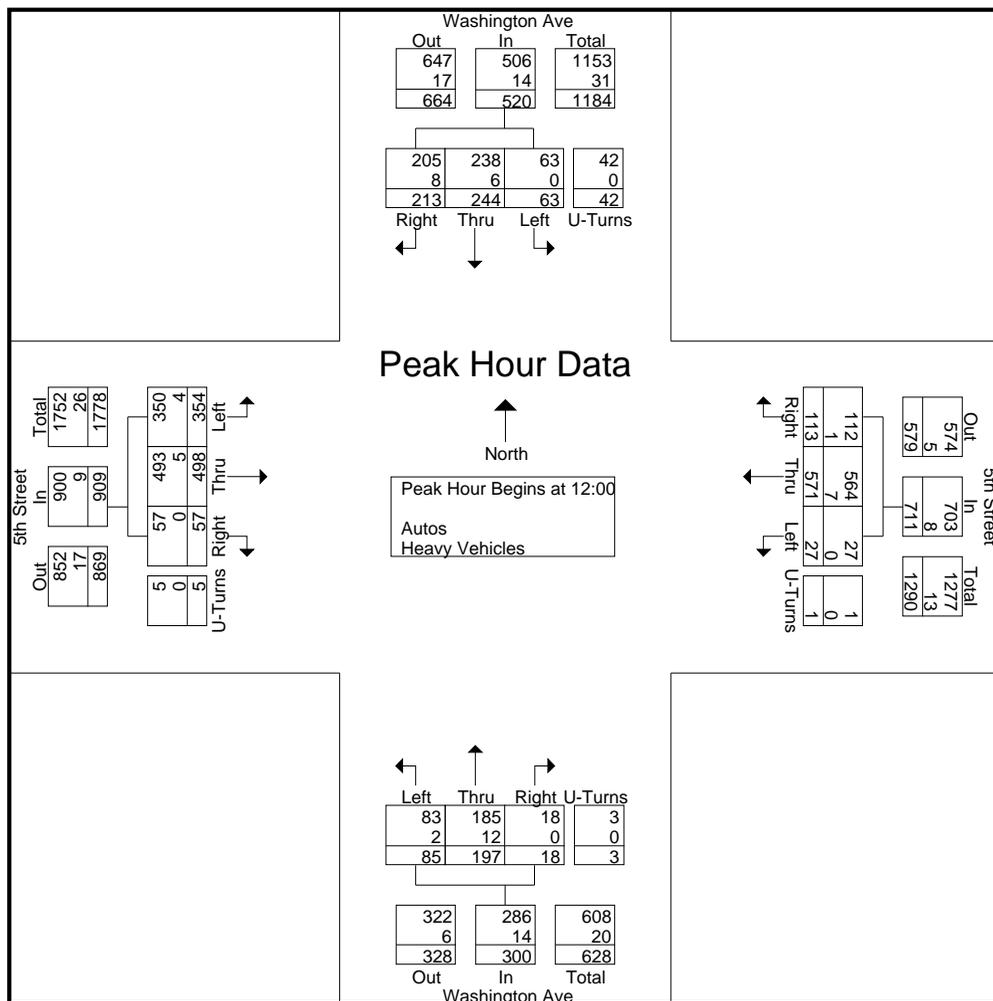
File Name : 1-Washington & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 3

Start Time	Washington Ave From North					5th Street From East					Washington Ave From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00																					
12:00	51	72	10	10	143	39	191	0	1	231	11	48	18	0	77	8	110	89	0	207	658
12:15	59	53	15	3	130	17	150	8	0	175	1	39	25	0	65	17	123	94	3	237	607
12:30	51	63	17	19	150	23	121	10	0	154	5	62	22	3	92	9	115	93	2	219	615
12:45	52	56	21	10	139	34	109	9	0	152	1	48	20	0	69	23	150	78	0	251	611
Total Volume	213	244	63	42	562	113	571	27	1	712	18	197	85	3	303	57	498	354	5	914	2491
% App. Total	37.9	43.4	11.2	7.5		15.9	80.2	3.8	0.1		5.9	65	28.1	1		6.2	54.5	38.7	0.5		
PHF	.903	.847	.750	.553	.937	.724	.747	.675	.250	.771	.409	.794	.850	.250	.823	.620	.830	.941	.417	.910	.946
Autos	205	238	63	42	548	112	564	27	1	704	18	185	83	3	289	57	493	350	5	905	2446
% Autos	96.2	97.5	100	100	97.5	99.1	98.8	100	100	98.9	100	93.9	97.6	100	95.4	100	99.0	98.9	100	99.0	98.2
Heavy Vehicles																					
% Heavy Vehicles	3.8	2.5	0	0	2.5	0.9	1.2	0	0	1.1	0	6.1	2.4	0	4.6	0	1.0	1.1	0	1.0	1.8



Traf Tech Engineering Inc.

File Name : 2-Collins & 5th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 1

Groups Printed- Peds & Bikes

Start Time	Collins Ave From North				5th Street From East				Collins Ave From South				5th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	5	0	0	82	0	0	0	27	0	0	0	26	8	0	0	9	157
11:15	3	0	0	120	0	0	0	45	1	0	0	22	0	0	0	15	206
11:30	16	0	0	94	2	0	0	61	3	0	0	11	0	0	0	18	205
11:45	8	0	0	88	1	0	0	46	0	0	0	10	0	0	0	21	174
Total	32	0	0	384	3	0	0	179	4	0	0	69	8	0	0	63	742
12:00	4	0	0	167	0	0	0	38	3	0	0	13	2	0	0	13	240
12:15	5	0	0	187	3	0	0	32	0	0	0	13	2	0	0	20	262
12:30	10	0	0	162	1	0	0	28	2	0	0	10	1	0	0	27	241
12:45	1	0	0	171	1	0	0	30	0	0	0	21	2	0	0	21	247
Total	20	0	0	687	5	0	0	128	5	0	0	57	7	0	0	81	990
13:00	8	0	0	116	1	0	0	39	0	0	0	21	1	0	0	18	204
13:15	9	0	0	144	0	0	0	67	0	0	0	28	1	0	0	26	275
13:30	9	0	0	90	5	0	0	37	0	0	0	15	0	0	0	29	185
13:45	2	0	0	98	1	0	0	41	0	0	0	25	2	0	0	15	184
Total	28	0	0	448	7	0	0	184	0	0	0	89	4	0	0	88	848
Grand Total	80	0	0	1519	15	0	0	491	9	0	0	215	19	0	0	232	2580
Apprch %	5	0	0	95	3	0	0	97	4	0	0	96	7.6	0	0	92.4	
Total %	3.1	0	0	58.9	0.6	0	0	19	0.3	0	0	8.3	0.7	0	0	9	

Traf Tech Engineering Inc.

File Name : 2-Collins & 5th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Collins Ave From North					5th Street From East					Collins Ave From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	68	18	14	2	102	20	52	4	3	79	0	12	4	11	27	15	62	69	19	165	373
11:15	80	27	11	4	122	19	56	2	0	77	3	17	7	5	32	10	72	78	7	167	398
11:30	81	21	9	3	114	22	58	1	1	82	6	17	9	3	35	11	69	62	12	154	385
11:45	96	19	5	3	123	22	60	4	6	92	5	15	10	2	32	16	74	43	13	146	393
Total	325	85	39	12	461	83	226	11	10	330	14	61	30	21	126	52	277	252	51	632	1549
12:00	156	15	6	6	183	17	69	6	0	92	3	7	8	1	19	14	68	31	10	123	417
12:15	103	21	10	7	141	13	46	5	3	67	4	14	10	5	33	12	68	59	14	153	394
12:30	84	21	10	11	126	30	75	6	3	114	4	23	13	0	40	16	62	59	6	143	423
12:45	96	26	12	4	138	19	52	3	5	79	6	12	10	1	29	15	81	79	9	184	430
Total	439	83	38	28	588	79	242	20	11	352	17	56	41	7	121	57	279	228	39	603	1664
13:00	73	22	5	7	107	20	47	2	4	73	3	14	8	4	29	7	69	66	10	152	361
13:15	97	27	7	3	134	17	50	3	6	76	1	30	12	5	48	16	72	75	20	183	441
13:30	91	22	10	3	126	24	54	8	1	87	2	26	6	0	34	17	63	57	8	145	392
13:45	88	24	9	2	123	22	60	10	6	98	4	25	15	2	46	17	65	76	12	170	437
Total	349	95	31	15	490	83	211	23	17	334	10	95	41	11	157	57	269	274	50	650	1631
Grand Total	1113	263	108	55	1539	245	679	54	38	1016	41	212	112	39	404	166	825	754	140	1885	4844
Approch %	72.3	17.1	7	3.6		24.1	66.8	5.3	3.7		10.1	52.5	27.7	9.7		8.8	43.8	40	7.4		
Total %	23	5.4	2.2	1.1	31.8	5.1	14	1.1	0.8	21	0.8	4.4	2.3	0.8	8.3	3.4	17	15.6	2.9	38.9	
Autos	1094																				
% Autos	98.3	98.9	98.1	100	98.4	100	98.4	100	94.7	98.7	100	98.1	99.1	100	98.8	100	99.5	100	100	99.8	99.1
Heavy Vehicles																					
% Heavy Vehicles	1.7	1.1	1.9	0	1.6	0	1.6	0	5.3	1.3	0	1.9	0.9	0	1.2	0	0.5	0	0	0.2	0.9

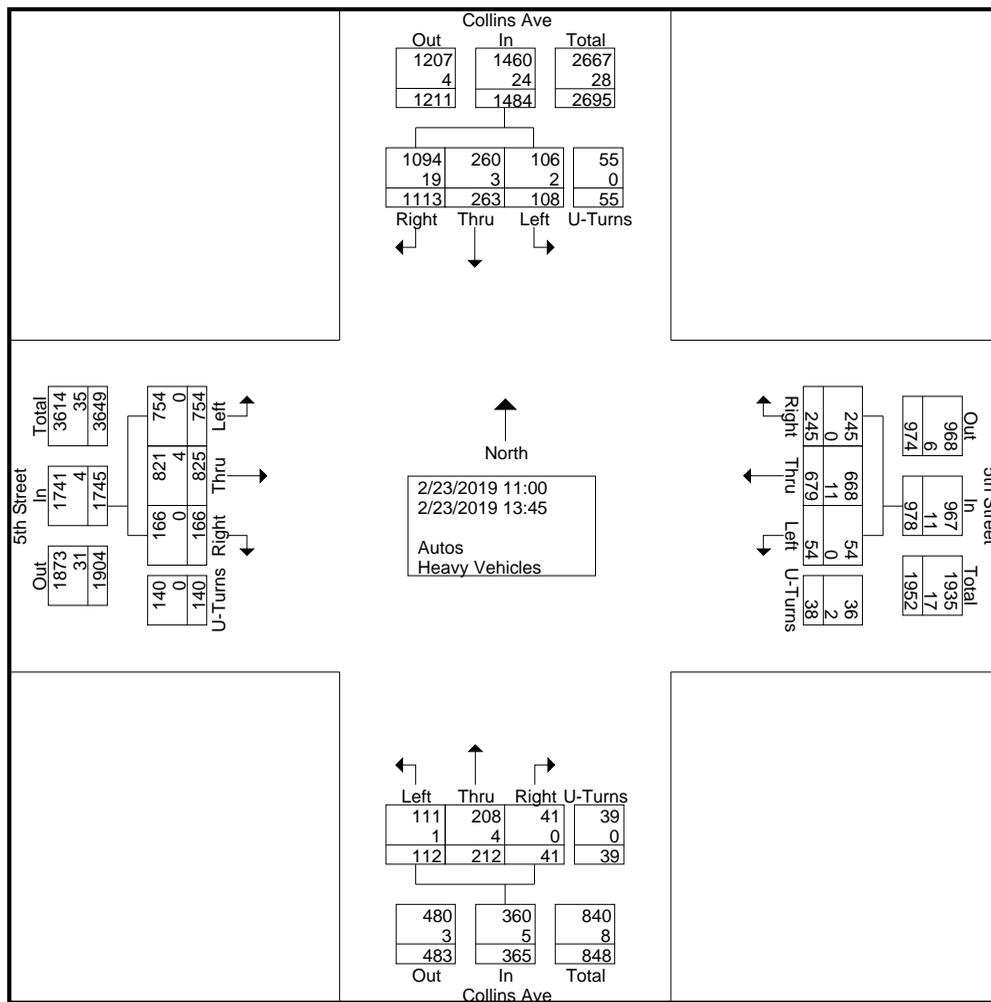
Traf Tech Engineering Inc.

File Name : 2-Collins & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

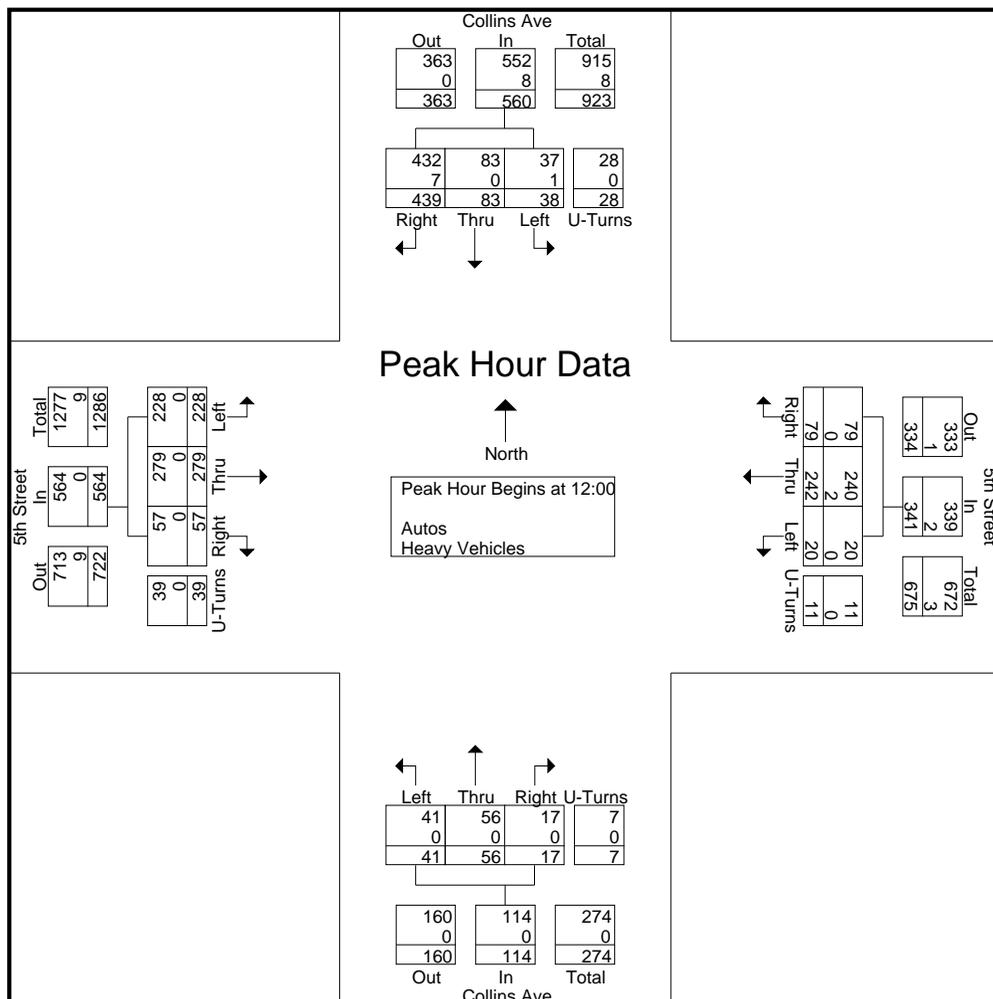
Page No : 2



Traf Tech Engineering Inc.

File Name : 2-Collins & 5th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 3

Start Time	Collins Ave From North					5th Street From East					Collins Ave From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00																					
12:00	156	15	6	6	183	17	69	6	0	92	3	7	8	1	19	14	68	31	10	123	417
12:15	103	21	10	7	141	13	46	5	3	67	4	14	10	5	33	12	68	59	14	153	394
12:30	84	21	10	11	126	30	75	6	3	114	4	23	13	0	40	16	62	59	6	143	423
12:45	96	26	12	4	138	19	52	3	5	79	6	12	10	1	29	15	81	79	9	184	430
Total Volume	439	83	38	28	588	79	242	20	11	352	17	56	41	7	121	57	279	228	39	603	1664
% App. Total	74.7	14.1	6.5	4.8		22.4	68.8	5.7	3.1		14	46.3	33.9	5.8		9.5	46.3	37.8	6.5		
PHF	.704	.798	.792	.636	.803	.658	.807	.833	.550	.772	.708	.609	.788	.350	.756	.891	.861	.722	.696	.819	.967
Autos	432	83	37	28	580	79	240	20	11	350	17	56	41	7	121	57	279	228	39	603	1654
% Autos	98.4	100	97.4	100	98.6	100	99.2	100	100	99.4	100	100	100	100	100	100	100	100	100	100	99.4
Heavy Vehicles																					
% Heavy Vehicles	1.6	0	2.6	0	1.4	0	0.8	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0.6



Traf Tech Engineering Inc.

File Name : 3-Ocean Dr & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Peds & Bikes

Start Time	Ocean Dr From North				5th Street From East				Ocean Dr From South				5th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	9	0	0	92	19	0	0	138	0	0	0	48	4	0	0	54	364
11:15	2	0	0	62	28	0	0	133	8	0	0	36	7	0	0	55	331
11:30	3	0	0	102	16	0	0	142	0	0	0	57	1	0	0	87	408
11:45	0	0	0	73	20	0	0	102	2	0	0	22	2	0	0	59	280
Total	14	0	0	329	83	0	0	515	10	0	0	163	14	0	0	255	1383
12:00	13	0	0	93	25	0	0	109	10	0	0	24	13	0	0	56	343
12:15	2	0	0	73	21	0	0	121	4	0	0	40	3	0	0	84	348
12:30	15	0	0	62	29	0	0	117	3	0	0	10	2	0	0	109	347
12:45	3	0	0	83	18	0	0	132	8	0	0	31	1	0	0	55	331
Total	33	0	0	311	93	0	0	479	25	0	0	105	19	0	0	304	1369
13:00	2	0	0	85	11	0	0	91	0	0	0	29	0	0	0	121	339
13:15	3	0	0	79	13	0	0	89	1	0	0	53	2	0	0	70	310
13:30	1	0	0	45	16	0	0	95	4	0	0	21	0	0	0	66	248
13:45	3	0	0	61	19	0	0	103	0	0	0	65	2	0	0	110	363
Total	9	0	0	270	59	0	0	378	5	0	0	168	4	0	0	367	1260
Grand Total	56	0	0	910	235	0	0	1372	40	0	0	436	37	0	0	926	4012
Apprch %	5.8	0	0	94.2	14.6	0	0	85.4	8.4	0	0	91.6	3.8	0	0	96.2	
Total %	1.4	0	0	22.7	5.9	0	0	34.2	1	0	0	10.9	0.9	0	0	23.1	

Traf Tech Engineering Inc.

File Name : 3-Ocean Dr & 5th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Ocean Dr From North					5th Street From East					Ocean Dr From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	37	16	1	0	54	1	7	0	0	8	0	26	27	0	53	31	5	60	3	99	214
11:15	36	17	5	0	58	5	3	1	0	9	0	26	37	0	63	29	7	55	8	99	229
11:30	38	22	0	0	60	4	4	0	0	8	0	22	28	0	50	23	3	67	6	99	217
11:45	28	19	1	0	48	2	2	0	0	4	0	29	34	0	63	20	2	49	8	79	194
Total	139	74	7	0	220	12	16	1	0	29	0	103	126	0	229	103	17	231	25	376	854
12:00	42	20	3	0	65	1	3	0	0	4	1	33	28	0	62	24	1	47	7	79	210
12:15	34	25	0	0	59	2	1	0	0	3	0	30	21	0	51	24	4	57	8	93	206
12:30	53	23	1	0	77	1	4	0	0	5	0	30	45	0	75	23	5	53	9	90	247
12:45	29	19	0	0	48	3	3	0	0	6	0	28	29	0	57	21	2	51	11	85	196
Total	158	87	4	0	249	7	11	0	0	18	1	121	123	0	245	92	12	208	35	347	859
13:00	37	24	1	0	62	4	2	1	0	7	0	39	22	0	61	27	2	44	21	94	224
13:15	30	16	4	0	50	5	4	0	0	9	0	40	39	0	79	32	3	44	7	86	224
13:30	25	20	0	0	45	4	3	1	0	8	0	29	40	0	69	25	1	46	5	77	199
13:45	44	18	2	0	64	3	2	1	0	6	0	36	34	0	70	20	2	48	17	87	227
Total	136	78	7	0	221	16	11	3	0	30	0	144	135	0	279	104	8	182	50	344	874
Grand Total	433	239	18	0	690	35	38	4	0	77	1	368	384	0	753	299	37	621	110	1067	2587
Apprch %	62.8	34.6	2.6	0		45.5	49.4	5.2	0		0.1	48.9	51	0		28	3.5	58.2	10.3		
Total %	16.7	9.2	0.7	0	26.7	1.4	1.5	0.2	0	3	0	14.2	14.8	0	29.1	11.6	1.4	24	4.3	41.2	
Autos	428	238	18	0	684	35	38	4	0	77	1	368	379	0	748	295	37	606	110	1048	2557
% Autos	98.8	99.6	100	0	99.1	100	100	100	0	100	100	100	98.7	0	99.3	98.7	100	97.6	100	98.2	98.8
Heavy Vehicles																					
% Heavy Vehicles	1.2	0.4	0	0	0.9	0	0	0	0	0	0	0	1.3	0	0.7	1.3	0	2.4	0	1.8	1.2

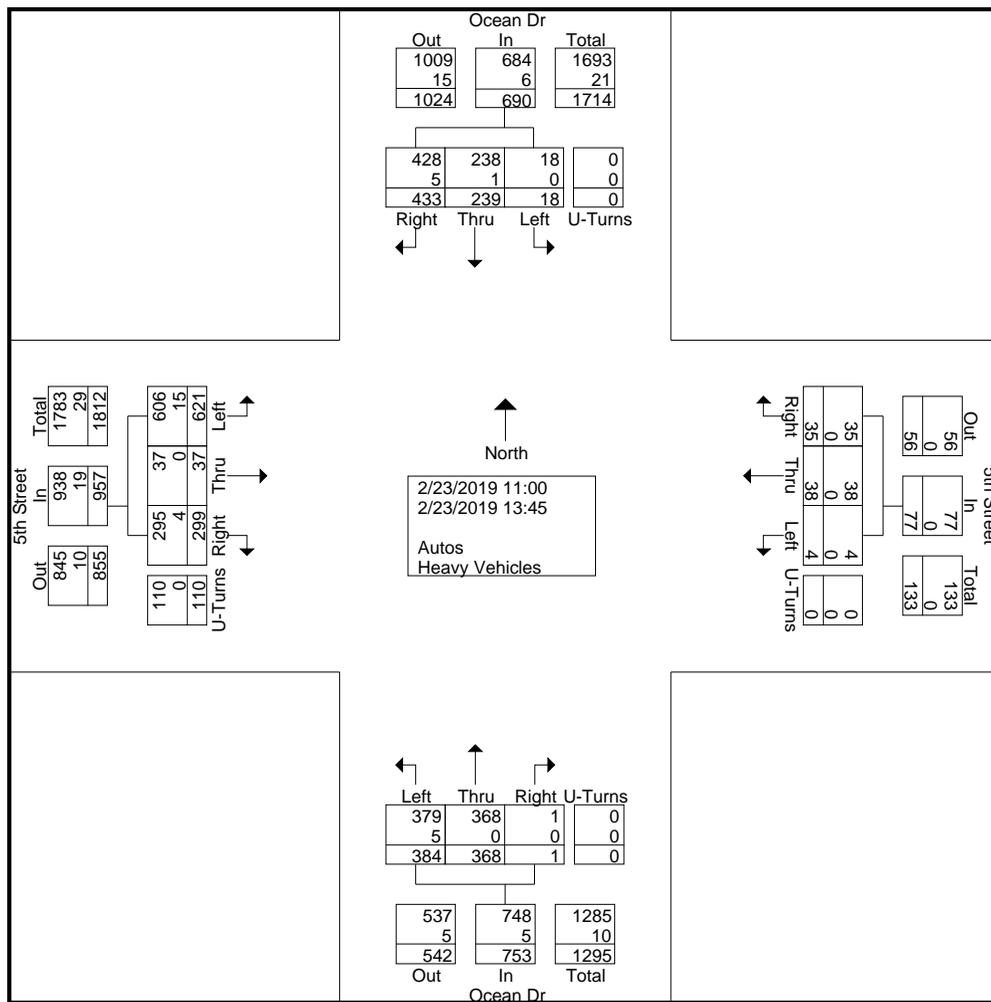
Traf Tech Engineering Inc.

File Name : 3-Ocean Dr & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 2



Traf Tech Engineering Inc.

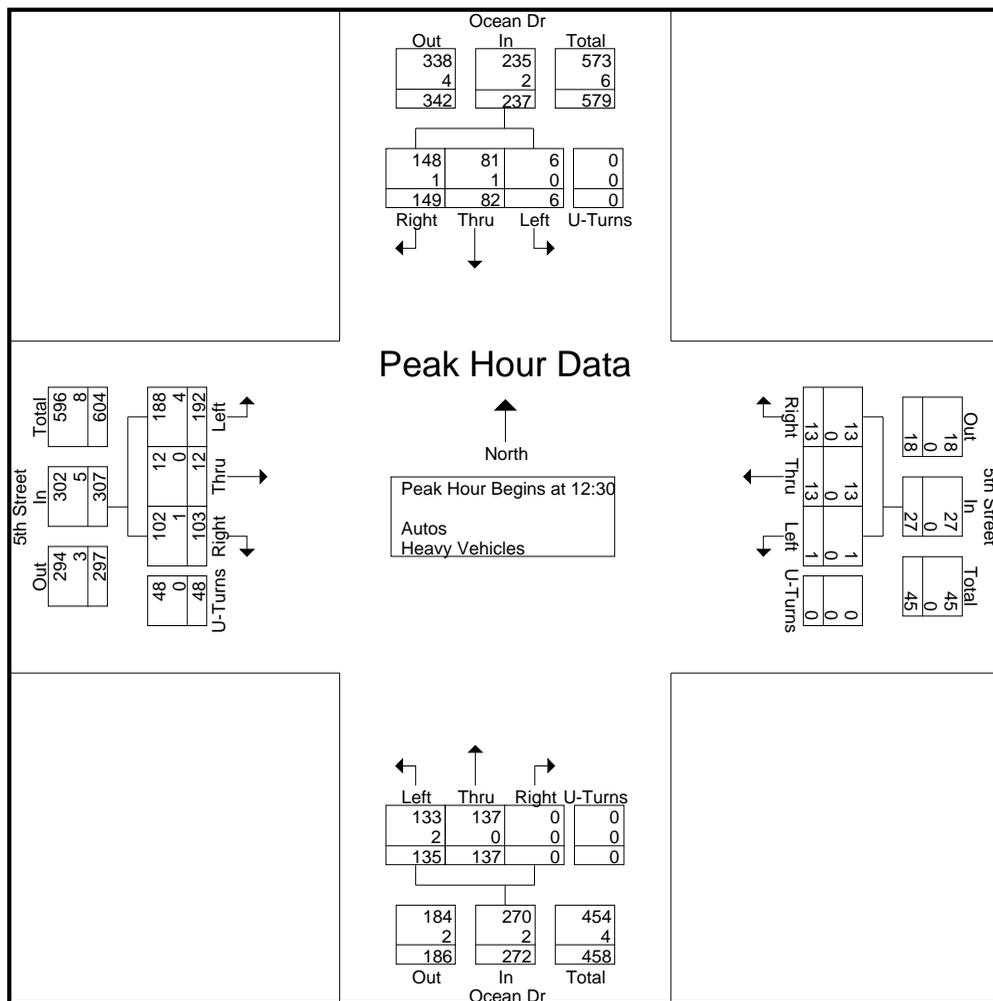
File Name : 3-Ocean Dr & 5th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 3

Start Time	Ocean Dr From North					5th Street From East					Ocean Dr From South					5th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30																					
12:30	53	23	1	0	77	1	4	0	0	5	0	30	45	0	75	23	5	53	9	90	247
12:45	29	19	0	0	48	3	3	0	0	6	0	28	29	0	57	21	2	51	11	85	196
13:00	37	24	1	0	62	4	2	1	0	7	0	39	22	0	61	27	2	44	21	94	224
13:15	30	16	4	0	50	5	4	0	0	9	0	40	39	0	79	32	3	44	7	86	224
Total Volume	149	82	6	0	237	13	13	1	0	27	0	137	135	0	272	103	12	192	48	355	891
% App. Total	62.9	34.6	2.5	0		48.1	48.1	3.7	0		0	50.4	49.6	0		29	3.4	54.1	13.5		
PHF	.703	.854	.375	.000	.769	.650	.813	.250	.000	.750	.000	.856	.750	.000	.861	.805	.600	.906	.571	.944	.902
Autos	148	81	6	0	235	13	13	1	0	27	0	137	133	0	270	102	12	188	48	350	882
% Autos	99.3	98.8	100	0	99.2	100	100	100	0	100	0	100	98.5	0	99.3	99.0	100	97.9	100	98.6	99.0
Heavy Vehicles																					
% Heavy Vehicles	0.7	1.2	0	0	0.8	0	0	0	0	0	0	0	1.5	0	0.7	1.0	0	2.1	0	1.4	1.0



Traf Tech Engineering Inc.

File Name : 4-Washington Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Peds & Bikes

Start Time	Washington Ave From North				4th Street From East				Washington Ave From South				4th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	0	0	0	1	1	0	0	18	0	0	0	17	5	0	0	6	48
11:15	1	0	0	4	4	0	0	13	4	0	0	10	3	0	0	6	45
11:30	0	0	0	10	6	0	0	21	0	0	0	13	2	0	0	19	71
11:45	1	0	0	6	1	0	0	12	1	0	0	23	2	0	0	17	63
Total	2	0	0	21	12	0	0	64	5	0	0	63	12	0	0	48	227
12:00	1	0	0	11	0	0	0	7	4	0	0	8	0	0	0	11	42
12:15	0	0	0	9	1	0	0	20	1	0	0	8	2	0	0	13	54
12:30	1	0	0	6	1	0	0	18	4	0	0	13	2	0	0	13	58
12:45	0	0	0	2	4	0	0	31	4	0	0	16	2	0	0	2	61
Total	2	0	0	28	6	0	0	76	13	0	0	45	6	0	0	39	215
13:00	1	0	0	6	1	0	0	35	4	0	0	12	3	0	0	13	75
13:15	2	0	0	6	2	0	0	21	0	0	0	11	0	0	0	22	64
13:30	3	0	0	7	2	0	0	25	1	0	0	12	4	0	0	11	65
13:45	2	0	0	10	0	0	0	16	2	0	0	16	5	0	0	31	82
Total	8	0	0	29	5	0	0	97	7	0	0	51	12	0	0	77	286
Grand Total	12	0	0	78	23	0	0	237	25	0	0	159	30	0	0	164	728
Apprch %	13.3	0	0	86.7	8.8	0	0	91.2	13.6	0	0	86.4	15.5	0	0	84.5	
Total %	1.6	0	0	10.7	3.2	0	0	32.6	3.4	0	0	21.8	4.1	0	0	22.5	

Traf Tech Engineering Inc.

File Name : 4-Washington Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Washington Ave From North					4th Street From East					Washington Ave From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	4	31	9	2	46	6	12	3	18	39	7	44	4	1	56	4	9	2	0	15	156
11:15	9	36	8	2	55	12	16	2	11	41	4	49	3	2	58	10	5	3	0	18	172
11:30	6	53	12	9	80	7	15	5	14	41	4	45	8	2	59	4	14	5	0	23	203
11:45	2	43	6	6	57	10	18	4	9	41	2	72	5	2	81	10	13	5	0	28	207
Total	21	163	35	19	238	35	61	14	52	162	17	210	20	7	254	28	41	15	0	84	738
12:00	9	46	6	4	65	12	20	2	5	39	5	47	9	1	62	6	7	4	0	17	183
12:15	4	59	4	4	71	5	12	2	10	29	2	58	7	0	67	2	14	3	0	19	186
12:30	4	62	6	5	77	6	15	3	7	31	2	67	8	1	78	7	8	7	1	23	209
12:45	7	59	10	3	79	14	12	4	6	36	5	58	9	1	73	2	10	1	0	13	201
Total	24	226	26	16	292	37	59	11	28	135	14	230	33	3	280	17	39	15	1	72	779
13:00	9	58	13	17	97	8	18	3	13	42	8	67	11	3	89	5	6	1	0	12	240
13:15	6	51	8	4	69	10	20	5	9	44	5	63	13	1	82	4	13	4	0	21	216
13:30	10	44	10	6	70	8	23	2	4	37	7	78	8	0	93	7	17	8	0	32	232
13:45	10	63	7	10	90	10	21	2	6	39	9	58	13	0	80	4	13	6	0	23	232
Total	35	216	38	37	326	36	82	12	32	162	29	266	45	4	344	20	49	19	0	88	920
Grand Total	80	605	99	72	856	108	202	37	112	459	60	706	98	14	878	65	129	49	1	244	2437
Apprch %	9.3	70.7	11.6	8.4		23.5	44	8.1	24.4		6.8	80.4	11.2	1.6		26.6	52.9	20.1	0.4		
Total %	3.3	24.8	4.1	3	35.1	4.4	8.3	1.5	4.6	18.8	2.5	29	4	0.6	36	2.7	5.3	2	0	10	
Autos	79	596	96	72	843	108	200	37	112	457	60	668	96	14	838	64	128	48	1	241	2379
% Autos	98.8	98.5	97	100	98.5	100	99	100	100	99.6	100	94.6	98	100	95.4	98.5	99.2	98	100	98.8	97.6
Heavy Vehicles																					
% Heavy Vehicles	1.2	1.5	3	0	1.5	0	1	0	0	0.4	0	5.4	2	0	4.6	1.5	0.8	2	0	1.2	2.4

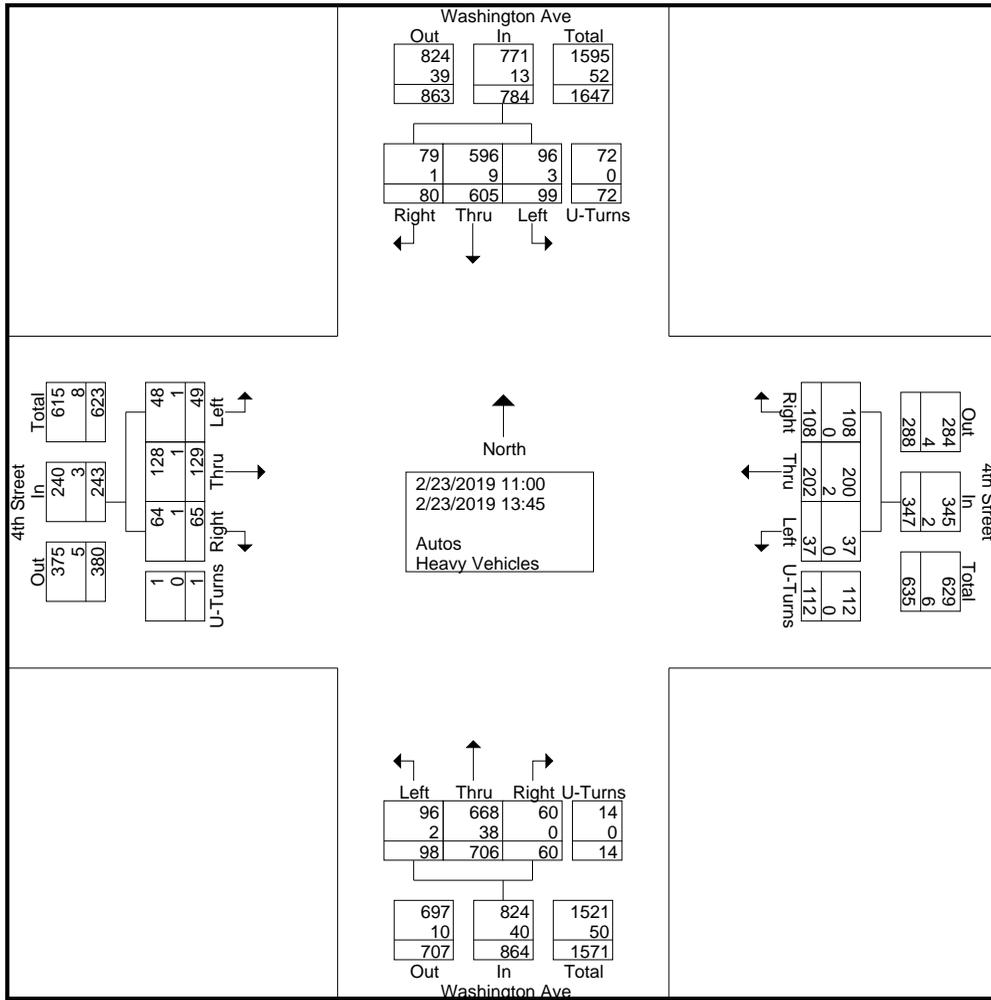
Traf Tech Engineering Inc.

File Name : 4-Washington Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

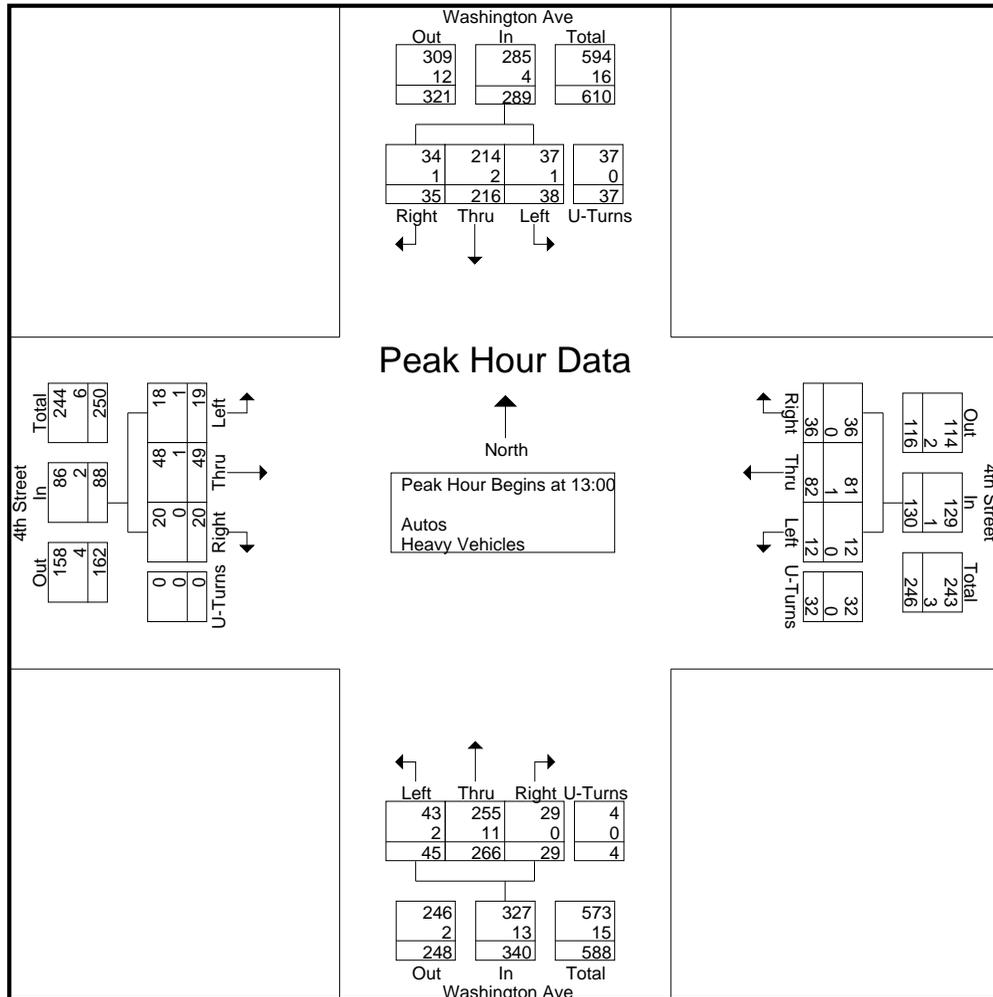
Page No : 2



Traf Tech Engineering Inc.

File Name : 4-Washington Ave & 4th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 3

Start Time	Washington Ave From North					4th Street From East					Washington Ave From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:00																					
13:00	9	58	13	17	97	8	18	3	13	42	8	67	11	3	89	5	6	1	0	12	240
13:15	6	51	8	4	69	10	20	5	9	44	5	63	13	1	82	4	13	4	0	21	216
13:30	10	44	10	6	70	8	23	2	4	37	7	78	8	0	93	7	17	8	0	32	232
13:45	10	63	7	10	90	10	21	2	6	39	9	58	13	0	80	4	13	6	0	23	232
Total Volume	35	216	38	37	326	36	82	12	32	161	29	266	45	4	344	20	49	19	0	88	920
% App. Total	10.7	66.3	11.7	11.3		22.2	50.6	7.4	19.8		8.4	77.3	13.1	1.2		22.7	55.7	21.6	0		
PHF	.875	.857	.731	.544	.840	.900	.891	.600	.615	.920	.806	.853	.865	.333	.925	.714	.721	.594	.000	.688	.958
Autos	34	214	37	37	322	36	81	12	32	161	29	255	43	4	331	20	48	18	0	86	900
% Autos	97.1	99.1	97.4	100	98.8	100	98.8	100	100	99.4	100	95.9	95.6	100	96.2	100	98.0	94.7	0	97.7	97.8
Heavy Vehicles																					
% Heavy Vehicles	2.9	0.9	2.6	0	1.2	0	1.2	0	0	0.6	0	4.1	4.4	0	3.8	0	2.0	5.3	0	2.3	2.2



Traf Tech Engineering Inc.

File Name : 5-Collins Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Peds & Bikes

Start Time	Collins Ave From North				4th Street From East				Collins Ave From South				4th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	0	0	0	2	2	0	0	13	0	0	0	13	4	0	0	4	38
11:15	1	0	0	16	0	0	0	30	4	0	0	3	2	0	0	6	62
11:30	0	0	0	13	3	0	0	17	1	0	0	4	2	0	0	9	49
11:45	0	0	0	14	0	0	0	29	1	0	0	9	0	0	0	6	59
Total	1	0	0	45	5	0	0	89	6	0	0	29	8	0	0	25	208
12:00	2	0	0	8	3	0	0	23	2	0	0	4	0	0	0	5	47
12:15	0	0	0	4	4	0	0	15	0	0	0	13	1	0	0	4	41
12:30	1	0	0	10	2	0	0	12	5	0	0	3	0	0	0	6	39
12:45	0	0	0	13	1	0	0	7	1	0	0	1	1	0	0	8	32
Total	3	0	0	35	10	0	0	57	8	0	0	21	2	0	0	23	159
13:00	1	0	0	9	1	0	0	19	1	0	0	1	0	0	0	10	42
13:15	5	0	0	14	1	0	0	25	2	0	0	8	0	0	0	1	56
13:30	4	0	0	14	2	0	0	8	0	0	0	2	0	0	0	4	34
13:45	2	0	0	17	0	0	0	14	2	0	0	2	1	0	0	7	45
Total	12	0	0	54	4	0	0	66	5	0	0	13	1	0	0	22	177
Grand Total	16	0	0	134	19	0	0	212	19	0	0	63	11	0	0	70	544
Apprch %	10.7	0	0	89.3	8.2	0	0	91.8	23.2	0	0	76.8	13.6	0	0	86.4	
Total %	2.9	0	0	24.6	3.5	0	0	39	3.5	0	0	11.6	2	0	0	12.9	

Traf Tech Engineering Inc.

File Name : 5-Collins Ave & 4th Street
 Site Code : 00000000
 Start Date : 2/23/2019
 Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Collins Ave From North					4th Street From East					Collins Ave From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	5	29	4	1	39	2	11	0	0	13	1	12	3	6	22	10	10	3	6	29	103
11:15	8	27	2	0	37	8	12	2	0	22	3	16	6	0	25	6	10	4	7	27	111
11:30	5	21	2	0	28	2	22	2	0	26	3	14	8	2	27	9	15	3	5	32	113
11:45	9	22	8	1	40	6	18	0	0	24	2	23	4	3	32	5	11	2	4	22	118
Total	27	99	16	2	144	18	63	4	0	85	9	65	21	11	106	30	46	12	22	110	445
12:00	5	21	6	1	33	2	18	2	0	22	5	14	7	8	34	6	11	1	9	27	116
12:15	8	26	4	0	38	5	13	1	0	19	1	16	5	11	33	6	14	2	12	34	124
12:30	4	31	8	1	44	10	13	4	0	27	5	24	7	7	43	4	7	3	1	15	129
12:45	9	26	1	0	36	5	14	4	0	23	1	15	13	5	34	4	16	6	10	36	129
Total	26	104	19	2	151	22	58	11	0	91	12	69	32	31	144	20	48	12	32	112	498
13:00	10	23	7	0	40	5	10	2	0	17	6	24	6	4	40	4	15	5	7	31	128
13:15	12	22	9	1	44	6	19	5	1	31	5	33	9	10	57	7	17	4	5	33	165
13:30	8	31	13	0	52	5	15	3	0	23	2	25	6	7	40	8	24	4	4	40	155
13:45	8	21	10	2	41	15	23	2	0	40	4	24	9	1	38	8	13	9	15	45	164
Total	38	97	39	3	177	31	67	12	1	111	17	106	30	22	175	27	69	22	31	149	612
Grand Total	91	300	74	7	472	71	188	27	1	287	38	240	83	64	425	77	163	46	85	371	1555
Apprch %	19.3	63.6	15.7	1.5		24.7	65.5	9.4	0.3		8.9	56.5	19.5	15.1		20.8	43.9	12.4	22.9		
Total %	5.9	19.3	4.8	0.5	30.4	4.6	12.1	1.7	0.1	18.5	2.4	15.4	5.3	4.1	27.3	5	10.5	3	5.5	23.9	
Autos	90	297	73	7	467	71	187	26	1	285	38	238	82	64	422	77	163	46	83	369	1543
% Autos	98.9	99	98.6	100	98.9	100	99.5	96.3	100	99.3	100	99.2	98.8	100	99.3	100	100	100	97.6	99.5	99.2
Heavy Vehicles																					
% Heavy Vehicles	1.1	1	1.4	0	1.1	0	0.5	3.7	0	0.7	0	0.8	1.2	0	0.7	0	0	0	2.4	0.5	0.8

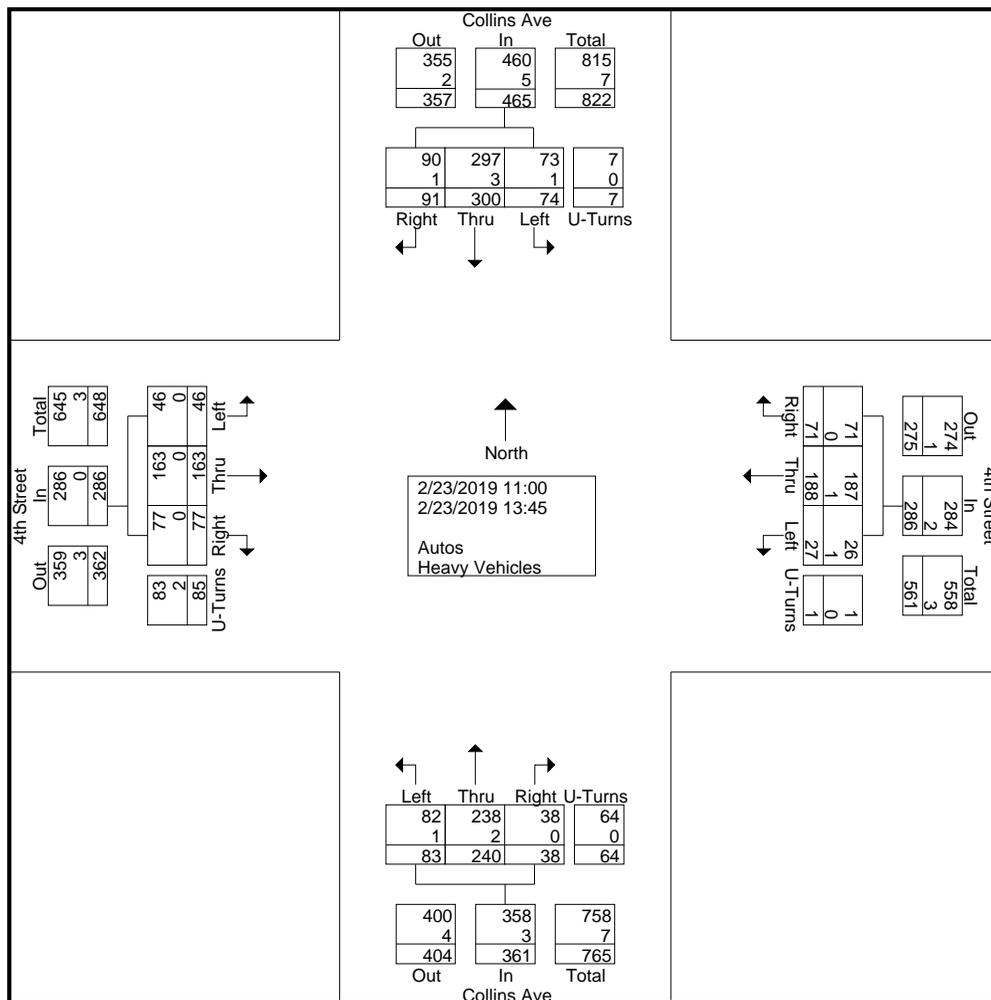
Traf Tech Engineering Inc.

File Name : 5-Collins Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 2



Traf Tech Engineering Inc.

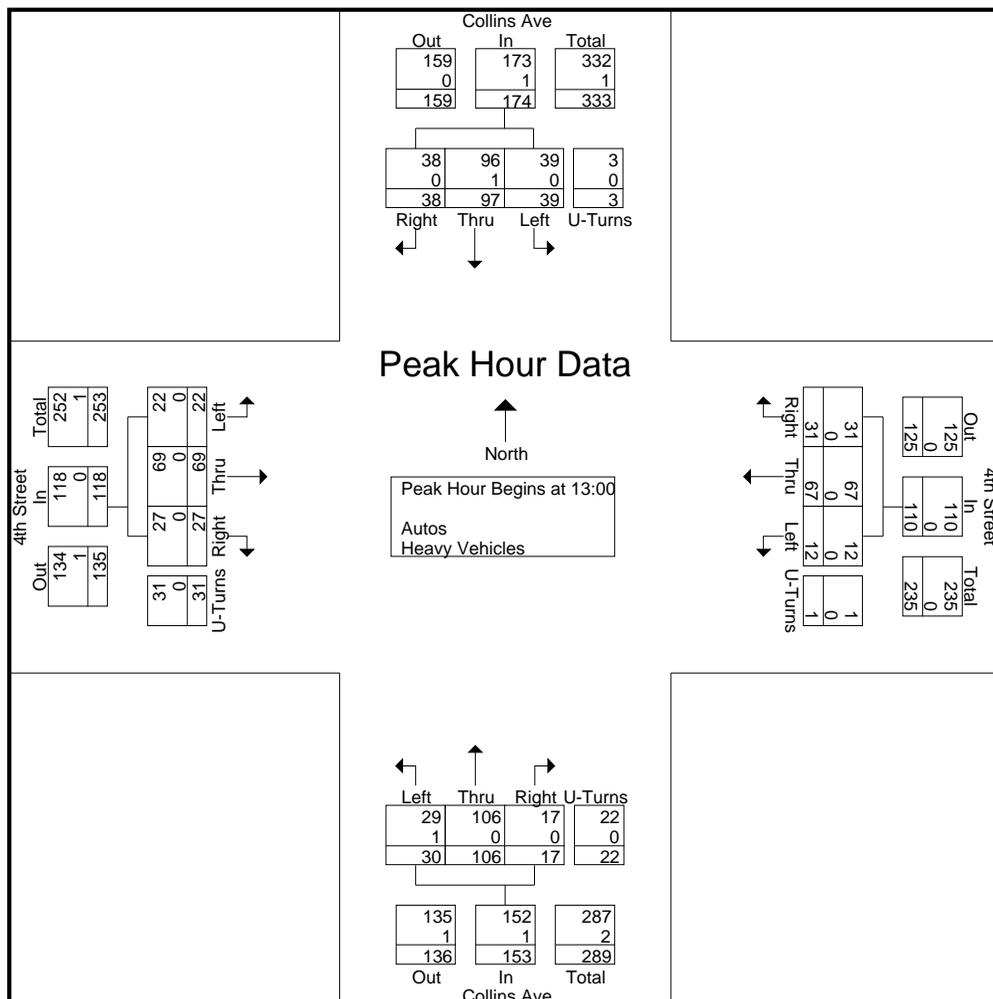
File Name : 5-Collins Ave & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 3

Start Time	Collins Ave From North					4th Street From East					Collins Ave From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:00																					
13:00	10	23	7	0	40	5	10	2	0	17	6	24	6	4	40	4	15	5	7	31	128
13:15	12	22	9	1	44	6	19	5	1	31	5	33	9	10	57	7	17	4	5	33	165
13:30	8	31	13	0	52	5	15	3	0	23	2	25	6	7	40	8	24	4	4	40	155
13:45	8	21	10	2	41	15	23	2	0	40	4	24	9	1	38	8	13	9	15	45	164
Total Volume	38	97	39	3	177	31	67	12	1	111	17	106	30	22	175	27	69	22	31	149	612
% App. Total	21.5	54.8	22	1.7		27.9	60.4	10.8	0.9		9.7	60.6	17.1	12.6		18.1	46.3	14.8	20.8		
PHF	.792	.782	.750	.375	.851	.517	.728	.600	.250	.694	.708	.803	.833	.550	.768	.844	.719	.611	.517	.828	.927
Autos	38	96	39	3	176	31	67	12	1	111	17	106	29	22	174	27	69	22	31	149	610
% Autos	100	99.0	100	100	99.4	100	100	100	100	100	100	100	96.7	100	99.4	100	100	100	100	100	99.7
Heavy Vehicles																					
% Heavy Vehicles	0	1.0	0	0	0.6	0	0	0	0	0	0	0	3.3	0	0.6	0	0	0	0	0	0.3



Traf Tech Engineering Inc.

File Name : 6-Ocean Dr & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Peds & Bikes

Start Time	Ocean Dr From North				4th Street From East				Ocean Dr From South				4th Street From West				Int. Total
	Bikes			Peds	Bikes			Peds	Bikes			Peds	Bikes			Peds	
11:00	0	0	0	8	17	0	0	163	2	0	0	15	50	0	0	40	295
11:15	0	0	0	20	32	0	0	124	0	0	0	19	29	0	0	36	260
11:30	2	0	0	22	14	0	0	148	0	0	0	11	13	0	0	102	312
11:45	6	0	0	13	23	0	0	94	0	0	0	19	20	0	0	57	232
Total	8	0	0	63	86	0	0	529	2	0	0	64	112	0	0	235	1099
12:00	0	0	0	11	29	0	0	113	4	0	0	18	20	0	0	59	254
12:15	0	0	0	10	19	0	0	120	0	0	0	13	22	0	0	55	239
12:30	0	0	0	25	35	0	0	142	0	0	0	13	23	0	0	90	328
12:45	6	0	0	14	24	0	0	88	3	0	0	3	15	0	0	49	202
Total	6	0	0	60	107	0	0	463	7	0	0	47	80	0	0	253	1023
13:00	1	0	0	9	37	0	0	80	3	0	0	2	12	0	0	64	208
13:15	3	0	0	15	43	0	0	95	1	0	0	30	28	0	0	87	302
13:30	1	0	0	13	37	0	0	84	0	0	0	10	5	0	0	61	211
13:45	5	0	0	25	27	0	0	100	1	0	0	9	17	0	0	61	245
Total	10	0	0	62	144	0	0	359	5	0	0	51	62	0	0	273	966
Grand Total	24	0	0	185	337	0	0	1351	14	0	0	162	254	0	0	761	3088
Apprch %	11.5	0	0	88.5	20	0	0	80	8	0	0	92	25	0	0	75	
Total %	0.8	0	0	6	10.9	0	0	43.8	0.5	0	0	5.2	8.2	0	0	24.6	

Traf Tech Engineering Inc.

File Name : 6-Ocean Dr & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 1

Groups Printed- Autos - Heavy Vehicles

Start Time	Ocean Dr From North					4th Street From East					Ocean Dr From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
11:00	11	29	3	0	43	4	0	1	3	8	2	44	3	1	50	3	1	8	1	13	114
11:15	9	31	0	1	41	2	1	0	3	6	0	33	6	0	39	7	2	5	0	14	100
11:30	9	30	2	2	43	4	3	1	1	9	0	46	11	0	57	12	6	3	4	25	134
11:45	8	24	1	0	33	5	3	0	5	13	3	62	11	0	76	12	4	7	0	23	145
Total	37	114	6	3	160	15	7	2	12	36	5	185	31	1	222	34	13	23	5	75	493
12:00	12	25	3	1	41	8	3	3	4	18	4	51	13	1	69	8	5	4	1	18	146
12:15	12	28	2	0	42	1	1	0	1	3	1	49	6	0	56	12	1	5	1	19	120
12:30	14	30	2	1	47	5	1	0	5	11	1	68	16	1	86	15	1	12	2	30	174
12:45	11	27	2	1	41	1	2	2	0	5	2	51	3	0	56	7	1	4	0	12	114
Total	49	110	9	3	171	15	7	5	10	37	8	219	38	2	267	42	8	25	4	79	554
13:00	15	36	1	1	53	0	1	2	1	4	2	43	3	0	48	11	1	6	0	18	123
13:15	7	29	1	0	37	3	4	0	5	12	5	50	7	2	64	13	3	9	3	28	141
13:30	14	29	1	0	44	3	5	1	7	16	5	60	6	0	71	16	4	14	2	36	167
13:45	17	28	0	3	48	0	5	2	5	12	1	56	14	0	71	11	3	12	0	26	157
Total	53	122	3	4	182	6	15	5	18	44	13	209	30	2	254	51	11	41	5	108	588
Grand Total	139	346	18	10	513	36	29	12	40	117	26	613	99	5	743	127	32	89	14	262	1635
Apprch %	27.1	67.4	3.5	1.9		30.8	24.8	10.3	34.2		3.5	82.5	13.3	0.7		48.5	12.2	34	5.3		
Total %	8.5	21.2	1.1	0.6	31.4	2.2	1.8	0.7	2.4	7.2	1.6	37.5	6.1	0.3	45.4	7.8	2	5.4	0.9	16	
Autos	139	344	18	10	511	36	29	12	40	117	26	608	98	5	737	126	32	88	14	260	1625
% Autos	100	99.4	100	100	99.6	100	100	100	100	100	100	99.2	99	100	99.2	99.2	100	98.9	100	99.2	99.4
Heavy Vehicles																					
% Heavy Vehicles	0	0.6	0	0	0.4	0	0	0	0	0	0	0.8	1	0	0.8	0.8	0	1.1	0	0.8	0.6

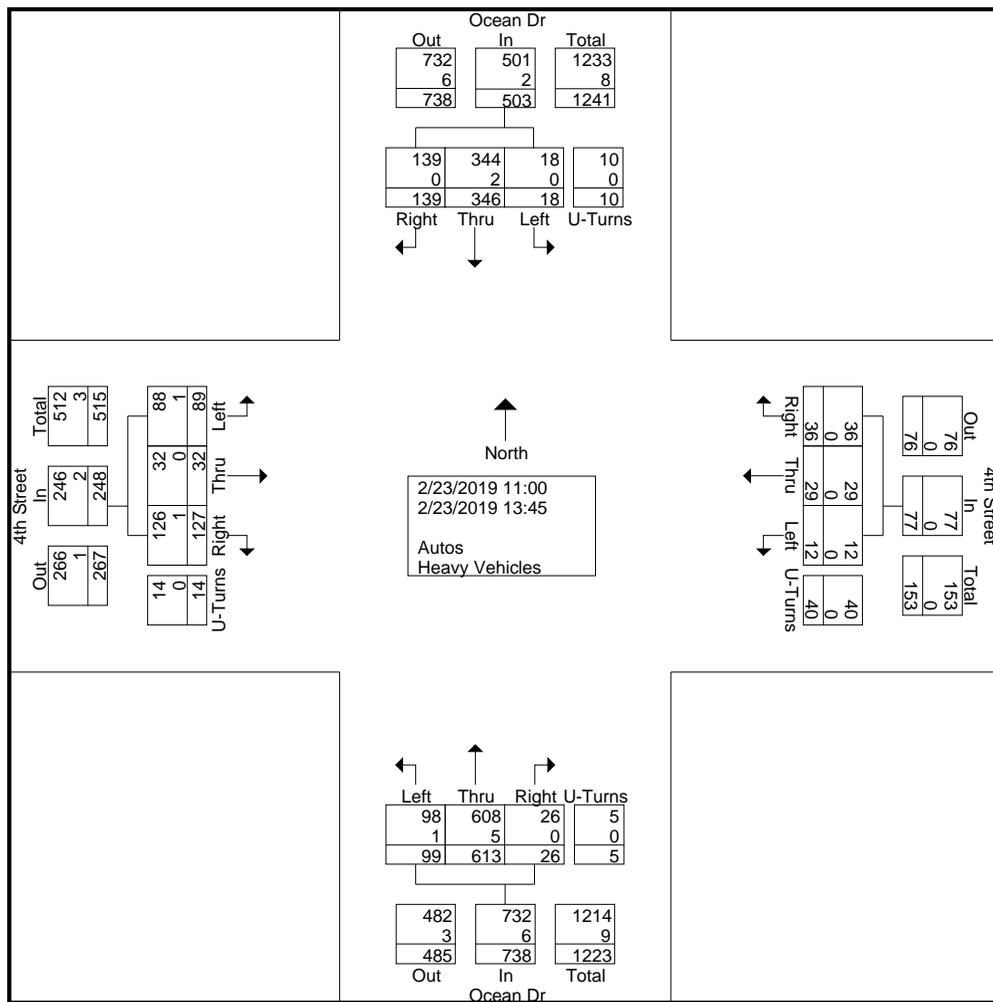
Traf Tech Engineering Inc.

File Name : 6-Ocean Dr & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 2



Traf Tech Engineering Inc.

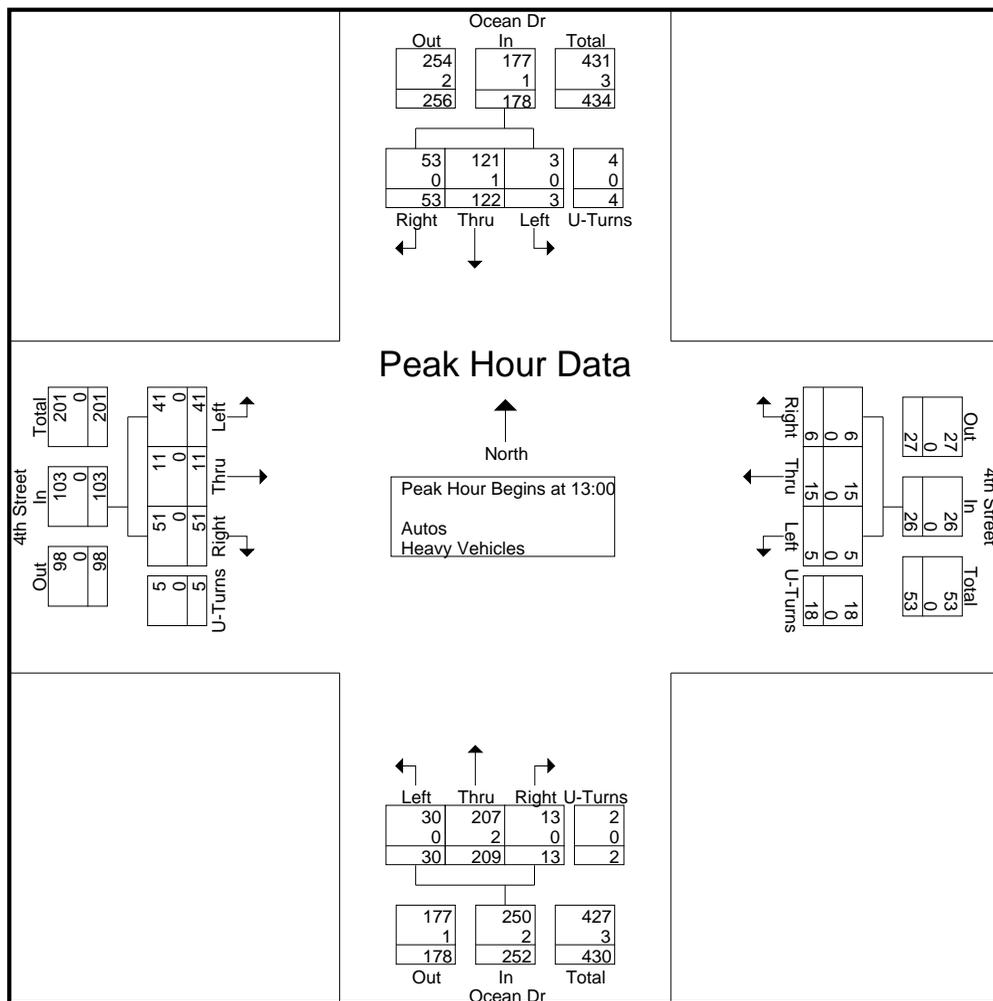
File Name : 6-Ocean Dr & 4th Street

Site Code : 00000000

Start Date : 2/23/2019

Page No : 3

Start Time	Ocean Dr From North					4th Street From East					Ocean Dr From South					4th Street From West					Int. Total
	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	
Peak Hour Analysis From 11:00 to 13:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 13:00																					
13:00	15	36	1	1	53	0	1	2	1	4	2	43	3	0	48	11	1	6	0	18	123
13:15	7	29	1	0	37	3	4	0	5	12	5	50	7	2	64	13	3	9	3	28	141
13:30	14	29	1	0	44	3	5	1	7	16	5	60	6	0	71	16	4	14	2	36	167
13:45	17	28	0	3	48	0	5	2	5	12	1	56	14	0	71	11	3	12	0	26	157
Total Volume	53	122	3	4	182	6	15	5	18	44	13	209	30	2	254	51	11	41	5	108	588
% App. Total	29.1	67	1.6	2.2		13.6	34.1	11.4	40.9		5.1	82.3	11.8	0.8		47.2	10.2	38	4.6		
PHF	.779	.847	.750	.333	.858	.500	.750	.625	.643	.688	.650	.871	.536	.250	.894	.797	.688	.732	.417	.750	.880
Autos	53	121	3	4	181	6	15	5	18	44	13	207	30	2	252	51	11	41	5	108	585
% Autos	100	99.2	100	100	99.5	100	100	100	100	100	100	99.0	100	100	99.2	100	100	100	100	100	99.5
Heavy Vehicles																					
% Heavy Vehicles	0	0.8	0	0	0.5	0	0	0	0	0	0	1.0	0	0	0.8	0	0	0	0	0	0.5



APPENDIX C

Peak Season Conversion Factors and Historical Traffic Data

2017 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 8700 MIAMI-DADE NORTH

WEEK	DATES	SF	MOCF: 0.96 PSCF
1	01/01/2017 - 01/07/2017	1.07	1.11
2	01/08/2017 - 01/14/2017	1.04	1.08
3	01/15/2017 - 01/21/2017	1.01	1.05
4	01/22/2017 - 01/28/2017	1.00	1.04
5	01/29/2017 - 02/04/2017	0.99	1.03
6	02/05/2017 - 02/11/2017	0.98	1.02
7	02/12/2017 - 02/18/2017	0.97	1.01
* 8	02/19/2017 - 02/25/2017	0.97	1.01
* 9	02/26/2017 - 03/04/2017	0.96	1.00
*10	03/05/2017 - 03/11/2017	0.95	0.99
*11	03/12/2017 - 03/18/2017	0.95	0.99
*12	03/19/2017 - 03/25/2017	0.95	0.99
*13	03/26/2017 - 04/01/2017	0.96	1.00
*14	04/02/2017 - 04/08/2017	0.96	1.00
*15	04/09/2017 - 04/15/2017	0.97	1.01
*16	04/16/2017 - 04/22/2017	0.97	1.01
*17	04/23/2017 - 04/29/2017	0.97	1.01
*18	04/30/2017 - 05/06/2017	0.97	1.01
*19	05/07/2017 - 05/13/2017	0.97	1.01
*20	05/14/2017 - 05/20/2017	0.97	1.01
21	05/21/2017 - 05/27/2017	0.98	1.02
22	05/28/2017 - 06/03/2017	0.98	1.02
23	06/04/2017 - 06/10/2017	0.99	1.03
24	06/11/2017 - 06/17/2017	0.99	1.03
25	06/18/2017 - 06/24/2017	1.00	1.04
26	06/25/2017 - 07/01/2017	1.00	1.04
27	07/02/2017 - 07/08/2017	1.01	1.05
28	07/09/2017 - 07/15/2017	1.01	1.05
29	07/16/2017 - 07/22/2017	1.01	1.05
30	07/23/2017 - 07/29/2017	1.01	1.05
31	07/30/2017 - 08/05/2017	1.00	1.04
32	08/06/2017 - 08/12/2017	1.00	1.04
33	08/13/2017 - 08/19/2017	1.00	1.04
34	08/20/2017 - 08/26/2017	1.04	1.08
35	08/27/2017 - 09/02/2017	1.07	1.11
36	09/03/2017 - 09/09/2017	1.11	1.16
37	09/10/2017 - 09/16/2017	1.14	1.19
38	09/17/2017 - 09/23/2017	1.12	1.17
39	09/24/2017 - 09/30/2017	1.10	1.15
40	10/01/2017 - 10/07/2017	1.08	1.13
41	10/08/2017 - 10/14/2017	1.06	1.10
42	10/15/2017 - 10/21/2017	1.04	1.08
43	10/22/2017 - 10/28/2017	1.05	1.09
44	10/29/2017 - 11/04/2017	1.06	1.10
45	11/05/2017 - 11/11/2017	1.07	1.11
46	11/12/2017 - 11/18/2017	1.07	1.11
47	11/19/2017 - 11/25/2017	1.07	1.11
48	11/26/2017 - 12/02/2017	1.07	1.11
49	12/03/2017 - 12/09/2017	1.07	1.11
50	12/10/2017 - 12/16/2017	1.07	1.11
51	12/17/2017 - 12/23/2017	1.05	1.09
52	12/24/2017 - 12/30/2017	1.03	1.07
53	12/31/2017 - 12/31/2017	1.01	1.05

* PEAK SEASON

02-MAR-2018 15:35:06

830UPD

6_8700_PKSEASON.TXT

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2017 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
2017	44000	C	E 20000		W 24000	9.00	54.00	5.30
2016	35500	C	E 18500		W 17000	9.00	55.50	7.80
2015	39500	C	E 20000		W 19500	9.00	55.10	4.60
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

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2017 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 5159 - SR AIA/COLLINS AV, 200' N 5 ST(MIAMI BEACH)

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR	
2017	14600	C	N	8800	S	5800	9.00	55.00	5.30
2016	13100	C	N	6700	S	6400	9.00	54.50	7.80
2015	13800	C	N	5500	S	8300	9.00	54.70	4.60
2014	13400	C	N	6500	S	6900	9.00	54.50	5.10
2013	16400	C	N	7400	S	9000	9.00	52.40	6.10
2012	16700	C	N	7100	S	9600	9.00	55.70	8.40
2011	13600	C	N	6900	S	6700	9.00	55.10	7.50
2010	12900	C	N	6200	S	6700	8.98	54.08	8.80
2009	15300	C	N	7600	S	7700	8.99	53.24	8.40
2008	13600	C	N	6300	S	7300	9.09	55.75	5.30
2007	14300	C	N	6500	S	7800	8.01	54.34	4.90
2006	13100	C	N	5800	S	7300	7.97	54.22	2.20
2005	16100	C	N	7300	S	8800	8.80	53.80	5.50
2004	17400	C	N	8400	S	9000	9.00	53.30	8.20
2003	16200	C	N	7000	S	9200	8.80	53.40	4.90
2002	17000	C	N	8200	S	8800	9.80	52.30	2.60

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

FLORIDA DEPARTMENT OF TRANSPORTATION
 TRANSPORTATION STATISTICS OFFICE
 2017 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 8414 - WASHINGTON AVE, 200 FT N OF 12 ST (2011 OFF SYSTEM CYCLE)

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2017	20200	C	N 9200		S 11000	9.00	59.30	2.40
2016	20800	C	N 9800		S 11000	9.00	56.10	1.90
2015	20300	C	N 9800		S 10500	9.00	57.40	17.50
2014	21000	C	N 10000		S 11000	9.00	59.30	13.90
2013	18700	F	N 9200		S 9500	9.00	58.90	16.20
2012	18700	C	N 9200		S 9500	9.00	59.70	16.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
 S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
 V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN

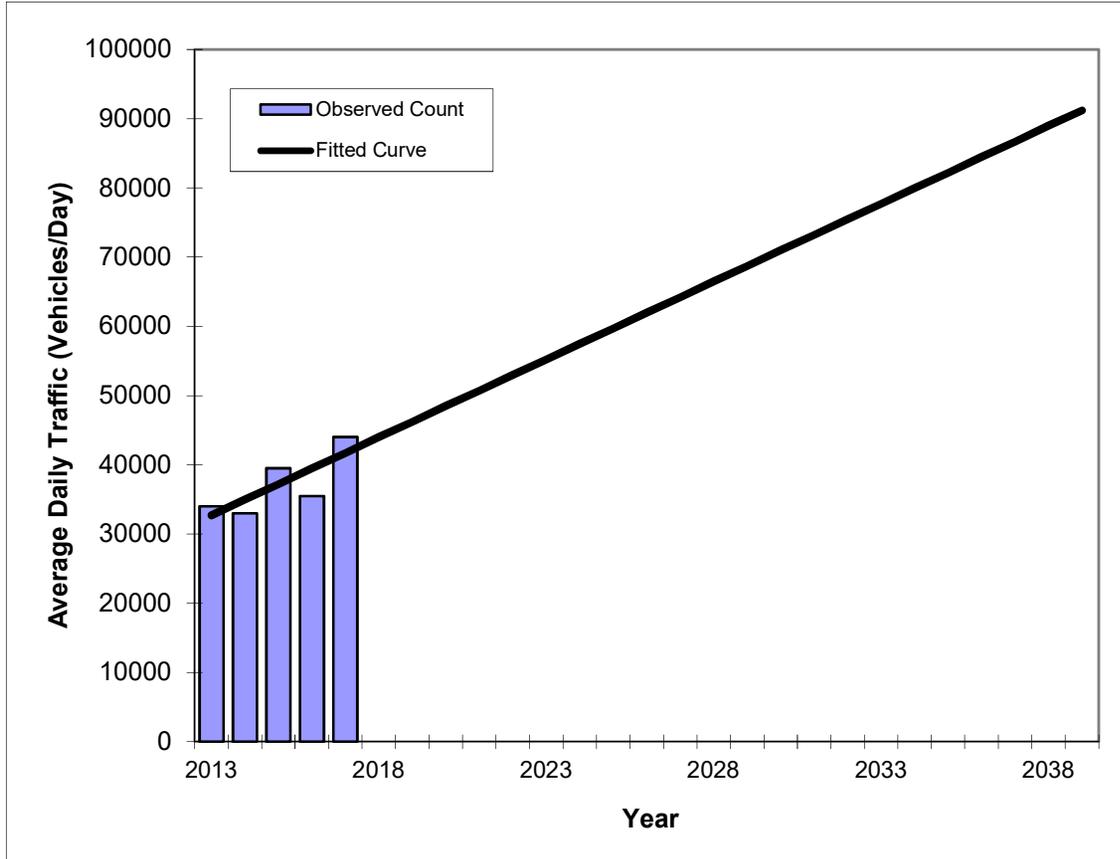
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V2.0

SR A1A/MACARTHUR CSWY -- 150' N OR MERIDIAN AVE

PIN#	0
Location	1

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



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	34000	32700
2014	33000	35000
2015	39500	37200
2016	35500	39500
2017	44000	41700
2019 Opening Year Trend		
2019	N/A	46200
2020 Mid-Year Trend		
2020	N/A	48500
2022 Design Year Trend		
2022	N/A	53000
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	2,250
Trend R-squared:	61.51%
Trend Annual Historic Growth Rate:	6.88%
Trend Growth Rate (2017 to Design Year):	5.42%
Printed:	28-Feb-19

Straight Line Growth Option

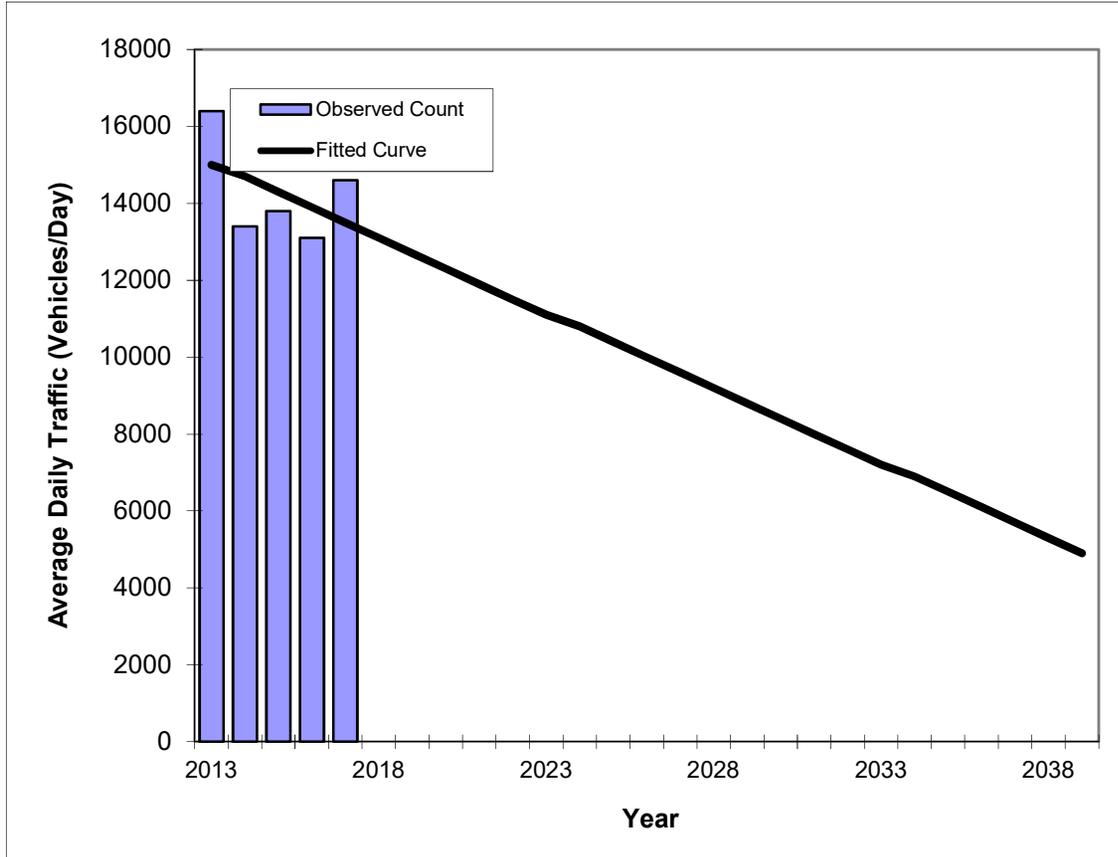
*Axle-Adjusted

Traffic Trends - V2.0

SR A1A/COLLINS AVE -- 200' N 5 ST

PIN#	0
Location	2

County:	Miami
Station #:	5159
Highway:	SR A1A/COLLINS AVE



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	16400	15000
2014	13400	14700
2015	13800	14300
2016	13100	13900
2017	14600	13500
2019 Opening Year Trend		
2019	N/A	12700
2020 Mid-Year Trend		
2020	N/A	12300
2022 Design Year Trend		
2022	N/A	11500
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	-390
Trend R-squared:	21.75%
Trend Annual Historic Growth Rate:	-2.50%
Trend Growth Rate (2017 to Design Year):	-2.96%
Printed:	28-Feb-19
Straight Line Growth Option	

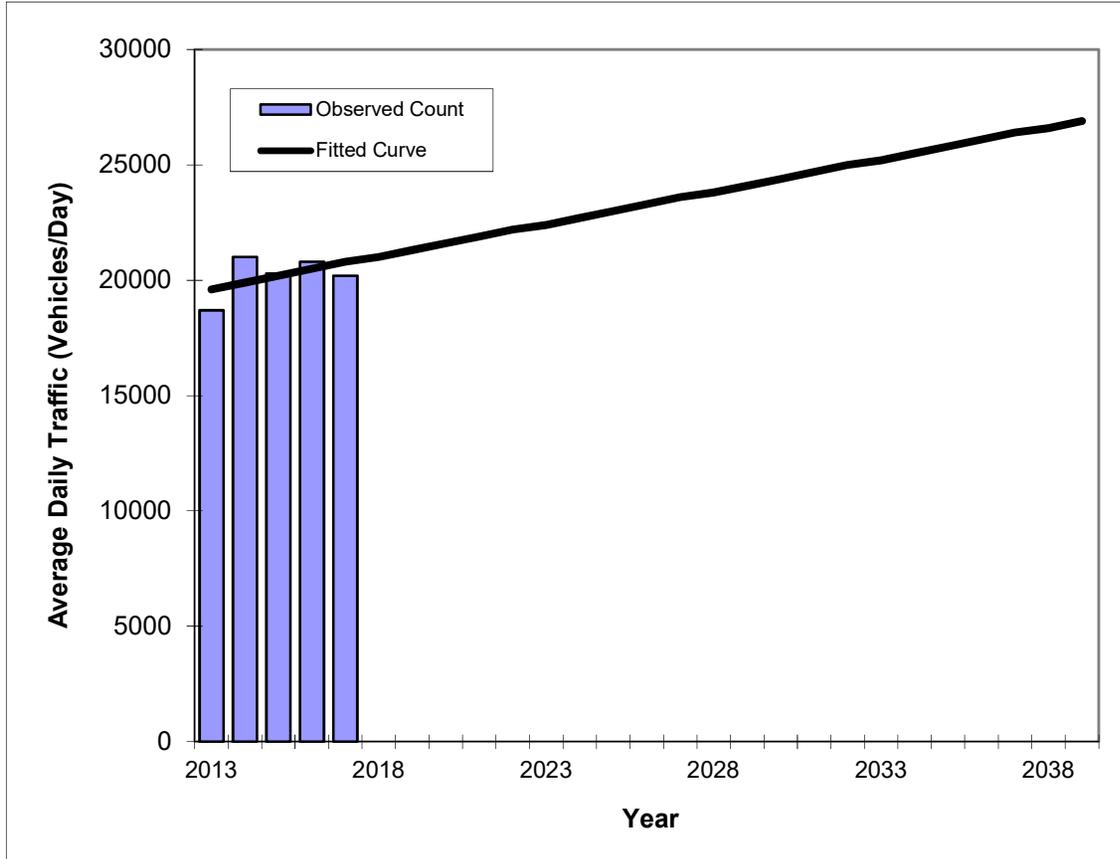
*Axle-Adjusted

Traffic Trends - V2.0

WASHINGTON AVE -- 200' N OF 12 ST

PIN#	0
Location	3

County:	Miami
Station #:	8414
Highway:	WASHINGTON AVE



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	18700	19600
2014	21000	19900
2015	20300	20200
2016	20800	20500
2017	20200	20800
2019 Opening Year Trend		
2019	N/A	21300
2020 Mid-Year Trend		
2020	N/A	21600
2022 Design Year Trend		
2022	N/A	22200
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	280
Trend R-squared:	24.05%
Trend Annual Historic Growth Rate:	1.53%
Trend Growth Rate (2017 to Design Year):	1.35%
Printed:	28-Feb-19

Straight Line Growth Option

*Axle-Adjusted

Growth Rate Trend Analysis Calculations

Description	Station #		
	2528	5159	8414
Trend Growth Rate(1)	5.42	-2.96	1.35
Adjusted Trend Growth Rate	5.42	0.50	1.35
Average Growth Rate			2.42
Growth Rate Used			2.42

Notes:

1: Refer to Trend Analysis Chart

APPENDIX D

Future Turning Movement Volumes

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Washington Avenue and 5 Street
Saturday MD Peak Hour**

Description	Washington Avenue Northbound			Washington Avenue Southbound			5 Street Eastbound			5 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	88	197	18	105	244	213	354	498	57	28	571	113
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	89	199	18	106	246	215	358	503	58	28	577	114
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	95	214	20	114	265	231	384	540	62	30	620	123
Self Park	5	4			6				7			
Valet	6	4	21			5		7				
2022 Total Traffic	106	222	41	114	271	236	384	547	69	30	620	123

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Avenue and 5 Street
Saturday MD Peak Hour**

Description	Collins Avenue Northbound			Collins Avenue Southbound			5 Street Eastbound			5 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	48	56	17	66	83	439	267	279	57	31	242	79
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	48	57	17	67	84	443	270	282	58	31	244	80
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	52	61	18	72	90	476	290	303	62	34	263	86
Self Park Valet		3			4		3		30			
2022 Total Traffic	52	64	18	72	98	476	293	303	92	34	263	86

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Ocean Drive and 5 Street
Saturday MD Peak Hour**

Description	Ocean Drive Northbound			Ocean Drive Southbound			5 Street Eastbound			5 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	135	137		6	82	149	240	12	103	1	13	13
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	136	138	0	6	83	150	242	12	104	1	13	13
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	146	149	0	7	89	162	260	13	112	1	14	14
Self Park Valet		1			1							
2022 Total Traffic	146	150	0	7	90	162	260	13	112	1	14	14

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Washington Avenue and 4 Street
Saturday MD Peak Hour**

Description	Washington Avenue Northbound			Washington Avenue Southbound			4 Street Eastbound			4 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	47	255	29	77	216	35	19	49	20	44	82	36
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	47	258	29	78	218	35	19	49	20	44	83	36
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	51	277	31	84	234	38	21	53	22	48	89	39
Self Park				13				3			3	9
Valet							3				2	28
2022 Total Traffic	51	277	31	97	234	38	24	56	22	48	94	76

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Collins Avenue and 4 Street
Saturday MD Peak Hour**

Description	Collins Avenue Northbound			Collins Avenue Southbound			4 Street Eastbound			4 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	50	106	17	41	97	38	53	69	27	13	67	31
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	51	107	17	41	98	38	54	70	27	13	68	31
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	54	115	18	44	105	41	58	75	29	14	73	34
Self Park Valet						4 34	3	1			2	
2022 Total Traffic	54	115	18	44	105	79	61	76	29	14	75	34

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

**Ocean Drive and 6 Street
Saturday MD Peak Hour**

Description	Ocean Drive Northbound			Ocean Drive Southbound			6 Street Eastbound			6 Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (2/23/2019)	32	209	13	7	122	53	46	11	51	23	15	6
Season Adjustment Factor	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2019 Peak Season Traffic	32	211	13	7	123	54	46	11	52	23	15	6
Annual Growth Rate	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
Committed Developments												
2022 Background Traffic	35	227	14	8	132	58	50	12	55	25	16	7
Self Park Valet	1					1	1					
2022 Total Traffic	36	227	14	8	132	59	51	12	55	25	16	7

APPENDIX E
SYNCHRO Analyses

Timings

101: Washington Ave & 5th St

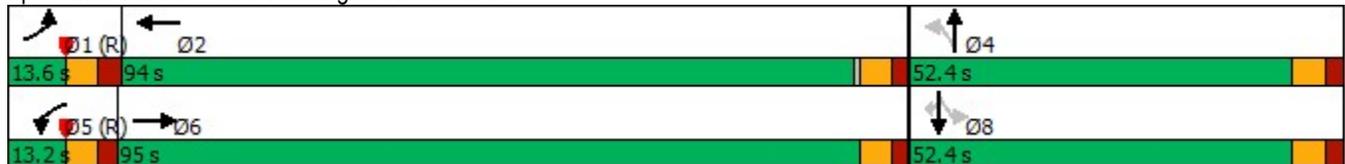


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↖	↕↗	↖	↕↕↗		↕↗	↖	↕	↗
Traffic Volume (vph)	358	503	28	577	89	199	106	246	215
Future Volume (vph)	358	503	28	577	89	199	106	246	215
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	1	6	5	2		4		8	
Permitted Phases					4		8		8
Detector Phase	1	6	5	2	4	4	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	4.0	5.0	4.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	36.0	11.2	36.0	39.4	39.4	39.4	39.4	39.4
Total Split (s)	13.6	95.0	13.2	94.0	52.4	52.4	52.4	52.4	52.4
Total Split (%)	8.5%	59.2%	8.2%	58.5%	32.6%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.9	2.0	2.5	2.0	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.0	6.2	6.0		6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	73.3	36.5	73.3	36.1		32.2	32.2	32.2	32.2
Actuated g/C Ratio	0.46	0.23	0.46	0.22		0.20	0.20	0.20	0.20
v/c Ratio	0.26	0.83	0.04	0.73		0.89dl	0.88	0.76	0.58
Control Delay	30.6	68.0	31.1	58.5		80.6	113.4	74.3	19.0
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	30.6	68.0	31.1	58.5		80.6	113.4	74.3	19.0
LOS	C	E	C	E		F	F	E	B
Approach Delay		53.4		57.4		80.6		60.6	
Approach LOS		D		E		F		E	

Intersection Summary

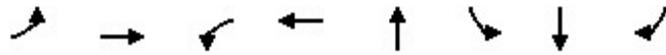
Cycle Length: 160.6
 Actuated Cycle Length: 160.6
 Offset: 64 (40%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 59.5
 Intersection Capacity Utilization 105.2%
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 101: Washington Ave & 5th St



Queues

101: Washington Ave & 5th St



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	381	597	30	735	326	113	262	229
v/c Ratio	0.26	0.83	0.04	0.73	0.89dl	0.88	0.76	0.58
Control Delay	30.6	68.0	31.1	58.5	80.6	113.4	74.3	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.6	68.0	31.1	58.5	80.6	113.4	74.3	19.0
Queue Length 50th (ft)	124	312	17	251	175	118	265	45
Queue Length 95th (ft)	210	358	50	279	213	184	332	124
Internal Link Dist (ft)		500		452	380		300	
Turn Bay Length (ft)	350		75			100		
Base Capacity (vph)	1438	1737	741	2408	545	183	489	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.34	0.04	0.31	0.60	0.62	0.54	0.47

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis

101: Washington Ave & 5th St

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	  			 		 	 	 	
Traffic Volume (vph)	358	503	58	28	577	114	89	199	18	106	246	215	
Future Volume (vph)	358	503	58	28	577	114	89	199	18	106	246	215	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95		1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.98		1.00	0.95			0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.87	1.00	1.00	
Frt	1.00	0.98		1.00	0.98			0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00	
Satd. Flow (prot)	3152	3125		1624	4333			3117		1417	1710	1256	
Flt Permitted	0.95	1.00		0.95	1.00			0.60		0.43	1.00	1.00	
Satd. Flow (perm)	3152	3125		1624	4333			1895		644	1710	1256	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	381	535	62	30	614	121	95	212	19	113	262	229	
RTOR Reduction (vph)	0	9	0	0	32	0	0	3	0	0	0	143	
Lane Group Flow (vph)	381	588	0	30	703	0	0	323	0	113	262	86	
Confl. Peds. (#/hr)	177		73	73		177	18		154	154		18	
Confl. Bikes (#/hr)			7			5			15			2	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Parking (#/hr)									0			0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm	
Protected Phases	1	6		5	2			4			8		
Permitted Phases							4			8		8	
Actuated Green, G (s)	73.3	36.5		73.3	36.1			32.2		32.2	32.2	32.2	
Effective Green, g (s)	73.3	36.5		73.3	36.1			32.2		32.2	32.2	32.2	
Actuated g/C Ratio	0.46	0.23		0.46	0.22			0.20		0.20	0.20	0.20	
Clearance Time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5		2.5	2.5	2.5	
Lane Grp Cap (vph)	1438	710		741	973			379		129	342	251	
v/s Ratio Prot	c0.12	c0.19		0.02	0.16						0.15		
v/s Ratio Perm								0.17		c0.18		0.07	
v/c Ratio	0.26	0.83		0.04	0.72			0.89dl		0.88	0.77	0.34	
Uniform Delay, d1	27.0	59.1		24.2	57.6			61.9		62.3	60.6	55.1	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.5	7.5		0.1	2.3			16.4		43.5	9.4	0.6	
Delay (s)	27.4	66.6		24.3	59.9			78.3		105.8	70.1	55.7	
Level of Service	C	E		C	E			E		F	E	E	
Approach Delay (s)		51.3			58.5			78.3			71.3		
Approach LOS		D			E			E			E		
Intersection Summary													
HCM 2000 Control Delay			61.2									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.55										
Actuated Cycle Length (s)			160.6									Sum of lost time (s)	19.0
Intersection Capacity Utilization			105.2%									ICU Level of Service	G
Analysis Period (min)			15										
dl Defacto Left Lane. Recode with 1 though lane as a left lane.													
c Critical Lane Group													

Timings

102: Collins Ave & 5th Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	270	282	31	244	48	57	17	67	84	443
Future Volume (vph)	270	282	31	244	48	57	17	67	84	443
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		6		4			8	
Permitted Phases	2		6		4		4	8		8
Detector Phase	5	2	6	6	4	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.3	22.3	22.3	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	17.0	60.3	43.3	43.3	60.2	60.2	60.2	60.2	60.2	60.2
Total Split (%)	14.1%	50.0%	35.9%	35.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.3	2.3	3.2	3.2	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.3	6.3	6.3		7.2	7.2		7.2	7.2
Lead/Lag	Lead		Lag	Lag						
Lead-Lag Optimize?	Yes		Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	74.2	73.9	55.4	55.4		33.1	33.1		33.1	33.1
Actuated g/C Ratio	0.62	0.61	0.46	0.46		0.27	0.27		0.27	0.27
v/c Ratio	0.55	0.17	0.07	0.25		0.27	0.04		0.39	0.83
Control Delay	18.1	11.6	26.1	21.5		32.3	0.2		35.4	30.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	18.1	11.6	26.1	21.5		32.3	0.2		35.4	30.3
LOS	B	B	C	C		C	A		D	C
Approach Delay		14.5		21.9		27.8			31.6	
Approach LOS		B		C		C			C	

Intersection Summary

Cycle Length: 120.5

Actuated Cycle Length: 120.5

Offset: 30 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 23.1

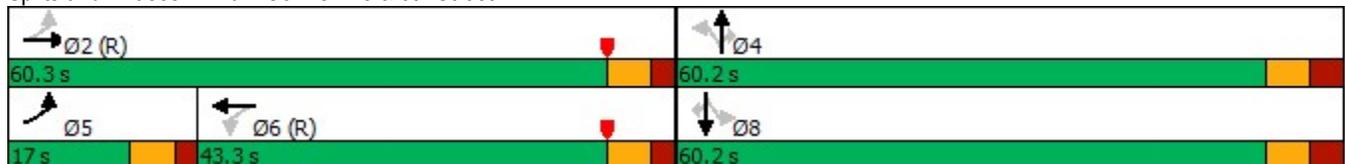
Intersection LOS: C

Intersection Capacity Utilization 69.2%

ICU Level of Service C

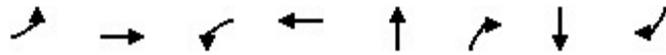
Analysis Period (min) 15

Splits and Phases: 102: Collins Ave & 5th Street



Queues

102: Collins Ave & 5th Street



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	281	354	32	337	109	18	158	461
v/c Ratio	0.55	0.17	0.07	0.25	0.27	0.04	0.39	0.83
Control Delay	18.1	11.6	26.1	21.5	32.3	0.2	35.4	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	11.6	26.1	21.5	32.3	0.2	35.4	30.3
Queue Length 50th (ft)	93	53	14	73	66	0	100	165
Queue Length 95th (ft)	200	108	44	137	93	0	129	248
Internal Link Dist (ft)		354		256	379		373	
Turn Bay Length (ft)	150		150			70		175
Base Capacity (vph)	518	2136	444	1365	651	622	652	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.17	0.07	0.25	0.17	0.03	0.24	0.63

Intersection Summary

HCM Signalized Intersection Capacity Analysis

102: Collins Ave & 5th Street

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 								
Traffic Volume (vph)	270	282	58	31	244	80	48	57	17	67	84	443	
Future Volume (vph)	270	282	58	31	244	80	48	57	17	67	84	443	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99		1.00	0.86			1.00	0.85		1.00	0.90	
Flpb, ped/bikes	0.86	1.00		0.96	1.00			0.97	1.00		0.95	1.00	
Frt	1.00	0.97		1.00	0.96			1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.98	1.00	
Satd. Flow (prot)	1551	3477		1737	2992			1798	1232		1760	1303	
Flt Permitted	0.49	1.00		0.54	1.00			0.80	1.00		0.81	1.00	
Satd. Flow (perm)	796	3477		987	2992			1465	1232		1454	1303	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	281	294	60	32	254	83	50	59	18	70	88	461	
RTOR Reduction (vph)	0	10	0	0	21	0	0	0	13	0	0	181	
Lane Group Flow (vph)	281	344	0	32	316	0	0	109	5	0	158	280	
Confl. Peds. (#/hr)	687		57	57		687	81		128	128		81	
Confl. Bikes (#/hr)			5			20			5			7	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Parking (#/hr)									0			0	
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm	
Protected Phases	5	2			6			4			8		
Permitted Phases	2			6			4		4	8		8	
Actuated Green, G (s)	73.9	73.9		55.4	55.4			33.1	33.1		33.1	33.1	
Effective Green, g (s)	73.9	73.9		55.4	55.4			33.1	33.1		33.1	33.1	
Actuated g/C Ratio	0.61	0.61		0.46	0.46			0.27	0.27		0.27	0.27	
Clearance Time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2	
Vehicle Extension (s)	2.0	1.0		1.0	1.0			2.5	2.5		5.0	5.0	
Lane Grp Cap (vph)	566	2132		453	1375			402	338		399	357	
v/s Ratio Prot	c0.05	0.10			0.11								
v/s Ratio Perm	c0.25			0.03				0.07	0.00		0.11	c0.21	
v/c Ratio	0.50	0.16		0.07	0.23			0.27	0.01		0.40	0.78	
Uniform Delay, d1	11.3	10.0		18.2	19.7			34.2	31.8		35.6	40.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.2		0.3	0.4			0.3	0.0		1.4	12.3	
Delay (s)	11.5	10.2		18.5	20.1			34.5	31.8		36.9	52.7	
Level of Service	B	B		B	C			C	C		D	D	
Approach Delay (s)		10.8			19.9			34.1			48.7		
Approach LOS		B			B			C			D		
Intersection Summary													
HCM 2000 Control Delay			27.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			120.5									Sum of lost time (s)	19.5
Intersection Capacity Utilization			69.2%									ICU Level of Service	C
Analysis Period (min)			15										
c Critical Lane Group													

Timings

103: Ocean Drive & 5th Street



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↕	↗	↔	↖	↗		↕	↗
Traffic Volume (vph)	12	104	13	136	138	6	83	150
Future Volume (vph)	12	104	13	136	138	6	83	150
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4		3		6		2	
Permitted Phases		4		6		2		2
Detector Phase	4	4	3	6	6	2	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	30.0	30.0	30.0	40.0	40.0	40.0	40.0	40.0
Total Split (s)	50.0	50.0	31.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	36.8%	36.8%	22.8%	40.4%	40.4%	40.4%	40.4%	40.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	18.6	18.6	7.6	50.0	50.0		50.0	50.0
Actuated g/C Ratio	0.21	0.21	0.09	0.57	0.57		0.57	0.57
v/c Ratio	0.74	0.40	0.24	0.38	0.14		0.10	0.38
Control Delay	45.7	14.4	33.8	18.3	12.5		12.5	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	45.7	14.4	33.8	18.3	12.5		12.5	5.3
LOS	D	B	C	B	B		B	A
Approach Delay	36.6		33.8		15.4		8.0	
Approach LOS	D		C		B		A	

Intersection Summary

Cycle Length: 136

Actuated Cycle Length: 88.3

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 22.4

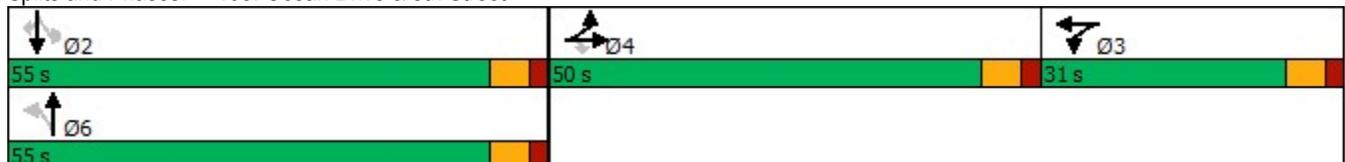
Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 103: Ocean Drive & 5th Street



Queues

103: Ocean Drive & 5th Street



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	282	116	29	151	153	99	167
v/c Ratio	0.74	0.40	0.24	0.38	0.14	0.10	0.38
Control Delay	45.7	14.4	33.8	18.3	12.5	12.5	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.7	14.4	33.8	18.3	12.5	12.5	5.3
Queue Length 50th (ft)	158	11	8	51	44	28	0
Queue Length 95th (ft)	250	59	38	128	97	67	44
Internal Link Dist (ft)	278		277		339	334	
Turn Bay Length (ft)		120		70			90
Base Capacity (vph)	921	562	373	393	1075	1024	439
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.21	0.08	0.38	0.14	0.10	0.38

Intersection Summary

HCM Signalized Intersection Capacity Analysis

103: Ocean Drive & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	242	12	104	1	13	13	136	138	0	6	83	150
Future Volume (vph)	242	12	104	1	13	13	136	138	0	6	83	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes		1.00	0.74		0.70		1.00	1.00			1.00	0.51
Flpb, ped/bikes		1.00	1.00		1.00		0.59	1.00			0.97	1.00
Frt		1.00	0.85		0.93		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1814	1188		1246		1059	1900			1838	747
Flt Permitted		0.95	1.00		1.00		0.69	1.00			0.98	1.00
Satd. Flow (perm)		1814	1188		1246		773	1900			1815	747
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	269	13	116	1	14	14	151	153	0	7	92	167
RTOR Reduction (vph)	0	0	74	0	13	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	282	42	0	16	0	151	153	0	0	99	92
Confl. Peds. (#/hr)	309		123	123		309	355		429	429		355
Confl. Bikes (#/hr)			12			23			7			5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)									0			0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		3	3			6			2	
Permitted Phases			4				6		2			2
Actuated Green, G (s)		18.6	18.6		4.2		50.0	50.0			50.0	50.0
Effective Green, g (s)		18.6	18.6		4.2		50.0	50.0			50.0	50.0
Actuated g/C Ratio		0.20	0.20		0.05		0.55	0.55			0.55	0.55
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)		2.5	2.5		2.5		1.0	1.0			1.0	1.0
Lane Grp Cap (vph)		371	243		57		425	1046			999	411
v/s Ratio Prot		c0.16			c0.01			0.08				
v/s Ratio Perm			0.04				c0.20				0.05	0.12
v/c Ratio		0.76	0.17		0.27		0.36	0.15			0.10	0.22
Uniform Delay, d1		34.0	29.8		41.8		11.4	10.0			9.7	10.5
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		8.5	0.2		1.9		2.3	0.3			0.2	1.3
Delay (s)		42.5	30.0		43.7		13.7	10.3			9.9	11.7
Level of Service		D	C		D		B	B			A	B
Approach Delay (s)		38.9			43.7			12.0			11.0	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			23.4				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.8				Sum of lost time (s)				18.0	
Intersection Capacity Utilization			91.7%				ICU Level of Service				F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

104: Washington Ave & 4th St

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Sign Control		Stop			Stop			Stop			Stop		
Traffic Volume (vph)	19	49	20	44	83	36	47	258	29	78	218	35	
Future Volume (vph)	19	49	20	44	83	36	47	258	29	78	218	35	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	20	52	21	46	87	38	49	272	31	82	229	37	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total (vph)	93	171	185	167	197	152							
Volume Left (vph)	20	46	49	0	82	0							
Volume Right (vph)	21	38	0	31	0	37							
Hadj (s)	-0.09	-0.08	0.13	-0.13	0.21	-0.17							
Departure Headway (s)	5.8	5.7	5.9	5.6	6.0	5.6							
Degree Utilization, x	0.15	0.27	0.30	0.26	0.33	0.23							
Capacity (veh/h)	552	582	587	612	577	616							
Control Delay (s)	9.8	10.7	10.2	9.4	10.6	9.1							
Approach Delay (s)	9.8	10.7	9.8		10.0								
Approach LOS	A	B	A		A								
Intersection Summary													
Delay			10.0										
Level of Service			B										
Intersection Capacity Utilization			51.5%	ICU Level of Service				A					
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis

105: Collins Avenue & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	54	70	27	13	68	31	51	107	17	41	98	38
Future Volume (vph)	54	70	27	13	68	31	51	107	17	41	98	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	76	29	14	74	34	55	116	18	45	107	41
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	164	122	189	193								
Volume Left (vph)	59	14	55	45								
Volume Right (vph)	29	34	18	41								
Hadj (s)	-0.03	-0.14	0.00	-0.08								
Departure Headway (s)	5.0	4.9	4.9	4.8								
Degree Utilization, x	0.23	0.17	0.26	0.26								
Capacity (veh/h)	661	659	689	697								
Control Delay (s)	9.5	8.9	9.6	9.5								
Approach Delay (s)	9.5	8.9	9.6	9.5								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.4									
Level of Service			A									
Intersection Capacity Utilization			38.6%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 106: Ocean Drive & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	46	11	52	23	15	6	32	211	13	7	123	54
Future Volume (vph)	46	11	52	23	15	6	32	211	13	7	123	54
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	52	13	59	26	17	7	36	240	15	8	140	61
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	124	50	291	209								
Volume Left (vph)	52	26	36	8								
Volume Right (vph)	59	7	15	61								
Hadj (s)	-0.17	0.05	0.03	-0.13								
Departure Headway (s)	5.0	5.3	4.6	4.6								
Degree Utilization, x	0.17	0.07	0.37	0.27								
Capacity (veh/h)	652	599	745	743								
Control Delay (s)	9.0	8.7	10.4	9.2								
Approach Delay (s)	9.0	8.7	10.4	9.2								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			45.1%	ICU Level of Service	A							
Analysis Period (min)			15									

Timings

101: Washington Ave & 5th St

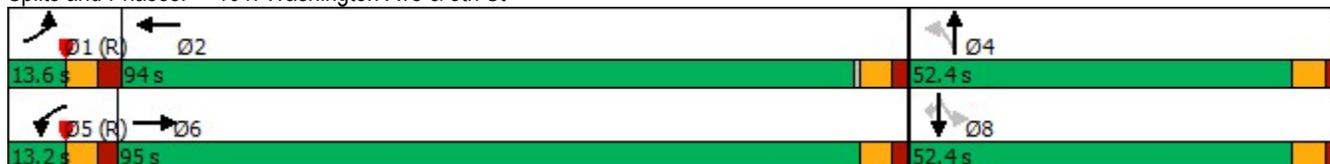


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↖	↕↖	↖	↕↕↖		↕↖	↖	↕	↖
Traffic Volume (vph)	384	540	30	620	95	214	114	265	231
Future Volume (vph)	384	540	30	620	95	214	114	265	231
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	1	6	5	2		4		8	
Permitted Phases					4		8		8
Detector Phase	1	6	5	2	4	4	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	4.0	5.0	4.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	36.0	11.2	36.0	39.4	39.4	39.4	39.4	39.4
Total Split (s)	13.6	95.0	13.2	94.0	52.4	52.4	52.4	52.4	52.4
Total Split (%)	8.5%	59.2%	8.2%	58.5%	32.6%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.9	2.0	2.5	2.0	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.0	6.2	6.0		6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	68.2	39.1	68.2	38.7		34.7	34.7	34.7	34.7
Actuated g/C Ratio	0.42	0.24	0.42	0.24		0.22	0.22	0.22	0.22
v/c Ratio	0.31	0.83	0.05	0.74		0.91dl	0.90	0.76	0.61
Control Delay	34.7	66.0	34.9	57.1		78.9	113.8	71.6	23.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	34.7	66.0	34.9	57.1		78.9	113.8	71.6	23.3
LOS	C	E	C	E		E	F	E	C
Approach Delay		53.8		56.2		78.9		61.1	
Approach LOS		D		E		E		E	

Intersection Summary

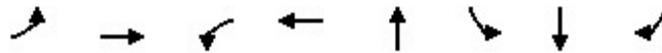
Cycle Length: 160.6
 Actuated Cycle Length: 160.6
 Offset: 64 (40%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 59.2
 Intersection LOS: E
 Intersection Capacity Utilization 106.7%
 ICU Level of Service G
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 101: Washington Ave & 5th St



Queues

101: Washington Ave & 5th St



Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	409	640	32	791	350	121	282	246
v/c Ratio	0.31	0.83	0.05	0.74	0.91dl	0.90	0.76	0.61
Control Delay	34.7	66.0	34.9	57.1	78.9	113.8	71.6	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	66.0	34.9	57.1	78.9	113.8	71.6	23.3
Queue Length 50th (ft)	143	333	19	269	187	126	283	73
Queue Length 95th (ft)	240	377	54	296	224	194	349	153
Internal Link Dist (ft)		500		452	380		300	
Turn Bay Length (ft)	350		75			100		
Base Capacity (vph)	1338	1739	689	2408	545	181	495	483
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.37	0.05	0.33	0.64	0.67	0.57	0.51

Intersection Summary

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM Signalized Intersection Capacity Analysis

101: Washington Ave & 5th St

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 		 	  			 		 	 	 	
Traffic Volume (vph)	384	540	62	30	620	123	95	214	20	114	265	231	
Future Volume (vph)	384	540	62	30	620	123	95	214	20	114	265	231	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95		1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.98		1.00	0.95			0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.88	1.00	1.00	
Frt	1.00	0.98		1.00	0.98			0.99		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00	
Satd. Flow (prot)	3152	3126		1624	4331			3116		1427	1710	1256	
Flt Permitted	0.95	1.00		0.95	1.00			0.59		0.42	1.00	1.00	
Satd. Flow (perm)	3152	3126		1624	4331			1872		627	1710	1256	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	409	574	66	32	660	131	101	228	21	121	282	246	
RTOR Reduction (vph)	0	9	0	0	31	0	0	3	0	0	0	132	
Lane Group Flow (vph)	409	631	0	32	760	0	0	347	0	121	282	114	
Confl. Peds. (#/hr)	177		73	73		177	18		154	154		18	
Confl. Bikes (#/hr)			7			5			15			2	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Parking (#/hr)									0			0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm	
Protected Phases	1	6		5	2			4			8		
Permitted Phases							4			8		8	
Actuated Green, G (s)	68.2	39.1		68.2	38.7			34.7		34.7	34.7	34.7	
Effective Green, g (s)	68.2	39.1		68.2	38.7			34.7		34.7	34.7	34.7	
Actuated g/C Ratio	0.42	0.24		0.42	0.24			0.22		0.22	0.22	0.22	
Clearance Time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5		2.5	2.5	2.5	
Lane Grp Cap (vph)	1338	761		689	1043			404		135	369	271	
v/s Ratio Prot	c0.13	c0.20		0.02	0.18						0.16		
v/s Ratio Perm								0.19		c0.19		0.09	
v/c Ratio	0.31	0.83		0.05	0.73			0.91dl		0.90	0.76	0.42	
Uniform Delay, d1	30.5	57.6		27.1	56.1			60.6		61.2	59.1	54.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.6	7.1		0.1	2.2			16.2		47.1	8.7	0.8	
Delay (s)	31.1	64.7		27.2	58.3			76.8		108.3	67.8	55.1	
Level of Service	C	E		C	E			E		F	E	E	
Approach Delay (s)		51.6			57.1			76.8			70.5		
Approach LOS		D			E			E			E		
Intersection Summary													
HCM 2000 Control Delay			60.5									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			160.6									Sum of lost time (s)	19.0
Intersection Capacity Utilization			106.7%									ICU Level of Service	G
Analysis Period (min)			15										
dl Defacto Left Lane. Recode with 1 though lane as a left lane.													
c Critical Lane Group													

Timings

102: Collins Ave & 5th Street



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	290	303	34	263	52	61	18	72	90	476
Future Volume (vph)	290	303	34	263	52	61	18	72	90	476
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		6		4			8	
Permitted Phases	2		6		4		4	8		8
Detector Phase	5	2	6	6	4	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.3	22.3	22.3	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	17.0	60.3	43.3	43.3	60.2	60.2	60.2	60.2	60.2	60.2
Total Split (%)	14.1%	50.0%	35.9%	35.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.3	2.3	3.2	3.2	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.3	6.3	6.3		7.2	7.2		7.2	7.2
Lead/Lag	Lead		Lag	Lag						
Lead-Lag Optimize?	Yes		Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	70.5	70.2	50.8	50.8		36.8	36.8		36.8	36.8
Actuated g/C Ratio	0.59	0.58	0.42	0.42		0.31	0.31		0.31	0.31
v/c Ratio	0.63	0.19	0.09	0.29		0.26	0.04		0.37	0.85
Control Delay	23.2	13.3	28.5	24.4		29.9	0.2		32.6	31.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	23.2	13.3	28.5	24.4		29.9	0.2		32.6	31.3
LOS	C	B	C	C		C	A		C	C
Approach Delay		17.7		24.7		25.8			31.7	
Approach LOS		B		C		C			C	

Intersection Summary

Cycle Length: 120.5

Actuated Cycle Length: 120.5

Offset: 30 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 24.7

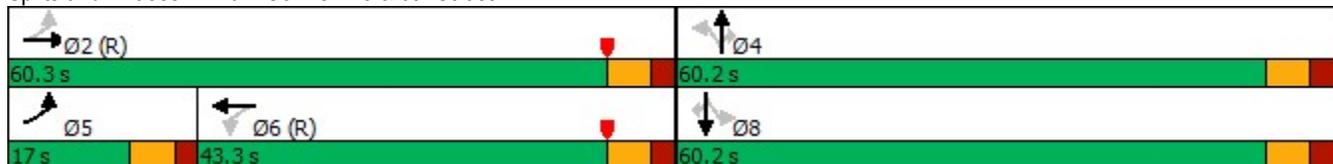
Intersection LOS: C

Intersection Capacity Utilization 71.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 102: Collins Ave & 5th Street



Queues

102: Collins Ave & 5th Street



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	302	381	35	364	118	19	169	496
v/c Ratio	0.63	0.19	0.09	0.29	0.26	0.04	0.37	0.85
Control Delay	23.2	13.3	28.5	24.4	29.9	0.2	32.6	31.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	13.3	28.5	24.4	29.9	0.2	32.6	31.3
Queue Length 50th (ft)	113	65	17	90	68	0	102	191
Queue Length 95th (ft)	#256	122	46	149	96	0	133	280
Internal Link Dist (ft)		354		256	379		373	
Turn Bay Length (ft)	150		150			70		175
Base Capacity (vph)	487	2029	398	1254	649	622	650	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.19	0.09	0.29	0.18	0.03	0.26	0.67

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Ave & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	290	303	62	34	263	86	52	61	18	72	90	476
Future Volume (vph)	290	303	62	34	263	86	52	61	18	72	90	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.99		1.00	0.86			1.00	0.86		1.00	0.91
Flpb, ped/bikes	0.87	1.00		0.96	1.00			0.97	1.00		0.95	1.00
Frt	1.00	0.97		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.98	1.00
Satd. Flow (prot)	1576	3475		1733	2978			1805	1253		1771	1316
Flt Permitted	0.46	1.00		0.53	1.00			0.79	1.00		0.81	1.00
Satd. Flow (perm)	762	3475		959	2978			1464	1253		1457	1316
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	302	316	65	35	274	90	54	64	19	75	94	496
RTOR Reduction (vph)	0	11	0	0	22	0	0	0	13	0	0	174
Lane Group Flow (vph)	302	370	0	35	342	0	0	118	6	0	169	322
Confl. Peds. (#/hr)	687		57	57		687	81		128	128		81
Confl. Bikes (#/hr)			5			20			5			7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)									0			0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Actuated Green, G (s)	70.2	70.2		50.7	50.7			36.8	36.8		36.8	36.8
Effective Green, g (s)	70.2	70.2		50.7	50.7			36.8	36.8		36.8	36.8
Actuated g/C Ratio	0.58	0.58		0.42	0.42			0.31	0.31		0.31	0.31
Clearance Time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2
Vehicle Extension (s)	2.0	1.0		1.0	1.0			2.5	2.5		5.0	5.0
Lane Grp Cap (vph)	535	2024		403	1252			447	382		444	401
v/s Ratio Prot	c0.06	0.11			0.11							
v/s Ratio Perm	c0.27			0.04				0.08	0.00		0.12	c0.24
v/c Ratio	0.56	0.18		0.09	0.27			0.26	0.02		0.38	0.80
Uniform Delay, d1	13.4	11.8		21.0	22.8			31.6	29.2		32.9	38.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.8	0.2		0.4	0.5			0.2	0.0		1.1	12.6
Delay (s)	14.2	11.9		21.4	23.4			31.8	29.2		34.0	51.1
Level of Service	B	B		C	C			C	C		C	D
Approach Delay (s)		12.9			23.2			31.5			46.8	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			28.4		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			120.5		Sum of lost time (s)			19.5				
Intersection Capacity Utilization			71.5%		ICU Level of Service			C				
Analysis Period (min)			15									

c Critical Lane Group

Timings

103: Ocean Drive & 5th Street



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↕	↗	↔	↖	↗		↕	↖
Traffic Volume (vph)	13	112	14	146	149	7	89	162
Future Volume (vph)	13	112	14	146	149	7	89	162
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4		3		6		2	
Permitted Phases		4		6		2		2
Detector Phase	4	4	3	6	6	2	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	30.0	30.0	30.0	40.0	40.0	40.0	40.0	40.0
Total Split (s)	50.0	50.0	31.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	36.8%	36.8%	22.8%	40.4%	40.4%	40.4%	40.4%	40.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	19.8	19.8	7.7	50.0	50.0		50.0	50.0
Actuated g/C Ratio	0.22	0.22	0.09	0.56	0.56		0.56	0.56
v/c Ratio	0.76	0.42	0.27	0.42	0.16		0.11	0.41
Control Delay	46.2	15.2	34.3	20.0	13.2		13.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	46.2	15.2	34.3	20.0	13.2		13.2	5.7
LOS	D	B	C	C	B		B	A
Approach Delay	37.2		34.3		16.6		8.5	
Approach LOS	D		C		B		A	

Intersection Summary

Cycle Length: 136

Actuated Cycle Length: 89.7

Natural Cycle: 100

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.2

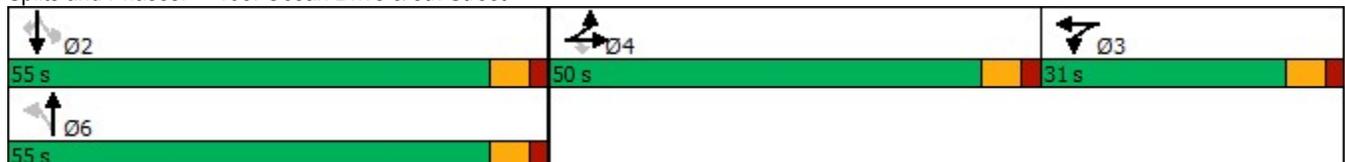
Intersection LOS: C

Intersection Capacity Utilization 91.7%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 103: Ocean Drive & 5th Street



Queues

103: Ocean Drive & 5th Street



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	303	124	33	162	166	107	180
v/c Ratio	0.76	0.42	0.27	0.42	0.16	0.11	0.41
Control Delay	46.2	15.2	34.3	20.0	13.2	13.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	15.2	34.3	20.0	13.2	13.2	5.7
Queue Length 50th (ft)	172	15	10	58	50	31	0
Queue Length 95th (ft)	270	66	42	146	108	74	48
Internal Link Dist (ft)	278		277		339	334	
Turn Bay Length (ft)		120		70			90
Base Capacity (vph)	908	555	368	384	1059	1006	441
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.09	0.42	0.16	0.11	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis

103: Ocean Drive & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	13	112	1	14	14	146	149	0	7	89	162
Future Volume (vph)	260	13	112	1	14	14	146	149	0	7	89	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes		1.00	0.73		0.70		1.00	1.00			1.00	0.51
Flpb, ped/bikes		1.00	1.00		1.00		0.58	1.00			0.97	1.00
Frt		1.00	0.85		0.93		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1814	1183		1245		1055	1900			1835	735
Flt Permitted		0.95	1.00		1.00		0.69	1.00			0.98	1.00
Satd. Flow (perm)		1814	1183		1245		764	1900			1809	735
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	289	14	124	1	16	16	162	166	0	8	99	180
RTOR Reduction (vph)	0	0	73	0	15	0	0	0	0	0	0	82
Lane Group Flow (vph)	0	303	51	0	18	0	162	166	0	0	107	98
Confl. Peds. (#/hr)	309		123	123		309	355		429	429		355
Confl. Bikes (#/hr)			12			23			7			5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)									0			0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		3	3			6			2	
Permitted Phases			4				6		2			2
Actuated Green, G (s)		19.8	19.8		4.4		50.1	50.1			50.1	50.1
Effective Green, g (s)		19.8	19.8		4.4		50.1	50.1			50.1	50.1
Actuated g/C Ratio		0.21	0.21		0.05		0.54	0.54			0.54	0.54
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)		2.5	2.5		2.5		1.0	1.0			1.0	1.0
Lane Grp Cap (vph)		389	253		59		414	1031			981	398
v/s Ratio Prot		c0.17			c0.01			0.09				
v/s Ratio Perm			0.04				c0.21				0.06	0.13
v/c Ratio		0.78	0.20		0.30		0.39	0.16			0.11	0.25
Uniform Delay, d1		34.2	29.8		42.5		12.2	10.6			10.3	11.1
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		9.1	0.3		2.1		2.8	0.3			0.2	1.5
Delay (s)		43.3	30.0		44.6		15.0	10.9			10.5	12.6
Level of Service		D	C		D		B	B			B	B
Approach Delay (s)		39.5			44.6			12.9			11.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			24.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			92.3				Sum of lost time (s)				18.0	
Intersection Capacity Utilization			91.7%				ICU Level of Service				F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 104: Washington Ave & 4th St

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	21	53	22	48	89	39	51	277	31	84	234	38
Future Volume (vph)	21	53	22	48	89	39	51	277	31	84	234	38
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	22	56	23	51	94	41	54	292	33	88	246	40
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	101	186	200	179	211	163						
Volume Left (vph)	22	51	54	0	88	0						
Volume Right (vph)	23	41	0	33	0	40						
Hadj (s)	-0.09	-0.08	0.14	-0.13	0.21	-0.17						
Departure Headway (s)	6.0	5.8	6.0	5.8	6.1	5.7						
Degree Utilization, x	0.17	0.30	0.34	0.29	0.36	0.26						
Capacity (veh/h)	533	566	570	594	561	597						
Control Delay (s)	10.2	11.3	10.9	9.9	11.3	9.5						
Approach Delay (s)	10.2	11.3	10.4		10.5							
Approach LOS	B	B	B		B							
Intersection Summary												
Delay			10.6									
Level of Service			B									
Intersection Capacity Utilization			52.8%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 105: Collins Avenue & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	58	75	29	14	73	34	54	115	18	44	105	41
Future Volume (vph)	58	75	29	14	73	34	54	115	18	44	105	41
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	82	32	15	79	37	59	125	20	48	114	45
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	177	131	204	207								
Volume Left (vph)	63	15	59	48								
Volume Right (vph)	32	37	20	45								
Hadj (s)	-0.04	-0.15	0.00	-0.08								
Departure Headway (s)	5.1	5.1	5.0	4.9								
Degree Utilization, x	0.25	0.18	0.28	0.28								
Capacity (veh/h)	645	641	671	679								
Control Delay (s)	9.8	9.2	10.0	9.8								
Approach Delay (s)	9.8	9.2	10.0	9.8								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			40.3%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 106: Ocean Drive & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	12	55	25	16	7	35	227	14	8	132	58
Future Volume (vph)	50	12	55	25	16	7	35	227	14	8	132	58
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	57	14	63	28	18	8	40	258	16	9	150	66
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	134	54	314	225								
Volume Left (vph)	57	28	40	9								
Volume Right (vph)	63	8	16	66								
Hadj (s)	-0.16	0.05	0.03	-0.13								
Departure Headway (s)	5.1	5.5	4.7	4.7								
Degree Utilization, x	0.19	0.08	0.41	0.29								
Capacity (veh/h)	634	580	733	729								
Control Delay (s)	9.3	8.9	11.0	9.6								
Approach Delay (s)	9.3	8.9	11.0	9.6								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay			10.1									
Level of Service			B									
Intersection Capacity Utilization			47.0%	ICU Level of Service	A							
Analysis Period (min)			15									

Timings

101: Washington Ave & 5th St

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Traffic Volume (vph)	384	547	30	620	106	222	114	271	236
Future Volume (vph)	384	547	30	620	106	222	114	271	236
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA	Perm
Protected Phases	1	6	5	2		4		8	
Permitted Phases					4		8		8
Detector Phase	1	6	5	2	4	4	8	8	8
Switch Phase									
Minimum Initial (s)	5.0	4.0	5.0	4.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	36.0	11.2	36.0	39.4	39.4	39.4	39.4	39.4
Total Split (s)	13.6	95.0	13.2	94.0	52.4	52.4	52.4	52.4	52.4
Total Split (%)	8.5%	59.2%	8.2%	58.5%	32.6%	32.6%	32.6%	32.6%	32.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.9	2.0	2.5	2.0	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	6.6	6.0	6.2	6.0		6.4	6.4	6.4	6.4
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	63.9	40.1	63.9	39.7		38.0	38.0	38.0	38.0
Actuated g/C Ratio	0.40	0.25	0.40	0.25		0.24	0.24	0.24	0.24
v/c Ratio	0.33	0.83	0.05	0.72		0.88	0.87	0.71	0.59
Control Delay	37.7	65.2	37.5	55.7		77.5	105.5	65.4	22.3
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	37.7	65.2	37.5	55.7		77.5	105.5	65.4	22.3
LOS	D	E	D	E		E	F	E	C
Approach Delay		54.6		55.0		77.5		56.3	
Approach LOS		D		E		E		E	

Intersection Summary

Cycle Length: 160.6

Actuated Cycle Length: 160.6

Offset: 64 (40%), Referenced to phase 1:EBL and 5:WBL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 58.2

Intersection LOS: E

Intersection Capacity Utilization 106.9%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 101: Washington Ave & 5th St

	Ø1 (R)		Ø2		Ø4
13.6 s		94 s		52.4 s	
	Ø5 (R)		Ø6		Ø8
13.2 s		95 s		52.4 s	

Queues

101: Washington Ave & 5th St

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	409	655	32	791	393	121	288	251
v/c Ratio	0.33	0.83	0.05	0.72	0.88	0.87	0.71	0.59
Control Delay	37.7	65.2	37.5	55.7	77.5	105.5	65.4	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	65.2	37.5	55.7	77.5	105.5	65.4	22.3
Queue Length 50th (ft)	149	340	20	267	210	125	284	76
Queue Length 95th (ft)	248	384	56	293	247	195	347	156
Internal Link Dist (ft)		500		452	380		300	
Turn Bay Length (ft)	350		75			100		
Base Capacity (vph)	1254	1733	646	2408	555	173	501	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.38	0.05	0.33	0.71	0.70	0.57	0.52
Intersection Summary								

HCM Signalized Intersection Capacity Analysis
 101: Washington Ave & 5th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	384	547	69	30	620	123	106	222	41	114	271	236	
Future Volume (vph)	384	547	69	30	620	123	106	222	41	114	271	236	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Lane Util. Factor	0.97	0.95		1.00	0.91			0.95		1.00	1.00	1.00	
Frbp, ped/bikes	1.00	0.98		1.00	0.95			0.97		1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00		0.89	1.00	1.00	
Frt	1.00	0.98		1.00	0.98			0.98		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00	
Satd. Flow (prot)	3152	3116		1624	4331			3053		1443	1710	1256	
Flt Permitted	0.95	1.00		0.95	1.00			0.60		0.39	1.00	1.00	
Satd. Flow (perm)	3152	3116		1624	4331			1872		592	1710	1256	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	409	582	73	32	660	131	113	236	44	121	288	251	
RTOR Reduction (vph)	0	10	0	0	31	0	0	6	0	0	0	128	
Lane Group Flow (vph)	409	645	0	32	760	0	0	387	0	121	288	123	
Confl. Peds. (#/hr)	177		73	73		177	18		154	154		18	
Confl. Bikes (#/hr)			7			5			15			2	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Parking (#/hr)									0			0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm	
Protected Phases	1	6		5	2			4			8		
Permitted Phases							4			8		8	
Actuated Green, G (s)	63.9	40.1		63.9	39.7			38.0		38.0	38.0	38.0	
Effective Green, g (s)	63.9	40.1		63.9	39.7			38.0		38.0	38.0	38.0	
Actuated g/C Ratio	0.40	0.25		0.40	0.25			0.24		0.24	0.24	0.24	
Clearance Time (s)	6.6	6.0		6.2	6.0			6.4		6.4	6.4	6.4	
Vehicle Extension (s)	2.0	1.0		2.0	1.0			2.5		2.5	2.5	2.5	
Lane Grp Cap (vph)	1254	778		646	1070			442		140	404	297	
v/s Ratio Prot	c0.13	c0.21		0.02	0.18						0.17		
v/s Ratio Perm								c0.21		0.20		0.10	
v/c Ratio	0.33	0.83		0.05	0.71			0.88		0.86	0.71	0.41	
Uniform Delay, d1	33.5	57.0		29.7	55.2			59.0		58.8	56.3	51.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.7	7.0		0.1	1.9			17.2		38.5	5.5	0.7	
Delay (s)	34.1	64.0		29.8	57.1			76.2		97.4	61.8	52.5	
Level of Service	C	E		C	E			E		F	E	D	
Approach Delay (s)		52.5			56.0			76.2			64.8		
Approach LOS		D			E			E			E		
Intersection Summary													
HCM 2000 Control Delay			59.4	HCM 2000 Level of Service						E			
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			160.6	Sum of lost time (s)						19.0			
Intersection Capacity Utilization			106.9%	ICU Level of Service						G			
Analysis Period (min)			15										

c Critical Lane Group

Timings

102: Collins Ave & 5th Street

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	293	303	34	263	52	63	18	72	98	476
Future Volume (vph)	293	303	34	263	52	63	18	72	98	476
Turn Type	pm+pt	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		6		4			8	
Permitted Phases	2		6		4		4	8		8
Detector Phase	5	2	6	6	4	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	16.0	16.0	16.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	11.0	22.3	22.3	22.3	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	17.0	60.3	43.3	43.3	60.2	60.2	60.2	60.2	60.2	60.2
Total Split (%)	14.1%	50.0%	35.9%	35.9%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.3	2.3	3.2	3.2	3.2	3.2	3.2	3.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.3	6.3	6.3		7.2	7.2		7.2	7.2
Lead/Lag	Lead		Lag	Lag						
Lead-Lag Optimize?	Yes		Yes	Yes						
Recall Mode	None	C-Max	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	70.4	70.1	50.5	50.5		36.9	36.9		36.9	36.9
Actuated g/C Ratio	0.58	0.58	0.42	0.42		0.31	0.31		0.31	0.31
v/c Ratio	0.62	0.21	0.09	0.29		0.27	0.04		0.39	0.84
Control Delay	23.1	13.0	28.7	24.5		29.9	0.2		32.8	31.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	23.1	13.0	28.7	24.5		29.9	0.2		32.8	31.1
LOS	C	B	C	C		C	A		C	C
Approach Delay		17.3		24.9		25.8			31.6	
Approach LOS		B		C		C			C	

Intersection Summary

Cycle Length: 120.5

Actuated Cycle Length: 120.5

Offset: 30 (25%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 24.5

Intersection LOS: C

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 102: Collins Ave & 5th Street

Ø2 (R) 60.3 s	Ø4 60.2 s
Ø5 17 s	Ø6 (R) 43.3 s
Ø8 60.2 s	

Queues

102: Collins Ave & 5th Street

								
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	305	412	35	364	120	19	177	496
v/c Ratio	0.62	0.21	0.09	0.29	0.27	0.04	0.39	0.84
Control Delay	23.1	13.0	28.7	24.5	29.9	0.2	32.8	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	13.0	28.7	24.5	29.9	0.2	32.8	31.1
Queue Length 50th (ft)	114	68	17	91	70	0	107	191
Queue Length 95th (ft)	#259	128	47	149	97	0	139	280
Internal Link Dist (ft)		354		256	379		373	
Turn Bay Length (ft)	150		150			70		175
Base Capacity (vph)	493	2004	384	1247	649	622	657	735
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.21	0.09	0.29	0.18	0.03	0.27	0.67

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

102: Collins Ave & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	293	303	92	34	263	86	52	63	18	72	98	476
Future Volume (vph)	293	303	92	34	263	86	52	63	18	72	98	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.98		1.00	0.86			1.00	0.86		1.00	0.91
Flpb, ped/bikes	0.87	1.00		0.96	1.00			0.97	1.00		0.96	1.00
Frt	1.00	0.97		1.00	0.96			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.98	1.00
Satd. Flow (prot)	1576	3426		1736	2977			1808	1253		1777	1317
Flt Permitted	0.46	1.00		0.51	1.00			0.79	1.00		0.81	1.00
Satd. Flow (perm)	761	3426		933	2977			1465	1253		1473	1317
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	305	316	96	35	274	90	54	66	19	75	102	496
RTOR Reduction (vph)	0	18	0	0	22	0	0	0	13	0	0	173
Lane Group Flow (vph)	305	394	0	35	342	0	0	120	6	0	177	323
Confl. Peds. (#/hr)	687		57	57		687	81		128	128		81
Confl. Bikes (#/hr)			5			20			5			7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)									0			0
Turn Type	pm+pt	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			8	
Permitted Phases	2			6			4		4	8		8
Actuated Green, G (s)	70.1	70.1		50.4	50.4			36.9	36.9		36.9	36.9
Effective Green, g (s)	70.1	70.1		50.4	50.4			36.9	36.9		36.9	36.9
Actuated g/C Ratio	0.58	0.58		0.42	0.42			0.31	0.31		0.31	0.31
Clearance Time (s)	6.0	6.3		6.3	6.3			7.2	7.2		7.2	7.2
Vehicle Extension (s)	2.0	1.0		1.0	1.0			2.5	2.5		5.0	5.0
Lane Grp Cap (vph)	535	1993		390	1245			448	383		451	403
v/s Ratio Prot	c0.06	0.12			0.11							
v/s Ratio Perm	c0.27			0.04				0.08	0.00		0.12	c0.24
v/c Ratio	0.57	0.20		0.09	0.27			0.27	0.02		0.39	0.80
Uniform Delay, d1	13.5	11.9		21.2	23.0			31.6	29.1		33.0	38.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	0.9	0.2		0.5	0.5			0.2	0.0		1.2	12.3
Delay (s)	14.4	12.1		21.6	23.6			31.8	29.1		34.1	50.7
Level of Service	B	B		C	C			C	C		C	D
Approach Delay (s)		13.1			23.4			31.5			46.3	
Approach LOS		B			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			28.2	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio	0.68											
Actuated Cycle Length (s)			120.5	Sum of lost time (s)				19.5				
Intersection Capacity Utilization			71.6%	ICU Level of Service				C				
Analysis Period (min)	15											
c Critical Lane Group												

Timings

103: Ocean Drive & 5th Street

	→	↘	←	↙	↑	↘	↓	↙
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔		↔	↔
Traffic Volume (vph)	13	112	14	146	150	7	90	162
Future Volume (vph)	13	112	14	146	150	7	90	162
Turn Type	NA	Perm	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4		3		6		2	
Permitted Phases		4		6		2		2
Detector Phase	4	4	3	6	6	2	2	2
Switch Phase								
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	30.0	30.0	30.0	40.0	40.0	40.0	40.0	40.0
Total Split (s)	50.0	50.0	31.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	36.8%	36.8%	22.8%	40.4%	40.4%	40.4%	40.4%	40.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes					
Recall Mode	None	None	None	Max	Max	Max	Max	Max
Act Effct Green (s)	19.8	19.8	7.7	50.0	50.0		50.0	50.0
Actuated g/C Ratio	0.22	0.22	0.09	0.56	0.56		0.56	0.56
v/c Ratio	0.76	0.42	0.27	0.42	0.16		0.11	0.41
Control Delay	46.2	15.2	34.3	19.9	13.2		13.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	46.2	15.2	34.3	19.9	13.2		13.2	5.7
LOS	D	B	C	B	B		B	A
Approach Delay	37.2		34.3		16.5		8.5	
Approach LOS	D		C		B		A	

Intersection Summary

Cycle Length: 136
 Actuated Cycle Length: 89.7
 Natural Cycle: 100
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 23.1
 Intersection Capacity Utilization 91.7%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service F

Splits and Phases: 103: Ocean Drive & 5th Street

↓ Ø2 55 s	↔ Ø4 50 s	↘ Ø3 31 s
↑ Ø6 55 s		

Queues

103: Ocean Drive & 5th Street

	→	↘	←	↙	↑	↓	↗
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	303	124	33	162	167	108	180
v/c Ratio	0.76	0.42	0.27	0.42	0.16	0.11	0.41
Control Delay	46.2	15.2	34.3	19.9	13.2	13.2	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	15.2	34.3	19.9	13.2	13.2	5.7
Queue Length 50th (ft)	172	15	10	58	50	31	0
Queue Length 95th (ft)	270	66	42	145	109	74	48
Internal Link Dist (ft)	278		277		339	334	
Turn Bay Length (ft)		120		70			90
Base Capacity (vph)	908	555	368	388	1059	1007	441
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.22	0.09	0.42	0.16	0.11	0.41
Intersection Summary							

HCM Signalized Intersection Capacity Analysis

103: Ocean Drive & 5th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	13	112	1	14	14	146	150	0	7	90	162
Future Volume (vph)	260	13	112	1	14	14	146	150	0	7	90	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frbp, ped/bikes		1.00	0.73		0.70		1.00	1.00			1.00	0.51
Flpb, ped/bikes		1.00	1.00		1.00		0.59	1.00			0.97	1.00
Frt		1.00	0.85		0.93		1.00	1.00			1.00	0.85
Flt Protected		0.95	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)		1814	1183		1245		1056	1900			1836	735
Flt Permitted		0.95	1.00		1.00		0.69	1.00			0.98	1.00
Satd. Flow (perm)		1814	1183		1245		764	1900			1810	735
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	289	14	124	1	16	16	162	167	0	8	100	180
RTOR Reduction (vph)	0	0	73	0	15	0	0	0	0	0	0	82
Lane Group Flow (vph)	0	303	51	0	18	0	162	167	0	0	108	98
Confl. Peds. (#/hr)	309		123	123		309	355		429	429		355
Confl. Bikes (#/hr)			12			23			7			5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)									0			0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	Perm
Protected Phases	4	4		3	3			6				2
Permitted Phases			4				6			2		2
Actuated Green, G (s)		19.8	19.8		4.4		50.1	50.1			50.1	50.1
Effective Green, g (s)		19.8	19.8		4.4		50.1	50.1			50.1	50.1
Actuated g/C Ratio		0.21	0.21		0.05		0.54	0.54			0.54	0.54
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)		2.5	2.5		2.5		1.0	1.0			1.0	1.0
Lane Grp Cap (vph)		389	253		59		414	1031			982	398
v/s Ratio Prot		c0.17			c0.01			0.09				
v/s Ratio Perm			0.04				c0.21				0.06	0.13
v/c Ratio		0.78	0.20		0.30		0.39	0.16			0.11	0.25
Uniform Delay, d1		34.2	29.8		42.5		12.2	10.6			10.3	11.1
Progression Factor		1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2		9.1	0.3		2.1		2.8	0.3			0.2	1.5
Delay (s)		43.3	30.0		44.6		15.0	10.9			10.5	12.6
Level of Service		D	C		D		B	B			B	B
Approach Delay (s)		39.5			44.6			12.9			11.8	
Approach LOS		D			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			24.1				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			92.3				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			91.7%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 104: Washington Ave & 4th St

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Sign Control		Stop			Stop			Stop			Stop		
Traffic Volume (vph)	24	55	22	48	94	76	51	277	31	97	234	38	
Future Volume (vph)	24	55	22	48	94	76	51	277	31	97	234	38	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	25	58	23	51	99	80	54	292	33	102	246	40	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2							
Volume Total (vph)	106	230	200	179	225	163							
Volume Left (vph)	25	51	54	0	102	0							
Volume Right (vph)	23	80	0	33	0	40							
Hadj (s)	-0.08	-0.16	0.14	-0.13	0.23	-0.17							
Departure Headway (s)	6.2	5.8	6.3	6.0	6.3	5.9							
Degree Utilization, x	0.18	0.37	0.35	0.30	0.40	0.27							
Capacity (veh/h)	512	568	547	569	540	575							
Control Delay (s)	10.6	12.3	11.4	10.3	12.3	9.9							
Approach Delay (s)	10.6	12.3	10.9		11.3								
Approach LOS	B	B	B		B								
Intersection Summary													
Delay			11.3										
Level of Service			B										
Intersection Capacity Utilization			55.2%		ICU Level of Service	B							
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 105: Collins Avenue & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	60	76	30	14	75	34	55	115	18	44	105	79
Future Volume (vph)	60	76	30	14	75	34	55	115	18	44	105	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	83	33	15	82	37	60	125	20	48	114	86
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	181	134	205	248								
Volume Left (vph)	65	15	60	48								
Volume Right (vph)	33	37	20	86								
Hadj (s)	-0.04	-0.14	0.00	-0.17								
Departure Headway (s)	5.2	5.2	5.1	4.9								
Degree Utilization, x	0.26	0.19	0.29	0.34								
Capacity (veh/h)	627	620	656	686								
Control Delay (s)	10.1	9.5	10.2	10.4								
Approach Delay (s)	10.1	9.5	10.2	10.4								
Approach LOS	B	A	B	B								
Intersection Summary												
Delay			10.1									
Level of Service			B									
Intersection Capacity Utilization			42.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 106: Ocean Drive & 4th Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	51	12	55	25	16	7	36	227	14	8	132	59
Future Volume (vph)	51	12	55	25	16	7	36	227	14	8	132	59
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	58	14	63	28	18	8	41	258	16	9	150	67
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	135	54	315	226								
Volume Left (vph)	58	28	41	9								
Volume Right (vph)	63	8	16	67								
Hadj (s)	-0.16	0.05	0.03	-0.14								
Departure Headway (s)	5.1	5.5	4.7	4.7								
Degree Utilization, x	0.19	0.08	0.41	0.29								
Capacity (veh/h)	633	579	732	728								
Control Delay (s)	9.3	8.9	11.0	9.6								
Approach Delay (s)	9.3	8.9	11.0	9.6								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay			10.1									
Level of Service			B									
Intersection Capacity Utilization			47.5%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

201: 4th Street & Driveway

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	0	15	26	4	27
Future Volume (Veh/h)	15	0	15	26	4	27
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	16	0	16	28	4	29
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	44			62	30	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	44			62	30	
tC, single (s)	4.1			6.4	6.2	
tC, 2 stage (s)						
tF (s)	2.2			3.5	3.3	
p0 queue free %	99			100	97	
cM capacity (veh/h)	1564			935	1044	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	16	44	33			
Volume Left	16	0	4			
Volume Right	0	28	29			
cSH	1564	1700	1030			
Volume to Capacity	0.01	0.03	0.03			
Queue Length 95th (ft)	1	0	2			
Control Delay (s)	7.3	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	7.3	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			17.5%	ICU Level of Service	A	
Analysis Period (min)			15			

APPENDIX F

Queuing Analysis – Valet

Queuing Analysis based on ITE Procedures Valet for Residential Traffic

$$q = 34 \text{ veh/hr (demand rate)*}$$

$$Q = 12 \text{ veh/hr (service rate)**}$$

$$p = \frac{q}{NQ} = 0.4722 \text{ (N = 6 valet runners)}$$

$$Q_M = 0.0827$$

Using Acceptable Probability of 5% (95% Confidence Level)

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

$$M = \left(\frac{\text{Ln}(0.05) - \text{Ln}(0.0827)}{\text{Ln}(0.4722)} \right) - 1$$

$$M = \left(\frac{-2.995 - (-2.4925)}{-0.7504} \right) - 1$$

$$M = 0.7 - 1 = -0.3, \text{ say } 1 \text{ vehicle}$$

* 80% of total inbound trips for Saturday Peak

** Ticket processing time = **60 sec** + driving distance to park (1,200') or unpark (2,300') at farthest parking space within the parking garage at 15 mph = **80 sec** (used average distance of 1,750') + gate operation time = **15 sec** + parking time = **30 sec** + walking distance back to valet at 10 feet per sec (600') = **60 sec** for a total of approximately 4.1 minutes. Used **5 min**

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

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

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

where:

M = queue length which is exceeded p percent of the time

N = number of service channels (drive-in positions)

Q = service rate per channel (vehicles per hour)

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

q = demand rate on the system (vehicles per hour)

Q_M = tabled values of the relationship between queue length, number of channels, and utilization factor (see Table 8.11)

TABLE 8-11
Table of Q_M Values

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

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

0.4 — 0.0400
0.4722 → ρ
0.5 — 0.0991

$$\frac{0.0722}{0.1} = \frac{x}{0.0591}$$

$x = 0.0427$
 $+ 0.04$
 $\frac{0.0827}{0.0827} = Q_M$

Solution

- Step 1: $Q = \frac{60 \text{ min/hr}}{2.2 \text{ min/service}} = 27.3$ services per hour
- Step 2: $q = (110 \text{ veh/45 min}) \times (60 \text{ min/hr}) = 146.7$ vehicles per hour
- Step 3: $\rho = \frac{q}{NQ} = \frac{146.7}{(6)(27.3)} = 0.8956$
- Step 4: $Q_M = 0.7303$ by interpolation between 0.8 and 0.9 for $N = 6$ from the table of Q_M values (see Table 8-11).
- Step 5: The acceptable probability of the queue, M , being longer than the storage, 18 spaces in this example, was stated to be 5%. $P(x > M) = 0.05$, and:

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

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