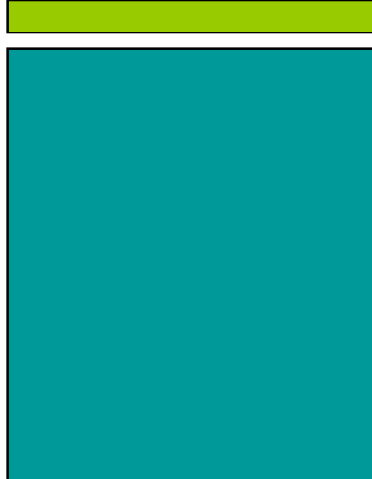


6372 Collins

traffic study



prepared for:
South Beach Group Hotels

Traf Tech
ENGINEERING, INC.

August 2017

August 15, 2017

Mr. Chris Rollins
Vice President
South Beach Group Hotels
855 Collins Avenue
Miami Beach, Florida 33139

Re: 6372 Collins Avenue – Traffic Study

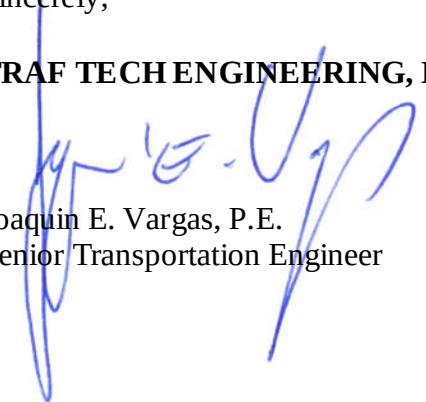
Dear Mr. Rollins:

Traf Tech Engineering, Inc. is pleased to provide you with the results of the traffic study undertaken in connection with the proposed surface parking lot located at 6372 Collins Avenue in the City of Miami Beach, Florida.

It has been a pleasure working with South Beach Group Hotels on this project.

Sincerely,

TRAF TECH ENGINEERING, INC.



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

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INTRODUCTION

6372 Collins is a proposed temporary parking lot (34 parking spaces) planned to be located north of 63rd Street between Collins Avenue and Indian Creek Drive in the City of Miami Beach in Miami-Dade County, Florida. The location of the project site is illustrated in Figure 1 on the following page. The temporary parking lot will serve the following two users:

- Patrons of an existing hotel located on Indian Creek Drive just south of 63rd Street. Currently, hotel patrons park at nearby public parking spaces. By providing parking spaces at 6372 Collins, the public parking spaces currently used by hotel patrons will be available for the general public (a parking benefit for this area).
- To park between two (2) and five (5) minivans. These minivans will arrive in the morning (sometime after 7 AM) and will depart after 4 PM. These minivans will first be utilized to transport construction works that park outside of the City of Miami Beach to a construction site and then the minivans will be taken to the 6372 Collins site to park.

Traf Tech Engineering, Inc. was retained by South Beach Group Hotels to conduct a traffic study¹ in connection with the proposed parking lot. The study addresses trip generation and the traffic impacts created by the proposed parking lot on the nearby transportation network. This study is divided into seven (7) sections, as listed below:

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

¹ The traffic methodology was discussed and agreed with the City of Miami Beach.



INVENTORY

Existing Land Use and Access

The subject site is currently vacant.

Proposed Land Use and Access

The proposed temporary parking lot will provide approximately 34 parking spaces. The parking lot will only have an ingress/egress driveway off of Collins Avenue and will not be gated. The project is anticipated to be built and occupied by the year 2018

Appendix A contains a copy of the proposed site plan.

EXISTING CONDITIONS

This section addresses the existing roadway system located in the vicinity of the project site and adjacent intersection.

Roadway System

The roadway system located near the project site includes Collins Avenue, Indian Creek Drive, W 63rd Street and 65th Street. Collins Avenue operates as a one-way northbound facility with three through lanes. Indian Creek Drive (SR A1A) is two-way north-south facility with three lanes in each direction, north of W 63rd Street and becomes a one-way southbound facility with three through lanes south of W 63rd Street.

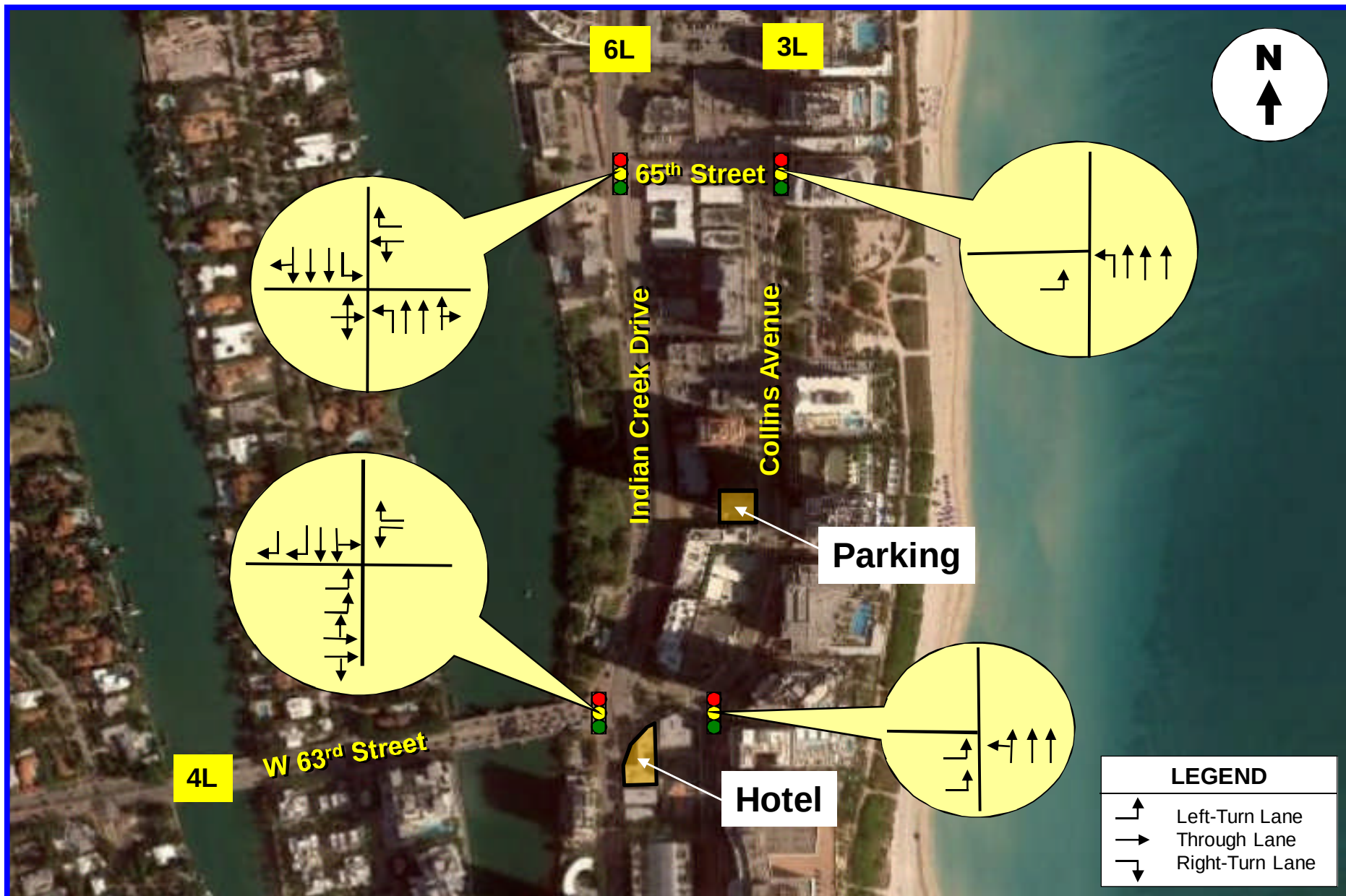
W 63rd Street (SR 907) and 65th Street are both east-west facilities with four and two lanes, respectively.

Nearby Intersections

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

1. Indian Creek Road and W 63rd Street (signalized)
2. Indian Creek Road and W 65th Street (signalized)
3. Collins Avenue and W 63rd Street (signalized)
4. Collins Avenue and 65th Street (signalized)

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



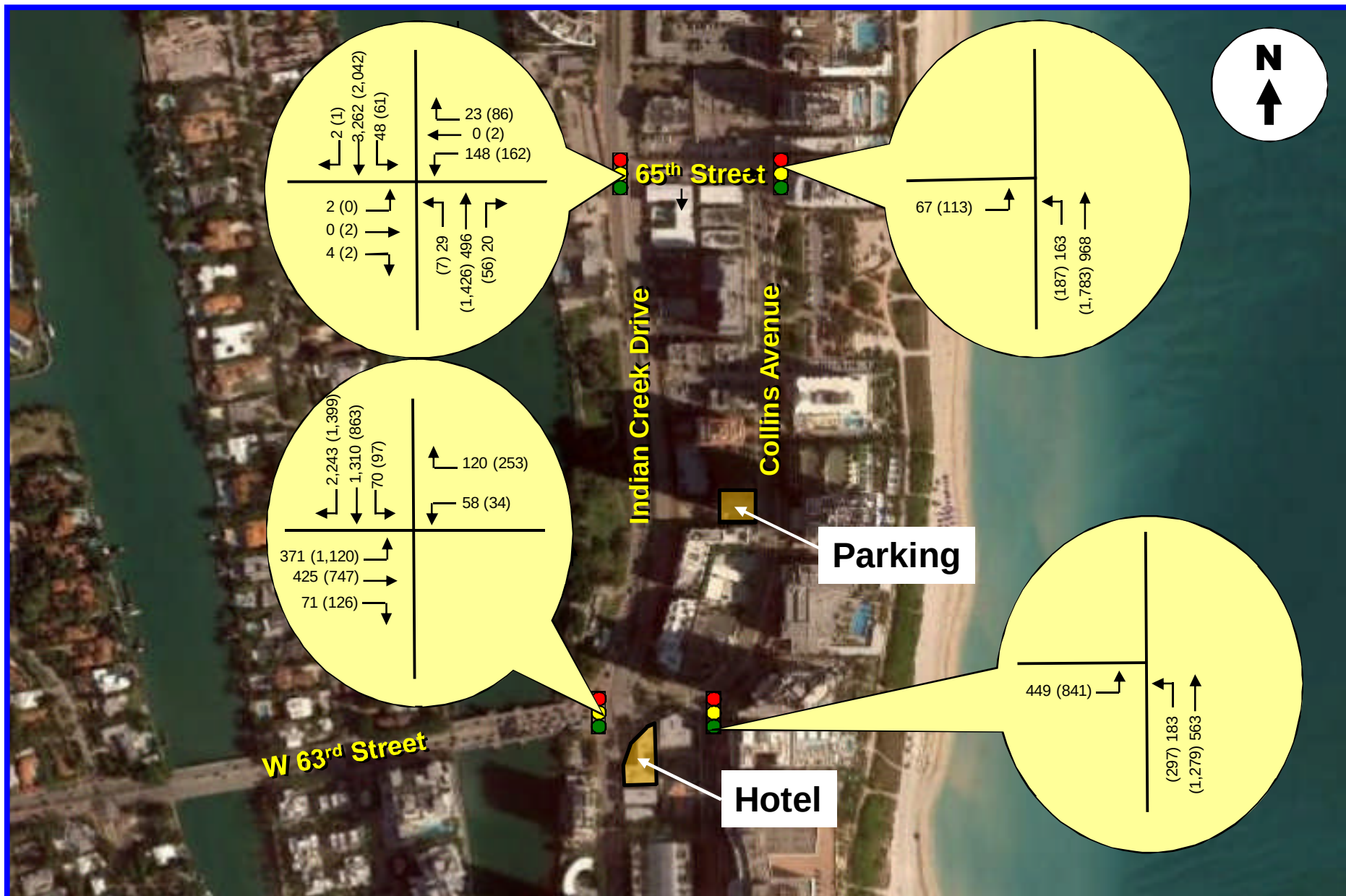
TRAFFIC COUNTS

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

1. Indian Creek Drive and W 63rd Street
2. Indian Creek Drive and W 65th Street
3. Collins Avenue and W 63rd Street
4. Collins Avenue and 65th Street

The intersection turning movement counts performed by Traffic Survey Specialists, Inc., were collected on Friday, August 4, 2017 during the AM and PM peak periods (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM).

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



TRIP GENERATION

The trip generation for the existing Oceanside Hotel was based on information contained in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual* (9th Edition). According to the subject ITE manual, the most appropriate "land use" category for the proposed land use is Land Use 310 – Hotel. Table 1 summarizes the external new trips associated with the hotel patrons.

Table 1 Trip Generation Summary								
Land Use	Size	Daily Trips	AM Peak Hour Trips			PM Peak Hour Trips		
			In	Out	Total	In	Out	Total
Hotel (LUC # 310)	98 Rooms	874	27	20	47	34	35	69
Total New Trips		874	27	20	47	34	35	69

Compiled by: Traf Tech Engineering, Inc. (August 2017).

Source: Institute of Transportation Engineers (ITE) *Trip Generation* (9th Edition).

As indicated in Table 1, the external new trips associated with the existing hotel consist of approximately 874 daily trips, approximately 47 trips during the weekday AM peak hour (27 inbound and 20 outbound), and approximately 69 trips during the weekday PM peak hour (34 inbound and 35 outbound).

Please note that the hotel trips will be assumed to park at the temporary parking lot in order to document the traffic impacts even though these trips are already occurring within this area as they park at available public parking spaces located near the hotel premises.

The trip generation rates used to determine the trips associated with the existing hotel are presented below:

ITE Land Use 310 – Hotel

Daily Trips

$$T = 8.92(X)$$

Where T = average daily vehicle trip ends

X = number of rooms

AM Peak Hour of Adjacent Street (Typical Morning Peak Hour)

$$T = 0.78 (X) - 29.80 \text{ (58\% inbound and 42\% outbound)}$$

Where T = average AM peak hour vehicle trip ends

X = number of rooms

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

$T = 0.70 (X)$ (49% inbound and 51% outbound)

Where T = average PM peak hour vehicle trip ends

X = number of rooms

TRIP DISTRUBUTION AND TRAFFIC ASSIGNMENT

The trip distribution and traffic assignment for the existing hotel 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 627, which is applicable to the project site from the latest SERPM data published by Miami-Dade County.

TABLE 2		
Project Trip Distribution		
Hotel		
Direction		% of Total Trips
North:	Northwest	24.7
	Northeast	4.7
South:	Southwest	31.7
	Southeast	0.00
East:	Northeast	0.00
	Southeast	0.00
West:	Northwest	12.9
	Southwest	26.0
Total		100.00%

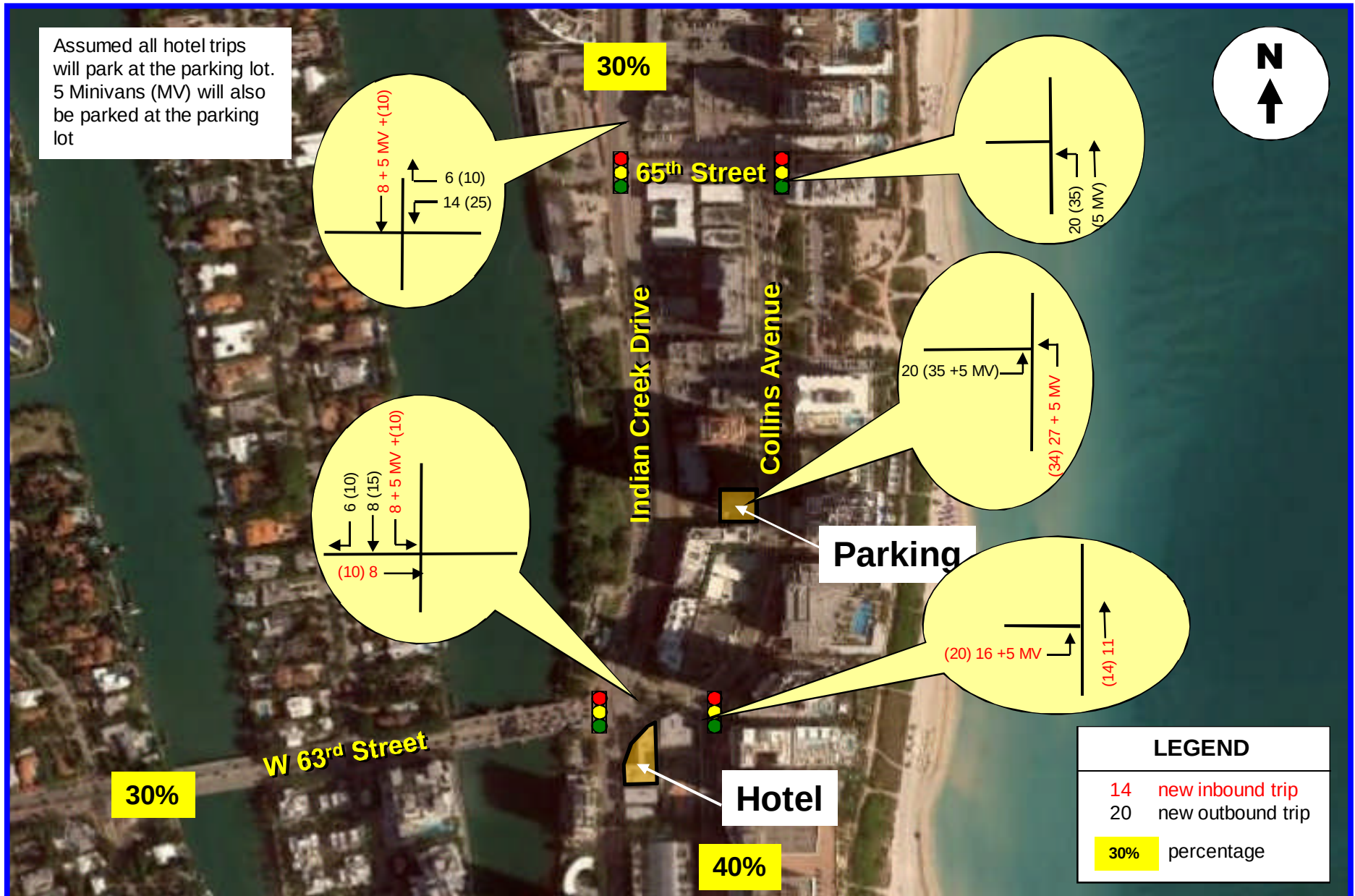
Source: Miami-Dade County (2040 SERPM)

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

- o 40% from the south via Collins Avenue
- o 30% to and from the north via Indian Creek Drive
- o 30% to and from the west via W 63rd Street

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

Assumed all hotel trips will park at the parking lot.
5 Minivans (MV) will also be parked at the parking lot



TRAFFIC ANALYSIS

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

Future Conditions Traffic Volumes

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

In order to develop year 2018 traffic volumes (project anticipated to be built and occupied by the year 2018), without the proposed project, two separate analyses were undertaken. The first analysis converts the existing peak hour traffic counts collected in the field during the month of August to average peak season conditions. Based on FDOT's Peak Season Factor Category report, a factor of 1.04 is required to convert traffic counts collected in the first week of August to average peak season conditions (refer to Appendix D). The second analysis includes a growth factor to project 2017 peak season traffic volumes to the year 2018. Based on traffic growth data published by the FDOT for a nearby traffic count station, minimal traffic growth has occurred during the past five years (refer to Appendix D). However, in order to assess impacts with a conservative approach, and to account for unforeseen approved projects (committed trips) that may impact the study intersections, a 1.5% growth rate was used for purposes of this study.

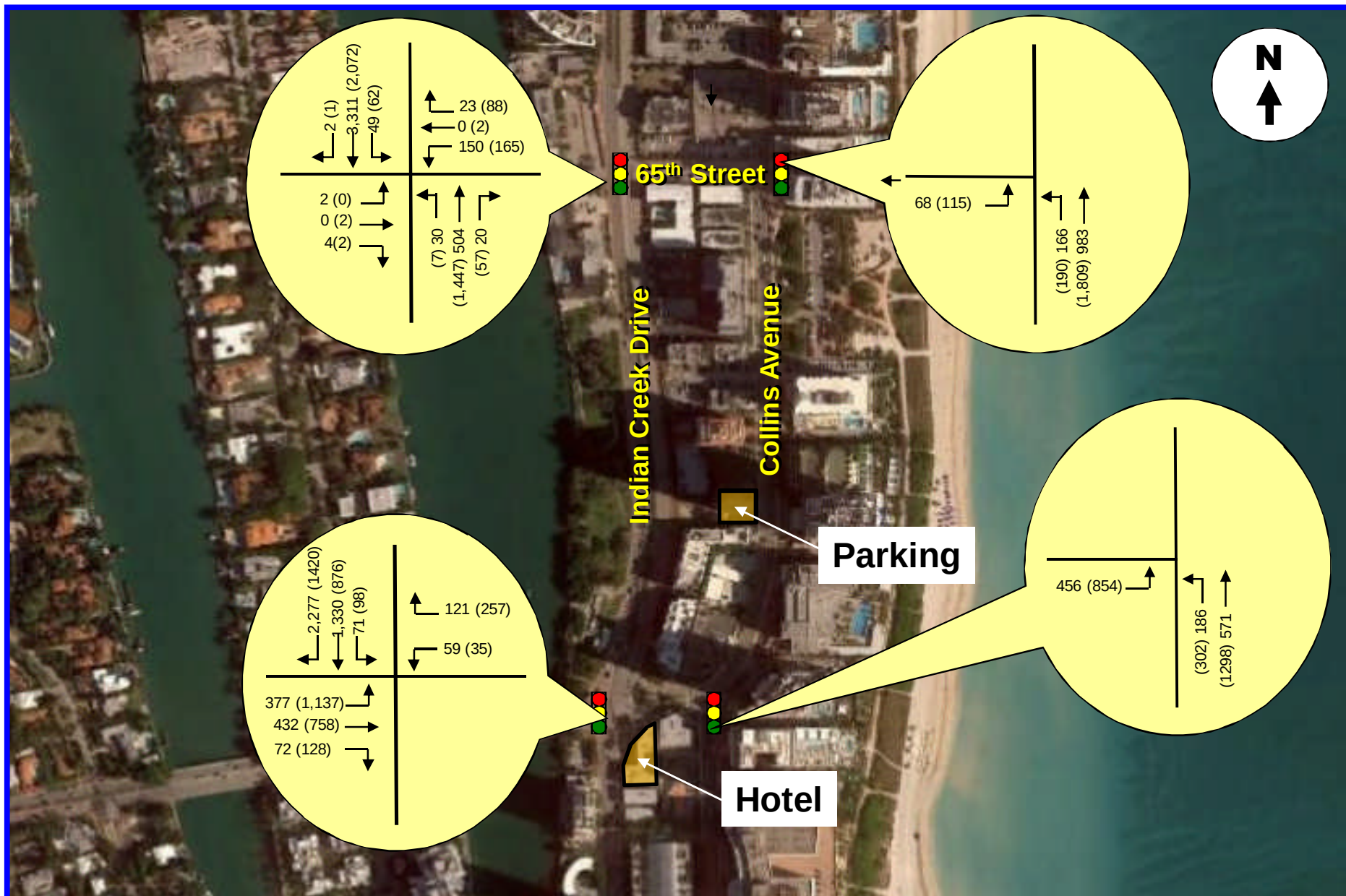
The trips generated by the existing Oceanside Hotel (refer to Figure 4) were added to the 2018 background traffic in order to develop total traffic conditions.

The future traffic projections for the study intersections (peak season adjustments, growth rates and project traffic) are presented in tabular format in Appendix E. Figures 5 and 6 present the year 2018 future traffic volumes for the study area. Figure 5 includes background traffic only (without the proposed project) and Figure 6 includes the additional traffic anticipated to be generated by the proposed parking lot.

Level of Service Analyses

Intersection capacity/level of service analyses were conducted for the four study intersections. The analyses were undertaken following the capacity/level of service procedures outlined in the Highway Capacity Manual (HCS) using the SYNCHRO software. The results of the capacity analyses are summarized in Table 3. As indicated in Table 3, all study intersections are currently operating adequately and will continue to operate at a acceptable level of service in the year 2018 with the proposed project in place, except for one intersection. The intersection of Indian Creek Drive and W 63rd Street is currently operating at a deficient level of service and it is expected to continue to operate deficiently with the project in place.

The level of service for the eastbound approach at the driveway on Collins Avenue is expected to operate at Level of Service “B” and “C”, during the AM and PM peak periods with the proposed parking lot in place.



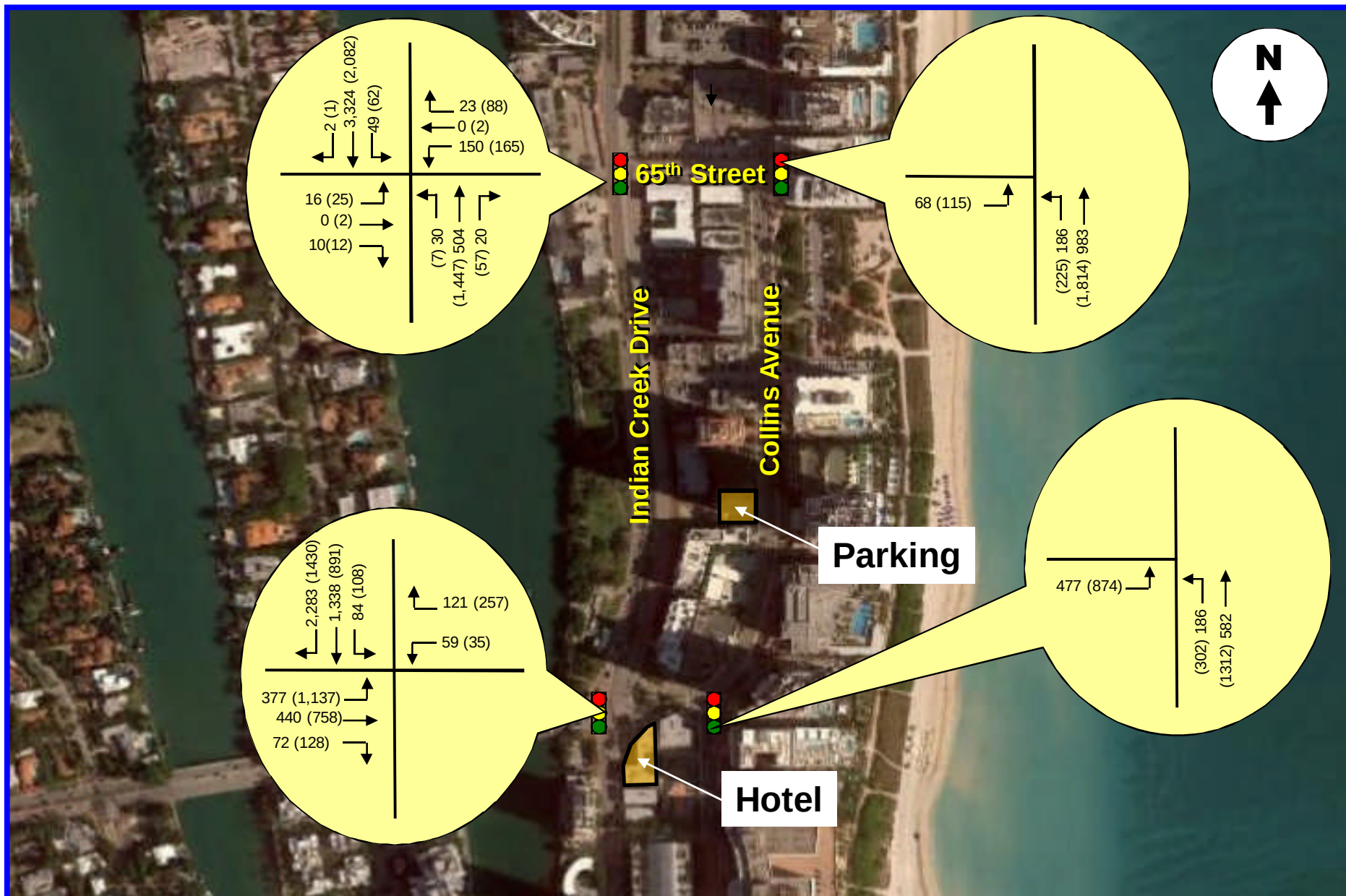


TABLE 3 Intersection Level of Service 6372 Collins			
		Future Traffic Conditions	
Intersection	2017 Existing	2018 w/o Project	2018 With Project
Indian Creek Drive & W 63 rd Street (signalized)	F (F)	F (F)	F (F)
Collins Avenue & W 63 rd Street (signalized)	C (C)	C (C)	C (C)
Indian Creek Drive & 65 th Street (signalized)	D (B)	D (B)	D (B)
Collins Avenue & 65 th Street (signalized)	A (B)	A (C)	A (C)
Collins Avenue & Driveway EB			B (C)

Source: *Highway Capacity Manual AM (PM)*

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

Public Transportation

Five (5) Miami-Dade Transit routes operate along Indian Creek Drive and Collins Avenue. These routes are 117, 115, S, 120, and L.

Stopping Sight Distance

A sight distance evaluation for the proposed parking lot driveway off of Collins Avenue was conducted to address sight distance restrictions for motorists exiting the parking lot. According to the 2016 Florida Green Book (Table 3-3), the minimum stopping sight distance for a posted speed limit of 30 miles per hour is 200 feet. Based on a review of the driveway location and the curvature of Collins Avenue, the 200-foot distance of clear sight distance can be provided if no landscaping is provided between the existing back of sidewalk and the west travel lane of Collins Avenue.

Additionally, the existing palm tree located immediately south of the future driveway could be removed or relocated in order to improve visibility for future exiting vehicles.

Pedestrian Crossings at the intersection of Collins Avenue and W 63rd Street

The existing signal timing for the intersection of Collins Avenue and W 63rd Street includes pedestrian green time to cross the intersection. (Please refer to Appendix C for more details). Pedestrian signal heads without countdown display and push buttons are provided to cross the south and west legs of the intersection. Standard pedestrian crosswalks are not provided, since the intersection has stamped concrete in the center. Curb ramps are provided on the northwest and southwest corners of the intersection and sidewalks are provided along both sides of Collins Avenue.

The following proposed improvements are recommended to better manage pedestrian crossings at the intersection:

- Provide a yield here to pedestrians (R1-5a) sign for the northbound left-turn traffic on Collins Avenue at 63rd Street.

CONCLUSIONS AND RECOMMENDATIONS

6372 Collins is a proposed temporary parking lot (34 parking spaces) planned to be located north of 63rd Street between Collins Avenue and Indian Creek Drive in the City of Miami Beach in Miami-Dade County, Florida. The temporary parking lot will serve the following two users:

- Patrons of an existing hotel located on Indian Creek Drive just south of 63rd Street. Currently, hotel patrons park at nearby public parking spaces. By providing parking spaces at 6372 Collins, the public parking spaces currently used by hotel patrons will be available for the general public (a parking benefit for this area).
- To park between two (2) and five (5) minivans. These minivans will arrive in the morning (sometime after 7 AM) and will depart after 4 PM. These minivans will first be utilized to transport construction works that park outside of the City of Miami Beach to a construction site and then the minivans will be taken to the 6372 Collins site to park.

The proposed temporary parking lot will only have an ingress/egress driveway off of Collins Avenue and will not be gated. The project is anticipated to be built and occupied by the year 2018.

Traf Tech Engineering, Inc. was retained by South Beach Group Hotels to conduct a traffic study in connection with the proposed parking lot. The study addresses trip generation and the traffic impacts created by the proposed parking lot on the nearby transportation network. The conclusions and recommendations of the traffic study are presented below:

- o The external new trips associated with the existing hotel consist of approximately 874 daily trips, approximately 47 trips during the weekday AM peak hour (27 inbound and 20 outbound), and approximately 69 trips during the weekday PM peak hour (34 inbound and 35 outbound).

-
- o All study intersections are currently operating adequately and will continue to operate at an acceptable level of service in the year 2018 with the proposed parking lot in place, except for one intersection. The intersection of Indian Creek Drive and W 63rd Street is currently operating at deficient level of service and it is expected to continue to operate deficiently with the project in place.
 - o The level of service for the eastbound approach at the driveway on Collins Avenue is expected to operate at Level of Service “B” and “C”, during the AM and PM peak periods with the proposed project in place.
 - o The minimum sight distance for the parking lot driveway off of Collins Avenue is 375 feet and the sight distance of motorists exiting the parking lot shall not be restricted by any kind of landscape located on the west side of Collins Avenue.

The following proposed improvements are recommended to better manage pedestrian crossings at the intersection of Collins Avenue and W 63rd Street:

- Provide a yield here to pedestrians (R1-5a) sign for the northbound left-turn traffic on Collins Avenue at 63rd Street.

APPENDIX A

Traffic Methodology

TO: 6372 Collins

FROM: Joaquin Vargas

DATE: August 1, 2017

SUBJECT: Traffic Methodology for 6372 Collins

6372 Collins is a proposed temporary parking lot (34 parking spaces) planned to be located north of 63rd Street between Collins Avenue and Indian Creek Drive in the City of Miami Beach in Miami-Dade County, Florida. The parking lot will only have an ingress/egress driveway off of Collins Avenue and will not be gated. The temporary parking lot will serve the following two users:

- 1) Patrons of an existing hotel located on Indian Creek Drive just south of 63rd Street. Currently, hotel patrons park at nearby public parking spaces. By providing parking spaces at 6372 Collins, the public parking spaces currently used by hotel patrons will be available for the general public (a parking benefit for this area).
- 2) To park between two (2) and five (5) minivans. These minivans will arrive in the morning (sometime after 7AM) and will depart after 4PM. These minivans will first be utilized to transport construction works that park outside of the City of Miami Beach to the construction site and they the minivans will be taken to the 6372 Collins site to park.

A traffic study documenting the impacts of the proposed parking lot will be undertaken. The following is our proposed methodology for the traffic study associated with this project:

- o The trip generation for the hotel (based on number of rooms) will be based on ITE's *Trip Generation Manual* (9th Edition). The hotel trips will be assumed to park at the subject parking lot in order to document the traffic impacts even though these trips are already occurring within this area as they park at available public parking spaces located near the hotel premises.
- o The traffic study will evaluate intersections located in the immediate vicinity of the project. The analyses will be undertaken for the AM peak period (7AM to 9AM) and PM peak period (4PM to 7PM) on a typical weekday, consistent with other projects in the area. These intersections are:
 1. Collins and 63rd Street (Signalized)
 2. Indian Creek Drive and 63rd Street (Signalized)
 3. Collins Avenue and 65th Street (signalized)
 4. Indian Creek Drive and 65th Street (signalized)

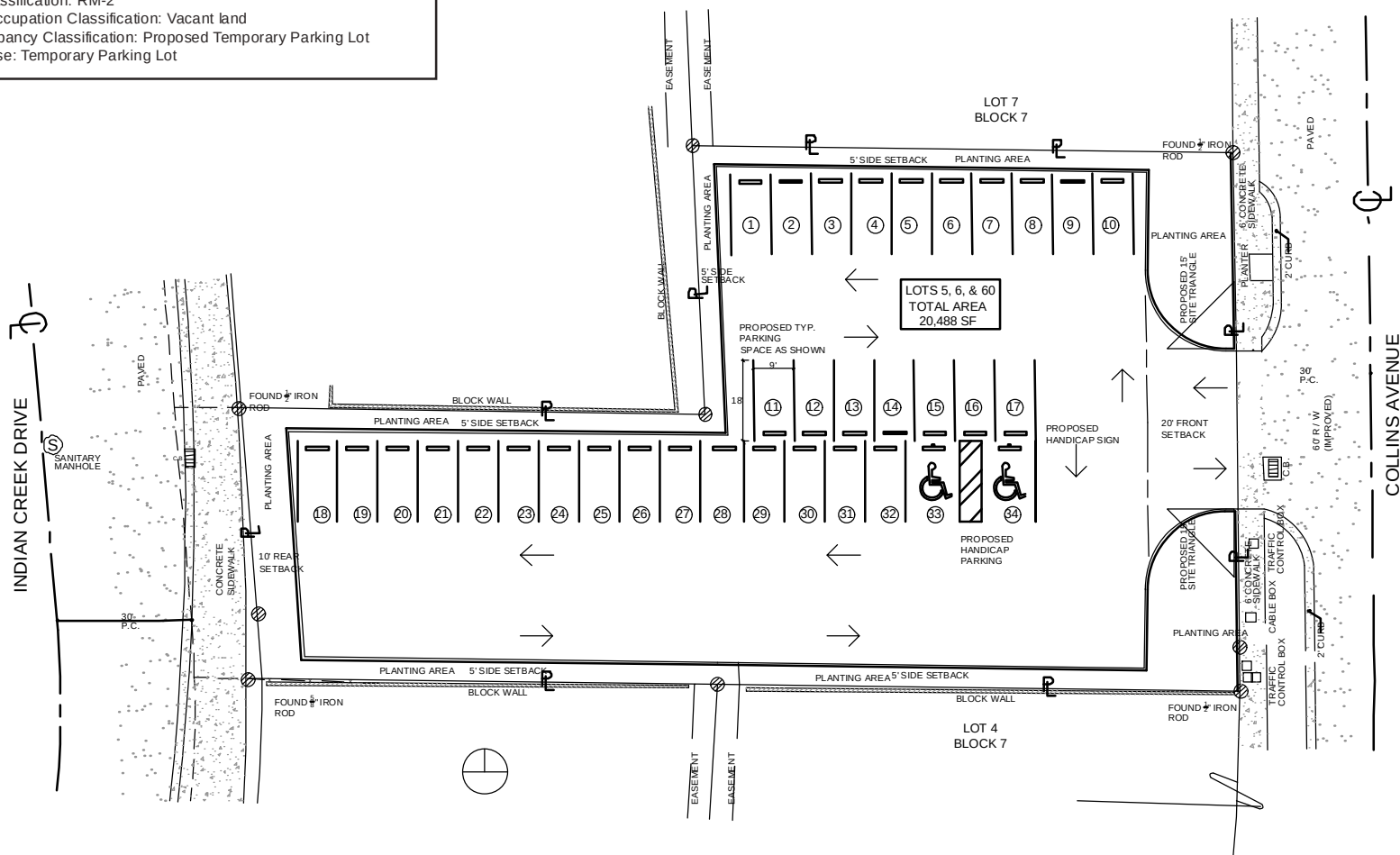
- o Traffic circulation will be evaluated in the traffic study, including its impact to the surrounding street system and adjacent driveways, if any. The future parking lot driveway will also be evaluated
- o For purposes of the traffic study, the build-out year will be 2018. For purposes of traffic growth, FDOT historical traffic data will be used.
- o Existing traffic signal timing data and traffic counts will be included in the appendix of the traffic study.
- o The traffic study will address any anticipated / proposed impacts onto the existing on-street vehicular parking, if applicable. Any impacts to on-street parking will be discussed with the City's Parking Department.
- o Traffic figures will be prepared for the following trip generation scenarios for each of the intersections analyzed:
 - 1. Existing trips
 - 2. Proposed site trips distribution
 - 3. Existing + traffic growth
 - 4. Future or build-out + traffic growth + site trips
- o The presence of transit and nearby routes will be discussed as will the provision and location of bicycle racks.
- o Stopping sight distance will be addressed.
- o Analysis of the intersection of 63rd Street and Collins Avenue shall include an alternative with a crosswalk on the west leg of the intersection.
- o The submittal of the study will include LOS calculations for review by the peer reviewer.

APPENDIX B

**Site Plan
6372 Collins**

PARCEL 1
LOT 5 AND 6, BLOCK 7, AMENDED PLAT OF THE SECOND OCEAN FRONT
SUBDIVISION ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK
28, PAGE 28, OF THE PUBLIC RECORDS OF MIAMI-DADE COUNTY, FLORIDA,
PARCEL 2
LOT 60 LESS THE WESTERLY 15 FEET, BLOCK 7, OF SECOND OCEAN FRONT,
ACCORDING TO THE PLAT THEREOF AS RECORDED IN PLAT BOOK 28, PAGE 28,
OF THE PUBLIC RECORDS OF MIAMI-DADE COUNTY, FLORIDA.

Zoning Classification: RM-2
Existing Occupation Classification: Vacant land
New Occupancy Classification: Proposed Temporary Parking Lot
Propose use: Temporary Parking Lot



OWNER:

6372 LLC
855 Collins Avenue
Miami Beach, Florida 33139

ARCHITECT:

ONE DO Studio LLC
717 Espana Way Suite # 112
706.662.2540
minuall@onedostudio.com

CONSULTANTS

William Dale Bryant, LA #005 0942
Green Earth Landscape Architecture

Willard Zephry, P.E.#7 0026
Zephry Engineering

SEAL

6372 LLC Temporary Parking Lot
6372 Collins, 6382 Collins &
6375 Indian Creek Drive
Miami Beach, Florida 33141

THE ARCHITECTURAL DESIGN AND DETAIL DRAWING FOR THIS BUILDING AND/OR OVERALL PROJECT ARE THE LEGAL PROPERTY OF ONE DO STUDIO LLC. THE USE FOR THE REPRODUCTION, CONSTRUCTION, OR DISTRIBUTION IS PROHIBITED UNLESS AUTHORIZED BY WRITING BY THE ARCHITECT.

Revisions:

[illegible]

Submittal	Project Status
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Scale	Date
1" = 25'-0"	07-14-2017
Job	
63720616	
Drawn by:	Checked by:

Sheet Title

Site Plan

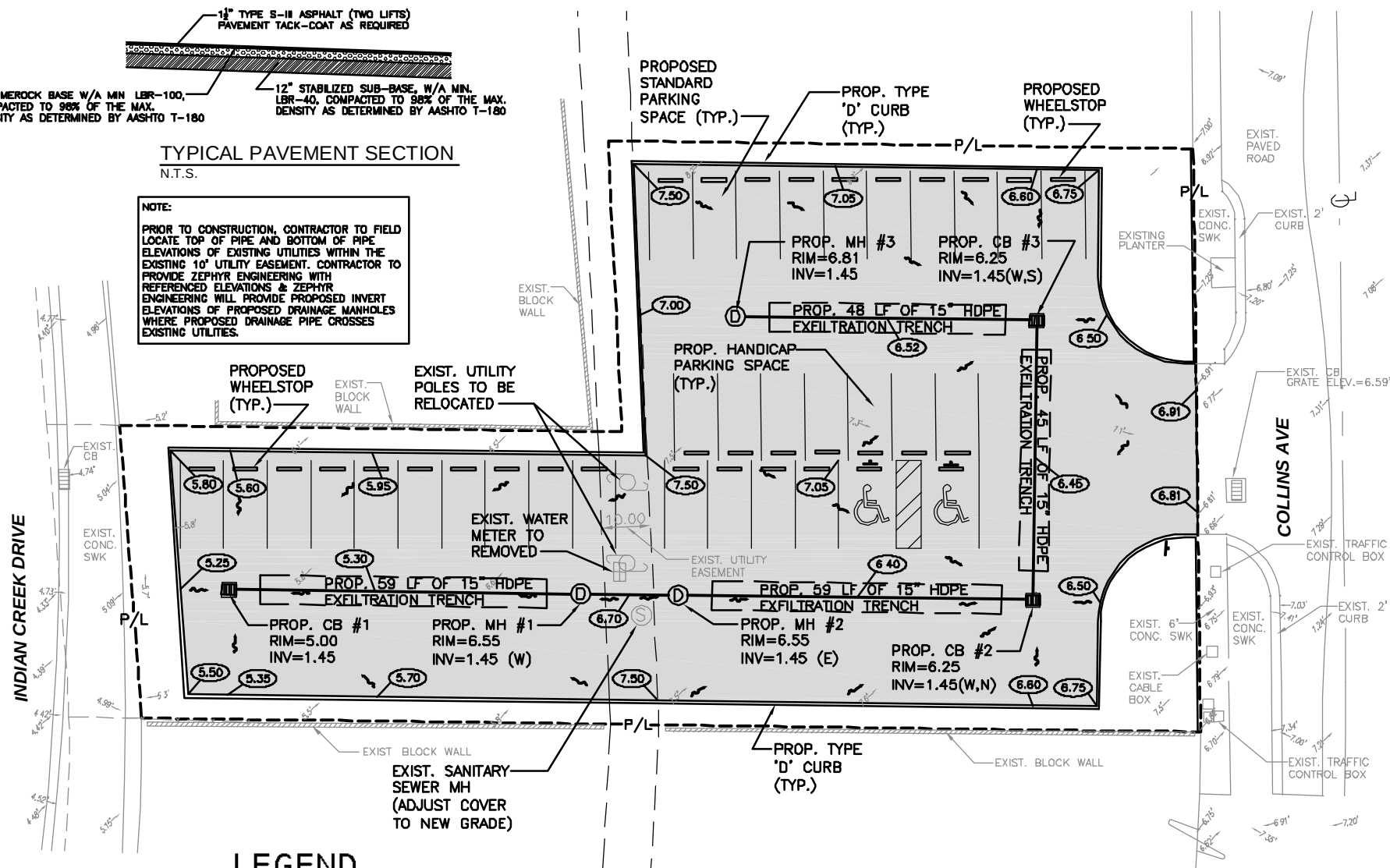
Sheet No. _____

A 3.0



TYPICAL PAVEMENT SECTION
N.T.S.

PRIOR TO CONSTRUCTION, CONTRACTOR TO FIELD LOCATE TOP OF PIPE AND BOTTOM OF PIPE ELEVATIONS OF EXISTING UTILITIES WITHIN THE EXISTING 10' UTILITY EASEMENT. CONTRACTOR TO PROVIDE ZEPHYR ENGINEERING WITH REFERENCED ELEVATIONS & ZEPHYR ENGINEERING WILL PROVIDE PROPOSED INVERT ELEVATIONS OF PROPOSED DRAINAGE MANHOLES WHERE PROPOSED DRAINAGE PIPE CROSSES EXISTING UTILITIES.



LEGEND

- | | |
|---|-----------------------------|
|  | PROPOSED ASPHALT PAVEMENT |
|  | PROPOSED GRADE |
| + 7.62 | EXISTING ELEVATION |
|  | PROPOSED SURFACE FLOW ARROW |

PAVING, GRADING & DRAINAGE PLAN

SCALE: 1"=20'

[illegible]

ZEPHYR ENGINEERING
WILFORD ZEPHYR, P.E.
HOLLYWOOD, FL
(786) 302-7693
wzephyr@qmail.com
CA#: 31158

WN

6372 LLC PARKING LOT
6372 COLLINS AVE,
6382 COLLINS AVE &
6375 INDIAN CREEK DRIVE
MIAMI BEACH, FL 33141

P.E.#:76036

DATE:
07/14/17

SHEET NO.:
C1

PROJ. #:17-10

APPENDIX C

Signal Timing Plan and Traffic Counts

TOD Schedule Report
for 2689: Collins Av&63 St

Print Date:
8/17/2013

Print Time:
1:49 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD</u> <u>Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD</u> <u>Setting</u>	<u>Active</u> <u>PhaseBank</u>	<u>Active</u> <u>Maximum</u>
2689	Collins Av&63 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

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



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	22 - 22 - 22	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	0 - 50 - 50	4	1
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	19 - 19 - 19	7 - 7 - 7	1 - 1 - 1	26 - 26 - 26	47 - 47 - 47	4	1
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

12345678

Default -2-4----

External Permit 0 -----

External Permit 1 -----

External Permit 2 -----

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1	2	3	4	5	6	7	8		
			-	NBT	-	EBT	-	-	-	-		
1	90	0	53	0	27	0	0	0	0	0	20	
2	90	0	45	0	35	0	0	0	0	0	0	
3	90	0	53	0	27	0	0	0	0	0	80	
4	80	0	43	0	27	0	0	0	0	0	55	
5	120	0	70	0	40	0	0	0	0	0	84	
6	80	0	43	0	27	0	0	0	0	0	55	
7	90	0	40	0	40	0	0	0	0	0	9	
8	80	0	44	0	26	0	0	0	0	0	20	
9	90	0	53	0	27	0	0	0	0	0	1	
10	80	0	43	0	27	0	0	0	0	0	36	
11	80	0	43	0	27	0	0	0	0	0	55	
12	100	0	49	0	41	0	0	0	0	0	45	
13	80	0	43	0	27	0	0	0	0	0	35	
14	90	0	53	0	27	0	0	0	0	0	76	
15	90	0	45	0	35	0	0	0	0	0	36	
16	90	0	40	0	40	0	0	0	0	0	9	
17	90	0	40	0	40	0	0	0	0	0	27	
18	90	0	40	0	40	0	0	0	0	0	36	
19	120	0	73	0	37	0	0	0	0	0	32	
20	90	0	39	0	41	0	0	0	0	0	10	
21	120	0	73	0	37	0	0	0	0	0	0	
22	80	0	43	0	27	0	0	0	0	0	55	
23	80	0	43	0	27	0	0	0	0	0	55	

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	13	Su	S
0000	14	M T W Th F	
0600	1	M T W Th F	
0800	2	Su	S
0930	17	M T W Th F	
1045	18	M T W Th F	
1300	15	M T W Th F	
1500	16	M T W Th F	
1615	7	M T W Th F	
1630	12	Su	S
1745	20	M T W Th F	
1830	10	Su	S
1845	19	M T W Th F	
2100	13	Su	S
2100	3	M T W Th F	
2200	14	M T W Th F	

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

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

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

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

TOD Schedule Report
for 2721: Indian Creek Dr&63 St

Print Date:
1/13/2014

Print Time:
8:05 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD</u> <u>Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD</u> <u>Setting</u>	<u>Active</u> <u>PhaseBank</u>	<u>Active</u> <u>Maximum</u>
2721	Indian Creek Dr&63 St	DOW-2		N/A	0	0	N/A	0	Max 0

Splits

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



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 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	6 - 6 - 6	19 - 19 - 19	7 - 7 - 7	1 - 1 - 1	40 - 40 - 40	0 - 40 - 40	4	4
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 WBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	7 - 7 - 7	12 - 12 - 12	3.4	2.9
8 EBT	6 - 6 - 6	16 - 16 - 16	7 - 7 - 7	5 - 5 - 5	24 - 24 - 24	125 - 125 - 12	4	2.9

Last In Service Date: unknown

Permitted Phases

12345678

Default -2----78
External Permit 0 -----
External Permit 1 -----
External Permit 2 -----

		Green Time											
Current TOD Schedule	Plan	Cycle	1	2	3	4	5	6	7	8	Ring Offset	Offset	
			-	SBT	-	-	-	-	WBL	EBT			
	1	180	0	92	0	0	0	0	8	59	0	0	
	2	90	0	37	0	0	0	0	9	23	0	69	
	4	180	0	130	0	0	0	0	6	23	0	47	
	5	120	0	45	0	0	0	0	6	48	0	15	
	8	80	0	27	0	0	0	0	6	26	0	39	
	9	90	0	38	0	0	0	0	8	23	0	62	
	10	80	0	27	0	0	0	0	7	25	0	17	
	11	80	0	30	0	0	0	0	6	23	0	21	
	12	100	0	32	0	0	0	0	8	39	0	27	
	13	80	0	27	0	0	0	0	6	26	0	19	
	14	90	0	35	0	0	0	0	7	27	0	63	
	15	180	0	60	0	0	0	0	7	92	0	11	
	16	180	0	50	0	0	0	0	7	102	0	86	
	17	180	0	74	0	0	0	0	7	78	0	7	
	18	180	0	64	0	0	0	0	7	88	0	15	
	20	80	0	30	0	0	0	0	6	23	0	21	
	22	80	0	30	0	0	0	0	6	23	0	55	
	23	80	0	30	0	0	0	0	6	23	0	70	

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	13	Su	S
0000	14	M T W Th F	
0100	8	Su	S
0600	10	Su	S
0700	1	M T W Th F	
0800	14	Su	S
0930	17	M T W Th F	
1000	2	Su	S
1045	18	M T W Th F	
1300	15	M T W Th F	
1500	16	M T W Th F	
1630	12	Su	S
1830	10	Su	S
1845	5	M T W Th F	
2100	13	Su	S
2100	14	M T W Th F	

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

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

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

No Calendar Defined/Enabled

TOD Schedule Report
for 3494: Indian Creek Dr&65 St

Print Date:
1/13/2014

Print Time:
8:08 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>
3494	Indian Creek Dr&65 St	DOW-2		N/A	0	0	N/A	0	Max 0

Splits

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

Active Phase Bank: Phase Bank 1

Phase	Walk			Don't Walk			Min Initial			Veh Ext			Max Limit			Max 2			Yellow	Red																
	Phase Bank																																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3																		
1 NBL	0	-	0	-	0	-	0	-	0	5	-	5	-	5	2	-	2	-	2	5	-	5	-	5	15	-	9	-	9	3	0					
2 SBT	7	-	7	-	7	-	7	-	7	14	-	14	-	14	1	-	1	-	1	30	-	30	-	30	0	-	30	-	30	4	0.6					
3 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	0					
4 WBT	4	-	4	-	4	-	4	-	4	22	-	22	-	22	10	-	10	-	7	3.5	-	3.5	-	3.5	12	-	12	-	12	40	-	30	-	30	4	0.8
5 SBL	0	-	0	-	0	-	0	-	0	0	-	0	-	0	5	-	5	-	5	2	-	2	-	2	5	-	5	-	5	15	-	9	-	9	3	0
6 NBT	7	-	7	-	7	-	7	-	7	14	-	14	-	14	7	-	7	-	7	1	-	1	-	1	30	-	30	-	30	0	-	30	-	30	4	0.6
7 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	-	0	0	0		
8 EBT	4	-	4	-	4	-	4	-	4	22	-	22	-	22	7	-	7	-	7	2.5	-	2.5	-	2.5	12	-	12	-	12	40	-	30	-	30	4	0.8

Last In Service Date: unknown

Permitted Phases

	<u>12345678</u>
Default	12-456-8
External Permit 0	-----
External Permit 1	-2-456-8
External Permit 2	-2-4-6-8

<u>Current</u>		<u>Green Time</u>										<u>Ring Offset</u>	<u>Offset</u>
<u>TOD Schedule</u>	<u>Plan</u>	<u>Cycle</u>	1 NBL	2 SBT	3 -	4 WBT	5 SBL	6 NBT	7 -	8 EBT			
	1	180	5	136	0	26	5	136	0	26	0	46	
	2	70	7	23	0	27	7	23	0	27	0	14	
	3	90	9	41	0	27	9	41	0	27	0	8	
	4	80	7	33	0	27	7	33	0	27	0	76	
	5	120	5	75	0	27	5	75	0	27	0	51	
	6	80	9	31	0	27	9	31	0	27	0	71	
	8	80	9	31	0	27	9	31	0	27	0	9	
	9	90	9	41	0	27	9	41	0	27	0	75	
	10	80	7	33	0	27	7	33	0	27	0	37	
	11	80	9	31	0	27	9	31	0	27	0	71	
	12	100	7	53	0	27	7	53	0	27	0	5	
	13	80	8	32	0	27	8	32	0	27	0	13	
	14	90	7	43	0	27	7	43	0	27	0	81	
	15	90	9	42	0	26	9	42	0	26	0	0	
	16	90	9	42	0	26	9	42	0	26	0	0	
	17	90	9	42	0	26	9	42	0	26	0	0	
	18	90	9	42	0	26	9	42	0	26	0	0	
	20	80	9	31	0	27	9	31	0	27	0	71	

<u>Local TOD Schedule</u>			
<u>Time</u>	<u>Plan</u>	<u>DOW</u>	
0000	13	Su	S
0000	14	M T W Th F	
0100	8	Su	S
0600	10	Su	S
0700	1	M T W Th F	
0800	14	Su	S
0930	17	M T W Th F	
1000	5	Su	S
1045	18	M T W Th F	
1300	15	M T W Th F	
1500	16	M T W Th F	
1630	12	Su	S
1830	10	Su	S
1845	5	M T W Th F	
2100	13	Su	S
2100	14	M T W Th F	

<u>Current Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	--6----	Su M T W Th F S
0600	TOD OUTPUTS	---5----	M T W Th F
0700	VEH MAX RECALL	----4---	M T W Th F
0745	VEH MAX RECALL	-----	M T W Th F
0930	TOD OUTPUTS	-----	M T W Th F
1800	TOD OUTPUTS	-----	M T W Th F

<u>Local Time of Day Function</u>			
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>
0000	TOD OUTPUTS	--6----	Su M T W Th F S
0600	TOD OUTPUTS	---5----	M T W Th F
0700	VEH MAX RECALL	----4---	M T W Th F
0745	VEH MAX RECALL	-----	M T W Th F
0930	TOD OUTPUTS	-----	M T W Th F
1000	TOD OUTPUTS	-----	Su S
1800	TOD OUTPUTS	--6----	Su S
1800	TOD OUTPUTS	-----	M T W Th F

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

No Calendar Defined/Enabled

TOD Schedule Report
for 3770: Collins Av&65 St

Print Date:
8/17/2013

Print Time:
3:36 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
3770	Collins Av&65 St	DOW-7		N/A	0	0	N/A	0	Max 0

Splits

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



Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
<u>Phase Bank</u>								
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	
1 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	1 - 1 - 1	40 - 58 - 58	0 - 0 - 0	4	1
3 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
4 EBT	7 - 7 - 7	14 - 14 - 14	7 - 7 - 7	2.5 - 2.5 - 2.5	21 - 22 - 22	22 - 0 - 0	4	1
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0

Last In Service Date: unknown

Permitted Phases

12345678

Default -2-4----

External Permit 0 -----

External Permit 1 -----

External Permit 2 -----

<u>Current</u>	<u>Green Time</u>										<u>Ring Offset</u>	<u>Offset</u>
<u>TOD Schedule</u>	<u>Plan</u>	<u>Cycle</u>	1	2	3	4	5	6	7	8		
			-	NBT	-	EBT	-	-	-	-		
	1	90	0	58	0	22	0	0	0	0	0	84
	2	70	0	38	0	22	0	0	0	0	0	54
	3	180	0	148	0	22	0	0	0	0	0	48
	4	180	0	148	0	22	0	0	0	0	0	34
	5	90	0	58	0	22	0	0	0	0	0	46
	6	70	0	38	0	22	0	0	0	0	0	65
	8	70	0	38	0	22	0	0	0	0	0	44
	10	70	0	38	0	22	0	0	0	0	0	11
	12	90	0	58	0	22	0	0	0	0	0	10
	13	70	0	38	0	22	0	0	0	0	0	2
	14	90	0	58	0	22	0	0	0	0	0	40

Local TOD Schedule

<u>Time</u>	<u>Plan</u>	<u>DOW</u>
0000	13	Su
0000	1	M T W Th F
0600	5	M T W Th F
1000	14	Su
1600	3	M T W Th F
1630	6	Su
1900	12	M T W Th F

Current Time of Day Function				
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	
0000	TOD OUTPUTS	-----1	Su	S
0100	TOD OUTPUTS	-----	Su	S
2100	TOD OUTPUTS	-----1	Su	S

Local Time of Day Function				
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	
0000	TOD OUTPUTS	-----	M T W ThF	
0000	TOD OUTPUTS	-----1	Su	S
0100	TOD OUTPUTS	-----	Su	S
2100	TOD OUTPUTS	-----1	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

63RD ATREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STCOLL
 Page : 1

ALL VEHICLES

COLLINS AVENUE From North					DRIVEWAY From East				COLLINS AVENUE From South				63RD STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 08/04/17 -----																				
07:00	0	0	0	0	0	0	0	0	0	0	29	110	0	0	0	87	2	0	0	228
07:15	0	0	0	0	0	0	0	0	0	0	14	106	1	0	0	91	1	0	0	213
07:30	0	0	0	0	0	0	0	0	0	0	25	124	0	1	1	97	2	0	0	249
07:45	0	0	0	0	0	0	0	0	0	0	29	120	1	1	1	110	5	0	0	266
Hr Total	0	0	0	0	0	0	0	0	0	0	97	460	2	2	2	385	10	0	0	956
08:00	0	0	0	0	0	0	0	0	0	0	40	135	0	0	0	105	5	0	0	285
08:15	0	0	0	0	0	0	0	0	0	0	37	124	0	1	1	100	2	0	0	264
08:30	0	0	0	0	0	0	0	0	0	0	51	128	1	1	1	109	4	0	0	294
08:45	0	0	0	0	0	0	0	0	0	0	48	154	1	2	2	114	5	0	0	324
Hr Total	0	0	0	0	0	0	0	0	0	0	176	541	2	4	4	428	16	0	0	1167
----- * BREAK * -----																				
16:00	0	0	0	0	0	0	0	0	0	0	57	230	1	1	1	158	1	0	0	448
16:15	0	0	0	0	0	0	0	0	0	0	61	260	0	1	1	191	2	0	0	515
16:30	0	0	0	0	0	0	0	0	0	0	89	337	0	1	1	198	1	0	0	626
16:45	0	0	0	0	0	0	0	0	0	0	59	279	1	0	0	195	5	0	0	539
Hr Total	0	0	0	0	0	0	0	0	0	0	266	1106	2	3	3	742	9	0	0	2128
17:00	0	0	0	0	0	0	0	0	0	0	71	287	1	0	0	209	1	0	0	569
17:15	0	0	0	0	0	0	0	0	0	0	67	327	0	3	3	203	2	0	0	602
17:30	0	0	0	0	0	0	0	0	0	0	79	286	0	0	0	191	2	0	0	558
17:45	0	0	0	0	0	0	0	0	0	0	61	219	0	2	2	192	0	0	0	474
Hr Total	0	0	0	0	0	0	0	0	0	0	278	1119	1	5	5	795	5	0	0	2203

TOTAL	0	0	0	0	0	0	0	0	0	0	817	3226	7	14	14	2350	40	0	0	6454

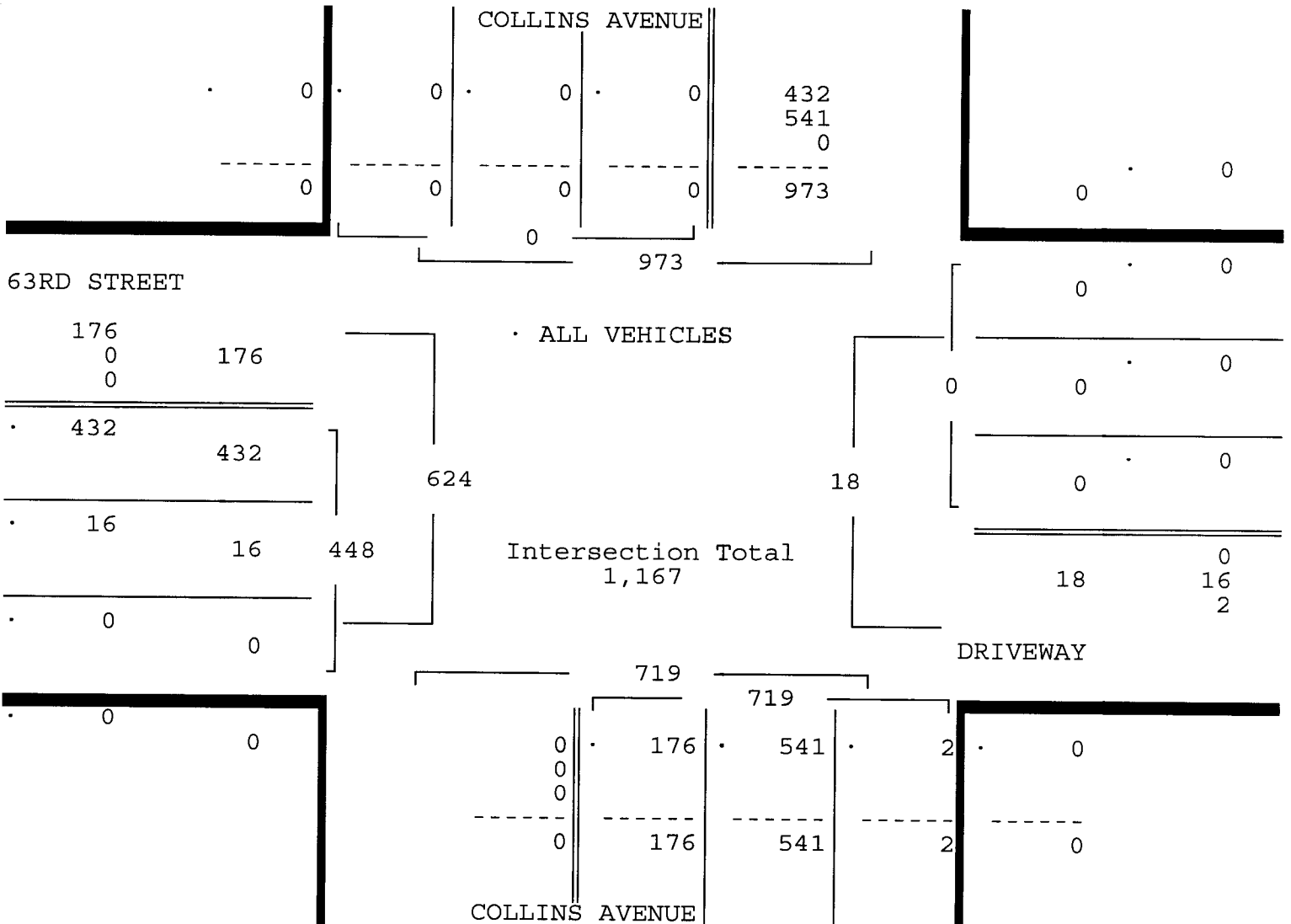
63RD ATREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STCOLL
 Page : 2

ALL VEHICLES

COLLINS AVENUE From North					DRIVEWAY From East				COLLINS AVENUE From South				63RD STREET From West							
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 08/04/17 -----																				
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 08/04/17																				
Peak start 08:00					08:00				08:00				08:00							
Volume	0	0	0	0	0	0	0	0	0	0	176	541	2	0	4	428	16	0	0	
Percent	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	24%	75%	0%	0%	1%	96%	4%	0%	0%	
Pk total	0				0					719					448					
Highest	07:00				07:00					08:45					08:45					
Volume	0	0	0	0	0	0	0	0	0	0	48	154	1	0	2	114	5	0	0	
Hi total	0				0					203					121					
PHF	.0				.0					.89					.93					



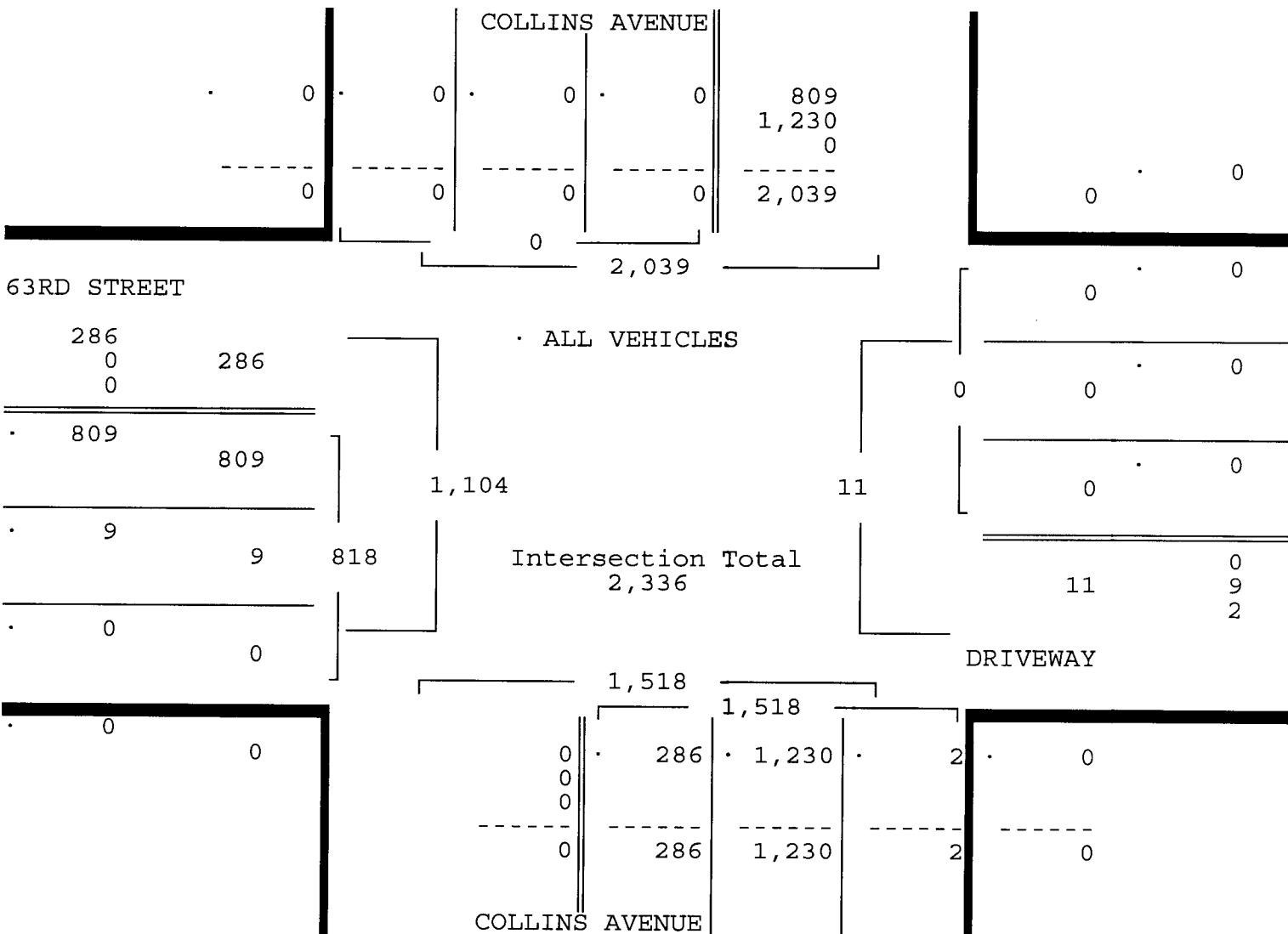
63RD ATREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STCOLL
 Page : 3

ALL VEHICLES

COLLINS AVENUE From North				DRIVEWAY From East				COLLINS AVENUE From South				63RD STREET From West				
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total
Date 08/04/17 -----																
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 08/04/17																
Peak start 16:30				16:30				16:30				16:30				
Volume	0	0	0	0	0	0	0	0	286	1230	2	4	805	9	0	
Percent	0%	0%	0%	0%	0%	0%	0%	0%	19%	81%	0%	0%	98%	1%	0%	
Pk total	0			0				1518				818				
Highest	07:00			07:00				16:30				17:00				
Volume	0	0	0	0	0	0	0	0	89	337	0	0	209	1	0	
Hi total	0			0				426				210				
PHF	.0			.0				.89				.97				



63RD ATREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: ADAM JOHNSON
 SIGNALIZED

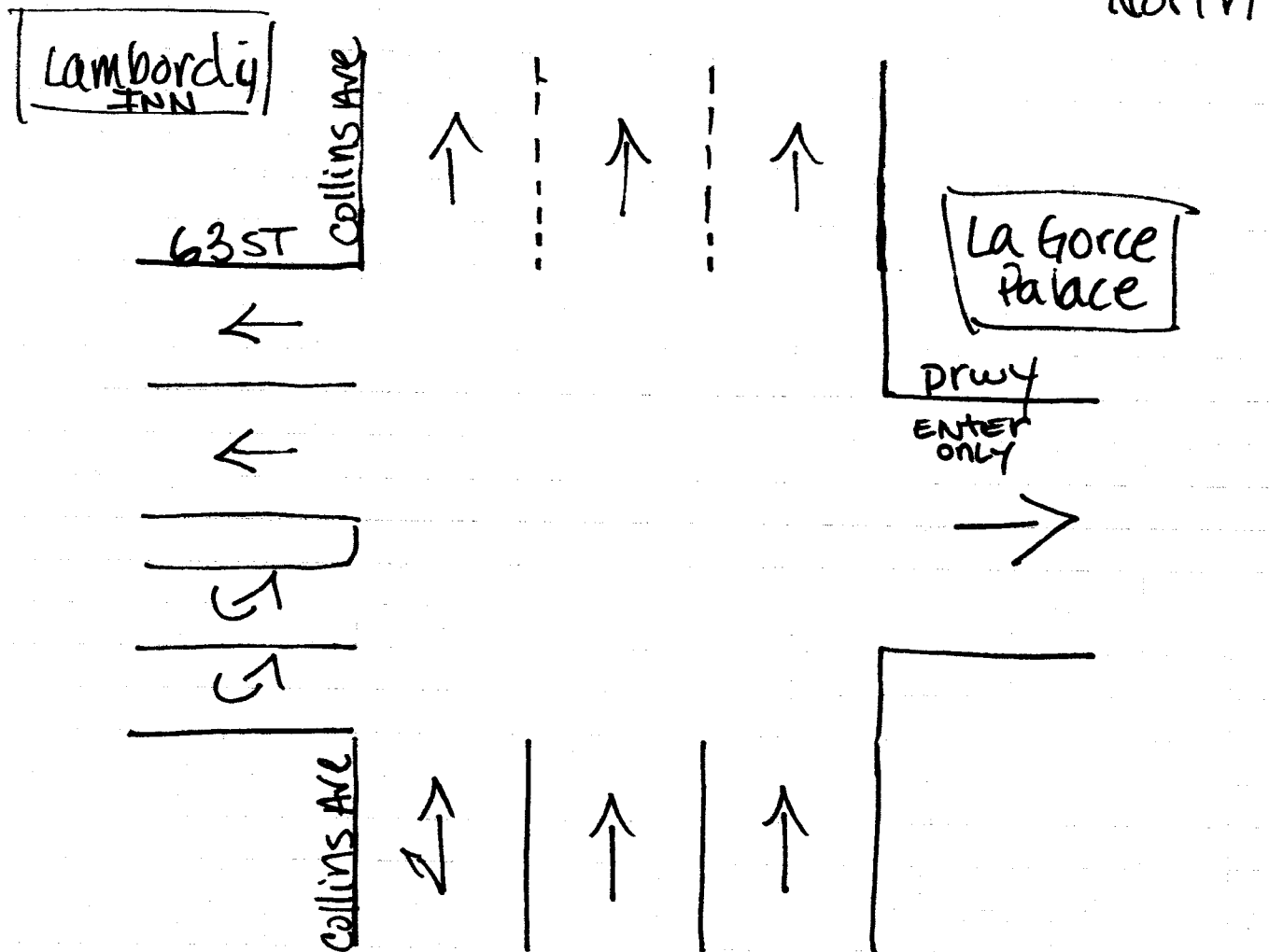
TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STCOLL
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PEDESTRIANS & BIKES

	COLLINS AVENUE From North				DRIVEWAY From East				COLLINS AVENUE From South				63RD STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
Date 08/04/17 -----																	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	5
07:30	0	0	0	0	0	0	0	2	0	1	0	1	0	0	0	5	9
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12
Hr Total	0	0	0	0	0	2	0	2	0	1	0	4	0	0	0	17	26
08:00	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	8
08:15	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	7	11
08:30	0	0	0	0	0	0	0	0	0	0	0	5	0	1	0	0	6
08:45	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	5	11
Hr Total	0	0	0	0	0	0	0	0	0	1	0	22	0	1	0	12	36
----- * BREAK * -----																	
16:00	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	13	17
16:15	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	5
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
16:45	0	0	0	0	0	0	0	0	0	0	0	10	0	1	0	6	17
Hr Total	0	0	0	0	0	0	0	0	0	0	0	18	0	1	0	28	47
17:00	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	4	13
17:15	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13	26
17:30	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	14	17
17:45	0	0	0	0	0	0	0	0	0	3	0	8	0	1	0	3	15
Hr Total	0	0	0	0	0	0	0	0	0	3	0	33	0	1	0	34	71

TOTAL	0	0	0	0	0	2	0	2	0	5	0	77	0	3	0	91	180



Miami Beach, Florida

June 20, 2014

drawn by: Luis Palomino

signalized

RP
8-4-17

65TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: GERMAIN CAMPUSANO
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 65STCOLL
 Page : 1

ALL VEHICLES

COLLINS AVENUE					DRIVEWAY				COLLINS AVENUE				65TH STREET				
From North					From East				From South				From West				
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total
Date 08/04/17																	
07:00	0	0	0	0	0	0	1	0	0	33	174	0	0	8	0	0	216
07:15	0	0	0	0	0	0	1	1	0	40	177	0	0	11	0	0	230
07:30	0	0	0	0	0	0	0	0	0	24	200	0	1	11	0	0	236
07:45	0	0	0	0	0	0	0	0	0	37	196	0	0	12	0	0	245
Hr Total	0	0	0	0	0	0	2	1	0	134	747	0	1	42	0	0	927
08:00	0	0	0	0	0	0	1	1	0	47	219	0	0	13	0	0	281
08:15	0	0	0	0	0	0	3	4	0	26	220	0	0	18	0	0	271
08:30	0	0	0	0	0	0	0	0	0	39	226	0	0	14	0	0	279
08:45	0	0	0	0	0	0	1	1	0	45	266	0	0	19	0	0	332
Hr Total	0	0	0	0	0	0	5	6	0	157	931	0	0	64	0	0	1163
* BREAK *																	
16:00	0	0	0	0	0	0	3	0	0	46	391	0	0	18	0	0	458
16:15	0	0	0	0	0	0	1	3	0	35	443	0	0	35	0	0	517
16:30	0	0	0	0	0	0	3	4	0	42	430	0	1	29	0	0	509
16:45	0	0	0	0	0	0	2	4	0	56	416	0	0	18	0	0	496
Hr Total	0	0	0	0	0	0	9	11	0	179	1680	0	1	100	0	0	1980
17:00	0	0	0	0	0	0	4	2	0	47	425	0	0	26	0	0	504
17:15	0	0	0	0	0	0	2	2	0	43	395	0	0	37	0	0	479
17:30	0	0	0	0	0	0	0	1	0	57	396	0	0	18	0	0	472
17:45	0	0	0	0	0	0	1	4	0	65	372	0	0	28	0	0	470
Hr Total	0	0	0	0	0	0	7	9	0	212	1588	0	0	109	0	0	1925
TOTAL	0	0	0	0	0	0	23	27	0	682	4946	0	2	315	0	0	5995

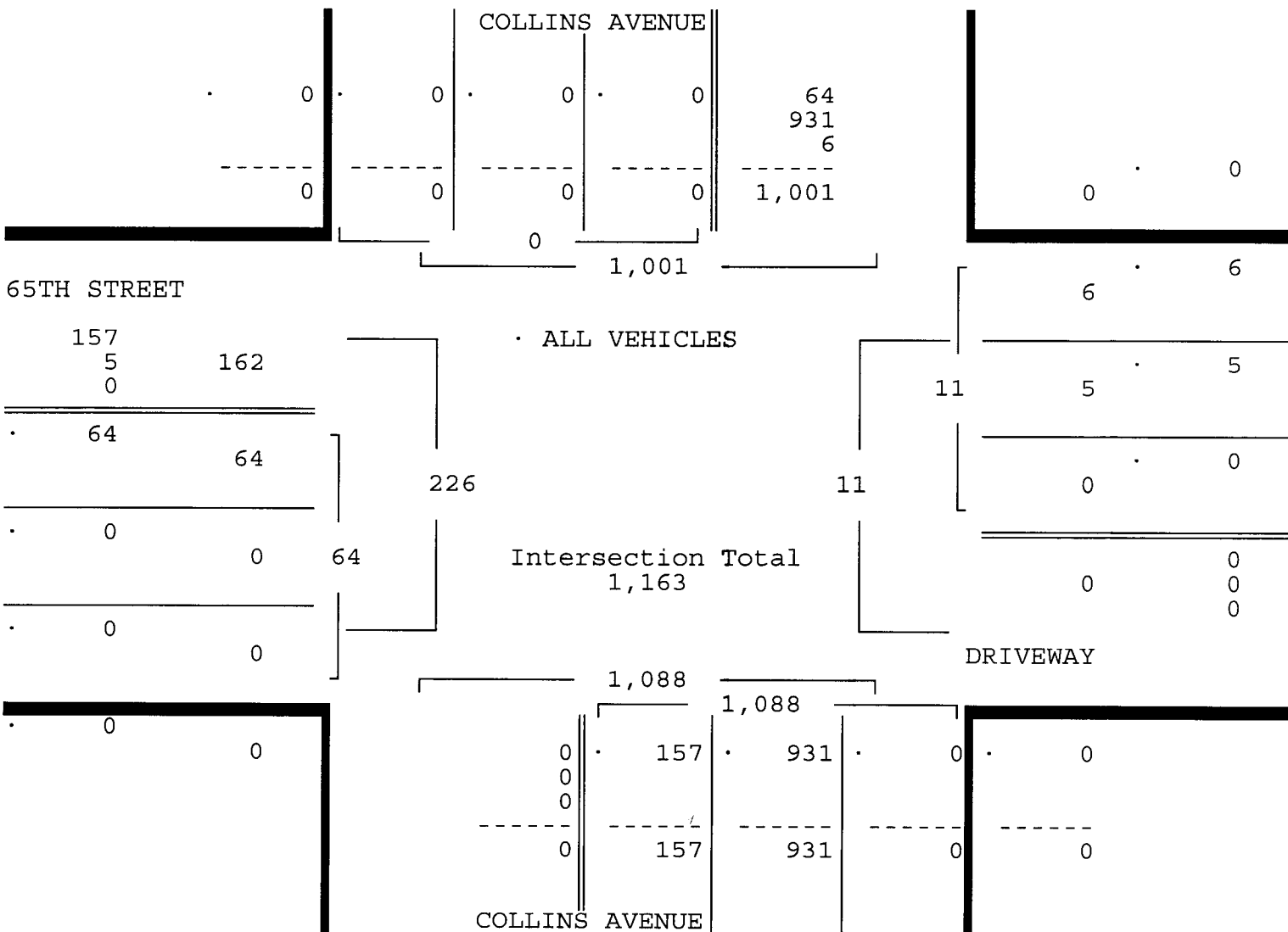
65TH STREET & COLLINS AVENUE
 MIAMI BEACH, FLORIDA
 COUNTED BY: GERMAIN CAMPUSANO
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 65STCOLL
 Page : 2

ALL VEHICLES

COLLINS AVENUE					DRIVEWAY				COLLINS AVENUE				65TH STREET				Total	
From North					From East				From South				From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left		Thru
Date 08/04/17																		
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 08/04/17																		
Peak start 08:00					08:00				08:00				08:00					
Volume	0	0	0	0	0	0	5	6	0	157	931	0	0	64	0	0		
Percent	0%	0%	0%	0%	0%	0%	45%	55%	0%	14%	86%	0%	0%	100%	0%	0%		
Pk total	0				11				1088				64					
Highest	07:00				08:15				08:45				08:45					
Volume	0	0	0	0	0	0	3	4	0	45	266	0	0	19	0	0		
Hi total	0				7				311				19					
PHF	.0				.39				.87				.84					



ALL VEHICLES

[illegible]

Date 08/04/17

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 08/04/17

Peak start	16:15				16:15				16:15				16:15			
Volume	0	0	0	0	0	0	10	13	0	180	1714	0	1	108	0	0
Percent	0%	0%	0%	0%	0%	0%	43%	57%	0%	10%	90%	0%	1%	99%	0%	0%
Pk total	0				23				1894				109			
Highest	07:00				16:30				16:15				16:15			
Volume	0	0	0	0	0	0	3	4	0	35	443	0	0	35	0	0
Hi total	0				7				478				35			
PHF	.0				.82				.99				.78			

[illegible]

65TH STREET & COLLINS AVENUE
MIAMI BEACH, FLORIDA
COUNTED BY: GERMAIN CAMPUSANO
SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.

85 SE 4TH AVENUE, UNIT 109
DELRAY BEACH, FLORIDA
PHONE (561)272-3255

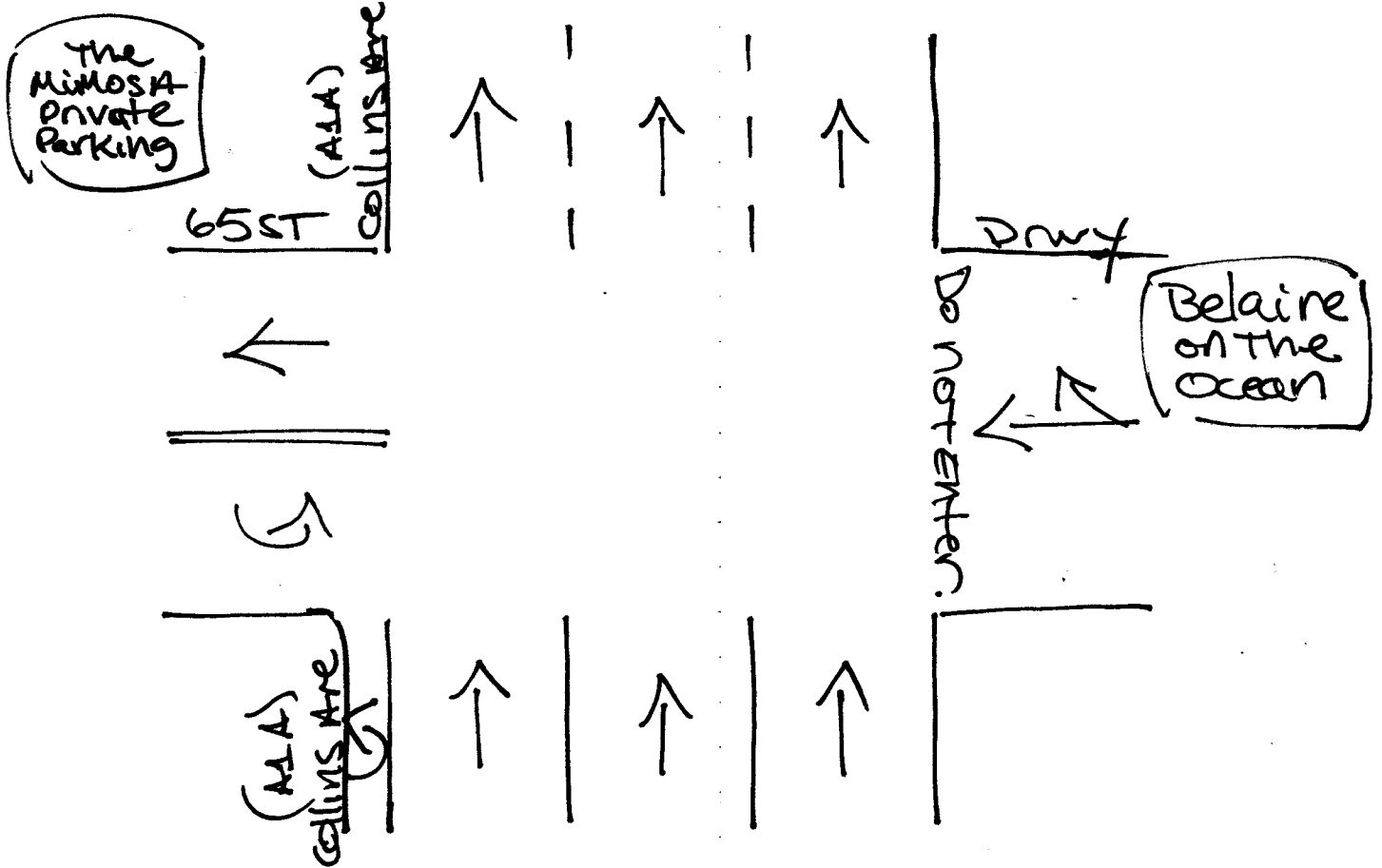
Site Code : 00170131
Start Date: 08/04/17
File I.D. : 65STCOLL
Page : 1

PEDESTRIANS & BIKES

COLLINS AVENUE From North				DRIVEWAY From East				COLLINS AVENUE From South				65TH STREET From West				
Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 08/04/17 -----																
07:00	0	0	0	0	0	0	2	0	0	0	6	0	0	0	2	10
07:15	0	0	0	0	0	0	6	0	0	0	3	0	0	0	0	9
07:30	0	0	0	0	1	0	10	0	0	0	5	0	0	0	6	22
07:45	0	0	0	0	2	0	4	0	0	0	5	0	1	0	1	13
Hr Total	0	0	0	0	3	0	22	0	0	0	19	0	1	0	9	54
08:00	0	0	0	0	1	0	10	0	0	0	11	0	0	0	17	39
08:15	0	0	0	0	0	0	5	0	0	0	9	0	0	0	12	26
08:30	0	0	0	0	1	0	6	0	1	0	8	0	1	0	15	32
08:45	0	0	0	0	0	0	0	0	0	0	5	0	0	0	11	16
Hr Total	0	0	0	0	2	0	21	0	1	0	33	0	1	0	55	113
----- * BREAK * -----																
16:00	0	0	0	0	4	0	20	0	1	0	13	0	0	0	18	56
16:15	0	0	0	0	0	0	5	0	0	0	8	0	0	0	19	32
16:30	0	0	0	0	0	0	3	0	0	0	13	0	0	0	8	24
16:45	0	0	0	0	0	0	4	0	0	0	44	0	0	0	16	64
Hr Total	0	0	0	0	4	0	32	0	1	0	78	0	0	0	61	176
17:00	0	0	0	0	0	0	2	0	0	0	6	0	0	0	28	36
17:15	0	0	0	0	0	0	1	0	0	0	24	0	0	0	9	34
17:30	0	0	0	0	0	0	5	0	0	0	13	0	0	0	3	21
17:45	0	0	0	0	0	0	0	0	0	0	26	0	0	0	7	33
Hr Total	0	0	0	0	0	0	8	0	0	0	69	0	0	0	47	124

TOTAL	0	0	0	0	9	0	83	0	2	0	199	0	2	0	172	467

North



Miami Beach, Florida

August 04, 2017

drawn by: Luis Palomino
Signalized

65TH STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MICHAEL MALONE
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 65STINDI
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ALL VEHICLES

INDIAN CREEK DRIVE				65TH STREET				INDIAN CREEK DRIVE				DRIVEWAY					
From North				From East				From South				From West					
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total	
Date 08/04/17																	
07:00	1	8	431	0	0	28	1	2	5	0	60	6	0	0	0	1	543
07:15	1	14	554	0	0	34	0	5	2	0	64	5	1	1	0	0	681
07:30	0	13	681	0	0	25	0	2	3	0	78	2	0	0	0	2	806
07:45	1	10	732	0	0	34	0	1	4	0	92	2	0	0	0	1	877
Hr Total	3	45	2398	0	0	121	1	10	14	0	294	15	1	1	0	4	2907
08:00	0	11	746	1	0	45	0	4	8	0	93	2	0	0	0	2	912
08:15	0	13	860	0	0	27	0	5	9	0	121	6	1	0	0	1	1043
08:30	0	11	796	0	0	29	0	7	9	0	134	5	0	0	0	1	992
08:45	0	11	735	1	0	41	0	6	1	1	129	6	0	1	0	0	932
Hr Total	0	46	3137	2	0	142	0	22	27	1	477	19	1	1	0	4	3879
----- * BREAK *																	
16:00	0	14	499	1	0	40	0	13	0	0	266	8	0	0	0	1	842
16:15	0	21	515	0	0	38	0	9	0	2	316	14	0	0	0	1	916
16:30	0	20	511	2	1	34	2	20	1	1	300	13	0	1	1	2	909
16:45	0	10	462	0	0	30	1	36	0	1	292	7	0	0	0	2	841
Hr Total	0	65	1987	3	1	142	3	78	1	4	1174	42	0	1	1	6	3508
17:00	0	15	536	0	0	44	1	9	0	0	347	15	0	0	0	1	968
17:15	0	13	472	0	0	27	0	20	2	3	345	18	0	0	1	1	902
17:30	0	15	476	0	0	38	0	26	2	0	307	8	0	0	0	0	872
17:45	0	16	479	1	0	47	1	28	0	0	372	13	0	0	1	0	958
Hr Total	0	59	1963	1	0	156	2	83	4	3	1371	54	0	0	2	2	3700
TOTAL	3	215	9485	6	1	561	6	193	46	8	3316	130	2	3	3	16	13994

65TH STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MICHAEL MALONE
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
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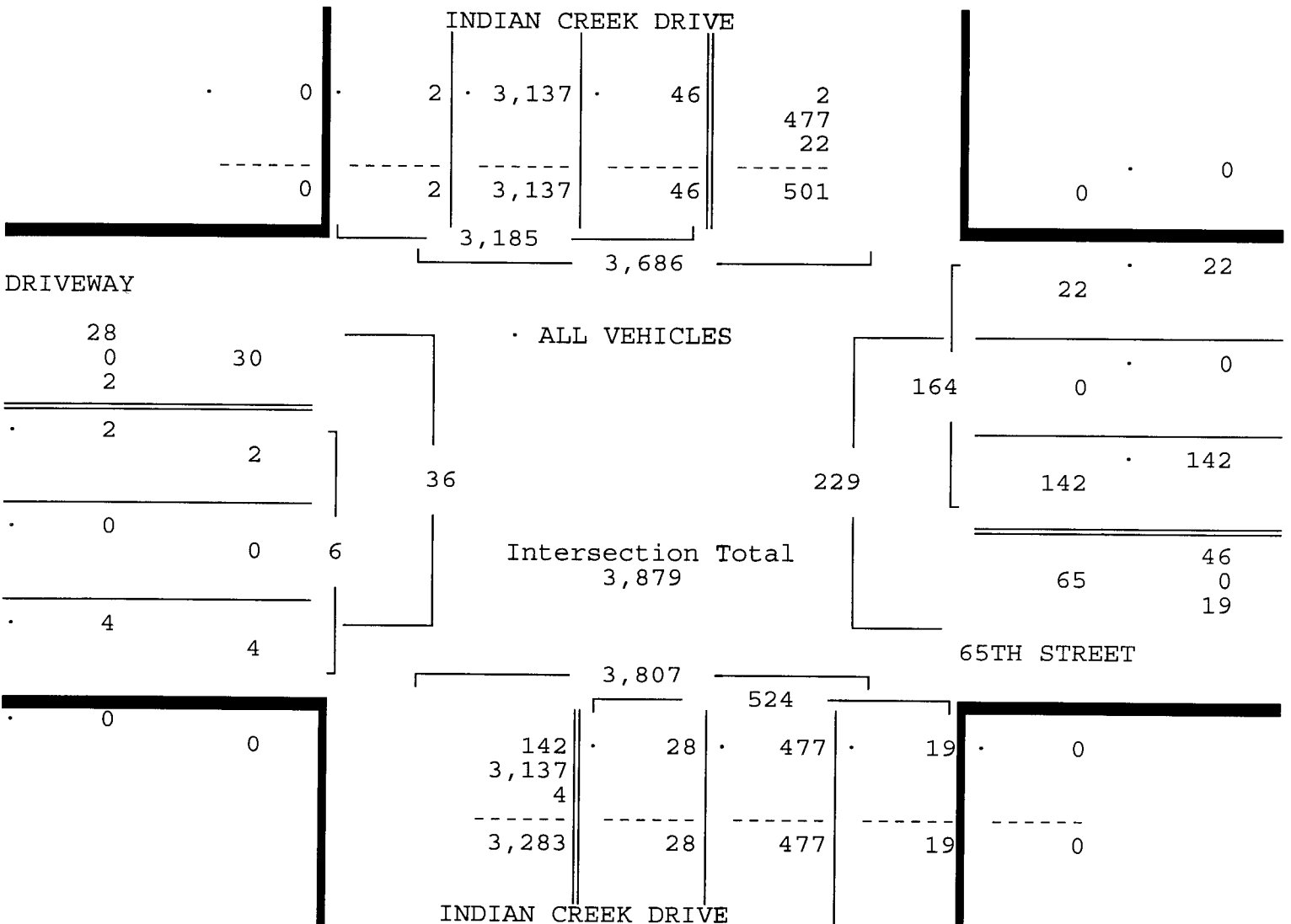
ALL VEHICLES

INDIAN CREEK DRIVE From North				65TH STREET From East				INDIAN CREEK DRIVE From South				DRIVEWAY From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 08/04/17

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 08/04/17

Peak start 08:00					08:00				08:00				08:00			
Volume	0	46	3137	2	0	142	0	22	27	1	477	19	1	1	0	4
Percent	0%	1%	98%	0%	0%	87%	0%	13%	5%	0%	91%	4%	17%	17%	0%	67%
Pk total	3185					164					524					6
Highest	08:15					08:00					08:30					08:00
Volume	0	13	860	0	0	45	0	4	9	0	134	5	0	0	0	2
Hi total	873					49					148					2
PHF	.91					.84					.89					.75



65TH STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MICHAEL MALONE
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 65STINDI
 Page : 3

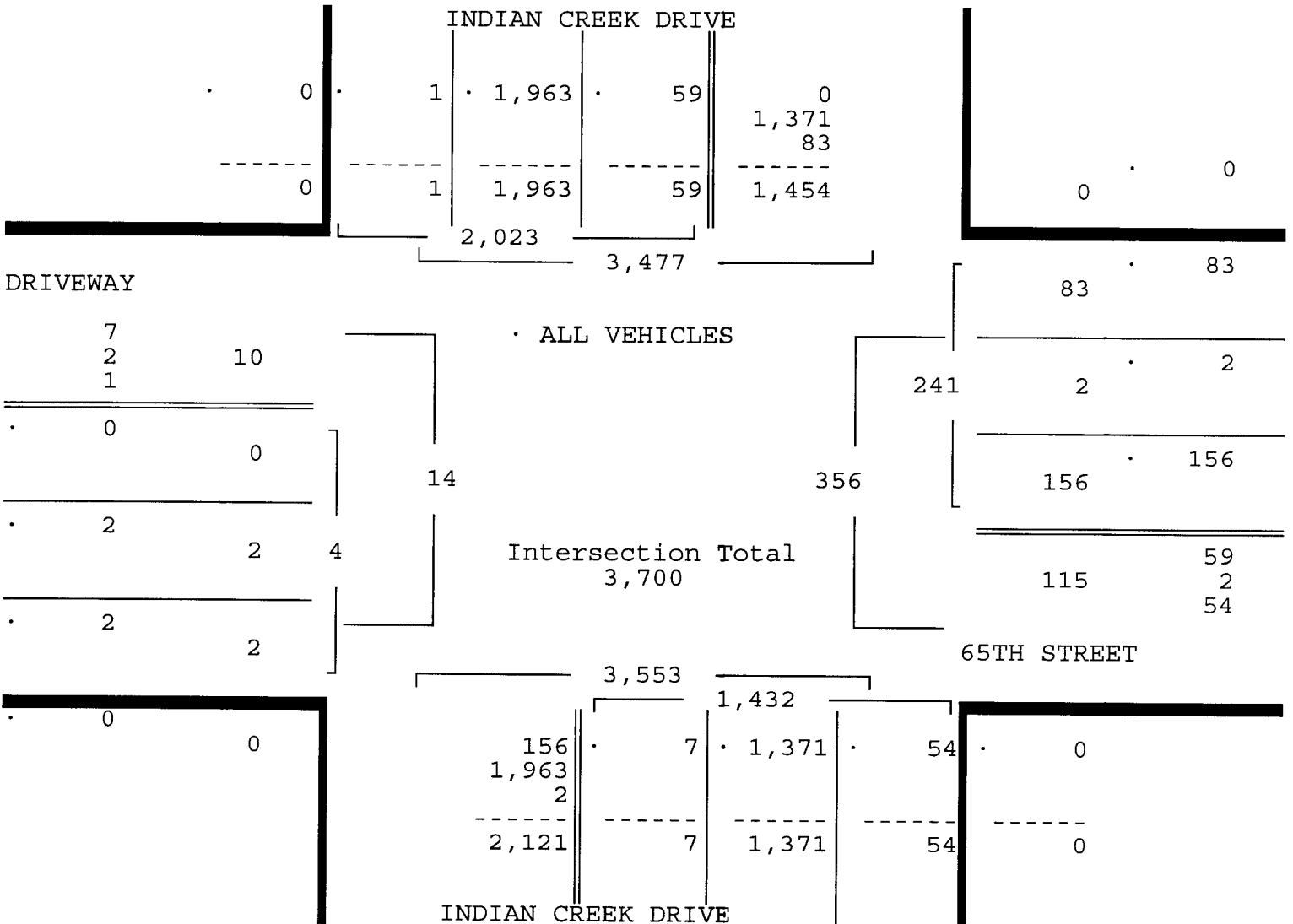
ALL VEHICLES

INDIAN CREEK DRIVE From North				65TH STREET From East				INDIAN CREEK DRIVE From South				DRIVEWAY From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 08/04/17

Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 08/04/17

Peak start 17:00					17:00				17:00				17:00			
Volume	0	59	1963	1	0	156	2	83	4	3	1371	54	0	0	2	2
Percent	0%	3%	97%	0%	0%	65%	1%	34%	0%	0%	96%	4%	0%	0%	50%	50%
Pk total	2023					241					1432					4
Highest	17:00					17:45					17:45					17:15
Volume	0	15	536	0	0	47	1	28	0	0	372	13	0	0	1	1
Hi total	551					76					385					2
PHF	.92					.79					.93					.50



65TH STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: MICHAEL MALONE
 SIGNALIZED

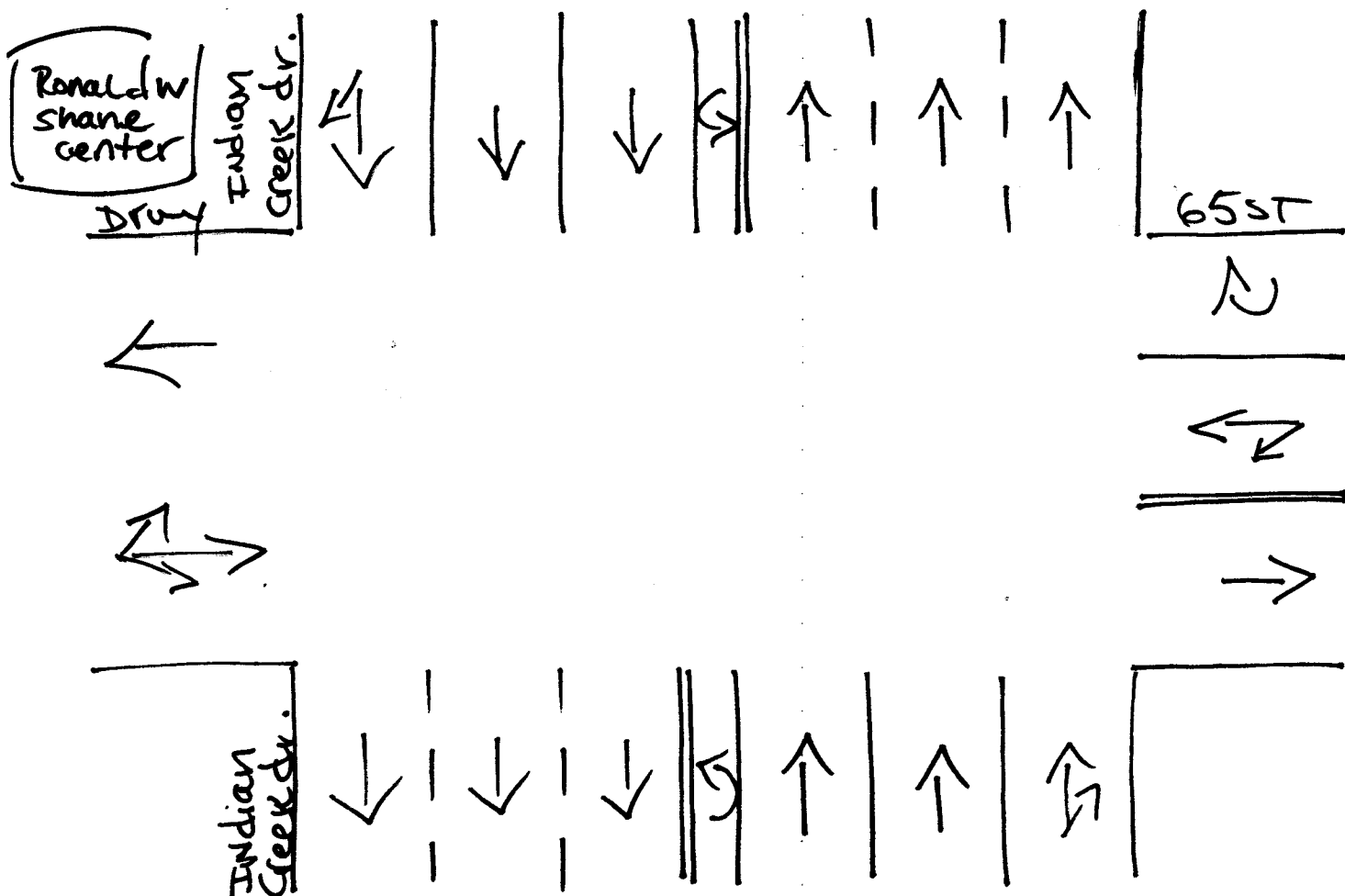
TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 65STINDI
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PEDESTRIANS & BIKES

	INDIAN CREEK DRIVE From North				65TH STREET From East				INDIAN CREEK DRIVE From South				DRIVEWAY From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
Date 08/04/17																	
07:00	0	0	0	3	0	2	0	2	0	0	0	2	0	3	0	0	12
07:15	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
07:30	0	0	0	3	0	1	0	2	0	0	0	0	0	3	0	3	12
07:45	0	0	0	2	0	0	0	1	0	0	0	3	0	1	0	1	8
Hr Total	0	0	0	9	0	4	0	5	0	0	0	5	0	7	0	4	34
08:00	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	1	5
08:15	0	0	0	4	0	0	0	2	0	0	0	3	0	2	0	2	13
08:30	0	0	0	2	0	0	0	3	0	0	0	2	0	0	0	2	9
08:45	0	1	0	0	0	1	0	3	0	0	0	5	0	0	0	4	14
Hr Total	0	1	0	8	0	1	0	8	0	0	0	12	0	2	0	9	41
* BREAK *																	
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	1	0	1	0	0	0	4	0	5	11
16:30	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	1	5
16:45	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	3
Hr Total	0	0	0	1	0	0	0	4	0	1	0	0	0	6	0	7	19
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	1	0	3	0	0	0	4	0	0	0	0	0	1	0	5	14
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	9
17:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Hr Total	0	1	0	4	0	0	0	4	0	0	0	0	0	2	0	13	24
TOTAL	0	2	0	22	0	5	0	21	0	1	0	17	0	17	0	33	118

North



Miami Beach, Florida
August 04, 2017
drawn by: Luis Palomino
Signalized

63RD STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & W. DE LUNA VARGAS
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STINDI
 Page : 1

ALL VEHICLES

INDIAN CREEK DRIVE					63RD STREET				INDIAN CREEK DRIVE				63RD STREET				
From North					From East				From South				From West				
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	Total
Date 08/04/17 -----																	
07:00	0	13	213	261	0	9	0	21	0	0	0	0	0	40	86	12	655
07:15	2	12	216	369	0	4	0	11	0	0	0	0	0	54	90	12	770
07:30	1	9	251	463	0	4	0	18	0	0	0	0	0	56	87	10	899
07:45	0	16	303	454	1	13	0	19	0	0	0	0	0	76	99	23	1004
Hr Total	3	50	983	1547	1	30	0	69	0	0	0	0	0	226	362	57	3328
08:00	2	21	288	531	0	11	0	29	0	0	0	0	0	69	93	13	1057
08:15	1	3	330	532	0	10	0	23	0	0	0	0	0	69	112	13	1093
08:30	0	17	357	556	0	19	0	33	0	0	0	0	0	108	105	20	1215
08:45	1	22	285	538	0	16	0	30	0	0	0	0	0	111	99	22	1124
Hr Total	4	63	1260	2157	0	56	0	115	0	0	0	0	0	357	409	68	4489
----- * BREAK * -----																	
16:00	1	21	207	329	0	7	0	44	0	0	0	0	0	230	152	27	1018
16:15	2	21	193	333	0	8	0	40	0	0	0	0	0	285	189	35	1106
16:30	1	27	237	328	0	11	0	68	0	0	0	0	0	232	167	37	1108
16:45	4	17	194	309	1	7	0	50	0	0	0	0	0	252	177	33	1044
Hr Total	8	86	831	1299	1	33	0	202	0	0	0	0	0	999	685	132	4276
17:00	0	23	188	370	1	4	0	69	0	0	0	0	0	288	182	28	1153
17:15	4	17	211	338	0	9	0	56	0	0	0	0	0	305	192	23	1155
17:30	2	14	198	308	0	11	0	66	0	0	0	0	0	271	169	24	1063
17:45	0	26	184	339	0	14	0	43	0	0	0	0	0	278	170	25	1079
Hr Total	6	80	781	1355	1	38	0	234	0	0	0	0	0	1142	713	100	4450

TOTAL	21	279	3855	6358	3	157	0	620	0	0	0	0	0	2724	2169	357	16543

63RD STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & W. DE LUNA VARGAS
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STINDI
 Page : 2

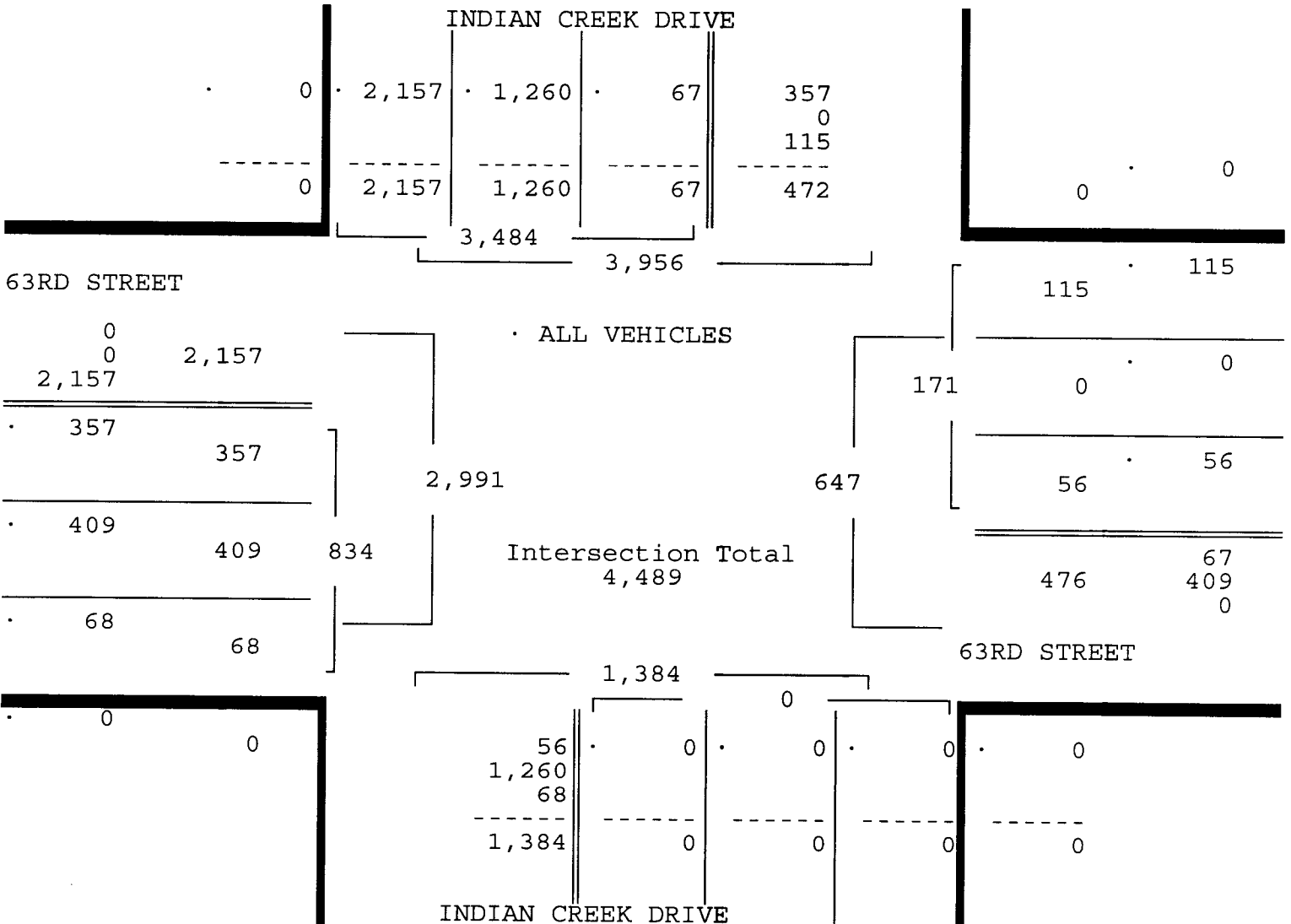
ALL VEHICLES

INDIAN CREEK DRIVE From North				63RD STREET From East				INDIAN CREEK DRIVE From South				63RD STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 08/04/17

Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 09:00 on 08/04/17

Peak start 08:00					08:00				08:00				08:00			
Volume	4	63	1260	2157	0	56	0	115	0	0	0	0	0	357	409	68
Percent	0%	2%	36%	62%	0%	33%	0%	67%	0%	0%	0%	0%	0%	43%	49%	8%
Pk total	3484					171					0					834
Highest	08:30					08:30					07:00					08:30
Volume	0	17	357	556	0	19	0	33	0	0	0	0	0	108	105	20
Hi total	930					52					0					233
PHF	.94					.82					.0					.89



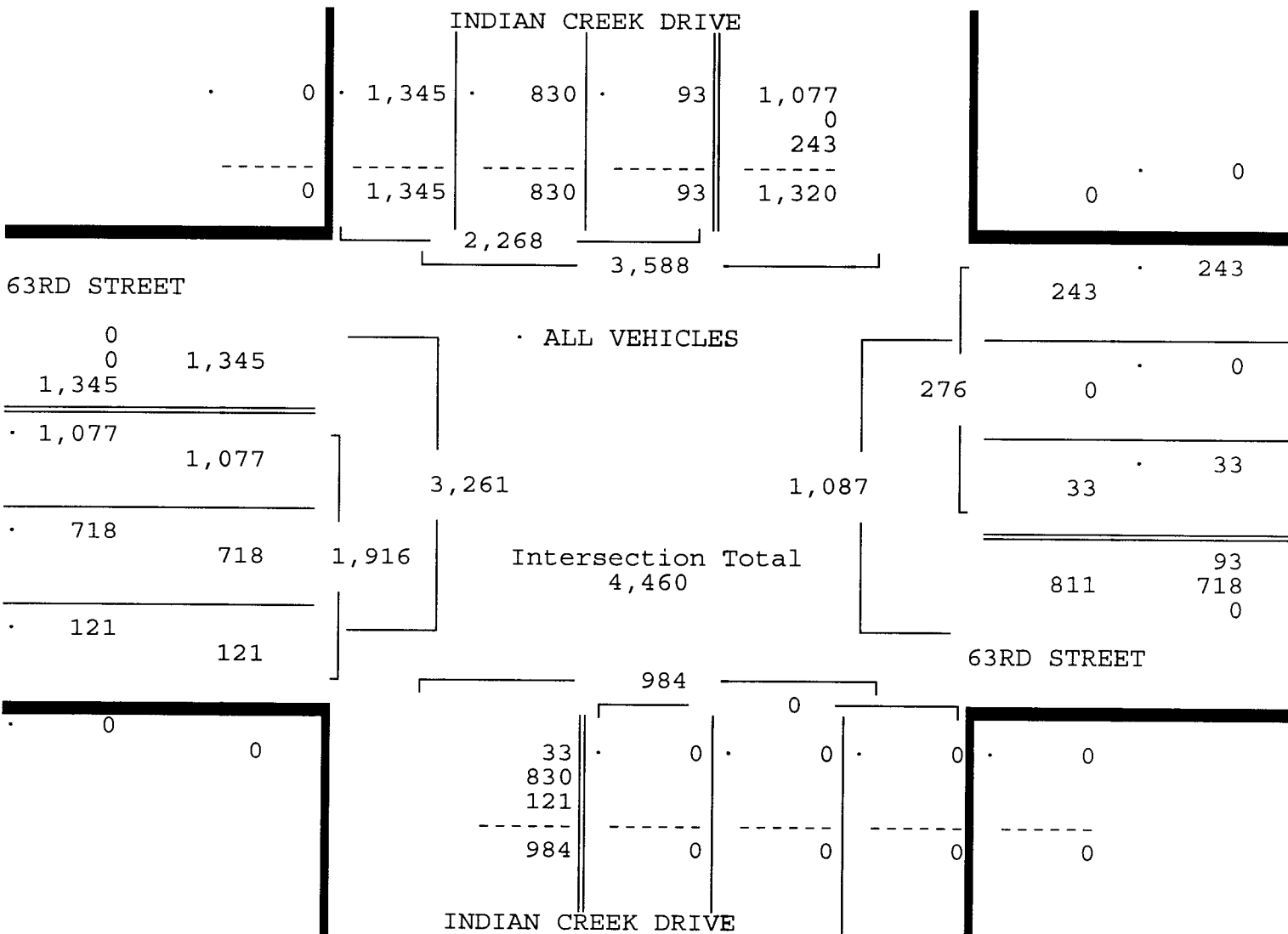
63RD STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & W. DE LUNA VARGAS
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STINDI
 Page : 3

ALL VEHICLES

INDIAN CREEK DRIVE				63RD STREET				INDIAN CREEK DRIVE				63RD STREET				Total
From North				From East				From South				From West				
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	
Date 08/04/17 -----																
Peak Hour Analysis By Entire Intersection for the Period: 16:00 to 18:00 on 08/04/17																
Peak start 16:30				16:30				16:30				16:30				
Volume	9	84	830	1345	2	31	0	243	0	0	0	0	0	1077	718	121
Percent	0%	4%	37%	59%	1%	11%	0%	88%	0%	0%	0%	0%	0%	56%	37%	6%
Pk total	2268				276				0					1916		
Highest	16:30				16:30				07:00					17:15		
Volume	1	27	237	328	0	11	0	68	0	0	0	0	0	305	192	23
Hi total	593				79				0					520		
PHF	.96				.87				.0					.92		



63RD STREET & INDIAN CREEK DRIVE
 MIAMI BEACH, FLORIDA
 COUNTED BY: S. SALVO & W. DE LUNA VARGAS
 SIGNALIZED

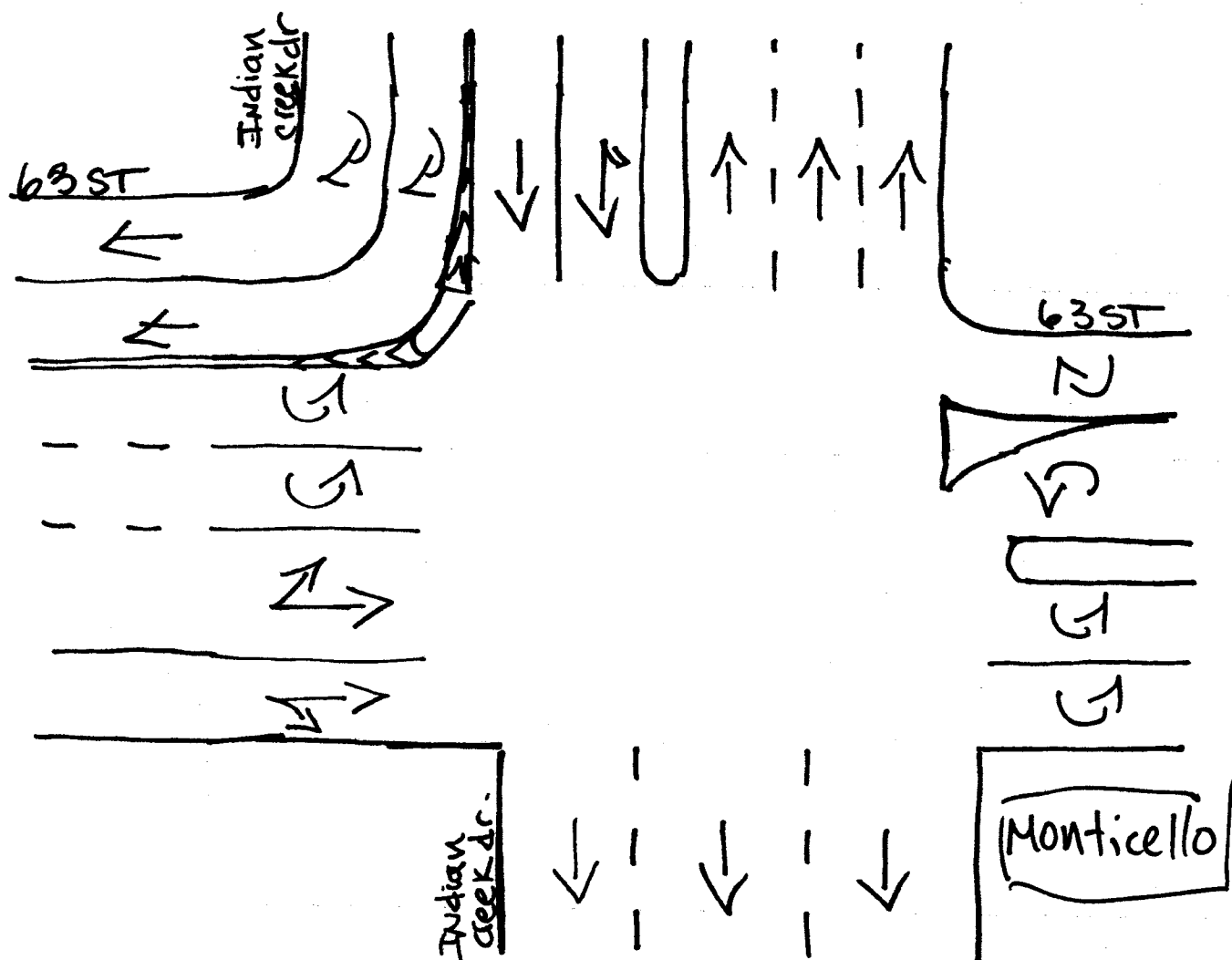
TRAFFIC SURVEY SPECIALISTS, INC.
 85 SE 4TH AVENUE, UNIT 109
 DELRAY BEACH, FLORIDA
 PHONE (561)272-3255

Site Code : 00170131
 Start Date: 08/04/17
 File I.D. : 63STINDI
 Page : 1

PEDESTRIANS & BIKES

Date	INDIAN CREEK DRIVE From North				63RD STREET From East				INDIAN CREEK DRIVE From South				63RD STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
08/04/17																	
07:00	0	1	0	2	0	0	0	1	0	0	0	5	0	1	0	0	10
07:15	0	0	0	1	0	0	0	2	0	0	0	3	0	0	0	0	6
07:30	0	0	0	1	0	1	0	0	0	1	0	5	0	1	0	1	10
07:45	0	0	0	1	0	0	0	2	0	0	0	7	0	0	0	0	10
Hr Total	0	1	0	5	0	1	0	5	0	1	0	20	0	2	0	1	36
08:00	0	1	0	0	0	0	0	0	0	3	0	5	0	1	0	0	10
08:15	0	0	0	2	0	0	0	1	0	1	0	6	0	1	0	2	13
08:30	0	0	0	0	0	0	0	1	0	0	0	5	0	1	0	0	7
08:45	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Hr Total	0	2	0	2	0	0	0	2	0	4	0	17	0	3	0	2	32
* BREAK *																	
16:00	0	0	0	0	0	0	0	1	0	1	0	3	0	2	0	2	9
16:15	0	0	0	0	0	0	0	0	0	0	0	2	0	7	0	0	9
16:30	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0	5
16:45	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	7
Hr Total	0	1	0	0	0	0	0	3	0	1	0	12	0	9	0	4	30
17:00	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	9
17:15	0	0	0	0	0	0	0	1	0	1	0	7	0	1	0	7	17
17:30	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	3	6
17:45	0	2	0	0	0	0	0	0	0	3	0	5	0	2	0	1	13
Hr Total	0	2	0	1	0	0	0	1	0	4	0	19	0	3	0	15	45
TOTAL	0	6	0	8	0	1	0	11	0	10	0	68	0	17	0	22	143

North



Miami Beach, Florida

June 20, 2014

drawn by: Luis Palomino

Signalized

JP

8-4-17

APPENDIX D

Peak Season Conversion Factors and Historical Traffic Data

2016 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 8700 MIAMI-DADE NORTH

WEEK	DATES	SF	MOCF: 0.98 PSCF
1	01/01/2016 - 01/02/2016	1.02	1.04
2	01/03/2016 - 01/09/2016	1.03	1.05
3	01/10/2016 - 01/16/2016	1.04	1.06
4	01/17/2016 - 01/23/2016	1.03	1.05
5	01/24/2016 - 01/30/2016	1.02	1.04
6	01/31/2016 - 02/06/2016	1.00	1.02
7	02/07/2016 - 02/13/2016	0.99	1.01
* 8	02/14/2016 - 02/20/2016	0.97	0.99
* 9	02/21/2016 - 02/27/2016	0.97	0.99
*10	02/28/2016 - 03/05/2016	0.98	1.00
*11	03/06/2016 - 03/12/2016	0.98	1.00
*12	03/13/2016 - 03/19/2016	0.98	1.00
*13	03/20/2016 - 03/26/2016	0.98	1.00
*14	03/27/2016 - 04/02/2016	0.98	1.00
*15	04/03/2016 - 04/09/2016	0.98	1.00
*16	04/10/2016 - 04/16/2016	0.98	1.00
*17	04/17/2016 - 04/23/2016	0.98	1.00
*18	04/24/2016 - 04/30/2016	0.98	1.00
*19	05/01/2016 - 05/07/2016	0.98	1.00
*20	05/08/2016 - 05/14/2016	0.99	1.01
21	05/15/2016 - 05/21/2016	0.99	1.01
22	05/22/2016 - 05/28/2016	0.99	1.01
23	05/29/2016 - 06/04/2016	1.00	1.02
24	06/05/2016 - 06/11/2016	1.00	1.02
25	06/12/2016 - 06/18/2016	1.01	1.03
26	06/19/2016 - 06/25/2016	1.02	1.04
27	06/26/2016 - 07/02/2016	1.02	1.04
28	07/03/2016 - 07/09/2016	1.03	1.05
29	07/10/2016 - 07/16/2016	1.03	1.05
30	07/17/2016 - 07/23/2016	1.03	1.05
31	07/24/2016 - 07/30/2016	1.03	1.05
32	07/31/2016 - 08/06/2016	1.02	1.04
33	08/07/2016 - 08/13/2016	1.02	1.04
34	08/14/2016 - 08/20/2016	1.02	1.04
35	08/21/2016 - 08/27/2016	1.02	1.04
36	08/28/2016 - 09/03/2016	1.02	1.04
37	09/04/2016 - 09/10/2016	1.02	1.04
38	09/11/2016 - 09/17/2016	1.01	1.03
39	09/18/2016 - 09/24/2016	1.01	1.03
40	09/25/2016 - 10/01/2016	1.00	1.02
41	10/02/2016 - 10/08/2016	1.00	1.02
42	10/09/2016 - 10/15/2016	0.99	1.01
43	10/16/2016 - 10/22/2016	1.00	1.02
44	10/23/2016 - 10/29/2016	1.00	1.02
45	10/30/2016 - 11/05/2016	1.01	1.03
46	11/06/2016 - 11/12/2016	1.01	1.03
47	11/13/2016 - 11/19/2016	1.02	1.04
48	11/20/2016 - 11/26/2016	1.02	1.04
49	11/27/2016 - 12/03/2016	1.02	1.04
50	12/04/2016 - 12/10/2016	1.02	1.04
51	12/11/2016 - 12/17/2016	1.02	1.04
52	12/18/2016 - 12/24/2016	1.03	1.05
53	12/25/2016 - 12/31/2016	1.04	1.06

* PEAK SEASON

21-FEB-2017 10:54:35

830UPD

6_8700_PKSEASON.TXT

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2541 - SR A1A/COLLINS AVE, 500' S OF 63 ST (MIAMI BEACH)

YEAR	AADT		DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----	-----	-----	-----	-----
2016	21000 C	N	21000	0	9.00	99.90	7.80
2015	20000 C	N	20000	0	9.00	99.90	4.60
2014	21500 C	N	21500		9.00	99.90	5.10
2013	21000 C	N	21000	0	9.00	99.90	6.10
2012	19000 C	N	19000	0	9.00	99.90	8.40
2011	17000 C	N	17000	0	9.00	99.90	7.50
2010	15000 C	N	15000	0	8.98	99.99	8.80
2009	21000 C	N	21000	0	8.99	99.99	8.40
2008	18000 C	N	18000	0	9.09	99.99	5.30
2007	16000 S		0	0	8.01	99.99	4.90
2006	16000 F				7.97	99.99	2.20
2005	16000 C	N	16000		8.80	99.90	5.50
2004	17000 C	N	17000		9.00	99.90	8.20
2003	18000 C	N	18000		8.80	99.90	4.90
2002	18500 C	N	18500		9.80	99.90	2.60
2001	18500 C	N	18500		8.20	99.90	3.00

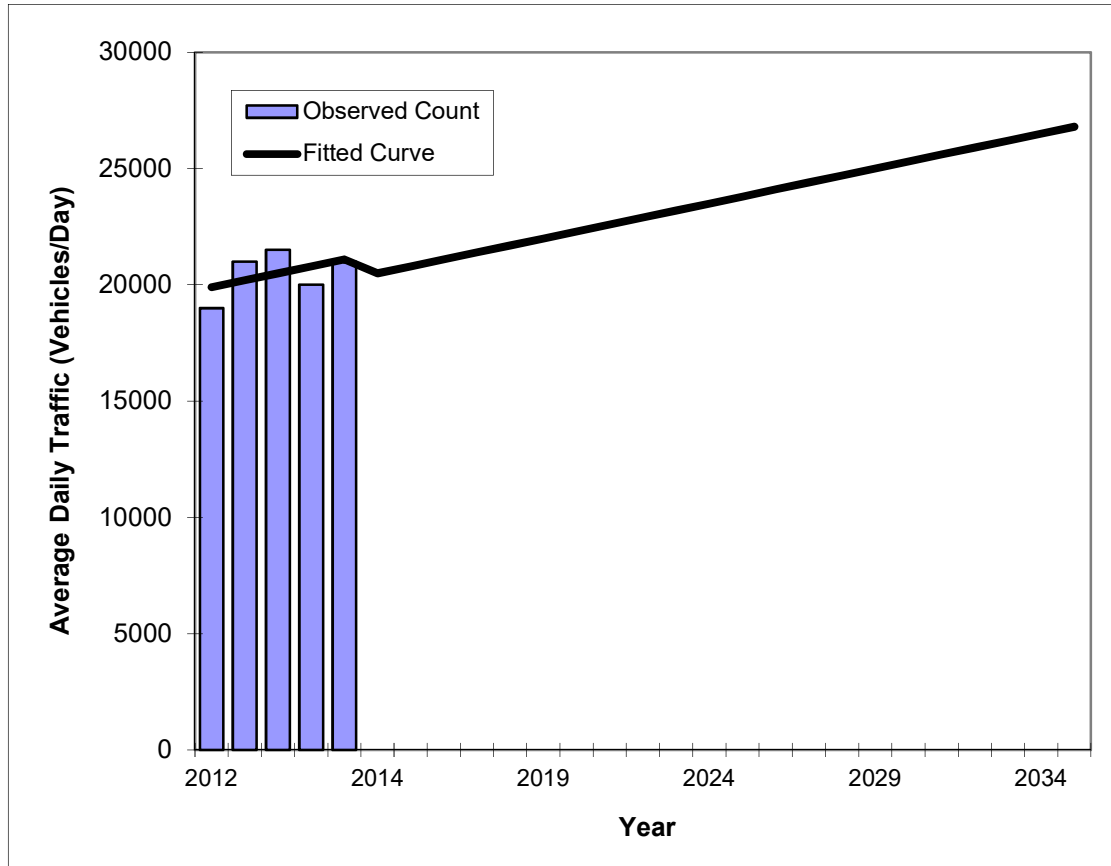
AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends - V2.0

SR A1A/COLLINS AVE -- 500' S OF 63 ST

PIN#	0
Location	1

County:	Miami-Dade
Station #:	2541
Highway:	SR A1A/COLLINS AVE



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2012	19000	19900
2013	21000	20200
2014	21500	20500
2015	20000	20800
2016	21000	21100
2017 Opening Year Trend		
2017	N/A	21400
2018 Mid-Year Trend		
2018	N/A	21700
2018 Design Year Trend		
2018	N/A	21700
TRANPLAN Forecasts/Trends		

** Annual Trend Increase:	300
Trend R-squared:	22.50%
Trend Annual Historic Growth Rate:	1.51%
Trend Growth Rate (2016 to Design Year):	1.42%
Printed:	11-Aug-17
Straight Line Growth Option	

*Axle-Adjusted

APPENDIX E

Future Turning Movement Volumes

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Indian Creek Drive and W 63th Street Weekday AM Peak Hour Analysis

Description	Northbound			Indian Creek Drive Southbound			W 63rd Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)				67	1,260	2,157	357	409	68	56		115
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	0	0	0	70	1,310	2,243	371	425	71	58	0	120
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	0	0	0	71	1,330	2,277	377	432	72	59	0	121
2018 Background Traffic	0	0	0	71	1,330	2,277	377	432	72	59	0	121
Net New Project Trips				13	8	6		8				
2018 Total Traffic	0	0	0	84	1,338	2,283	377	440	72	59	0	121

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Indian Creek Drive and W 63th Street Weekday PM Peak Hour Analysis

Description	Northbound			Indian Creek Drive Southbound			W 63rd Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)				93	830	1,345	1,077	718	121	33		243
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	0	0	0	97	863	1,399	1,120	747	126	34	0	253
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	0	0	0	98	876	1,420	1,137	758	128	35	0	257
2018 Background Traffic	0	0	0	98	876	1,420	1,137	758	128	35	0	257
Net New Project Trips				10	15	10		10				
2018 Total Traffic	0	0	0	108	891	1,430	1,137	768	128	35	0	257

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 63rd Street Weekday AM Peak Hour Analysis

Description	Collins Avenue Northbound			Southbound			63rd Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	176	541					432					
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	183	563	0	0	0	0	449	0	0	0	0	0
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	186	571	0	0	0	0	456	0	0	0	0	0
2018 Background Traffic	186	571	0	0	0	0	456	0	0	0	0	0
Net New Project Trips		11					21					
2018 Total Traffic	186	582	0	0	0	0	477	0	0	0	0	0

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 63rd Street Weekday PM Peak Hour Analysis

Description	Collins Avenue Northbound			Southbound			63rd Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	286	1,230					809		0			
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	297	1,279	0	0	0	0	841	0	0	0	0	0
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	302	1,298	0	0	0	0	854	0	0	0	0	0
2018 Background Traffic	302	1,298	0	0	0	0	854	0	0	0	0	0
Net New Project Trips		14					20					
2018 Total Traffic	302	1,312	0	0	0	0	874	0	0	0	0	0

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Indian Creek Drive and 65th Street Weekday AM Peak Hour Analysis

Description	Indian Creek Drive Northbound			Indian Creek Drive Southbound			65th Street Eastbound			65th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	28	477	19	46	3,137	2	2	0	4	142		22
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	29	496	20	48	3,262	2	2	0	4	148	0	23
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	30	504	20	49	3,311	2	2	0	4	150	0	23
2018 Background Traffic	30	504	20	49	3,311	2	2	0	4	150	0	23
Net New Project Trips					13		14		6			
2018 Total Traffic	30	504	20	49	3,324	2	16	0	10	150	0	23

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Indian Creek Drive and 65th Street Weekday PM Peak Hour Analysis

Description	Indian Creek Drive Northbound			Indian Creek Drive Southbound			65th Street Eastbound			65th Street Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	7	1,371	54	59	1,963	1	0	2	2	156	2	83
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	7	1,426	56	61	2,042	1	0	2	2	162	2	86
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	7	1,447	57	62	2,072	1	0	2	2	165	2	88
2018 Background Traffic	7	1,447	57	62	2,072	1	0	2	2	165	2	88
Net New Project Trips					10		25		10			
2018 Total Traffic	7	1,447	57	62	2,082	1	25	2	12	165	2	88

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 65th Street Weekday AM Peak Hour Analysis

Description	Collins Avenue Northbound			Southbound			65th Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	157	931					64					
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	163	968	0	0	0	0	67	0	0	0	0	0
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	166	983	0	0	0	0	68	0	0	0	0	0
2018 Background Traffic	166	983	0	0	0	0	68	0	0	0	0	0
Net New Project Trips	20											
2018 Total Traffic	186	983	0	0	0	0	68	0	0	0	0	0

FUTURE TURNING MOVEMENT VOLUME ANALYSIS

Collins Avenue and 65th Street Weekday PM Peak Hour Analysis

Description	Collins Avenue Northbound			Southbound			65th Street Eastbound			Westbound		
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
Existing Traffic (8/4/2017)	180	1,714					109					
Season Adjustment Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
2016 Peak Season Traffic	187	1,783	0	0	0	0	113	0	0	0	0	0
Annual Growth Rate	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2018 Growth Traffic	190	1,809	0	0	0	0	115	0	0	0	0	0
2018 Background Traffic	190	1,809	0	0	0	0	115	0	0	0	0	0
Net New Project Trips	35	5										
2018 Total Traffic	225	1,814	0	0	0	0	115	0	0	0	0	0

APPENDIX F

Intersection Capacity Analyses

Timings

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	371	425	58	120	1310	2243
Future Volume (vph)	371	425	58	120	1310	2243
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	14.0	14.0	33.0	33.0
Total Split (s)	66.0	66.0	14.0	14.0	100.0	100.0
Total Split (%)	36.7%	36.7%	7.8%	7.8%	55.6%	55.6%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	50.8	50.8	7.7	7.7	100.3	100.3
Actuated g/C Ratio	0.28	0.28	0.04	0.04	0.56	0.56
v/c Ratio	0.47	0.73	0.93	0.71	1.35	0.96
Control Delay	54.6	62.5	183.3	49.6	192.6	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	62.5	183.3	49.6	192.6	19.9
LOS	D	E	F	D	F	B
Approach Delay		59.5			111.3	
Approach LOS		E			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.35

Intersection Signal Delay: 101.0

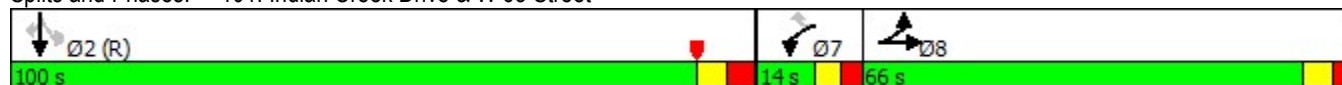
Intersection LOS: F

Intersection Capacity Utilization 94.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	363	579	63	130	2085	1853
v/c Ratio	0.47	0.73	0.93	0.71	1.35	0.96
Control Delay	54.6	62.5	183.3	49.6	192.6	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	62.5	183.3	49.6	192.6	19.9
Queue Length 50th (ft)	206	354	79	25	~1864	386
Queue Length 95th (ft)	251	411	#187	#111	m#1936	m382
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	899	924	68	183	1544	1930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.63	0.93	0.71	1.35	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	371	425	71	58	0	120	0	0	0	70	1310	2243
Future Volume (vph)	371	425	71	58	0	120	0	0	0	70	1310	2243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		0.96					1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.96	0.85
Flt Protected	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2795		1593		1374					2744	2408
Flt Permitted	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2795		1593		1374					2744	2408
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	403	462	77	63	0	130	0	0	0	76	1424	2438
RTOR Reduction (vph)	0	6	0	0	0	124	0	0	0	0	17	589
Lane Group Flow (vph)	363	573	0	63	0	6	0	0	0	0	2068	1264
Confl. Peds. (#/hr)	2		17	17		2						2
Confl. Bikes (#/hr)			4			2						3
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	50.8	50.8		7.7		7.7					100.3	100.3
Effective Green, g (s)	50.8	50.8		7.7		7.7					100.3	100.3
Actuated g/C Ratio	0.28	0.28		0.04		0.04					0.56	0.56
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	773	788		68		58					1529	1341
v/s Ratio Prot	0.13	c0.20		c0.04								
v/s Ratio Perm						0.00					0.75	0.52
v/c Ratio	0.47	0.73		0.93		0.10					1.35	0.94
Uniform Delay, d1	53.5	58.3		85.9		82.8					39.9	37.2
Progression Factor	1.00	1.00		1.19		2.67					1.04	1.39
Incremental Delay, d2	0.9	4.1		81.0		0.3					160.2	5.9
Delay (s)	54.4	62.4		183.1		221.6					201.6	57.7
Level of Service	D	E		F		F					F	E
Approach Delay (s)		59.3			209.0			0.0			133.9	
Approach LOS		E			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			122.9			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.13									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			94.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	←←	↑↑↑
Traffic Volume (vph)	449	563
Future Volume (vph)	449	563
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	32.0	58.0
Total Split (%)	35.6%	64.4%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effect Green (s)	18.1	61.9
Actuated g/C Ratio	0.20	0.69
v/c Ratio	0.80	0.27
Control Delay	59.4	6.1
Queue Delay	0.0	0.0
Total Delay	59.4	6.1
LOS	E	A
Approach Delay	59.4	6.1
Approach LOS	E	A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:NBTL and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 26.1

Intersection LOS: C

Intersection Capacity Utilization 44.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	499	829
v/c Ratio	0.80	0.27
Control Delay	59.4	6.1
Queue Delay	0.0	0.0
Total Delay	59.4	6.1
Queue Length 50th (ft)	279	57
Queue Length 95th (ft)	m312	91
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	927	3099
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.54	0.27

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←			↑↑↑		
Traffic Volume (vph)	449	0	183	563	0	0
Future Volume (vph)	449	0	183	563	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4509		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4509		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	499	0	203	626	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	499	0	0	829	0	0
Confl. Peds. (#/hr)		22	12			12
Confl. Bikes (#/hr)		1				1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	18.1			61.9		
Effective Green, g (s)	18.1			61.9		
Actuated g/C Ratio	0.20			0.69		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	621			3101		
v/s Ratio Prot	c0.16					
v/s Ratio Perm				0.18		
v/c Ratio	0.80			0.27		
Uniform Delay, d1	34.3			5.4		
Progression Factor	1.54			1.00		
Incremental Delay, d2	4.8			0.2		
Delay (s)	57.6			5.6		
Level of Service	E			A		
Approach Delay (s)	57.6			5.6	0.0	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			25.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.39			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			44.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	0	148	0	23	29	496	48	3262
Future Volume (vph)	2	0	148	0	23	29	496	48	3262
Turn Type	Perm	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	1	6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	5	1	6	5	2
Switch Phase									
Minimum Initial (s)	7.0	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	142.0	8.0	142.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	4.4%	4.4%	78.9%	4.4%	78.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)		25.2		25.2	32.0	144.6	139.0	144.6	139.0
Actuated g/C Ratio		0.14		0.14	0.18	0.80	0.77	0.80	0.77
v/c Ratio		0.03		1.04	0.10	0.39	0.16	0.09	1.00
Control Delay		0.2		154.1	28.6	25.7	22.5	3.5	36.6
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		0.2		154.1	28.6	25.7	22.5	3.5	36.6
LOS		A		F	C	C	C	A	D
Approach Delay		0.2		137.2			22.7		36.1
Approach LOS		A		F			C		D

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 49 (27%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 38.5

Intersection LOS: D

Intersection Capacity Utilization 94.9%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street



Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	161	25	32	561	52	3548
v/c Ratio	0.03	1.04	0.10	0.39	0.16	0.09	1.00
Control Delay	0.2	154.1	28.6	25.7	22.5	3.5	36.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	154.1	28.6	25.7	22.5	3.5	36.6
Queue Length 50th (ft)	0	~207	6	25	195	10	~1613
Queue Length 95th (ft)	0	#377	26	m47	219	19	#1647
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	218	155	242	82	3507	592	3534
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	0.03	1.04	0.10	0.39	0.16	0.09	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	4	148	0	23	29	496	20	48	3262	2
Future Volume (veh/h)	2	0	4	148	0	23	29	496	20	48	3262	2
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	2	0	4	161	0	25	32	539	22	52	3546	2
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	11	22	123	0	206	78	3449	140	638	3633	2
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.02	0.77	0.77	0.03	0.77	0.77
Sat Flow, veh/h	0	77	155	594	0	1233	1597	4507	183	1597	4724	3
Grp Volume(v), veh/h	6	0	0	161	0	25	32	364	197	52	2290	1258
Grp Sat Flow(s),veh/h/ln	232	0	0	594	0	1233	1597	1526	1638	1597	1526	1676
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.1	0.8	5.7	5.8	1.3	125.1	125.3
Cycle Q Clear(g_c), s	25.2	0.0	0.0	25.2	0.0	3.1	0.8	5.7	5.8	1.3	125.1	125.3
Prop In Lane	0.33		0.67	1.00		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	59	0	0	123	0	206	78	2335	1254	638	2346	1289
V/C Ratio(X)	0.10	0.00	0.00	1.31	0.00	0.12	0.41	0.16	0.16	0.08	0.98	0.98
Avail Cap(c_a), veh/h	59	0	0	123	0	206	87	2335	1254	641	2346	1289
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	0.99	0.00	0.99	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	0.0	81.5	0.0	63.9	56.3	5.6	5.6	4.2	19.3	19.3
Incr Delay (d2), s/veh	0.5	0.0	0.0	184.9	0.0	0.3	1.1	0.1	0.2	0.0	13.7	20.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	12.4	0.0	1.1	1.2	2.4	2.7	0.6	56.3	64.1
LnGrp Delay(d),s/veh	68.6	0.0	0.0	266.4	0.0	64.3	57.3	5.7	5.9	4.2	33.0	39.3
LnGrp LOS	E			F		E	E	A	A	A	C	D
Approach Vol, veh/h		6			186			593			3600	
Approach Delay, s/veh		68.6			239.2			8.6			34.8	
Approach LOS		E			F			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	143.0		30.0	7.6	142.4		30.0				
Change Period (Y+Rc), s	3.0	* 4.6		* 4.8	3.0	* 4.6		* 4.8				
Max Green Setting (Gmax), s	5.0	* 1.4E2		* 25	5.0	* 1.4E2		* 25				
Max Q Clear Time (g_c+l1), s	2.8	127.3		27.2	3.3	7.8		27.2				
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	1.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				39.9								
HCM 2010 LOS				D								
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	67	163	968
Future Volume (vph)	67	163	968
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	10.0	73.4	73.4
Actuated g/C Ratio	0.11	0.82	0.82
v/c Ratio	0.48	0.14	0.30
Control Delay	46.6	2.5	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	46.6	2.5	3.1
LOS	D	A	A
Approach Delay	46.6		3.0
Approach LOS	D		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 46 (51%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 42.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	77	187	1113
v/c Ratio	0.48	0.14	0.30
Control Delay	46.6	2.5	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	46.6	2.5	3.1
Queue Length 50th (ft)	49	13	50
Queue Length 95th (ft)	60	40	94
Internal Link Dist (ft)	319		1319
Turn Bay Length (ft)		100	
Base Capacity (vph)	350	1298	3730
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.14	0.30
Intersection Summary			

HCM 2010 Signalized Intersection Summary

104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	67	0	163	968	0	0		
Future Volume (veh/h)	67	0	163	968	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	77	0	187	1113				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.87	0.87	0.87	0.87				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1508	4322				
Arrive On Green	0.00	0.00	0.31	0.31				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		187	1113				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			7.5	16.4				
Cycle Q Clear(g_c), s			7.5	16.4				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1508	4323				
V/C Ratio(X)			0.12	0.26				
Avail Cap(c_a), veh/h			1508	4323				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.88	0.88				
Uniform Delay (d), s/veh			4.3	7.4				
Incr Delay (d2), s/veh			0.1	0.1				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			3.4	7.0				
LnGrp Delay(d),s/veh			4.5	7.5				
LnGrp LOS			A	A				
Approach Vol, veh/h				1300				
Approach Delay, s/veh				7.1				
Approach LOS				A				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		90.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		58.0						
Max Q Clear Time (g_c+l1), s		18.4						
Green Ext Time (p_c), s		3.5						
Intersection Summary								
HCM 2010 Ctrl Delay			7.1					
HCM 2010 LOS			A					

Timings

101: Indian Creek Drive & W 63 Street

						
Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	377	432	59	121	1330	2277
Future Volume (vph)	377	432	59	121	1330	2277
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	14.0	14.0	33.0	33.0
Total Split (s)	66.0	66.0	14.0	14.0	100.0	100.0
Total Split (%)	36.7%	36.7%	7.8%	7.8%	55.6%	55.6%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	51.6	51.6	7.7	7.7	99.5	99.5
Actuated g/C Ratio	0.29	0.29	0.04	0.04	0.55	0.55
v/c Ratio	0.47	0.73	0.94	0.71	1.38	0.98
Control Delay	54.1	62.1	186.1	49.7	206.1	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	62.1	186.1	49.7	206.1	22.1
LOS	D	E	F	D	F	C
Approach Delay		59.0			119.5	
Approach LOS		E			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.38

Intersection Signal Delay: 107.3

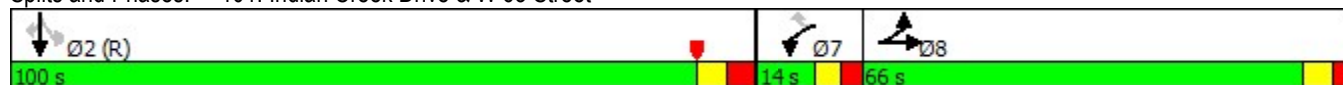
Intersection LOS: F

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	369	589	64	132	2117	1881
v/c Ratio	0.47	0.73	0.94	0.71	1.38	0.98
Control Delay	54.1	62.1	186.1	49.7	206.1	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.1	62.1	186.1	49.7	206.1	22.1
Queue Length 50th (ft)	208	358	80	26	~1924	398
Queue Length 95th (ft)	255	420	#192	#111	m#1940	m384
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	899	924	68	185	1533	1925
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.64	0.94	0.71	1.38	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	432	72	59	0	121	0	0	0	71	1330	2277
Future Volume (vph)	377	432	72	59	0	121	0	0	0	71	1330	2277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		0.96					1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.96	0.85
Flt Protected	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2796		1593		1374					2744	2408
Flt Permitted	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2796		1593		1374					2744	2408
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	410	470	78	64	0	132	0	0	0	77	1446	2475
RTOR Reduction (vph)	0	6	0	0	0	126	0	0	0	0	17	594
Lane Group Flow (vph)	369	583	0	64	0	6	0	0	0	0	2100	1287
Confl. Peds. (#/hr)	2		17	17		2						2
Confl. Bikes (#/hr)			4			2						3
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	51.6	51.6		7.7		7.7					99.5	99.5
Effective Green, g (s)	51.6	51.6		7.7		7.7					99.5	99.5
Actuated g/C Ratio	0.29	0.29		0.04		0.04					0.55	0.55
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	785	801		68		58					1516	1331
v/s Ratio Prot	0.13	c0.21		c0.04								
v/s Ratio Perm						0.00					0.77	0.53
v/c Ratio	0.47	0.73		0.94		0.10					1.39	0.97
Uniform Delay, d1	52.9	57.9		85.9		82.8					40.2	38.7
Progression Factor	1.00	1.00		1.18		2.71					1.05	1.36
Incremental Delay, d2	0.9	4.1		86.5		0.3					174.6	7.8
Delay (s)	53.9	61.9		187.9		224.9					216.7	60.5
Level of Service	D	E		F		F					F	E
Approach Delay (s)		58.8			212.8			0.0			143.2	
Approach LOS		E			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			130.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			95.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	←↑↑	↑↑↑
Traffic Volume (vph)	456	571
Future Volume (vph)	456	571
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	32.0	58.0
Total Split (%)	35.6%	64.4%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effect Green (s)	18.4	61.6
Actuated g/C Ratio	0.20	0.68
v/c Ratio	0.80	0.27
Control Delay	59.4	6.2
Queue Delay	0.0	0.0
Total Delay	59.4	6.2
LOS	E	A
Approach Delay	59.4	6.2
Approach LOS	E	A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 20 (22%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.80

Intersection Signal Delay: 26.2

Intersection LOS: C

Intersection Capacity Utilization 45.2%

ICU Level of Service A

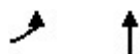
Analysis Period (min) 15

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	507	841
v/c Ratio	0.80	0.27
Control Delay	59.4	6.2
Queue Delay	0.0	0.0
Total Delay	59.4	6.2
Queue Length 50th (ft)	283	58
Queue Length 95th (ft)	m317	93
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	927	3088
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.55	0.27

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	456	0	186	571	0	0
Future Volume (vph)	456	0	186	571	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4509		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4509		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	507	0	207	634	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	507	0	0	841	0	0
Confl. Peds. (#/hr)		22	12			12
Confl. Bikes (#/hr)		1				1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	18.4			61.6		
Effective Green, g (s)	18.4			61.6		
Actuated g/C Ratio	0.20			0.68		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	631			3086		
v/s Ratio Prot	c0.16					
v/s Ratio Perm				0.19		
v/c Ratio	0.80			0.27		
Uniform Delay, d1	34.1			5.5		
Progression Factor	1.55			1.00		
Incremental Delay, d2	4.6			0.2		
Delay (s)	57.5			5.7		
Level of Service	E			A		
Approach Delay (s)	57.5			5.7	0.0	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			25.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.39			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			45.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	2	0	150	0	23	30	504	49	3311
Future Volume (vph)	2	0	150	0	23	30	504	49	3311
Turn Type	Perm	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	1	6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	5	1	6	5	2
Switch Phase									
Minimum Initial (s)	7.0	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	142.0	8.0	142.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	4.4%	4.4%	78.9%	4.4%	78.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)		25.2		25.2	32.0	144.6	139.0	144.6	139.0
Actuated g/C Ratio		0.14		0.14	0.18	0.80	0.77	0.80	0.77
v/c Ratio		0.03		1.05	0.10	0.40	0.16	0.09	1.02
Control Delay		0.2		156.7	28.7	26.2	22.4	3.5	40.9
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		0.2		156.7	28.7	26.2	22.4	3.5	40.9
LOS		A		F	C	C	C	A	D
Approach Delay		0.2		139.7			22.6		40.3
Approach LOS		A		F			C		D

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 49 (27%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 42.1

Intersection LOS: D

Intersection Capacity Utilization 96.0%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street



Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	6	163	25	33	570	53	3601
v/c Ratio	0.03	1.05	0.10	0.40	0.16	0.09	1.02
Control Delay	0.2	156.7	28.7	26.2	22.4	3.5	40.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	0.2	156.7	28.7	26.2	22.4	3.5	40.9
Queue Length 50th (ft)	0	~212	6	25	197	10	~1660
Queue Length 95th (ft)	0	#380	26	m49	223	19	#1693
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	218	155	242	82	3507	588	3534
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	0.03	1.05	0.10	0.40	0.16	0.09	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	0	4	150	0	23	30	504	20	49	3311	2
Future Volume (veh/h)	2	0	4	150	0	23	30	504	20	49	3311	2
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	2	0	4	163	0	25	33	548	22	53	3599	2
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	27	11	22	123	0	206	77	3452	138	633	3632	2
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.02	0.77	0.77	0.03	0.77	0.77
Sat Flow, veh/h	0	77	155	594	0	1233	1597	4510	180	1597	4724	3
Grp Volume(v), veh/h	6	0	0	163	0	25	33	370	200	53	2324	1277
Grp Sat Flow(s),veh/h/ln	232	0	0	594	0	1233	1597	1526	1639	1597	1526	1676
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.1	0.8	5.8	5.9	1.3	133.1	133.3
Cycle Q Clear(g_c), s	25.2	0.0	0.0	25.2	0.0	3.1	0.8	5.8	5.9	1.3	133.1	133.3
Prop In Lane	0.33		0.67	1.00		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	59	0	0	123	0	206	77	2335	1254	633	2345	1288
V/C Ratio(X)	0.10	0.00	0.00	1.32	0.00	0.12	0.43	0.16	0.16	0.08	0.99	0.99
Avail Cap(c_a), veh/h	59	0	0	123	0	206	85	2335	1254	636	2345	1288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	0.0	81.5	0.0	63.9	56.8	5.6	5.6	4.2	20.2	20.2
Incr Delay (d2), s/veh	0.5	0.0	0.0	191.2	0.0	0.3	1.2	0.1	0.2	0.0	16.6	23.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	12.7	0.0	1.1	1.3	2.5	2.7	0.6	60.6	68.9
LnGrp Delay(d),s/veh	68.6	0.0	0.0	272.7	0.0	64.2	57.9	5.8	5.9	4.2	36.8	43.3
LnGrp LOS	E			F		E	E	A	A	A	D	D
Approach Vol, veh/h		6			188			603			3654	
Approach Delay, s/veh		68.6			245.0			8.7			38.6	
Approach LOS		E			F			A			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	143.0		30.0	7.6	142.4		30.0				
Change Period (Y+Rc), s	3.0	* 4.6		* 4.8	3.0	* 4.6		* 4.8				
Max Green Setting (Gmax), s	5.0	* 1.4E2		* 25	5.0	* 1.4E2		* 25				
Max Q Clear Time (g_c+I1), s	2.8	135.3		27.2	3.3	7.9		27.2				
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	1.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				43.3								
HCM 2010 LOS				D								
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	68	166	983
Future Volume (vph)	68	166	983
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	10.1	73.3	73.3
Actuated g/C Ratio	0.11	0.81	0.81
v/c Ratio	0.48	0.15	0.30
Control Delay	46.3	2.5	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	46.3	2.5	3.1
LOS	D	A	A
Approach Delay	46.3		3.0
Approach LOS	D		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 46 (51%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 43.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	78	191	1130
v/c Ratio	0.48	0.15	0.30
Control Delay	46.3	2.5	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	46.3	2.5	3.1
Queue Length 50th (ft)	49	13	52
Queue Length 95th (ft)	61	41	94
Internal Link Dist (ft)	319		1319
Turn Bay Length (ft)		100	
Base Capacity (vph)	350	1297	3726
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.15	0.30
Intersection Summary			

HCM 2010 Signalized Intersection Summary

104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	68	0	166	983	0	0		
Future Volume (veh/h)	68	0	166	983	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	78	0	191	1130				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.87	0.87	0.87	0.87				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1508	4322				
Arrive On Green	0.00	0.00	0.31	0.31				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		191	1130				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			7.7	16.7				
Cycle Q Clear(g_c), s			7.7	16.7				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1508	4323				
V/C Ratio(X)			0.13	0.26				
Avail Cap(c_a), veh/h			1508	4323				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.88	0.88				
Uniform Delay (d), s/veh			4.4	7.5				
Incr Delay (d2), s/veh			0.2	0.1				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			3.5	7.1				
LnGrp Delay(d),s/veh			4.5	7.6				
LnGrp LOS			A	A				
Approach Vol, veh/h				1321				
Approach Delay, s/veh				7.1				
Approach LOS				A				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		90.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		58.0						
Max Q Clear Time (g_c+l1), s		18.7						
Green Ext Time (p_c), s		3.6						
Intersection Summary								
HCM 2010 Ctrl Delay			7.1					
HCM 2010 LOS			A					

Timings

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	377	440	59	121	1338	2283
Future Volume (vph)	377	440	59	121	1338	2283
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	14.0	14.0	33.0	33.0
Total Split (s)	66.0	66.0	14.0	14.0	100.0	100.0
Total Split (%)	36.7%	36.7%	7.8%	7.8%	55.6%	55.6%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	51.9	51.9	7.7	7.7	99.2	99.2
Actuated g/C Ratio	0.29	0.29	0.04	0.04	0.55	0.55
v/c Ratio	0.47	0.73	0.94	0.71	1.38	1.00
Control Delay	53.8	62.1	187.5	50.3	207.0	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	62.1	187.5	50.3	207.0	27.3
LOS	D	E	F	D	F	C
Approach Delay		59.0			121.7	
Approach LOS		E			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.38

Intersection Signal Delay: 109.0

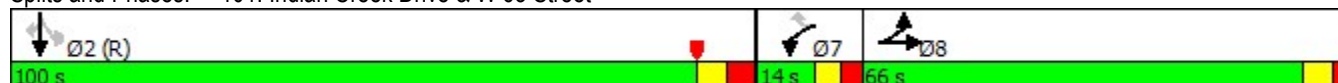
Intersection LOS: F

Intersection Capacity Utilization 96.1%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	369	597	64	132	2116	1911
v/c Ratio	0.47	0.73	0.94	0.71	1.38	1.00
Control Delay	53.8	62.1	187.5	50.3	207.0	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.8	62.1	187.5	50.3	207.0	27.3
Queue Length 50th (ft)	207	363	80	27	~1928	~426
Queue Length 95th (ft)	255	426	#192	#111	m#1935	m#412
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	899	924	68	185	1530	1912
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.65	0.94	0.71	1.38	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	440	72	59	0	121	0	0	0	84	1338	2283
Future Volume (vph)	377	440	72	59	0	121	0	0	0	84	1338	2283
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		0.96					1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.96	0.85
Flt Protected	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2797		1593		1374					2748	2408
Flt Permitted	0.95	1.00		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2797		1593		1374					2748	2408
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	410	478	78	64	0	132	0	0	0	91	1454	2482
RTOR Reduction (vph)	0	6	0	0	0	126	0	0	0	0	16	586
Lane Group Flow (vph)	369	591	0	64	0	6	0	0	0	0	2100	1325
Confl. Peds. (#/hr)	2		17	17		2						2
Confl. Bikes (#/hr)			4			2						3
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	51.9	51.9		7.7		7.7					99.2	99.2
Effective Green, g (s)	51.9	51.9		7.7		7.7					99.2	99.2
Actuated g/C Ratio	0.29	0.29		0.04		0.04					0.55	0.55
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	789	806		68		58					1514	1327
v/s Ratio Prot	0.13	c0.21		c0.04								
v/s Ratio Perm						0.00					0.76	0.55
v/c Ratio	0.47	0.73		0.94		0.10					1.39	1.00
Uniform Delay, d1	52.7	57.8		85.9		82.8					40.4	40.3
Progression Factor	1.00	1.00		1.20		2.77					1.05	1.31
Incremental Delay, d2	0.9	4.2		86.4		0.3					175.6	13.4
Delay (s)	53.6	62.0		189.5		229.5					217.8	66.4
Level of Service	D	E		F		F					F	E
Approach Delay (s)		58.8			216.4			0.0			146.0	
Approach LOS		E			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			132.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			96.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	←↑↑	↑↑↑
Traffic Volume (vph)	477	582
Future Volume (vph)	477	582
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	32.0	58.0
Total Split (%)	35.6%	64.4%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	19.0	61.0
Actuated g/C Ratio	0.21	0.68
v/c Ratio	0.81	0.28
Control Delay	58.5	6.5
Queue Delay	0.0	0.0
Total Delay	58.5	6.5
LOS	E	A
Approach Delay	58.5	6.5
Approach LOS	E	A

Intersection Summary

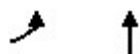
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 20 (22%), Referenced to phase 2:NBTL and 6:, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 45.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	530	854
v/c Ratio	0.81	0.28
Control Delay	58.5	6.5
Queue Delay	0.0	0.0
Total Delay	58.5	6.5
Queue Length 50th (ft)	290	61
Queue Length 95th (ft)	m319	97
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	927	3054
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.57	0.28

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←			←←←		
Traffic Volume (vph)	477	0	186	582	0	0
Future Volume (vph)	477	0	186	582	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			1.00		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4510		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4510		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	530	0	207	647	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	530	0	0	854	0	0
Confl. Peds. (#/hr)		22	12			12
Confl. Bikes (#/hr)		1				1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	19.0			61.0		
Effective Green, g (s)	19.0			61.0		
Actuated g/C Ratio	0.21			0.68		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	652			3056		
v/s Ratio Prot	c0.17					
v/s Ratio Perm				0.19		
v/c Ratio	0.81			0.28		
Uniform Delay, d1	33.8			5.8		
Progression Factor	1.55			1.00		
Incremental Delay, d2	4.7			0.2		
Delay (s)	57.0			6.0		
Level of Service	E			A		
Approach Delay (s)	57.0			6.0	0.0	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			25.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			45.7%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	16	0	150	0	23	30	504	49	3324
Future Volume (vph)	16	0	150	0	23	30	504	49	3324
Turn Type	Perm	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	1	6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	5	1	6	5	2
Switch Phase									
Minimum Initial (s)	7.0	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	30.0	30.0	30.0	30.0	8.0	8.0	142.0	8.0	142.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	4.4%	4.4%	78.9%	4.4%	78.9%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)		25.2		25.2	32.0	144.6	139.0	144.6	139.0
Actuated g/C Ratio		0.14		0.14	0.18	0.80	0.77	0.80	0.77
v/c Ratio		0.16		1.02	0.10	0.40	0.16	0.09	1.02
Control Delay		22.2		148.0	27.7	26.3	22.4	3.5	42.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		22.2		148.0	27.7	26.3	22.4	3.5	42.1
LOS		C		F	C	C	C	A	D
Approach Delay		22.2		132.0			22.6		41.6
Approach LOS		C		F			C		D

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 49 (27%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 42.7

Intersection LOS: D

Intersection Capacity Utilization 94.5%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street



Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	28	163	25	33	570	53	3615
v/c Ratio	0.16	1.02	0.10	0.40	0.16	0.09	1.02
Control Delay	22.2	148.0	27.7	26.3	22.4	3.5	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	148.0	27.7	26.3	22.4	3.5	42.1
Queue Length 50th (ft)	0	~205	5	25	196	10	~1673
Queue Length 95th (ft)	34	#373	26	m48	223	19	#1705
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	173	160	242	82	3507	588	3534
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	0.16	1.02	0.10	0.40	0.16	0.09	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	0	10	150	0	23	30	504	20	49	3324	2
Future Volume (veh/h)	16	0	10	150	0	23	30	504	20	49	3324	2
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	17	0	11	163	0	25	33	548	22	53	3613	2
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	32	7	4	183	0	206	76	3452	138	633	3632	2
Arrive On Green	0.14	0.00	0.14	0.14	0.00	0.14	0.02	0.77	0.77	0.03	0.77	0.77
Sat Flow, veh/h	0	48	31	1019	0	1233	1597	4510	180	1597	4724	3
Grp Volume(v), veh/h	28	0	0	163	0	25	33	370	200	53	2333	1282
Grp Sat Flow(s),veh/h/ln	80	0	0	1019	0	1233	1597	1526	1639	1597	1526	1676
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.1	0.8	5.8	5.9	1.3	135.3	135.5
Cycle Q Clear(g_c), s	25.2	0.0	0.0	25.2	0.0	3.1	0.8	5.8	5.9	1.3	135.3	135.5
Prop In Lane	0.61		0.39	1.00		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	43	0	0	183	0	206	76	2335	1254	633	2345	1288
V/C Ratio(X)	0.65	0.00	0.00	0.89	0.00	0.12	0.43	0.16	0.16	0.08	0.99	1.00
Avail Cap(c_a), veh/h	43	0	0	183	0	206	85	2335	1254	636	2345	1288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.2	0.0	0.0	79.0	0.0	63.9	56.8	5.6	5.6	4.2	20.5	20.5
Incr Delay (d2), s/veh	26.6	0.0	0.0	38.1	0.0	0.3	1.2	0.1	0.2	0.0	17.4	23.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.0	10.0	0.0	1.1	1.3	2.5	2.7	0.6	61.7	70.5
LnGrp Delay(d),s/veh	106.8	0.0	0.0	117.1	0.0	64.2	58.0	5.8	5.9	4.2	37.9	44.4
LnGrp LOS	F			F		E	E	A	A	A	D	D
Approach Vol, veh/h	28			188			603			3668		
Approach Delay, s/veh	106.8			110.0			8.7			39.7		
Approach LOS	F			F			A			D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	7.0	143.0	30.0		7.6	142.4	30.0					
Change Period (Y+Rc), s	3.0	* 4.6	* 4.8		3.0	* 4.6	* 4.8					
Max Green Setting (Gmax), s	5.0	* 1.4E2	* 25		5.0	* 1.4E2	* 25					
Max Q Clear Time (g_c+I1), s	2.8	137.5	27.2		3.3	7.9	27.2					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	1.4	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay				38.9								
HCM 2010 LOS				D								
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	68	186	983
Future Volume (vph)	68	186	983
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	63.0	63.0
Total Split (%)	30.0%	70.0%	70.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	10.1	73.3	73.3
Actuated g/C Ratio	0.11	0.81	0.81
v/c Ratio	0.48	0.16	0.30
Control Delay	46.1	2.5	3.0
Queue Delay	0.0	0.0	0.0
Total Delay	46.1	2.5	3.0
LOS	D	A	A
Approach Delay	46.1		2.9
Approach LOS	D		A

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 46 (51%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 55

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.3

Intersection LOS: A

Intersection Capacity Utilization 43.1%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	78	214	1130
v/c Ratio	0.48	0.16	0.30
Control Delay	46.1	2.5	3.0
Queue Delay	0.0	0.0	0.0
Total Delay	46.1	2.5	3.0
Queue Length 50th (ft)	49	15	46
Queue Length 95th (ft)	61	44	88
Internal Link Dist (ft)	319		463
Turn Bay Length (ft)		100	
Base Capacity (vph)	350	1297	3726
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.22	0.16	0.30
Intersection Summary			

HCM 2010 Signalized Intersection Summary 104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	68	0	186	983	0	0		
Future Volume (veh/h)	68	0	186	983	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	78	0	214	1130				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.87	0.87	0.87	0.87				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1508	4322				
Arrive On Green	0.00	0.00	0.94	0.94				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		214	1130				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			0.8	1.6				
Cycle Q Clear(g_c), s			0.8	1.6				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1508	4323				
V/C Ratio(X)			0.14	0.26				
Avail Cap(c_a), veh/h			1508	4323				
HCM Platoon Ratio			1.00	1.00				
Upstream Filter(I)			1.00	1.00				
Uniform Delay (d), s/veh			0.2	0.2				
Incr Delay (d2), s/veh			0.2	0.1				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			0.4	0.7				
LnGrp Delay(d),s/veh			0.4	0.3				
LnGrp LOS			A	A				
Approach Vol, veh/h				1344				
Approach Delay, s/veh				0.3				
Approach LOS				A				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		90.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		58.0						
Max Q Clear Time (g_c+l1), s		3.6						
Green Ext Time (p_c), s		3.6						
Intersection Summary								
HCM 2010 Ctrl Delay			0.3					
HCM 2010 LOS			A					

HCM 2010 TWSC
105: Collins Avenue & Driveway

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	0	33	1026	0	0
Future Vol, veh/h	20	0	33	1026	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	0	36	1115	0	0
Major/Minor	Minor2	Major1				
Conflicting Flow All	518	-	0	0		
Stage 1	0	-	-	-		
Stage 2	518	-	-	-		
Critical Hdwy	5.74	-	5.34	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	6.04	-	-	-		
Follow-up Hdwy	3.82	-	3.12	-		
Pot Cap-1 Maneuver	536	0	-	-		
Stage 1	-	0	-	-		
Stage 2	514	0	-	-		
Platoon blocked, %				-		
Mov Cap-1 Maneuver	536	-	-	-		
Mov Cap-2 Maneuver	536	-	-	-		
Stage 1	-	-	-	-		
Stage 2	514	-	-	-		
Approach	EB	NB				
HCM Control Delay, s	12					
HCM LOS	B					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1			
Capacity (veh/h)	-	-	536			
HCM Lane V/C Ratio	-	-	0.041			
HCM Control Delay (s)	-	-	12			
HCM Lane LOS	-	-	B			
HCM 95th %tile Q(veh)	-	-	0.1			

Timings

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1120	747	34	253	863	1399
Future Volume (vph)	1120	747	34	253	863	1399
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	13.0	13.0	33.0	33.0
Total Split (s)	109.0	109.0	13.0	13.0	58.0	58.0
Total Split (%)	60.6%	60.6%	7.2%	7.2%	32.2%	32.2%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	102.1	102.1	6.7	6.7	50.0	50.0
Actuated g/C Ratio	0.57	0.57	0.04	0.04	0.28	0.28
v/c Ratio	0.66	0.66	0.59	0.86	1.68	0.95
Control Delay	29.6	29.1	100.7	45.4	348.1	33.9
Queue Delay	0.0	49.9	0.0	54.9	0.0	0.0
Total Delay	29.6	79.0	100.7	100.2	348.1	33.9
LOS	C	E	F	F	F	C
Approach Delay		54.6			200.9	
Approach LOS		D			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 86 (48%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.68

Intersection Signal Delay: 131.8

Intersection LOS: F

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	1027	1049	35	264	1306	1151
v/c Ratio	0.66	0.66	0.59	0.86	1.68	0.95
Control Delay	29.6	29.1	100.7	45.4	348.1	33.9
Queue Delay	0.0	49.9	0.0	54.9	0.0	0.0
Total Delay	29.6	79.0	100.7	100.2	348.1	33.9
Queue Length 50th (ft)	477	481	42	77	~1284	222
Queue Length 95th (ft)	564	568	m61	#266	#1444	#523
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	1553	1587	59	307	776	1212
Starvation Cap Reductn	0	0	0	91	0	0
Spillback Cap Reductn	0	639	0	0	1	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	1.11	0.59	1.22	1.69	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1120	747	126	34	0	253	0	0	0	97	863	1399
Future Volume (vph)	1120	747	126	34	0	253	0	0	0	97	863	1399
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		1.00					0.99	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.96	0.85
Flt Protected	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2790		1593		1425					2745	2352
Flt Permitted	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2790		1593		1425					2745	2352
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)	1167	778	131	35	0	264	0	0	0	101	899	1457
RTOR Reduction (vph)	0	6	0	0	0	254	0	0	0	0	14	559
Lane Group Flow (vph)	1027	1043	0	35	0	10	0	0	0	0	1292	592
Confl. Peds. (#/hr)			19	19								13
Confl. Bikes (#/hr)			1									1
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	102.1	102.1		6.7		6.7					50.0	50.0
Effective Green, g (s)	102.1	102.1		6.7		6.7					50.0	50.0
Actuated g/C Ratio	0.57	0.57		0.04		0.04					0.28	0.28
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	1553	1582		59		53					762	653
v/s Ratio Prot	c0.37	0.37		c0.02								
v/s Ratio Perm						0.01					0.47	0.25
v/c Ratio	0.66	0.66		0.59		0.19					1.70	0.91
Uniform Delay, d1	27.0	26.9		85.3		84.0					65.0	62.7
Progression Factor	1.00	1.00		0.84		4.25					0.98	1.03
Incremental Delay, d2	1.4	1.4		7.8		0.5					317.4	14.8
Delay (s)	28.4	28.3		79.4		357.1					381.4	79.3
Level of Service	C	C		E		F					F	E
Approach Delay (s)		28.3			324.6			0.0			239.9	
Approach LOS		C			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			154.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			89.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	 	
Traffic Volume (vph)	841	1279
Future Volume (vph)	841	1279
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	45.0	45.0
Total Split (%)	50.0%	50.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	30.0	50.0
Actuated g/C Ratio	0.33	0.56
v/c Ratio	0.84	0.65
Control Delay	52.0	16.4
Queue Delay	0.2	0.0
Total Delay	52.2	16.4
LOS	D	B
Approach Delay	52.2	16.4
Approach LOS	D	B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBTL and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 28.8

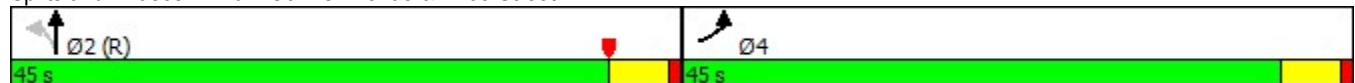
Intersection LOS: C

Intersection Capacity Utilization 71.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	867	1625
v/c Ratio	0.84	0.65
Control Delay	52.0	16.4
Queue Delay	0.2	0.0
Total Delay	52.2	16.4
Queue Length 50th (ft)	453	221
Queue Length 95th (ft)	m373	322
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	1373	2505
Starvation Cap Reductn	82	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.67	0.65

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←			↑↑↑		
Traffic Volume (vph)	841	0	297	1279	0	0
Future Volume (vph)	841	0	297	1279	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			0.99		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4509		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4509		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	867	0	306	1319	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	867	0	0	1625	0	0
Confl. Peds. (#/hr)		32	31			31
Confl. Bikes (#/hr)						1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	30.0			50.0		
Effective Green, g (s)	30.0			50.0		
Actuated g/C Ratio	0.33			0.56		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	1030			2505		
v/s Ratio Prot	c0.28					
v/s Ratio Perm				0.36		
v/c Ratio	0.84			0.65		
Uniform Delay, d1	27.8			13.9		
Progression Factor	1.71			1.00		
Incremental Delay, d2	3.8			1.3		
Delay (s)	51.3			15.2		
Level of Service	D			B		
Approach Delay (s)	51.3			15.2	0.0	
Approach LOS	D			B	A	
Intersection Summary						
HCM 2000 Control Delay			27.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.72			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			71.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street

	→	↖	←	↗	↖	↑	↗	↓
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↕		↕	↗	↖	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	2	162	2	86	7	1426	61	2042
Future Volume (vph)	2	162	2	86	7	1426	61	2042
Turn Type	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	8		4	5	1	6	5	2
Permitted Phases		4		4	6		2	
Detector Phase	8	4	4	5	1	6	5	2
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.0	31.0	31.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	31.0	31.0	31.0	12.0	12.0	47.0	12.0	47.0
Total Split (%)	34.4%	34.4%	34.4%	13.3%	13.3%	52.2%	13.3%	52.2%
Yellow Time (s)	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag				Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)	19.4		19.4	27.0	59.6	54.0	62.7	59.6
Actuated g/C Ratio	0.22		0.22	0.30	0.66	0.60	0.70	0.66
v/c Ratio	0.01		0.74	0.23	0.04	0.57	0.29	0.71
Control Delay	19.8		46.4	14.1	6.1	11.1	9.0	13.4
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8		46.4	14.1	6.1	11.1	9.0	13.4
LOS	B		D	B	A	B	A	B
Approach Delay	19.8		35.3			11.1		13.2
Approach LOS	B		D			B		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street

↖ Ø1	↓ Ø2 (R)	↖ Ø4
12 s	47 s	31 s
↖ Ø5	↑ Ø6 (R)	↖ Ø8
12 s	47 s	31 s

Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	4	173	91	7	1560	64	2150
v/c Ratio	0.01	0.74	0.23	0.04	0.57	0.29	0.71
Control Delay	19.8	46.4	14.1	6.1	11.1	9.0	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	46.4	14.1	6.1	11.1	9.0	13.4
Queue Length 50th (ft)	1	105	34	1	232	10	241
Queue Length 95th (ft)	9	124	40	m4	341	28	#478
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	456	318	437	234	2727	269	3031
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	0.01	0.54	0.21	0.03	0.57	0.24	0.71

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2	2	162	2	86	7	1426	56	61	2042	1
Future Volume (veh/h)	0	2	2	162	2	86	7	1426	56	61	2042	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	0	2	2	171	2	91	7	1501	59	64	2149	1
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	138	138	301	3	283	161	2883	113	286	3183	1
Arrive On Green	0.00	0.18	0.18	0.18	0.18	0.18	0.01	0.64	0.64	0.04	0.67	0.67
Sat Flow, veh/h	0	767	767	1232	14	1257	1597	4517	178	1597	4725	2
Grp Volume(v), veh/h	0	0	4	173	0	91	7	1014	546	64	1388	762
Grp Sat Flow(s),veh/h/ln	0	0	1535	1246	0	1257	1597	1526	1643	1597	1526	1676
Q Serve(g_s), s	0.0	0.0	0.2	11.8	0.0	5.5	0.1	16.2	16.2	1.1	24.5	24.5
Cycle Q Clear(g_c), s	0.0	0.0	0.2	12.0	0.0	5.5	0.1	16.2	16.2	1.1	24.5	24.5
Prop In Lane	0.00		0.50	0.99		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	276	303	0	283	161	1948	1049	286	2056	1129
V/C Ratio(X)	0.00	0.00	0.01	0.57	0.00	0.32	0.04	0.52	0.52	0.22	0.68	0.68
Avail Cap(c_a), veh/h	0	0	447	444	0	423	307	1948	1049	375	2056	1129
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.99	0.00	0.99	0.65	0.65	0.65	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.4	35.3	0.0	29.2	8.3	8.8	8.8	6.4	8.8	8.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.0	0.0	0.8	0.0	0.6	1.2	0.1	1.8	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.3	0.0	2.0	0.1	6.9	7.6	0.5	10.7	12.2
LnGrp Delay(d),s/veh	0.0	0.0	30.4	37.3	0.0	30.0	8.3	9.5	10.0	6.6	10.6	12.0
LnGrp LOS			C	D		C	A	A	B	A	B	B
Approach Vol, veh/h		4			264			1567			2214	
Approach Delay, s/veh		30.4			34.8			9.7			11.0	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.8	65.2		21.0	7.0	62.0		21.0				
Change Period (Y+Rc), s	3.0	* 4.6		* 4.8	3.0	* 4.6		* 4.8				
Max Green Setting (Gmax), s	9.0	* 42		* 26	9.0	* 42		* 26				
Max Q Clear Time (g_c+I1), s	2.1	26.5		14.0	3.1	18.2		2.2				
Green Ext Time (p_c), s	0.0	6.5		1.2	0.0	4.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay				12.0								
HCM 2010 LOS				B								
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	113	187	1783
Future Volume (vph)	113	187	1783
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	153.0	153.0
Total Split (%)	15.0%	85.0%	85.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	19.4	150.6	150.6
Actuated g/C Ratio	0.11	0.84	0.84
v/c Ratio	0.75	0.14	0.48
Control Delay	111.3	2.3	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	111.3	2.3	3.1
LOS	F	A	A
Approach Delay	111.3		3.0
Approach LOS	F		A

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 48 (27%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 63.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	116	193	1838
v/c Ratio	0.75	0.14	0.48
Control Delay	111.3	2.3	3.1
Queue Delay	0.0	0.0	0.0
Total Delay	111.3	2.3	3.1
Queue Length 50th (ft)	132	33	135
Queue Length 95th (ft)	193	45	158
Internal Link Dist (ft)	319		1319
Turn Bay Length (ft)		100	
Base Capacity (vph)	184	1342	3857
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.63	0.14	0.48
Intersection Summary			

HCM 2010 Signalized Intersection Summary

104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations				  				
Traffic Volume (veh/h)	113	0	187	1783	0	0		
Future Volume (veh/h)	113	0	187	1783	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	116	0	193	1838				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1552	4450				
Arrive On Green	0.00	0.00	0.32	0.32				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		193	1838				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			15.4	56.6				
Cycle Q Clear(g_c), s			15.4	56.6				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1552	4450				
V/C Ratio(X)			0.12	0.41				
Avail Cap(c_a), veh/h			1552	4450				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.63	0.63				
Uniform Delay (d), s/veh			6.9	20.9				
Incr Delay (d2), s/veh			0.1	0.2				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			6.9	24.0				
LnGrp Delay(d),s/veh			7.0	21.1				
LnGrp LOS			A	C				
Approach Vol, veh/h				2031				
Approach Delay, s/veh				19.8				
Approach LOS				B				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		180.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		148.0						
Max Q Clear Time (g_c+l1), s		58.6						
Green Ext Time (p_c), s		7.5						
Intersection Summary								
HCM 2010 Ctrl Delay			19.8					
HCM 2010 LOS			B					

Timings

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1137	758	35	257	876	1420
Future Volume (vph)	1137	758	35	257	876	1420
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	13.0	13.0	33.0	33.0
Total Split (s)	109.0	109.0	13.0	13.0	58.0	58.0
Total Split (%)	60.6%	60.6%	7.2%	7.2%	32.2%	32.2%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	102.1	102.1	6.7	6.7	50.0	50.0
Actuated g/C Ratio	0.57	0.57	0.04	0.04	0.28	0.28
v/c Ratio	0.67	0.67	0.61	0.86	1.71	0.96
Control Delay	29.9	29.5	100.9	44.8	359.0	36.4
Queue Delay	0.0	49.9	0.0	54.8	0.0	0.0
Total Delay	29.9	79.4	100.9	99.6	359.0	36.4
LOS	C	E	F	F	F	D
Approach Delay		54.9			207.9	
Approach LOS		D			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 86 (48%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.71

Intersection Signal Delay: 135.5

Intersection LOS: F

Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	1042	1065	36	268	1326	1168
v/c Ratio	0.67	0.67	0.61	0.86	1.71	0.96
Control Delay	29.9	29.5	100.9	44.8	359.0	36.4
Queue Delay	0.0	49.9	0.0	54.8	0.0	0.0
Total Delay	29.9	79.4	100.9	99.6	359.0	36.4
Queue Length 50th (ft)	488	493	43	79	~1313	231
Queue Length 95th (ft)	576	582	m61	#266	#1469	#548
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	1553	1587	59	311	776	1211
Starvation Cap Reductn	0	0	0	94	0	0
Spillback Cap Reductn	0	641	0	0	2	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	1.13	0.61	1.24	1.71	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

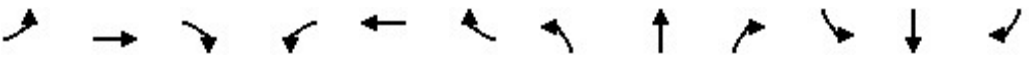
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔		↔		↔					↔↔	↔↔
Traffic Volume (vph)	1137	758	128	35	0	257	0	0	0	98	876	1420
Future Volume (vph)	1137	758	128	35	0	257	0	0	0	98	876	1420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		1.00					0.99	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.96	0.85
Flt Protected	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2790		1593		1425					2745	2352
Flt Permitted	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2790		1593		1425					2745	2352
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)	1184	790	133	36	0	268	0	0	0	102	912	1479
RTOR Reduction (vph)	0	6	0	0	0	258	0	0	0	0	14	558
Lane Group Flow (vph)	1042	1059	0	36	0	10	0	0	0	0	1312	610
Confl. Peds. (#/hr)			19	19								13
Confl. Bikes (#/hr)			1									1
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	102.1	102.1		6.7		6.7					50.0	50.0
Effective Green, g (s)	102.1	102.1		6.7		6.7					50.0	50.0
Actuated g/C Ratio	0.57	0.57		0.04		0.04					0.28	0.28
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	1553	1582		59		53					762	653
v/s Ratio Prot	c0.38	0.38		c0.02								
v/s Ratio Perm						0.01					0.48	0.26
v/c Ratio	0.67	0.67		0.61		0.19					1.72	0.93
Uniform Delay, d1	27.2	27.2		85.4		84.0					65.0	63.4
Progression Factor	1.00	1.00		0.83		4.27					0.99	1.02
Incremental Delay, d2	1.5	1.4		9.3		0.5					329.1	17.8
Delay (s)	28.7	28.6		80.3		359.6					393.2	82.2
Level of Service	C	C		F		F					F	F
Approach Delay (s)		28.7			326.5			0.0			247.6	
Approach LOS		C			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			158.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			90.2%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	 	
Traffic Volume (vph)	854	1298
Future Volume (vph)	854	1298
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	45.0	45.0
Total Split (%)	50.0%	50.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	30.4	49.6
Actuated g/C Ratio	0.34	0.55
v/c Ratio	0.84	0.66
Control Delay	51.8	16.9
Queue Delay	0.2	0.0
Total Delay	52.0	16.9
LOS	D	B
Approach Delay	52.0	16.9
Approach LOS	D	B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBTL and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.1

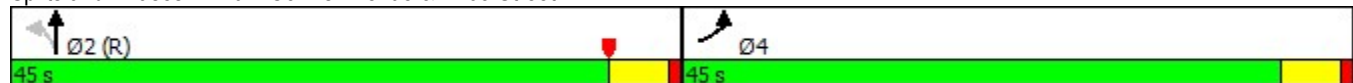
Intersection LOS: C

Intersection Capacity Utilization 72.3%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	880	1649
v/c Ratio	0.84	0.66
Control Delay	51.8	16.9
Queue Delay	0.2	0.0
Total Delay	52.0	16.9
Queue Length 50th (ft)	454	228
Queue Length 95th (ft)	m377	332
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	1373	2487
Starvation Cap Reductn	88	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.68	0.66

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	854	0	302	1298	0	0
Future Volume (vph)	854	0	302	1298	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			0.99		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4509		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4509		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	880	0	311	1338	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	880	0	0	1649	0	0
Confl. Peds. (#/hr)		32	31			31
Confl. Bikes (#/hr)						1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	30.4			49.6		
Effective Green, g (s)	30.4			49.6		
Actuated g/C Ratio	0.34			0.55		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	1043			2484		
v/s Ratio Prot	c0.28					
v/s Ratio Perm				0.37		
v/c Ratio	0.84			0.66		
Uniform Delay, d1	27.6			14.3		
Progression Factor	1.71			1.00		
Incremental Delay, d2	3.7			1.4		
Delay (s)	51.0			15.7		
Level of Service	D			B		
Approach Delay (s)	51.0			15.7	0.0	
Approach LOS	D			B	A	
Intersection Summary						
HCM 2000 Control Delay			28.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			72.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street

	→	↖	←	↗	↖	↑	↗	↓
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↕		↕	↗	↖	↑↑↑	↖	↑↑↑
Traffic Volume (vph)	2	165	2	88	7	1447	62	2072
Future Volume (vph)	2	165	2	88	7	1447	62	2072
Turn Type	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases	8		4	5	1	6	5	2
Permitted Phases		4		4	6		2	
Detector Phase	8	4	4	5	1	6	5	2
Switch Phase								
Minimum Initial (s)	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.0	31.0	31.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	31.0	31.0	31.0	12.0	12.0	47.0	12.0	47.0
Total Split (%)	34.4%	34.4%	34.4%	13.3%	13.3%	52.2%	13.3%	52.2%
Yellow Time (s)	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag				Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)	19.6		19.6	27.3	59.4	53.7	62.5	59.4
Actuated g/C Ratio	0.22		0.22	0.30	0.66	0.60	0.69	0.66
v/c Ratio	0.01		0.74	0.23	0.04	0.58	0.30	0.72
Control Delay	19.8		46.8	14.2	6.3	11.3	9.3	13.8
Queue Delay	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8		46.8	14.2	6.3	11.3	9.3	13.8
LOS	B		D	B	A	B	A	B
Approach Delay	19.8		35.5			11.3		13.6
Approach LOS	B		D			B		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 77.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street

Ø1	Ø2 (R)	Ø4
12 s	47 s	31 s
Ø5	Ø6 (R)	Ø8
12 s	47 s	31 s

Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	4	176	93	7	1583	65	2182
v/c Ratio	0.01	0.74	0.23	0.04	0.58	0.30	0.72
Control Delay	19.8	46.8	14.2	6.3	11.3	9.3	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	46.8	14.2	6.3	11.3	9.3	13.8
Queue Length 50th (ft)	1	106	34	2	246	10	249
Queue Length 95th (ft)	9	127	41	m4	350	29	#505
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	456	318	440	233	2716	265	3021
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	0.01	0.55	0.21	0.03	0.58	0.25	0.72

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↔↔↔		↔	↔↔↔	
Traffic Volume (veh/h)	0	2	2	165	2	88	7	1447	57	62	2072	1
Future Volume (veh/h)	0	2	2	165	2	88	7	1447	57	62	2072	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	0	2	2	174	2	93	7	1523	60	65	2181	1
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	140	140	304	3	286	157	2872	113	282	3173	1
Arrive On Green	0.00	0.18	0.18	0.18	0.18	0.18	0.01	0.64	0.64	0.04	0.67	0.67
Sat Flow, veh/h	0	768	767	1232	14	1257	1597	4516	178	1597	4725	2
Grp Volume(v), veh/h	0	0	4	176	0	93	7	1029	554	65	1408	774
Grp Sat Flow(s),veh/h/ln	0	0	1535	1246	0	1257	1597	1526	1643	1597	1526	1676
Q Serve(g_s), s	0.0	0.0	0.2	12.0	0.0	5.6	0.1	16.7	16.7	1.1	25.3	25.3
Cycle Q Clear(g_c), s	0.0	0.0	0.2	12.2	0.0	5.6	0.1	16.7	16.7	1.1	25.3	25.3
Prop In Lane	0.00		0.50	0.99		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	0	0	279	306	0	286	157	1940	1045	282	2049	1125
V/C Ratio(X)	0.00	0.00	0.01	0.57	0.00	0.33	0.04	0.53	0.53	0.23	0.69	0.69
Avail Cap(c_a), veh/h	0	0	447	444	0	423	303	1940	1045	370	2049	1125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.99	0.00	0.99	0.64	0.64	0.64	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.2	35.2	0.0	29.1	8.5	9.0	9.0	6.6	9.0	9.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	2.0	0.0	0.8	0.0	0.7	1.2	0.2	1.9	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.1	4.3	0.0	2.0	0.1	7.0	7.7	0.5	11.1	12.7
LnGrp Delay(d),s/veh	0.0	0.0	30.2	37.2	0.0	29.9	8.6	9.7	10.2	6.8	10.9	12.5
LnGrp LOS			C	D		C	A	A	B	A	B	B
Approach Vol, veh/h		4			269			1590			2247	
Approach Delay, s/veh		30.2			34.7			9.9			11.3	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.8	65.0		21.2	7.0	61.8		21.2				
Change Period (Y+Rc), s	3.0	* 4.6		* 4.8	3.0	* 4.6		* 4.8				
Max Green Setting (Gmax), s	9.0	* 42		* 26	9.0	* 42		* 26				
Max Q Clear Time (g_c+I1), s	2.1	27.3		14.2	3.1	18.7		2.2				
Green Ext Time (p_c), s	0.0	6.5		1.2	0.0	4.8		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			12.3									
HCM 2010 LOS			B									
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	115	190	1809
Future Volume (vph)	115	190	1809
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	153.0	153.0
Total Split (%)	15.0%	85.0%	85.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	19.8	150.2	150.2
Actuated g/C Ratio	0.11	0.83	0.83
v/c Ratio	0.76	0.15	0.49
Control Delay	110.1	2.4	3.2
Queue Delay	0.0	0.0	0.0
Total Delay	110.1	2.4	3.2
LOS	F	A	A
Approach Delay	110.1		3.1
Approach LOS	F		A

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 48 (27%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 9.0

Intersection LOS: A

Intersection Capacity Utilization 63.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	119	196	1865
v/c Ratio	0.76	0.15	0.49
Control Delay	110.1	2.4	3.2
Queue Delay	0.0	0.0	0.0
Total Delay	110.1	2.4	3.2
Queue Length 50th (ft)	134	34	132
Queue Length 95th (ft)	198	47	157
Internal Link Dist (ft)	319		1319
Turn Bay Length (ft)		100	
Base Capacity (vph)	185	1340	3851
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.64	0.15	0.48
Intersection Summary			

HCM 2010 Signalized Intersection Summary

104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations				  				
Traffic Volume (veh/h)	115	0	190	1809	0	0		
Future Volume (veh/h)	115	0	190	1809	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	119	0	196	1865				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1552	4450				
Arrive On Green	0.00	0.00	0.32	0.32				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		196	1865				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			15.6	57.6				
Cycle Q Clear(g_c), s			15.6	57.6				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1552	4450				
V/C Ratio(X)			0.13	0.42				
Avail Cap(c_a), veh/h			1552	4450				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.61	0.61				
Uniform Delay (d), s/veh			7.0	21.2				
Incr Delay (d2), s/veh			0.1	0.2				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			7.0	24.4				
LnGrp Delay(d),s/veh			7.1	21.4				
LnGrp LOS			A	C				
Approach Vol, veh/h				2061				
Approach Delay, s/veh				20.1				
Approach LOS				C				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		180.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		148.0						
Max Q Clear Time (g_c+I1), s		59.6						
Green Ext Time (p_c), s		7.7						
Intersection Summary								
HCM 2010 Ctrl Delay			20.1					
HCM 2010 LOS			C					

Timings

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1137	768	35	257	891	1430
Future Volume (vph)	1137	768	35	257	891	1430
Turn Type	Split	NA	Prot	Perm	NA	Perm
Protected Phases	8	8	7		2	
Permitted Phases				7		2
Detector Phase	8	8	7	7	2	2
Switch Phase						
Minimum Initial (s)	7.0	7.0	5.0	5.0	7.0	7.0
Minimum Split (s)	28.9	28.9	13.0	13.0	33.0	33.0
Total Split (s)	109.0	109.0	13.0	13.0	58.0	58.0
Total Split (%)	60.6%	60.6%	7.2%	7.2%	32.2%	32.2%
Yellow Time (s)	4.0	4.0	3.4	3.4	4.0	4.0
All-Red Time (s)	2.9	2.9	2.9	2.9	4.0	4.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.3	6.3	8.0	8.0
Lead/Lag	Lag	Lag	Lead	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes		
Recall Mode	None	None	None	None	C-Min	C-Min
Act Effect Green (s)	102.1	102.1	6.7	6.7	50.0	50.0
Actuated g/C Ratio	0.57	0.57	0.04	0.04	0.28	0.28
v/c Ratio	0.67	0.68	0.61	0.86	1.73	0.99
Control Delay	29.9	29.7	100.9	44.4	366.2	43.7
Queue Delay	0.0	49.8	0.0	54.9	0.0	0.0
Total Delay	29.9	79.6	100.9	99.3	366.2	43.7
LOS	C	E	F	F	F	D
Approach Delay		55.1			214.3	
Approach LOS		E			F	

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 86 (48%), Referenced to phase 2:SBTL and 6:, Start of Yellow

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.73

Intersection Signal Delay: 139.2

Intersection LOS: F

Intersection Capacity Utilization 91.2%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 101: Indian Creek Drive & W 63 Street



Queues

101: Indian Creek Drive & W 63 Street



Lane Group	EBL	EBT	WBL	WBR	SBT	SBR
Lane Group Flow (vph)	1042	1075	36	268	1339	1192
v/c Ratio	0.67	0.68	0.61	0.86	1.73	0.99
Control Delay	29.9	29.7	100.9	44.4	366.2	43.7
Queue Delay	0.0	49.8	0.0	54.9	0.0	0.0
Total Delay	29.9	79.6	100.9	99.3	366.2	43.7
Queue Length 50th (ft)	488	502	43	81	~1333	260
Queue Length 95th (ft)	576	590	m60	#268	#1491	#599
Internal Link Dist (ft)		365			1320	
Turn Bay Length (ft)	250					
Base Capacity (vph)	1553	1587	59	311	776	1199
Starvation Cap Reductn	0	0	0	96	0	0
Spillback Cap Reductn	0	634	0	0	1	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	1.13	0.61	1.25	1.73	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis

101: Indian Creek Drive & W 63 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1137	768	128	35	0	257	0	0	0	108	891	1430
Future Volume (vph)	1137	768	128	35	0	257	0	0	0	108	891	1430
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Lane Util. Factor	0.86	0.86		1.00		1.00					0.86	0.86
Frpb, ped/bikes	1.00	0.99		1.00		1.00					0.99	0.96
Flpb, ped/bikes	1.00	1.00		1.00		1.00					1.00	1.00
Frt	1.00	0.98		1.00		0.85					0.97	0.85
Flt Protected	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (prot)	2739	2791		1593		1425					2751	2352
Flt Permitted	0.95	0.99		0.95		1.00					1.00	1.00
Satd. Flow (perm)	2739	2791		1593		1425					2751	2352
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)	1184	800	133	36	0	268	0	0	0	112	928	1490
RTOR Reduction (vph)	0	5	0	0	0	258	0	0	0	0	12	546
Lane Group Flow (vph)	1042	1070	0	36	0	10	0	0	0	0	1327	646
Confl. Peds. (#/hr)			19	19								13
Confl. Bikes (#/hr)			1									1
Turn Type	Split	NA		Prot		Perm				Perm	NA	Perm
Protected Phases	8	8		7							2	
Permitted Phases						7				2		2
Actuated Green, G (s)	102.1	102.1		6.7		6.7					50.0	50.0
Effective Green, g (s)	102.1	102.1		6.7		6.7					50.0	50.0
Actuated g/C Ratio	0.57	0.57		0.04		0.04					0.28	0.28
Clearance Time (s)	6.9	6.9		6.3		6.3					8.0	8.0
Vehicle Extension (s)	5.0	5.0		2.0		2.0					1.0	1.0
Lane Grp Cap (vph)	1553	1583		59		53					764	653
v/s Ratio Prot	0.38	c0.38		c0.02								
v/s Ratio Perm						0.01					0.48	0.27
v/c Ratio	0.67	0.68		0.61		0.19					1.74	0.99
Uniform Delay, d1	27.2	27.3		85.4		84.0					65.0	64.7
Progression Factor	1.00	1.00		0.84		4.25					0.99	1.00
Incremental Delay, d2	1.5	1.5		9.2		0.5					335.5	27.7
Delay (s)	28.7	28.8		80.6		357.6					399.8	92.2
Level of Service	C	C		F		F					F	F
Approach Delay (s)		28.8			324.8			0.0			254.9	
Approach LOS		C			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			162.6			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			180.0			Sum of lost time (s)			21.2			
Intersection Capacity Utilization			91.2%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Timings

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Configurations	←↑↑	↑↑↑
Traffic Volume (vph)	874	1312
Future Volume (vph)	874	1312
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	7.0	7.0
Minimum Split (s)	31.0	34.0
Total Split (s)	45.0	45.0
Total Split (%)	50.0%	50.0%
Yellow Time (s)	4.0	4.0
All-Red Time (s)	1.0	1.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	5.0	5.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Min
Act Effct Green (s)	31.0	49.0
Actuated g/C Ratio	0.34	0.54
v/c Ratio	0.85	0.68
Control Delay	50.5	17.5
Queue Delay	0.3	0.0
Total Delay	50.8	17.5
LOS	D	B
Approach Delay	50.8	17.5
Approach LOS	D	B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 9 (10%), Referenced to phase 2:NBTL and 6:, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 29.2

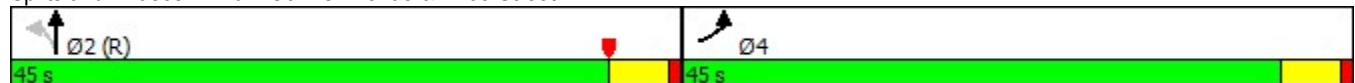
Intersection LOS: C

Intersection Capacity Utilization 73.2%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 102: Collins Avenue & W 63 Street



Queues

102: Collins Avenue & W 63 Street



Lane Group	EBL	NBT
Lane Group Flow (vph)	901	1664
v/c Ratio	0.85	0.68
Control Delay	50.5	17.5
Queue Delay	0.3	0.0
Total Delay	50.8	17.5
Queue Length 50th (ft)	454	235
Queue Length 95th (ft)	m379	341
Internal Link Dist (ft)	320	216
Turn Bay Length (ft)		
Base Capacity (vph)	1373	2456
Starvation Cap Reductn	96	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.71	0.68

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

102: Collins Avenue & W 63 Street

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	874	0	302	1312	0	0
Future Volume (vph)	874	0	302	1312	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.97			0.91		
Frpb, ped/bikes	1.00			1.00		
Flpb, ped/bikes	1.00			0.99		
Frt	1.00			1.00		
Flt Protected	0.95			0.99		
Satd. Flow (prot)	3090			4510		
Flt Permitted	0.95			0.99		
Satd. Flow (perm)	3090			4510		
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	901	0	311	1353	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	901	0	0	1664	0	0
Confl. Peds. (#/hr)		32	31			31
Confl. Bikes (#/hr)						1
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Actuated Green, G (s)	31.0			49.0		
Effective Green, g (s)	31.0			49.0		
Actuated g/C Ratio	0.34			0.54		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	1.0			1.0		
Lane Grp Cap (vph)	1064			2455		
v/s Ratio Prot	c0.29					
v/s Ratio Perm				0.37		
v/c Ratio	0.85			0.68		
Uniform Delay, d1	27.3			14.8		
Progression Factor	1.69			1.00		
Incremental Delay, d2	3.6			1.5		
Delay (s)	49.8			16.3		
Level of Service	D			B		
Approach Delay (s)	49.8			16.3	0.0	
Approach LOS	D			B	A	
Intersection Summary						
HCM 2000 Control Delay			28.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.74			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			73.2%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Timings

103: Indian Creek Drive & 65 Street



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations		↔		↔	↔	↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	25	2	165	2	88	7	1447	62	2082
Future Volume (vph)	25	2	165	2	88	7	1447	62	2082
Turn Type	Perm	NA	Perm	NA	pm+ov	pm+pt	NA	pm+pt	NA
Protected Phases		8		4	5	1	6	5	2
Permitted Phases	8		4		4	6		2	
Detector Phase	8	8	4	4	5	1	6	5	2
Switch Phase									
Minimum Initial (s)	7.0	7.0	10.0	10.0	5.0	5.0	7.0	5.0	7.0
Minimum Split (s)	31.0	31.0	31.0	31.0	8.0	8.0	25.6	8.0	28.6
Total Split (s)	31.0	31.0	31.0	31.0	12.0	12.0	47.0	12.0	47.0
Total Split (%)	34.4%	34.4%	34.4%	34.4%	13.3%	13.3%	52.2%	13.3%	52.2%
Yellow Time (s)	4.0	4.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0
All-Red Time (s)	0.8	0.8	0.8	0.8	0.0	0.0	0.6	0.0	0.6
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.8		4.8	3.0	3.0	4.6	3.0	4.6
Lead/Lag					Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Min	None	C-Min
Act Effect Green (s)		19.9		19.9	27.7	59.0	53.3	62.2	59.1
Actuated g/C Ratio		0.22		0.22	0.31	0.66	0.59	0.69	0.66
v/c Ratio		0.14		0.76	0.23	0.04	0.59	0.30	0.73
Control Delay		20.2		47.6	13.8	6.3	11.5	9.4	14.1
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		20.2		47.6	13.8	6.3	11.5	9.4	14.1
LOS		C		D	B	A	B	A	B
Approach Delay		20.2		35.9			11.5		14.0
Approach LOS		C		D			B		B

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:SBTL and 6:NBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 14.5

Intersection LOS: B

Intersection Capacity Utilization 75.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 103: Indian Creek Drive & 65 Street



Queues

103: Indian Creek Drive & 65 Street



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	41	176	93	7	1583	65	2193
v/c Ratio	0.14	0.76	0.23	0.04	0.59	0.30	0.73
Control Delay	20.2	47.6	13.8	6.3	11.5	9.4	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.2	47.6	13.8	6.3	11.5	9.4	14.1
Queue Length 50th (ft)	13	105	33	2	250	11	256
Queue Length 95th (ft)	36	129	42	m4	351	29	#540
Internal Link Dist (ft)	143	319			1320		397
Turn Bay Length (ft)				130		130	
Base Capacity (vph)	376	306	445	233	2696	264	3003
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	0.11	0.58	0.21	0.03	0.59	0.25	0.73

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM 2010 Signalized Intersection Summary

103: Indian Creek Drive & 65 Street

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	2	12	165	2	88	7	1447	57	62	2082	1
Future Volume (veh/h)	25	2	12	165	2	88	7	1447	57	62	2082	1
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	26	2	13	174	2	93	7	1523	60	65	2192	1
Adj No. of Lanes	0	1	0	0	1	1	1	3	0	1	3	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	103	17	25	301	3	313	150	2776	109	272	3073	1
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.01	0.61	0.61	0.04	0.65	0.65
Sat Flow, veh/h	186	83	125	1094	13	1258	1597	4516	178	1597	4725	2
Grp Volume(v), veh/h	41	0	0	176	0	93	7	1029	554	65	1415	778
Grp Sat Flow(s),veh/h/ln	393	0	0	1106	0	1258	1597	1526	1643	1597	1526	1676
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	5.4	0.1	17.6	17.6	1.2	27.2	27.2
Cycle Q Clear(g_c), s	15.4	0.0	0.0	14.0	0.0	5.4	0.1	17.6	17.6	1.2	27.2	27.2
Prop In Lane	0.63		0.32	0.99		1.00	1.00		0.11	1.00		0.00
Lane Grp Cap(c), veh/h	145	0	0	304	0	313	150	1876	1010	272	1984	1090
V/C Ratio(X)	0.28	0.00	0.00	0.58	0.00	0.30	0.05	0.55	0.55	0.24	0.71	0.71
Avail Cap(c_a), veh/h	256	0	0	414	0	424	295	1876	1010	361	1984	1090
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	0.64	0.64	0.64	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	0.0	0.0	34.2	0.0	27.5	9.8	10.1	10.1	7.5	10.3	10.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	2.1	0.0	0.6	0.0	0.7	1.4	0.2	2.2	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	4.3	0.0	1.9	0.1	7.5	8.2	0.5	11.8	13.5
LnGrp Delay(d),s/veh	35.3	0.0	0.0	36.2	0.0	28.1	9.8	10.8	11.5	7.7	12.5	14.2
LnGrp LOS	D			D		C	A	B	B	A	B	B
Approach Vol, veh/h		41			269			1590			2258	
Approach Delay, s/veh		35.3			33.4			11.0			12.9	
Approach LOS		D			C			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	3.8	63.1		23.1	7.0	59.9		23.1				
Change Period (Y+Rc), s	3.0	* 4.6		* 4.8	3.0	* 4.6		* 4.8				
Max Green Setting (Gmax), s	9.0	* 42		* 26	9.0	* 42		* 26				
Max Q Clear Time (g_c+I1), s	2.1	29.2		16.0	3.2	19.6		17.4				
Green Ext Time (p_c), s	0.0	6.1		1.1	0.0	4.7		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				13.8								
HCM 2010 LOS				B								
Notes												

Timings

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Configurations			
Traffic Volume (vph)	115	225	1814
Future Volume (vph)	115	225	1814
Turn Type	Prot	Split	NA
Protected Phases	4	2	2
Permitted Phases			
Detector Phase	4	2	2
Switch Phase			
Minimum Initial (s)	7.0	7.0	7.0
Minimum Split (s)	26.0	26.0	26.0
Total Split (s)	27.0	153.0	153.0
Total Split (%)	15.0%	85.0%	85.0%
Yellow Time (s)	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Min	C-Min
Act Effect Green (s)	19.8	150.2	150.2
Actuated g/C Ratio	0.11	0.83	0.83
v/c Ratio	0.76	0.17	0.49
Control Delay	109.5	2.5	3.3
Queue Delay	0.0	0.0	0.0
Total Delay	109.5	2.5	3.3
LOS	F	A	A
Approach Delay	109.5		3.2
Approach LOS	F		A

Intersection Summary

Cycle Length: 180

Actuated Cycle Length: 180

Offset: 48 (27%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 8.9

Intersection LOS: A

Intersection Capacity Utilization 63.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 104: 65 Street & Collins Avenue



Queues

104: 65 Street & Collins Avenue



Lane Group	EBL	NBL	NBT
Lane Group Flow (vph)	119	232	1870
v/c Ratio	0.76	0.17	0.49
Control Delay	109.5	2.5	3.3
Queue Delay	0.0	0.0	0.0
Total Delay	109.5	2.5	3.3
Queue Length 50th (ft)	133	43	131
Queue Length 95th (ft)	197	58	165
Internal Link Dist (ft)	319		483
Turn Bay Length (ft)		100	
Base Capacity (vph)	185	1340	3851
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.64	0.17	0.49
Intersection Summary			

HCM 2010 Signalized Intersection Summary

104: 65 Street & Collins Avenue

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations				  				
Traffic Volume (veh/h)	115	0	225	1814	0	0		
Future Volume (veh/h)	115	0	225	1814	0	0		
Number	7	14	5	2				
Initial Q (Qb), veh	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00					
Parking Bus, Adj	1.00	1.00	1.00	1.00				
Adj Sat Flow, veh/h/ln	1676	0	1676	1676				
Adj Flow Rate, veh/h	119	0	232	1870				
Adj No. of Lanes	1	0	1	3				
Peak Hour Factor	0.97	0.97	0.97	0.97				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	1552	4450				
Arrive On Green	0.00	0.00	0.97	0.97				
Sat Flow, veh/h	0		1597	4728				
Grp Volume(v), veh/h	0.0		232	1870				
Grp Sat Flow(s),veh/h/ln			1597	1526				
Q Serve(g_s), s			0.9	3.5				
Cycle Q Clear(g_c), s			0.9	3.5				
Prop In Lane			1.00					
Lane Grp Cap(c), veh/h			1552	4450				
V/C Ratio(X)			0.15	0.42				
Avail Cap(c_a), veh/h			1552	4450				
HCM Platoon Ratio			1.00	1.00				
Upstream Filter(I)			1.00	1.00				
Uniform Delay (d), s/veh			0.1	0.1				
Incr Delay (d2), s/veh			0.2	0.3				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(50%),veh/ln			0.4	1.3				
LnGrp Delay(d),s/veh			0.3	0.4				
LnGrp LOS			A	A				
Approach Vol, veh/h				2102				
Approach Delay, s/veh				0.4				
Approach LOS				A				
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		180.0						
Change Period (Y+Rc), s		5.0						
Max Green Setting (Gmax), s		148.0						
Max Q Clear Time (g_c+l1), s		5.5						
Green Ext Time (p_c), s		7.7						
Intersection Summary								
HCM 2010 Ctrl Delay			0.4					
HCM 2010 LOS			A					

HCM 2010 TWSC
105: Collins Avenue & Driveway

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	0	34	2152	0	0
Future Vol, veh/h	40	0	34	2152	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	-	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	43	0	37	2339	0	0

Major/Minor	Minor2	Major1
Conflicting Flow All	1010	- 0 0
Stage 1	0	- - -
Stage 2	1010	- - -
Critical Hdwy	5.74	- 5.34 -
Critical Hdwy Stg 1	-	- - -
Critical Hdwy Stg 2	6.04	- - -
Follow-up Hdwy	3.82	- 3.12 -
Pot Cap-1 Maneuver	307	0 - -
Stage 1	-	0 - -
Stage 2	282	0 - -
Platoon blocked, %		-
Mov Cap-1 Maneuver	307	- - -
Mov Cap-2 Maneuver	307	- - -
Stage 1	-	- - -
Stage 2	282	- - -

Approach	EB	NB
HCM Control Delay, s	18.7	
HCM LOS	C	

Minor Lane/Major Mvmt	NBL	NBT	EBLn1
Capacity (veh/h)	-	-	307
HCM Lane V/C Ratio	-	-	0.142
HCM Control Delay (s)	-	-	18.7
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.5